



MASTER'S THESIS

The Use of Geocaching in Cultural Heritage Tourism **Case Study of Pays Dieppois-Terroir de Caux**

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November 14th 2017

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List of Abbreviations

CITO – “Cache In Trash Out” (geocaching event)

GPS – Global Positioning System

PDTC – Pays Dieppois-Terroir de Caux

USA – United States of America

WWII – World War II

CHAPTER 1 – INTRODUCTION

1.1 Rationale

Over the last few decades, the world has seen new trends emerging. In an era of unprecedented connectivity (Gretzel, Sigala, Xiang, & Koo, 2015), technology is becoming important for people of all ages, and new concepts such as the Web 2.0 have impacted the way we live and interact on a daily basis (Santos, Mendes, Rodrigues, & Freire, 2012). The fast-evolving possibilities offered by cutting-edge technology have been integrated into modern societies with, for example, the widespread use of mobile communication devices (Burns, 2013; Cutri, Naccarato, & Pantano, 2008) that have changed the way we now access information (TOURISMLink, 2012).

Worldwide, the tourism sector has been impacted by this rise of information communication technologies (Buhalis & O'Connor, 2005; Valčić & Domšić, 2012) and has had to adapt its offers to meet the shifting travel needs of this technology-driven market (Ihamäki, 2013; Law, Qi, & Buhalis, 2010; Thomas, Selsjord, & Zimmer, 2010). Mobile devices and their features have affected the way visitors access information. Nowadays, most tourists make use of smartphones when travelling, and take advantage of their various features to explore the destination; access to applications and to the Internet have revolutionised the process of planning and experiencing holidays. The low-cost and widespread Global Positioning System (GPS) feature, integrated in many mobile devices, also provides tourists with a modern way to navigate, receive information and experience destinations (Grüntjens, Groß, Arndt, & Müller, 2013). Alongside, new ways of travelling have emerged, with an increasing demand for unique and out of the ordinary travel experiences (Timothy & Boyd, 2006).

Heritage tourism – the field of tourism related to “traveling to experience the places, artifacts and activities that authentically represent the stories and people of the past” (National Trust for Heritage Preservation, 2015, para. 1) – has also been impacted by these emerging trends. Like other sectors of the tourism industry, it needs to take into account these innovations in both the offer and the promotion of tourism products, to remain attractive to tourists in the 21st century. This integration of new technologies offers opportunities for the sector. For instance whereas heritage has long been considered an elitist concept, attracting mainly middle-aged and elderly people from the upper-middle class (Timothy, 2011), researchers have recognised the potential of web-based applications to make cultural heritage more accessible to a larger audience (Hausmann, Weuster, & Nouri-Fritsche, 2015). Nevertheless, on the one hand, heritage tourism is one of the main sectors of the tourism industry and is still expanding rapidly (Timothy, 2010; Poria, Butler,

& Airey, 2003); and on the other hand, heritage management faces specific challenges due to the inherited and non-renewable nature of the heritage assets. Because of these attributes, the development of new products needs to be closely managed to ensure the sustainable development of heritage sites as tourist attractions (Pavlic & Vrdoljak-Raguž, 2013).

Geocaching is one of the activities that have evolved with the recent spread of new technologies. It is a 21st century digital treasure hunt, which uses GPS technology to provide the players with coordinates, directions and hints in order to find containers (called “geocaches”) hidden in the real world (Morreale & Bertone, 2015). Whereas first created to test the accuracy of satellites (Groundspeak, n.d.-f; Patubo, 2010), geocaching quickly became an international user-generated content game. Over the past two decades, geocaches have been placed all over the world, in cities, towns, rural areas, on land and at sea, and even in surprising places, such as in the international space station (Schudiske, 2013). In April 2017, the number of geocaches in the world reached three million, with more than five million players searching for geocaches in 191 different countries (Kettler, 2017; Ihämäki, 2012c). As a user-generated content activity, players place the geocaches themselves, and often hide them at places of interest, such as viewpoints, monuments and touristic attractions (Mendes, Rodrigues, & Rodrigues, 2013). Additionally, players tend to travel to practice this activity (Chavez, Courtright, & Schneider, 2004) and this treasure hunt draws people to places that they might not visit otherwise.

After acknowledging the opportunities that geocaching offers in the field of education (e.g. Shaunessy & Page, 2006; Dobyns, Dobyns, & Connell, 2007), the potential of the game for tourism has rapidly been identified, as it is in line with the emerging trends in the tourism industry (e.g. Gram-Hansen, 2009). Since then, geocaching has been adapted to different tourism settings, whilst maintaining the core principles of the game; some extreme geocaching adventures even involve scuba diving (Donnawell, 2011), bungee jumping (Geosoft Team, 2016) or snowshoeing (Kildahl, 2011) to retrieve a geocache. Besides, some tourism boards around the world have started using the game as part of their promotional strategy and product offering. For instance, the tourism committee of the county of Aisne, France, created and maintains a dozen geocaches on hiking trails for people to discover what the county can offer in terms of hiking products (Baudoux, 2012). Consequently, the activity’s potential as a tool for destination marketing has been studied over the last decade and is seen as a new way to enhance and discover a destination (Baudoux, 2012; Boulaire & Hervet, 2012; Morreale & Bertone, 2015). Other researchers have focused on geocaching for the gamification of the tourism experience and tourism co-creation (e.g. Ihämäki, 2012a, 2013, 2015) mainly in relation to adventure and nature-based tourism (Ihämäki, 2013).

Geocaches have often been placed near heritage sites (Patubo, 2010; Mendes et al., 2013), mainly by individual players, but also to a lesser extent by local tourist offices and destination marketing organisations; the activity appeared in the year 2000, and it is only recently that it has caught the attention of the heritage tourism sector. A map of geocaches placed near UNESCO World Heritage sites has even been released (Eolas, n.d.), proving the extent of this practice and the importance of taking this activity into account in heritage management. Moreover, some museums and outdoor parks use geocaching as part of their strategy (Ihamäki, 2012a). For example, the game has been used to increase players' understanding of natural heritage in Minnesota's Wild River State Park, USA (Rosier & Yu, 2011), and geocaches have been placed along cultural heritage trails to promote the local heritage in the United Kingdom, such as in Northumberland (Northumberland National Park, n.d.) and in the Aberdeenshire (Deeside and Cairngorms Ltd, n.d.). Similarly, in France, the municipalities of Grand Paris Sud (Grand Paris Sud, n.d.) and Beaune (ArchivesBeaune, 2016) organised geocaching treasure hunts on the occasion of the European Heritage Days 2016. Nonetheless, many tourism services are still unaware of the game and its potential for heritage tourism, despite the sizeable geocaching community.

Moreover, even though numbers of geocaches have been placed near natural and cultural heritage sites, academic research on the use of geocaching in cultural heritage tourism remains limited and is mainly related to natural heritage. Furthermore, most studies on the integration of location-based digital games (including geocaching) in heritage tourism investigate their use in the context of cultural excursions for school groups (e.g. Costabile, Ardito, & Lanzilotti, 2010; Gram-Hansen, 2009), despite the wide spread of the game among the general public (Zemko, Vitézová, & Jakab, 2016). Besides, existing research on geocaching often focuses on one aspect: education, tourism marketing, or environmental impact, etc. Even though these studies highlight the opportunities and drawbacks of geocaching, they lack a more comprehensive vision on the use of the game. Because tourism is a cross-sectoral industry that uses a wide range of resources, and because heritage tourism involves both the use and the conservation of inherited assets, as well as education about them, it seems crucial to undertake a study that provides a more holistic view on the topic.

It is worth mentioning that, as geocaching is a self-regulated game that also involves user-generated content (Rowland, 2013), its integration into cultural heritage tourism needs to be properly managed to avoid jeopardising the non-renewable resources this sector relies upon.

1.2 Research Question and Objectives of the Research

The present research intends to fill the above-mentioned gaps in the literature, by answering the following research question:

How can geocaching be appropriately used in the cultural heritage tourism context?

This research adopts a case study approach to investigate the topic, focusing on the destination of Pays Dieppois-Terroir de Caux. Pays Dieppois-Terroir de Caux is situated in Normandy, France, on the coast of the English Channel and only two hours away from Paris. This destination, which has attracted painters and writers for centuries, is also the location of the Canadian landing during World War II (WWII). Today, this area attracts tourists from England, Belgium, Germany and the Netherlands, as well as local visitors from nearby regions of France (Comité Régional de Tourisme de Normandie, 2016). This case was selected for its rich history and the ubiquitous presence of heritage at the destination: Whereas its heritage is mostly of local and regional appeal, museums, memorials, churches, and other built heritage assets are visible all over the territory. Approximately 350 geocaches have been hidden at the destination by individual players, without any coordination with the local tourism boards; a number of them are located near heritage attractions. Through interview of multiple stakeholders at the destination, the researcher obtained a more holistic understanding of the use of geocaching in cultural heritage tourism, guided by the following objectives:

- *Objective 1: To identify the opportunities offered by geocaching and how they can be enhanced for its use in the cultural heritage tourism context;*
- *Objective 2: To identify the drawbacks of the use of geocaching in cultural heritage tourism and how they can be mitigated; and*
- *Objective 3: To propose recommendations on how to use geocaching in cultural heritage tourism.*

To the researcher's knowledge, this is the first attempt to study the relationship between geocaching and cultural heritage tourism using a multi-stakeholder approach, and to develop recommendations for the appropriate usage of the game. As such, this research both fills a gap in the geocaching literature, and provides practical guidelines for tourism practitioners and destination managers.

1.3 Structure of the Master's Thesis

This master's thesis is organised in six chapters. Following this introductory chapter, Chapter 2 consists of a review of existing literature on themes related to the use of geocaching in heritage tourism. The information provided by this literature review allows for the development of five sub-questions, which refine and guide the research. The destination chosen as a case study is then introduced in more detail in Chapter 3, and Chapter 4 explains the method selected to achieve the research objectives. Chapter 5 delves into an analysis of the findings and integrates them into a discussion, which leads to the development of recommendations regarding the use of geocaching in cultural heritage tourism. The last chapter, Chapter 6, contains a summary of the main recommendations, as well as explanations on how this research contributes to the field, before opening on recommendations for further research. Additional sections at the end of the thesis include a bibliography of all the references used in this study, and appendices containing subsidiary materials which were used in the research and which provide the reader with complementary information.

CHAPTER 2 – LITERATURE REVIEW

This present research on geocaching and cultural heritage tourism has emerged from a gap identified in the existing literature. Thereby, this chapter aims at providing an overview of the publications that informed this work. Due to the relatively recent creation of geocaching, and the multi-sectoral nature of the research topic, the literature reviewed includes publications from several fields of study¹. Firstly, cultural heritage tourism is defined, and the challenges and goals of heritage management are introduced. Then, in relation to recent changes that have impacted the world and the tourism industry, the following section presents the main emerging trends in heritage tourism. Thirdly, the history of geocaching as well as the main principles of the game are described, before examining how this activity has been addressed in existing publications. In this last part, the three sections are brought together to set the analytical priorities of the research.

2.1 Heritage Tourism

Heritage tourism is a well-established type of tourism and a significant component of the tourism mix for many developed nations (Boyd, 2008; Garrod & Fyall, 2000). It is not a new phenomenon and can even be considered as one of the oldest forms of tourism (Boyd, 2008), dating as far back as the Egyptian and Roman times, when journeys to historic places were already undertaken (Towner, 1996). However, it is only recently that this segment of the tourism market has been expanding (Aas, Ladkin, & Fletcher, 2005; Ibáñez-Etxeberria, Asensio, Vicent, & Cuenca, 2012) and has evolved to offer a wider variety of experiences (Prentice, 1994).

2.1.1 Defining heritage tourism

2.1.1.1 Defining heritage – a problem of definition

The United Nations World Tourism Organisation defines tourism as a “social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. These people are called visitors . . . [and] tourism has to do with their activities” (UNWTO, 2016, p. 237). It should be noted that if visitors’ stays include a minimum of one overnight, they are then classified as tourists. Otherwise, they are same-day visitors, also known as “excursionists” (UNWTO, 2016). In tourism,

¹ It should be noted that, as geocaching and the use of new technologies in heritage tourism are relatively new topics in the literature, this review does not only include books and academic journals, but also conference proceedings.

it is sometimes difficult to distinguish between the activity of tourists and locals (Boyd, 2002). As a result, the present study includes domestic users as excursionists, considering that locals travel to places outside of their usual environment to geocache.

Heritage can be defined as “what humankind inherits from the past and utilizes in the present” (Timothy, 2014, p. 31). The heritage landscape encompasses sub-sectors: natural and cultural heritage. On the one hand, natural heritage is generally defined as “inherited habitats, species, ecosystems, geology and landforms, including those in and under water, to which people attach value” (English Heritage, 2008, p. 71). On the other hand, the boundaries of cultural heritage are often blurry (McKercher & Du Cros, 2002), with different overlapping definitions. Hence, for the purpose of the present research, cultural heritage is defined as follows: “The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations” (UNESCO, n.d.).

Finally, cultural heritage tourism is defined by Timothy and Boyd (2006) as a form of travel that “entails visits to sites of historical importance, including built environments and urban areas, ancient monuments and dwellings, rural and agricultural landscapes, locations where historic events occurred and places where interesting and significant cultures stand out.” (p. 2)

2.1.1.2 Types of attractions

In the context of cultural heritage tourism, Millar (1999) defines attractions as “generally single units, individual sites or very small, easily delimited geographical areas based on a single key feature,” and destinations are “larger areas that include a number of individual attractions together with the support services required by tourists” (p. 4). As mentioned before, heritage is a broad field, and even within the more specific area of cultural heritage, attractions encompass a wide variety of resources and activities (Timothy & Boyd, 2006), such as museums and historic sites, music and arts, or experiencing the culture of a place (Timothy, 2011). Prentice’s (1993) typology of heritage attractions reflects this heterogeneity, as the researcher identifies 23 types of cultural heritage assets (Herbert, 1995). In addition, heritage is pervasive and can be found all around the planet (Timothy, 2014) in both urban and rural settings (Timothy, 2011).

In heritage tourism, all cultural heritage sites and monuments are not given the same prominence and do not have equal attraction-power. For instance, Timothy (1997) establishes a scale of heritage attractions’ levels, ranging from global (internationally renowned) to national (mostly appealing to citizens of the country), local (attracting mainly local and regional visitors), and personal (associated with one’s familial past). Similarly, McKercher and Du Cros (2002)

categorise tourism attractions into a 3-level hierarchy: primary, secondary or tertiary attractions. This hierarchy refers to the importance of a tourism attraction, with regard to its power to draw visitors to the destination. Whereas primary attractions draw visitors in their own right and shape the destination's image, secondary ones are mostly complementary sites that tourists may visit once already at the destination. At the lowest level of the hierarchy, tertiary attractions do not affect a person's decision to visit a destination, and their appeal is mainly incidental or convenient. However, it should be noted that although primary heritage attractions are the ones that stand out, most cultural heritage tourism assets are secondary or tertiary attractions (McKercher & Du Cros, 2002) and only a minority are internationally renowned (Nuryanti, 1996; Timothy, 1997).

2.1.1.3 Visitor typology

Heritage was traditionally considered an elitist concept, and heritage tourism was seen as a niche market activity for a well-educated, middle-aged and affluent audience (Boyd 2002; Garrod & Fyall, 2000; Herbert, Prentice, & Thomas, 1989; Timothy, 2011). However, this sector of the industry is now regarded as a mass-tourism activity (Richards, 1996); hundreds of millions of tourists visit heritage attractions every year (Timothy & Boyd, 2006), and it is estimated that more than half of all domestic and international travels involve a cultural or heritage aspect (Timothy, 2011). As a result, there has been a growing interest in getting involved in the heritage tourism industry (Prentice, 1994), as destinations realise the economic potential of promoting their past for tourism purposes, even though their heritage might not be internationally renowned (Timothy, 2014).

Along with the expansion of the market, the heritage tourism audience has become more heterogeneous (Ashworth, 1988; Prentice, 1993). Facing a more diverse public, researchers have developed typologies of heritage tourists. One of the most commonly used is Stebbins' (1996) continuum of heritage consumers, ranging from serious to casual. While serious heritage tourists consider learning about the past as an aim by itself and respect the place they visit, casual heritage tourists do not choose a destination for its heritage attractions, but might decide to visit it once on site, as an extra activity. McKercher and Du Cros (2002) developed a similar typology that distinguishes five types of cultural heritage tourists: from those who travel to visit cultural places – the purposeful and the sightseeing cultural tourists – to those for whom cultural heritage is only a complement to their planned trip (the serendipitous and the casual tourists) and those who might visit a site by happenstance (the incidental cultural tourists). According to McKercher and Du Cros (2002), most heritage tourists fall into the last three categories.

Due to this variety of visitors at heritage sites, it should be noted that not all of them are equally engaged and educated about heritage (Moscardo, 1999), and that non-purposeful heritage tourists might not be aware of the cultural significance of the attractions that they visit (McKercher & Du Cros, 2002). Later classifications in the heritage literature thus differentiate between well-educated visitors who are aware and motivated by the attributes of the site, and those who are not (Poria et al., 2003; Throsby, 2009).

2.1.2 Cultural heritage tourism management: goals and challenges

Cultural heritage tourism has become a well-researched field of study, with a main focus on its management (Timothy & Boyd, 2006). Due to the location of the destination chosen as a case study for the present research, only the academic literature about heritage management in the developed world is included into this chapter. In fact, sustainability and heritage conservation priorities cannot be similar when the basic needs of people are still unfulfilled (Timothy, 2014).

The main goals and challenges of heritage tourism management have been identified in the heritage management and heritage tourism literature as follows: sustainability, conservation, finances, authenticity, quality, education, recreation, accessibility, relevance, visitor impact management, marketing, interpretation, stakeholder involvement, and partnerships. Each of these aspects of heritage management needs to be adequately addressed for the efficient management of heritage tourism. These areas of concern are further discussed in the sections below. As some of them are interrelated, they have been regrouped under common headings.

2.1.2.1 Sustainability

For a long time, the efforts of heritage management were principally oriented towards conservation, following a “curatorial approach”: Public access was not the priority, and finance was mainly considered as a constraint (Garrod & Fyall, 2000). In fact, without appropriate conservation, cultural heritage assets, being non-renewable, could deteriorate and be lost (Garrod & Fyall, 2000; Timothy, 2011). It demonstrates the need for protection efforts in order to maintain environmental diversity (Timothy, 2007). Other reasons to preserve the past include its aesthetic or artistic value, nationalism, scientific and educational purposes (Graham, Ashworth, & Tunbridge, 2000; Timothy, 2007, 2011; Timothy & Boyd, 2006; Timothy & Nyaupane, 2009), economic reasons (Timothy, 2007), as well as the utilitarian value of the asset (Timothy, 2007; Timothy & Boyd, 2006).

In the last few decades, with the rising interest in heritage tourism, a conflictual relationship has emerged between tourism and conservation (Herbert, 1995; Millar, 1999); the increased modern use of traditional assets (Aas et al., 2005; Nuryanti, 1996) may have negative impacts on heritage, such as overuse and inappropriate use. This area of concern became a dominant topic in the heritage tourism management literature. Nonetheless, heritage management has come to realise the importance of providing access to the public for raising awareness about the value of heritage and the need to protect it (Ferrari, 2013; McKercher & Du Cros, 2002; Millar, 1989). Indeed, with efficient management, a balance can be found (Nuryanti, 1996); negative visitor impacts can be reduced, and tourism can become an advocate for preservation and protection (Pavlic & Vrdoljak-Raguž, 2013; Timothy, 2007). The mission of heritage management, therefore, became wider, aiming not only at the conservation of the resources, but at their sustainable use; ensuring that the present usage of cultural heritage does not jeopardise the ability of future generations to benefit from them (Garrod & Fyall, 2001). Sustainability has become one of the main topics addressed by researchers in the heritage tourism literature (e.g. Boyd, 2002; Fyall & Garrod, 1998; Garrod & Fyall, 2001; McKercher & Du Cros, 2002; see also Girard & Nijkamp, 2009; Throsby, 2009; Wall, 2009).

Sustainability has three pillars: economic, environmental and social (Elkington, 1997; Hansmann, Mieg, & Frischknecht, 2012). For heritage tourism to be developed sustainably, each of these aspects needs to be taken into consideration and managed wisely (Fyall & Garrod, 1998). Whereas the environmental dimension is linked to the above-mentioned need for conservation, the economic and social sustainability of heritage should not be overlooked.

In heritage management, the main objectives are non-financial ones; cultural and social objectives, for instance, are often considered equal to or more important than financial goals (McKercher & Du Cros, 2002). Yet, heritage conservation is a high-cost activity, and one of the main issues heritage managers are confronted with is funding: The funds allocated to public cultural heritage assets are often scarce (Timothy, 2007). It should be noted that this lack of financial resources can jeopardise the heritage management efforts (Timothy & Boyd, 2006) and reduce the quality of the visitor's experience. Heritage attractions must therefore be economically viable to be sustainable and achieve their non-financial goals (Garrod & Fyall, 2000). As a result, heritage managers need to find creative ways of obtaining funds for the management of their sites (Timothy & Boyd, 2006). There has been an ongoing debate about the use of entrance fees to heritage sites (Timothy, 2011), as these have the dual outcome of helping to bring revenue for the management of heritage assets while preventing people who cannot afford to pay user fees to access heritage (Boyd, 2008; Garrod & Fyall, 2000).

At the destination level, the economic contribution of heritage tourism is well-known (Timothy, 2011; Timothy & Boyd, 2006). Heritage visitation indirectly impacts the local economy by creating jobs and generating tax revenue, in addition to the direct spending of tourists (Garrod & Fyall, 2000; Timothy, 2011).

Although the environmental and economic aspects are frequently considered, the social side of sustainability is too often overlooked; local communities should not be ignored in the heritage management decision making process. Heritage assets are available for tourism use, but this should not be done at the expense of local populations (Garrod & Fyall, 2000). Local communities have also the ability to enhance tourism by creating a welcoming atmosphere and promoting their destination (Nuryanti, 1996). Consequently, the participation of local stakeholders in the heritage planning process is necessary, so that heritage tourism may sustainably benefit all sectors of the society and of the economy (Boyd, 2002; Boyd & Timothy, 2001; McKercher & Du Cros, 2002; Timothy & Boyd, 2006).

2.1.2.2 Accessibility and relevance

As mentioned above, access to heritage has become one of the main goals of heritage management, as it has the potential to increase awareness about the need for the protection and conservation of heritage (e.g. Ferrari, 2013; McKercher & Du Cros, 2002; Millar, 1989). Accordingly, heritage managers need to make heritage both physically and mentally accessible to a heterogeneous public of different ages and physical and mental abilities. This includes the design of the infrastructure, but also the choice and format of the interpretation methods.

It should be noted that, in order for the public to appreciate heritage and the necessity to protect it, it needs to be relevant to them. This can be done by enabling the visitors to relate to the place and identify with it (Garrod & Fyall, 2000). Interpretation can be used for this purpose, as it helps to make heritage understandable and meaningful (Tilden, 1977). It should be noted that all visitors do not have the same interests, and may not value heritage in the same manner (McKercher & Du Cros, 2002). Hence, it is important for heritage managers to design interpretation in such a way that it can address the differing needs of visitors, so as to be relevant and stimulating (Bauer-Krösbacher, 2013; Edwards, 2013; Goulding, 1999). Caution should thus be taken not to “elevat[e] educating the visitor (telling) above what they are willing, open and receptive to accept” (Boyd, 2002, p. 222). Besides, the social aspect of accessibility also needs to be considered not to exclude those who cannot afford to pay for visiting heritage attractions.

2.1.2.3 Managing visitor impact

As mentioned previously, the more the site is exposed to visitors, the greater the risk of negative impacts (Garrod, 2008). The negative physical impacts of visitation to heritage sites can take various forms: overcrowding of parts of the site (Garrod & Fyall, 2000; Garrod, 2008); wear and tear, including trampling and handling (Fyall & Garrod, 1998; Garrod, 2008; Garrod & Fyall, 2000; Timothy, 2007; 2011; Timothy & Boyd, 2006); erosion and soil compaction (Timothy, 2011); changes in humidity and temperature (Garrod, 2008; Garrod & Fyall, 2000); litter, pollution and pillage (Garrod, 2008; Garrod & Fyall, 2000; Timothy, 2011; Timothy & Boyd, 2006); and vandalism (Timothy, 2007). All these types of damage can have a severe impact on the built environment and compromise conservation efforts (Timothy, 2007).

Some sites are under threat due to the effects of visitation (Garrod & Fyall, 2000). In order to balance the repercussions of accessibility and the need for conservation, appropriate visitor impact management is required. Consequently, researchers have identified various ways of managing these impacts, such as limiting the contact with the artefact (Timothy, 2007), using on-site traffic management tools (e.g. hardening of surfaces and signage; Garrod, 2008; Timothy, 2011), and informing visitors on how to behave in a heritage site via education and interpretation (Garrod, 2008; Timothy, 2011).

2.1.2.4 Interpretation

Interpretation is another aspect of heritage management. It is defined by Beck and Cable (2011) as “an educational activity that aims to reveal meanings about our cultural and natural resources” (p. xvii). Whereas the most obvious function of interpretation is education, it is also a tool for entertainment and crowd management, and is sometimes an income earner for the attraction (Timothy, 2011). Interpretation is even considered as a key component to a successful management policy (Light, 1995; Millar, 1989; Nuryanti, 1996), and creative and effective interpretation can be a competitive advantage for the heritage attraction (Timothy, 2011). Various media can be used for interpretation: e.g. tour guides, actors, printed material, hands on displays, as well as modern technological devices (Timothy, 2011).

First and foremost, interpretation can be used as an educational tool to provide visitors with information related to the history of the heritage asset. At the same time, this information can help visitors to understand the significance of the artefacts and, therefore, raise their awareness with regard to the need to protect them (Beck & Cable, 2011; Edwards, 2013; Millar, 1989; Nyaupane & Timothy, 2010; McKercher & du Cros, 2002; Timothy, 2007, 2011; Valčić & Domšić, 2012).

In order for heritage interpretation to be an efficient educational tool, some principles need to be followed. Tilden (1977) explains that interpretation is not simply the provision of information, but an art; it needs to be made relevant to the visitors (including children), it should be developed around themes so as to make the experience more holistic, and it should trigger positive actions.

The second value of interpretation is entertainment (Light, 1995; Timothy, 2011). Whereas the educational role of interpretation has often been emphasised (Edwards, 2013; Garrod & Fyall, 2000), the recreational aspect of the experience should not be ignored. Recreation is often at the centre of the demand for tourism and visitor sites (Garrod, 2008), and a heritage attraction is less likely to be successful in drawing and retaining visitors if it does not provide a recreational opportunity (Garrod & Fyall, 2000; McKercher & Du Cros, 2002). In addition, entertainment has been identified as a support for learning, as it helps to catch the visitor's attention (Timothy, 2007). The neologism "edutainment" has recently been coined to refer to the use of entertainment to convey knowledge (Rapeepisarn, Wong, Fung, & Depickere, 2006). Edutainment is increasingly used in both formal and informal education (please see section 2.3.2) and also plays an important role in making heritage accessible to a wider audience composed of casual and incidental (or non-purposeful) heritage tourists (Du Cros & McKercher, 2014). Nonetheless, despite the need for the experience to be entertaining, heritage managers should ensure that the recreational aspect does not overshadow the artefact (Timothy, 2011) and does not impact the accuracy of the information provided (Timothy, 2007).

Interpretation can also be used as a management tool to improve the visitor flow, to direct visitors away from sensitive areas (Millar, 1989), and to inform them of how to behave to reduce their negative impacts (Nuryanti, 1996). Indeed, even on site, the visitors' level of respect towards heritage can change if they gain a better understanding of its value; this can lead to a reduction in damages (Bauer-Krosbauer, 2013; Tilden, 1977). Interpretation can also become an income earner for heritage attractions, by charging an additional fee for the provision of interpretation services, such as audio-guide rental and guided tours.

2.1.2.5 Authenticity

Authenticity is another area of concern for the heritage manager. Authenticity can be both objective (related to facts and figures from the past) and subjective (linked to our perception and experience; Timothy, 2011). The question of authenticity and what makes a heritage asset authentic has been debated in length in the academic literature. Timothy (2011) identifies criteria that can be used to measure the authenticity of cultural souvenirs and handicraft. Some of these

are applicable to heritage sites, such as: aesthetics, uniqueness, cultural and historical integrity, creation or interpretation by locals, and current use by locals.

Conversely, inauthentic heritage can be caused by various distortions of the past. An example of such distorted past is the promotion of sanitised and idealised past. This happens when history is not represented in its integrity, and only its glorious aspects are portrayed to the public (Timothy & Boyd, 2006). Other inauthentic heritages include invented places, relative authenticity and ethnic intruders (Timothy & Boyd, 2003). Timothy and Boyd (2006) note that the creation of these distorted pasts is not always intentional and can be due to a lack of information about the past, to economic reasons, or to marketing efforts. As a matter of fact, there is an important tourism demand for authentic experiences (Timothy, 2011).

2.1.2.6 Quality

Another aim of heritage tourism management is to offer an experience of quality. This includes any element that can contribute to providing the visitor with an enjoyable experience (Timothy, 2007). All the above-mentioned aspects of heritage tourism and their efficient management contribute to the quality of the visitor experience (e.g. high-quality conservation and interpretation, and proper management of the visitor impacts). Ensuring that the necessary facilities are available and that the site is clean are also important factors of visitor satisfaction (Garrod & Fyall, 2000).

2.1.2.7 Marketing heritage tourism

For the above elements of heritage management to be relevant and successful, heritage sites need to be promoted. There are multiple ways of marketing heritage, depending on the size, importance and location of the asset. For example, McKercher and Du Cros (2002) and Timothy (2011) mention the need to consider the geographical position of the different heritage attractions and the importance of the tourism activity in the area. It is, in fact, essential to be aware of the heritage asset's scale of attraction so as to address the right market (Nuryanti, 1996).

Various marketing strategies can be used to modify the scale of attraction of assets on the tourism market. These include: bundling small attractions together to create a critical mass that will attract heritage tourists, creating heritage routes, as well as using events (McKercher & Du Cros, 2002). Moreover, new trends in heritage tourism have recently emerged, some of which offer opportunities with regard to the promotion of heritage assets. They include dark tourism, ordinary landscapes, heritage trails, as well as personal heritage and pilgrimage (Boyd, 2008). Some of

these trends will be further discussed in section 2.2. When marketing an asset, it is also crucial to understand the demand for it, in order to develop an approach that matches the visitors' needs (Light & Prentice, 1994). A challenge, for example, is to appeal to both the casual and the serious heritage tourists (Boyd, 2008).

Finally, on a destination level, heritage can be used to promote the destination itself. The heritage site can be seen as a landmark for an area and be considered as a competitive advantage in destination branding (Timothy, 2011; 2014).

2.2 Emerging Trends in Tourism and Heritage Tourism

In a fast-paced world, tourism needs to constantly adapt to meet the evolving needs of tourists (McKercher & Du Cros, 2002). For the cultural heritage tourism sector to remain attractive over time and appealing to new audiences, heritage managers need to develop new products that meet tourists' needs. However, the specificity of heritage tourism is that the assets cannot be modified to match the demand. Nonetheless, heritage and tourism managers can change the way these assets are promoted, interpreted and offered as tourism products (Timothy, 2011). Several new trends have thereby emerged in the last decades - some of which are of particular interest for this study: experiential tourism (Boyd, 2002; Ferrari, 2013; Moscardo & Ballantyne, 2008), the heritagisation of the everyday past (Boyd, 2008; Timothy, 2014; Timothy & Boyd, 2006), the creation of heritage routes (Boyd, 2008; Timothy, 2014; Timothy & Boyd, 2006), and the use of new technologies (Bauer-Krösbacher, 2013; Vincent, 2014).

2.2.1 User-centred and experiential tourism

Many industries have witnessed the emergence of a tendency from customers to ask for tailor-made products, as they seek to be engaged in memorable experiences that elicit emotional responses (Pine & Gilmore, 1998) rather than simply consume a good or a service (Ferrari, 2013). Pine and Gilmore (1998) call this trend the "experience economy". Following this trend, tourists are looking away from traditional mass-tourism holiday packages, asking for more personalised and atypical experiences, which take them off the beaten path (Apostolakis, 2003; Boyd, 2002; Moscardo & Ballantyne, 2008; Timothy, 2014). As a result, co-creation, which is the "contribution of consumers in the design of the experience in order to create value for themselves" (Haahti, 2006, p. 11), has been addressed in tourism. This is done by enabling tourists to be active participants in the creation of their experiences (Majdoub, 2013).

Cultural heritage tourism faces this movement and, like other tourism sectors, needs to modify its offer to meet this demand. For instance, following Benckendorff, Moscardo, and Murphy's (2006) research on technology use in tourist attraction experiences, Moscardo and Ballantyne (2008) explain what the elements of a memorable visitor experience are. It includes "multi-sensory experiences," "interesting information," "realistic displays," "variety and change in the activities available," "opportunities for visitors to interact with exhibits or displays and make choices," "information of personal relevance or interest" and "exhibits that allow . . . to take a new or different perspective on something" (p. 243). It is worth noting that some of these elements raise concern regarding the sustainability of the activity, notably the interaction with the display and the multi-sensory aspect. In fact, these involve close contact with the heritage assets (Majdoub, 2013) and might result in undesired physical impacts on the artefacts.

2.2.2 Heritagisation of the everyday past

Cultural heritage tourism attractions have traditionally focused on stately artefacts and places (Timothy & Boyd, 2006) whereas, as mentioned in section 2.1, most of the heritage assets around the world are only of local or regional significance (Timothy, 1997). Nevertheless, there is a growing demand for a more accurate representation of the past (Timothy, 2014). Consequently, elements of the everyday past – such as cemeteries, villages, schools, local houses and churches or factories – are now being promoted for tourism (Timothy & Boyd, 2006). Thanks to this trend, the necessity to preserve the rural past and its contribution to history is now being acknowledged. This phenomenon is referred to as the heritagisation of the everyday past (Timothy, 2014) or the "heritage of the ordinary" (Timothy & Boyd, 2006, p. 7).

2.2.3 Heritage trails and routes

Heritage trails have existed worldwide and are not a new phenomenon (MacLeod, 2013). These routes can be of various types and scales: from walking trails to scenic drives and from local to international (MacLeod, 2013; Timothy, 2011). However, it is only recently that research has started to focus on their characteristics and potential (Timothy & Boyd, 2006), and researchers are now highlighting the opportunities that they offer in terms of economic development (e.g. Strauss & Lord, 2001; Bowker, Bergstrom, & Gill, 2007).

These linear attractions are increasingly used as tools to bundle together individual low scale heritage assets and to promote them for tourism under common themes (McKercher & Du Cros, 2002; Timothy, 2014; Timothy & Boyd, 2006). As a matter of fact, heritage assets of local or regional scale are not always attractive enough in isolation, and linking them together (or as

satellite attractions to larger landmarks) gives them more visibility on the heritage tourism market (Timothy, 2014). These routes thereby offer opportunities for rural areas, where heritage is usually low scale. For instance, heritage routes can emphasise the heritage of the ordinary by creating a critical mass of heritage assets that will establish the destination on the tourism map (Timothy, 2011; 2014). The themes used to link heritage assets together are heterogeneous and range from local history and industrial development to famous people and gastronomy (MacLeod, 2013). Moreover, with regard to infrastructure, the initial investment can be minimal if no hardening of surfaces and no physical hardware are needed for signage. With the growing use of technologies in heritage tourism (please refer to section 2.2.4 below), information about the trail and its theme can be provided via digital interpretive media along the way. This also allows for self-guided experiences (MacLeod, 2013).

2.2.4 New technologies used in heritage tourism

Information technologies have impacted the activity of most industries as well as people's daily lives (Santos et al., 2012). The tourism industry cannot ignore the advances of this sector and need to make use of them to respond to the growing demand for connected experiences. Consequently, there has been an increase in the use of technologies in tourism, including mobile communication devices and location-based services (European Commission, 2017).

Even though cultural heritage is rooted in the past and new technologies are often perceived as futuristic, these two sectors can pair up for the needs of the tourism industry (Goulding, 1999). In fact, information technologies offer opportunities in relation to most of the heritage management goals: interpretation (education and recreation), authenticity, marketing, finances, etc. (Goulding, 1999). Their efficient use has the potential to make heritage more attractive and to thereby increase the competitiveness of attractions and destinations. It should be noted that the integration of new technologies in cultural heritage tourism can be closely related to the previous point on co-creation in tourism, as their use has an impact on how visitors experience the attraction (Bauer-Krösbacher, 2013). Multimedia technologies can indeed be used to develop products that offer a more dynamic, multi-sensorial, in-depth and personalised experience of cultural heritage (Garau, 2014). As a result, digital technologies are increasingly used to rejuvenate the idea of cultural heritage and attract new tourist segments (Bauer-Krösbacher, 2013; Hausmann et al., 2015; Law et al., 2010).

2.2.4.1 M-learning

Following the emergence of the e-learning in the last decades (a process involving learning from electronic media sources, notably the Internet), the advances in mobile technologies

introduce a new approach to education: mobile-learning (Grevtsova, 2015; Lawrence & Schleider, 2009). Mobile learning, also known as m-learning, refers to the “learning across multiple contexts, through social and content interactions, using personal electronic devices” (Crompton, 2013, p. 4). Mobile devices have been recognised as facilitating education, as participants are immersed into a natural environment whilst learning (Schwabe & Göth, 2005). It also gives them autonomy in their learning process, and the participants tend to show greater motivation to learn (Ibáñez-Etxeberria et al., 2012). In the heritage tourism literature, studies on m-learning mainly focus on its potential for interpretation in museums (e.g. Arvanitis, 2005; Grevtsova, 2015; Lawrence & Schleider, 2009). Some advantages of using m-learning in museums include mobility, improvement of the site’s image, flexibility of the content, and autonomy of the visitor (Grevtsova, 2015).

Mobile devices also provide the opportunity to create digital tours (Hausmann et al., 2015; Lawrence & Schleider, 2009; Vincent, 2014), which are itineraries where informative panels are not needed (or needed to a lesser extent), as interpretation is provided via digital media. By reducing the hardware infrastructure, these routes have a lesser physical impact on the environment (Costabile et al., 2010; Grevtsova, 2013; 2015).

2.2.4.2 Geolocation

Another application of new technology, which is now increasingly used in the tourism industry, is geolocation – a technique that allows to determine the geographic position of a person or an object, thanks to a positioning system (usually the Global Positioning System - GPS) (CNIL, n.d.). Nowadays, most smartphones available on the market are equipped with a GPS system, which allows to geolocate the device (Baudoux, 2012). The potential of this feature for cultural heritage tourism has been researched in relation to helping visitors to orientate themselves and find nearby points of interest (e.g. Van Aart, Wielinga, & van Hage, 2010). Additionally, GPS technologies have been the focus of research in the education literature. It was found that they can help to engage and motivate students to learn, by moving away from the usual classroom activities (Christie, 2007; Hamm, 2010; Zemko et al., 2016). This is of interest for the present study, as education is one of goals of interpretation.

2.2.4.3 Gamification

Another trend related to new technologies is gamification. Gamification is defined by Deterding, Dixon, Khaled, and Nacke (2011) as “the use of game design elements in non-game contexts” (p. 10). The widespread use of smartphones and other mobile devices has given rise to different types of games of a potentially high interest in the context of tourism. For instance,

mobile location-based games use geolocation to enable players to evolve in the game depending on their geographical position in the physical space (Avouris & Yiannoutsou, 2012). It should be noted that, in the educational literature, there has been an increasing acceptance of the potential of using game designs to encourage learning (Anderson, et al., 2010; Azadegan et al., 2013; Malegiannaki & Daradoumis, 2017; Sharples, et al., 2013). As a matter of fact, the gamification of learning offers an opportunity to reduce the dichotomy between learning and fun (Schwabe, Göth, & Frohberg, 2005). Several aspects of games make them suitable medium to transfer knowledge:

- Their motivational and enjoyable aspects encourage learning and make remembering easier (Avouris, Sintoris, & Yiannoutsou, 2013; Costabile et al., 2010; Gram-Hansen, 2009).
- Achieving the game's goals might require different skillsets, thus making learning an essential part of the game (Costabile et al., 2010; Mortara, et al., 2014).
- Games, especially digital ones, are popular among young people, making them an appropriate support to target this audience (Malone & Lepper, 1987).
- Mobile and location-based games allow to teach in context, and outside the traditional classroom environment (Avouris & Yiannoutsou, 2012; Huizenga, Admiraal, Akkerman, & ten Dam, 2009).

The gamification of learning has also been studied in relation to cultural heritage tourism and heritage interpretation (e.g. Anderson et al., 2010; Bellotti, Berta, De Gloria, Ferretti, & Margarone, 2003; Malegiannaki & Daradoumis, 2017). REXplorer and PokemonGO are two mobile location-based games that have been used and studied in the cultural heritage context. REXplorer was designed to explore a UNESCO world heritage city in Germany and learn about its history (Walz & Ballagas, 2007). This game aimed to attract visitors who are not usually interested in guided tours towards heritage, by enabling them to discover the city autonomously and at their own pace (Ballagas, Kuntze, & Walz, 2008). With regard to PokemonGO, Stefan, Stefan, and Gheorghe (2016) studied the potential of the game to encourage players to learn about heritage. According to the authors, the popularity of this game among young people can be taken advantage of. By placing game elements near historical landmarks, PokemonGO can be adapted to promote heritage places.

It is worth noting that there is a specificity to games used in the context of cultural heritage tourism: The interaction with the heritage assets needs to be closely controlled to reduce the physical impact on the artefact and to promote conservation (Laamarti, Eid, & Saddik, 2014). Hence, caution needs to be exercised regarding which places to use in location-based games,

because not all physical spaces might be suitable (Avouris & Yiannoutsou, 2012). Ballagas et al. (2008), in their study about REXplorer, recommend collaborating with heritage professionals to identify which heritage assets can be included in these games.

The main challenge when using games for educational purposes is not to let the game overshadow the educational content (Avouris & Yiannoutsou, 2012; Ballagas et al., 2008; Timothy, 2011). The same risk exists with the use of technologies (Goulding, 1999). There is also a risk of the technological aspect of the game reducing the real-world social interaction of the players (Moreno et al., 2016) and replacing personal guides (Timothy, 2011). Besides, Rubino, Barberis, Xhembulla, and Malnati (2015) highlight the need not to make the game last too long, due to the player's fatigue and loss of interest. Additionally, many tourists want to collect experiences during their stay and thus prefer to take part in several short activities rather than in a time-consuming one (McKercher & Du Cros, 2002). Researchers also highlight other aspects to consider, including the investment in the necessary technological material and the promotion of the activity (Vincent, 2014).

2.3 Geocaching

2.3.1 What is geocaching?

2.3.1.1 Some basics about the game

Geocaching is a digital treasure hunt for which players use geolocation technology to locate “treasures,” the geocaches (often simply called “caches”). This game was born in the year 2000 in the USA, when the selective availability of the GPS technology was discontinued, allowing the general public to have access to a more accurate GPS signal (Burns, 2013; Hawley, 2010; Mendes et al., 2013; Sherman, 2004). The game was invented by David J. Ulmer, an American computer consultant, who wished to test the accuracy of satellites by hiding a container in a forest and posting its coordinates on the World Wide Web for others to find it (Groundspeak, n.d.-f; Patubo, 2010). The hidden box contained a logbook and a pencil, so that people could log their discovery by writing down their name, as well as some other items as “treasures.” At the time, the game had a unique and simple rule: If you take something out of the box, you leave something else in return. Since 2000, the rules the game have essentially remained unchanged; they have only been made more explicit and are now presented as three rules:

{a} Take something out of the cache, {b} leave something of your own in the cache (or leave the cache contents undisturbed without trading any items), and {c} write about the

find (and yourself if you wish) in the logbook found inside the cache container. (Lawrence & Schleider, 2009, p. 136)

Originally, David Ulmer called this “the Great American GPS Stash Hunt,” however, players later renamed it “geocaching”. The word “geocache” comes from *geo*, the earth and *cache*, which is a French word originally used to refer to a place where someone would hide items. This new term aimed at representing the essence of the game, which involves hiding containers in the natural environment (Groundspeak, n.d.-f). Quickly, other players decided to place their own geocache, and the scope of the activity escalated, becoming a global multi-player game. Although it all started in the USA, 75 geocaches were already placed around the world a year after the launch (Hamm, 2010). Since April 2017, there are now about 3 million geocaches placed in over 191 countries (Kettler, 2017).

This location-based game uses a user-generated content, as the players (known as “geocachers”) create themselves the content of the treasure hunt by hiding geocaches in addition to looking for them (Ihamäki, 2012a). Geocaching.com, a website run by the company Groundspeak Inc., was created when more people gained GPS access. The website is an online database where information related to the hidden containers is stored. The cache-owner (i.e. the person who places a geocache) uploads this information on the website, in order to provide other players (forming the geocaching community) with the information necessary to find the cache (Boulaire & Hervet, 2012). This includes the coordinates of the geocaches and waypoints clues to assist the players. Any additional information that might be useful during the hunt can also be given in the form of a geocache’s description (Lo, 2010). This data is available to the players online, but can also be downloaded for offline access during the hunt. A smartphone application is currently available, making it easier for players to take part in the activity. Once they find the cache, players can log their discovery on the website in addition to signing the physical logbook left in the container.

2.3.1.2 Types of caches

There are several types of geocaches. They have evolved with the game, amounting to 18 different types. The most common are the following (Groundspeak, n.d.-b):

- Traditional geocache: The coordinates given to the player indicate the actual location of the cache.
- Mystery or Puzzle Cache: The cache’s coordinates might not be provided, and the player needs to solve puzzles or riddles to determine the cache’s coordinates.

- Multi-Cache: The player will have to reach at least two locations before finding the final cache. Clues are often given at the first location, or a puzzle needs solving, in order to access the next step.
- Event Cache: The coordinates indicate the location of a gathering of geocachers. Some events, the “Cache In Trash Out” (CITO), aim at cleaning up and preserving the environment.
- EarthCache: The coordinates provided lead the player to places with particular geological features. There is no physical container; the player can learn about different geological elements and must answer some questions about it before logging the geocache online.

Another type of geocache, even though less common, is relevant to the present study:

- Virtual Cache: A Virtual Cache’s coordinates correspond to a landmark or a historical monument. Once at the location, similarly to an EarthCache, the player needs to answer questions about the place before logging their discovery (Matherson, Wright, Inman, & Wilson, 2008; Webb, 2001). Virtual Caches are considered by Reams and West (2008) as being more educational, but also more environmentally friendly, as there is no need for a physical container.

These different types of caches are considered as adding challenge and giving an educational aspect to the game (Hamm, 2010). Besides, geocaches exist in various sizes, ranging from nano caches – the size of a bolt – to large ones of the size of a shoebox (Mendes et al., 2013). Nano and micro caches do not provide enough space to place any trading items and only contain a piece of paper as a log book. In addition, geocaches are also rated on two scales, to represent their level of difficulty: the roughness of the terrain and the level of technical difficulty (Ihamäki, 2012b). Information concerning the size and difficulty rating of each geocache is available to the player on each geocache’s information webpage.

2.3.1.3 Who plays?

Access to the game was at first limited to a small number of people having access to the required technology, and was particularly attractive to a niche market of treasure hunters and outdoor recreationists (Matherson et al., 2008). The number of geocachers has then particularly increased with the fast development in mobile digital technology and the wider availability of smartphones equipped with GPS. Geocaching is now open to a wider and more heterogeneous audience (McNamara, 2004). The geocaching community currently counts more than 15 million registered players around the globe (Zemko et al., 2016). The game attracts players of all ages thanks to its simple rules and capacity to provide a broad range of experiences (Bengs, Hägglund,

Wiklund-Engblom, & Staffans, 2015; Zemko et al., 2016). Nonetheless, the majority of players (80%) are aged between 20 and 45 years old (Groundspeak, n.d.-g). In addition to age, McNamara (2004) notes that gender and economic status are irrelevant to take part in this activity. However, in general, geocaching tends to be attractive to the ones with a secure lifestyle (Telaar, Krüger, & Schöning, 2014). If the number of geocachers and geocaches has kept increasing in recent years, it has been doing so at a decreasing rate (Telaar et al., 2014).

Likewise, motivations to go geocaching have been studied by several researchers in various parts of the world, e.g. Telaar et al. (2014) in Germany, Chavez et al. (2004) and Garney, Young, McLeroy, Wendel, and Schudiske (2016) in the USA, and O'Hara (2008) in the United Kingdom. These researchers identified the main reasons to geocache as being: spending time in nature (Chavez et al., 2004; Garney et al., 2016; O'Hara, 2008), discovering new places (Chavez et al., 2004; O'Hara, 2008; Matherson et al., 2008; Telaar et al., 2014) and spending time with others (Burns, 2013; Garney et al., 2016; Matherson et al., 2008; O'Hara, 2008). Other reasons to play include exercising (O'Hara, 2008; Garney et al., 2016) and the personal achievement of taking up a new challenge (O'Hara, 2008). Learning is also a motivation to take part in the hunt (Telaar et al., 2014), even though it is not the main reason why people start playing (Clough, 2010).

As a game, geocaching also involves a competitive aspect. The number of geocaches found by each player is displayed on Geocaching.com, and reaching a high score has become an aim in itself for some players. As a matter of fact, for competitive players, the game (notably finding the containers) can easily become an addiction (Hawley, 2010). Telaar et al. (2014) distinguish the competitive player (or “collector”) from the “Gourmet,” a player who pays attention to the specificity of each geocache, and is looking to discover interesting locations and to solve challenging puzzles. Whereas the collector is interested in “experiential collecting,” the Gourmet seeks an “enhanced understanding of the place” (Anton, 2008, p. 2). A variety of player's types exist in the spectrum between these two extremes. In the present research, the term “collector” is used when referring to the competitive players. The social implications of geocaching are also highlighted by Hawley (2010) and Chavez et al. (2004). For instance, they mention that existing users of an area do not always welcome the new activity.

2.3.2 Geocaching as a tool for education

Along with its spread among a wider audience, geocaching also slowly crossed the border between game and non-game by being increasingly used in other fields, such as technology solution, education and tourism (Ihamäki, 2012a, 2015). Although education itself is not the topic

of the present research, it is one of the goals of heritage tourism management. Therefore, this review of literature helps in the study of geocaching and heritage tourism.

Education can take several forms. On the one hand, formal education takes place as part of a school curriculum (Prentice, 1995). On the other hand, informal education defines any learning that takes place outside the school curriculum; it can take place at any time, when people learn from their experiences, for example when visiting a heritage site by themselves (Light, 1995). Informal learning can be intentional (Clough, 2010), unintentional but conscious (also known as incidental) or unintentional and unconscious (also known as tacit; Schugurensky, 2000).

The use of geocaching for learning is a relatively recent field of research and has mostly been studied in the context of formal education (e.g. Dobyns et al., 2007; Lo, 2010; Mayben, 2010). Geocaching, combining the benefits of both new technologies and games for education, has been identified as a way to stimulate pupils' motivation and engagement, and modernise the school curriculum (Zemko et al., 2016). It is as such that the potential of geocaching as an edutainment tool in formal education settings has been highlighted in the teaching literature (Brown, Hughes, Crowder, & Brown, 2006; Burns, 2013; Christie, 2007; Dobyns et al., 2007; Ihamäki, 2014, 2015; Lo, 2010; Zecha, 2012). The game was recognised as offering a wide range of educational possibilities, thanks to its multidisciplinary aspects. Zemko et al.'s (2016) research summarises how geocaching can be used as an educational tool in different subjects by adapting the geocache's type and content to the curricular activity. For example, the geolocation component can be linked to mathematical and geographical principles (Zemko et al., 2016), and Mystery and Multi-Caches require problem-solving skills to find the final coordinates of the container (Brown et al., 2006; Lo, 2010; Zemko et al., 2016). Other researchers have studied the use of geocaching for various subjects, such as:

- Literature (Lo, 2010);
- Geography (Brown et al., 2006; Ihamäki, 2015; Lo, 2010; Lawrence & Schleicher, 2009; Shaunessy & Page, 2006);
- History (Brown et al., 2006; Dobyns et al., 2007; Ihamäki, 2015; Matherson et al., 2008; Schlatter & Hurd, 2005);
- Mathematics (Brown et al., 2006; Ihamäki, 2015; Lary, 2004; Lo, 2010; Matherson et al., 2008; Stephens, 2009; Schlatter & Hurd, 2005);
- Sciences (Hellgren, Stewart, & Sullivan, 2014; Lisenbee, Hallman, & Landry, 2015; Lo, 2010; Matherson et al., 2008; Ihamäki, 2015; Stephens, 2009; Swartling & Threet, 2009);
- Environmental education (Brown et al., 2006; Christie, 2007 ; Zecha, 2012) ;

- Social studies (Lisenbee et al., 2015; Matherson et al., 2008; Shaunessy & Page, 2006);
- Language skills (Dobyns et al., 2007; Ihamäki, 2015; Lisenbee et al., 2015; Matherson et al., 2008) ;
- Arts (Lisenbee et al., 2015 ; Matherson et al., 2008) ;
- Music (Lisenbee et al., 2015); and
- Physical education (Dobyns et al., 2007; Ihamäki, 2015; Schlatter & Hurd, 2005).

Whilst allowing the application of curricular knowledge in a real-world environment, geocaching also helps to develop other skills, such as collaboration (Brown et al., 2006; Christie, 2007), navigation, (Feulner & Kremer, 2014; Schlatter & Hurd, 2005), GPS technologies (Brown et al., 2006; Ihamäki, 2007), and ICT skills (Bélisle & Rosado, 2007).

Nevertheless, despite the popularity of the game among the general public (Zemko et al., 2016) and the resulting important number of geocachers worldwide, the potential of geocaching for informal learning has only been studied by a few researchers (e.g. Albach, 2014; Burns, 2013; Clough, 2010). Moreover, these studies mostly tackle the topic of education related to the natural environment. For example, Burns' (2013) research focuses on informal learning and nature, and Albach (2014) combines geocaching and botany lessons.

2.3.3 Geocaching and tourism

2.3.3.1 Geocaching and destination marketing

Over the last decades, the tourism potential of geocaching has been identified. Indeed, this game can be seen as a new way for tourists to discover their surroundings (Ihamäki, 2015), as the game encourages players to visit particular destinations (Santos et al., 2012). For instance, Gram-Hansen (2009) explains:

Geocaching is an activity or game that involves seeking out artefacts (geocaches) that other participants of the game have hidden in places they find particularly interesting. [These] could be beautiful spots of nature, vista points, landscapes, interesting buildings, famous sights, historical places, hidden places, inaccessible places, crowded plazas etc. In short: any kind of place that a person for some reason would want someone else to experience.
(p. 1)

Yet geocaching in tourism is a relatively young field of research, and there has been limited academic publications on this topic (Ihamäki, 2015).

Given the success of geocaching worldwide, Boulaire and Hervet (2012) mention the possibility of adapting the game to meet tourism purposes, whilst safeguarding its core components, in order to guarantee its success. Ihamäki (2012b) even sees geocaching as a new type of travel activity which, in addition to keeping tourists longer (Ihamäki, 2015), also has an attraction power and can bring tourists to visit places that they would not visit otherwise. Particularly, this game can help to attract tourists to smaller or lesser-known places (Morreale & Bertone, 2015), which are not mentioned in the usual tourists' guidebooks (Ihamäki, 2015). By attracting tourists, geocaching also has an economic potential for destinations: According to Groundspeak, "every \$1 spent by a tourist destination on geocaching will result in about \$20 spent by tourists on hotels, restaurants and the like" (Somers, 2012, para. 6). As a result, not only individual geocachers place geocaches nowadays; over the past decade, an increasing number of tourism organisations have been using the game as part of their product offering. For example, several state parks in the USA have developed geocaching to encourage geocachers to visit parks and recreation areas (Gillin & Gillin, 2010; Ihamäki, 2012a, 2012c). The difference between geocaches placed for tourism purposes and the ones hidden by players is noted by Gillin and Gillin (2010). They explain that most containers placed by geocachers are in "out-of-the-way places" (p. 3) that the local community wants to share with visitors, rather than in locations that tourism professionals would recommend.

Among the publications addressing the topic of geocaching and tourism, most are related to destination image and promotion (e.g. Baudoux, 2012; Boulaire & Hervet, 2012; Gram-Hansen, 2009; Mendes et al., 2013; Morreale & Bertone, 2015). For instance, Boulaire and Hervet (2012) identify two strategies to use geocaching as a promotional tool. The first one involves promoting geocaching in the area to attract existing geocachers by showing them how the destination can be a suitable and interesting terrain for the game. The second strategy is to use the game as a tool to help tourists to explore the destination. Additionally, Baudoux (2012) explains that what helps to give visibility to both the destination and the game is the communication that takes place among the geocaching community; players share their experiences, give their opinion on geocaches, and provide recommendations to others online, both on the official geocaching forum and on unofficial webpages. Mendes et al. (2013), in their study of Lisbon's geocaching map, also explore how the placement of geocaches by individual players participate to the promotion of a city's image, culture and heritage.

Moreover, by placing geocaches along a circuit, geocaching enables players to create what Groundspeak calls "geotrails." Whereas the webpage GeoTour offers to develop custom tours and trails for tourism professionals (Groundspeak, n.d.-g), these circuits can also be created without

the help of Groundspeak, simply by placing geocaches along a trail (existing or new) to form a circuit. Several tourism-oriented geotrails have already been developed around the world (Santos et al., 2012). The destination marketing potential of these geotrails has been researched. For instance, Baudoux (2012) studies the use of geotrails in hiking tourism marketing.

2.3.3.3 Visitor experience

Researchers have also studied the experience of the tourist playing geocaching (Burns, 2013; Cossette, 2014; Ihamäki, 2008, 2012a, 2012b, 2013, 2015; Ihamäki & Luimula, 2013). Their findings highlight the potential of the game in tourism co-creation, as it encourages the discovery of places in meaningful ways by providing creative experiences. Ihamäki (2015) defines “creative experience” as an “activity where participation creates special experiences; for example, in geocaching, users create experiences for other users, and everyone experiences geocaching in individual ways” (p. 40). As a matter of fact, this activity allows tourists to choose their own travel narrative (Ihamäki, 2012b, 2013).

2.3.3.4 Geocaching in heritage tourism

Geocaching has also been used in the heritage tourism context. As a matter of fact, geocaches are often hidden near sightseeing spots and historic monuments (Mendes et al., 2013; Ihamäki, 2013). In her publications, Ihamäki mostly highlights the potential of the game for adventure tourism (Ihamäki, 2012a, 2012b, 2012c, 2013, 2015), sport tourism (Ihamäki, 2012a, 2012b) and health tourism (Ihamäki, 2012a). However, this researcher also mentions the opportunities that it offers for cultural heritage tourism: Ihamäki (2013, 2014 and 2015) studied the potential that the game has to teach history and heritage related topics in the formal education context. For example, using the city of Pori, Finland, as a case study, Ihamäki (2014) explains that students can explore a place by searching for geocaches and solve educational tasks that encourage learning about the city’s history, culture and landscape. Besides, geocaching has also been integrated into a cultural heritage project, Aequilibrium, organised to promote the destination of Lomellina, in Italy. This project was considered as an innovative solution to attract a younger audience towards cultural heritage (Morreale & Bertone, 2015), as the interactivity of geocaching has the potential to make the heritage experience more attractive for young tourists (Ibáñez-Etxeberria et al., 2012).

In addition to the cache location, the geocache’s webpage can be used to provide detailed information about a heritage site (Santos et al., 2012). For example, in France, the Manche Tourism Board has created educational geotrails which aim at encouraging visitors to cycle on a local

cycling trail and to go from geocache to geocache to learn about the local heritage (Boulaire & Hervet, 2012). Similarly, natural and cultural sites managers around the world have been using geocaching as a way to provide information about their attractions to visitors (Albach, 2014), thereby allowing for the informal education of the general public. In the present research, this type of geocaches – placed near heritage sites and that encourage learning about heritage – are referred to as “heritage geocaches,” or “heritage caches.” These geocaches can increase the visibility of a heritage site and raise awareness about it (Bengs et al., 2015).

It should be noted that even though the potential of geocaching for heritage tourism has been identified (Santos et al., 2012), there has been very limited research on how the game should be used and managed to be in line with the principles of cultural heritage tourism management (Rowland, 2013). Indeed, most research with regard to the appropriate use of the game focuses on natural heritage. For instance, Rosier and Yu (2011) research how geocaching can contribute to the understanding of natural resources and their history. One of their findings is that geocaches that involve answering questions encourage tourists to learn about the place, as they facilitate understanding and remembrance.

2.3.4 The environmental impact of geocaching

The impact of the treasure hunt on the physical environment should not be ignored. Studies in recreational ecology have been conducted on the environmental impact of the activity (e.g. Hawley, 2010; Kovář, 2016; Patubo, 2010; Rosier & Yu, 2011; Rowland, 2013; Schneider & Jadczačková, 2016). It should be noted that geocaching is often criticised for damaging the natural environment (Hawley, 2010). Its main negative physical impact is the development of “geohighways” (Hawley, 2010; Víték, 2007 in Schneider & Jadczačková, 2016). A geohighway is a visible path that is produced over a period of time near highly visited geocaches, as many players walk on the same area to reach the container’s hiding place, compacting the soil and damaging vegetation on their way. In addition, some researchers note that, as the geocache’s container itself is a foreign element in the environment (Schneider & Jadczačková, 2016), its placement is contrary to the “leave no trace” principle (Blouin, 2008). Moreover, the growing number of players also leads to an increasing risk of negative impacts (Schneider & Jadczačková, 2016), mostly due to the fact that the game no longer attracts only outdoor enthusiasts, but a wider audience. Therefore, some members of this more heterogeneous group might not be familiar with the outdoor and nature activity ethics (Patubo, 2010). Besides, the physical impact of geocaching on built cultural heritage sites has been researched by Rowland (2013) and Kovář (2013). However, literature on this topic

is limited, and Rowland's (2013) findings highlight the need for further research regarding the management of the activity.

In response to the above-mentioned issues and to the critics received, Groundspeak developed a set of ethical guidelines (Santos et al., 2012) after consultation with the online geocaching community. The geocaching creed outlines the dos and don'ts for both placing and seeking geocaches (Gram-Hansen, 2009). Players should, for example, not endanger themselves or others; obey the law; respect private property rights; avoid causing disruptions; be considerate of others; and minimise the impact of the game on the environment (Groundspeak, n.d.-c). Along with these principles, Groundspeak provides tips for cache-owners and for cache-seekers (Groundspeak, n.d.-a). The company has also developed a review system to prevent geocaches that do not respect the rules and guidelines from being published on the website, and to thereby guarantee a certain quality standard. Reviewers are volunteers of the geocaching community who verify the online content of the caches before publication (Groundspeak, n.d.-e). In addition, Groundspeak also offers the possibility to organise CITO events to help clean the environment (as explained in section 2.3.1.2 above). Moreover, geocachers themselves are often considered to be environmentally-conscious, and try to preserve the natural environment that they use as a playground (Hawley, 2010).

Kovář (2013), in his study on the impact of geocaching on archaeological sites, concludes that, if these guidelines are respected by players, geocaching may be a non-damaging activity. However, geocaching involves user-generated content and is mainly self-regulated. It should thus be noted that, as there is a lack of supervision on how the game is monitored (Patubo, 2010), the above-mentioned rules are not always respected. In addition, some researchers explain that governments and local authorities should also provide guidelines for the direct and indirect management of the activity, in order to implement a more efficient control on the game and reduce its negative impacts (Chavez et al., 2014; Rowland, 2013). On the one hand, indirect management implies providing information and education about how to play without damaging the area (Chavez et al., 2004). On the other hand, direct management involves measures such as registration requirement and permitting for the placement of a cache, as well as the exclusion of the activity in some zones. For instance, some national parks decided to ban the activity within their boundaries, because of the resulting damage (Reams & West, 2008). Others, aware of the educational (Hawley, 2010) and tourism potential (Rowland, 2013) of the game, preferred to propose alternatives; for instance, the National Park Service in the USA established its own set of rules and regulations for the game (Hawley, 2010; Rowland, 2013). Among these, they use EarthCaches instead of physical containers. Reams and West (2008) mention that this solution could be used in areas other than

national parks, where traditional geocaches are also considered inappropriate. In addition, Reams and West (2008) and Rowland (2013) recommend greater cooperation between heritage site managers and geocachers, so as to work together towards the management of the game.

2.3.5 Management of the activity

The review of the literature on heritage tourism management (section 2.1) identified the challenges that heritage managers are often confronted with, as well as the need to tackle them in order to sustainably maintain and develop heritage as a tourism activity. On top of these challenges, new trends in heritage tourism were described (section 2.2), as they add another layer of complexity which needs to be taken into account for heritage attractions to remain attractive to tourists in the 21st century. This research thereby focuses on investigating how geocaching can help to address the challenges of heritage tourism management, and meets its goals.

Section 2.3 of the literature review identified how geocaching, as a digital game, matches some of these emerging trends. It also highlighted how previous research on geocaching addresses some challenges of heritage management. Nonetheless, these publications focus on a limited number of topics (notably education, environmental impact and destination promotion) and study them in isolation rather than as part of a system, often adopting a single viewpoint: either the participant or the destination manager, or the student, etc. Consequently, existing literature lacks the comprehensive view necessary to encompass the many aims of heritage management, i.e. sustainability, conservation, finances, authenticity, quality, education, recreation, accessibility, relevance, visitor impact management, marketing, interpretation, stakeholder involvement and partnerships.

Firstly, publications in the field of education highlight geocaching's potential to make learning more motivating, accessible and relevant to young people. Nevertheless, it does not investigate this topic in relation to the general public and does not provide guidelines on how to use the game in the context of cultural heritage tourism. This leads to the following question: *How can geocaching be used to make cultural heritage tourism more accessible and relevant to a wider audience?*

Similarly, even though previous research focuses on the role of geocaching in edutainment and in tourism, it lacks a link between the two sectors to address the use of the game in relation to interpretation for cultural heritage tourism. Therefore, this gap in the literature can be filled by answering the following question: *How can geocaching be used as an interpretation method for cultural heritage tourism, balancing the need for both education and recreation?*

Additionally, section 2.3.3 explains the role that the game can play as a promotional tool for destinations, highlighting its marketing and financial potential (both of which are aims of heritage management). However, the literature on this topic does not focus specifically on cultural heritage tourism and on how this potential can benefit the destination in this context. As a result, the question “*How can geocaching help to enhance the economic development of the destination by promoting cultural heritage tourism in the countryside?*” still needs to be addressed.

Besides, previous research on the physical impact of geocaching can be linked to the following aims of heritage management: conservation, environmental sustainability and managing visitor impacts. However, these topics are mainly investigated in relation to natural heritage. Rowland (2013) mentions the need to further research how the game and its impact on cultural heritage can be managed. This raises the following question: *As a self-regulated game, how can geocaching be managed to meet the conservation goals of cultural heritage tourism management and reduce negative visitor impacts?*

Last but not least, Mendes et al. (2013) study the image that geocachers give of a city through the placement of geocaches. Apart from this research which addresses, to some extent, the topic of user-generated content and quality in tourism, existing literature does not study the involvement of locals in the development of this activity for tourism, nor the issue of authenticity. These topics can be explored by answering the question: “*As a user-generated content game, how can geocaching involve local stakeholders whilst guaranteeing authenticity and quality?*”

Those five questions set the analytic priorities of the study. Answering each of them will bring together the various elements needed to investigate the more general research question: ***How can geocaching be appropriately used in the cultural heritage tourism context?***

CHAPTER 3 - PRESENTATION OF THE CASE

This research adopts a case study approach to investigate the topic of geocaching and cultural heritage tourism. The study does not focus on a single heritage attraction, but on a wider destination where cultural heritage is present on the whole territory: the area of “Pays-Dieppois-Terroir de Caux”, in France. After a brief presentation of the destination’s geography, this chapter provides an overview of its heritage assets and tourism audiences. Then, the last section draws a portrait of the current use of geocaching in the area.

3.1 The Destination - Geographic and Administrative Boundaries

Pays Dieppois-Terroir de Caux (PDTC) is a destination located in Normandy, two hours away from Paris, and linked to Great Britain by a ferry. The territory of PDTC (see map in appendix A) covers an area of 856 km² on the coastline of the English Channel, on a 35-kilometre stretch from Quiberville to Tocqueville-sur-Eu (Syndicat Mixte du Pays Dieppois-Terroir de Caux, n.d.-b). Dieppe, the main town of the destination, is located halfway in between. The area also covers some of the countryside, extending inland for another 35 kilometres South and 20 kilometres South-East. Nowadays reunited, Normandy was, until 2016, divided into two regions: Upper and Lower Normandy. The destination under study is located in Seine-Maritime, one of the two *départements* (“departments”) of Upper Normandy.

PDTC is an administrative entity created in 2006. It unifies 121 towns and villages and 112 000 inhabitants in a joint association (INSEE, 2017), with the aim of working together with a common vision for the sustainable development of their territory, under a joint territorial development plan. These administrative districts were brought together both for their unity and diversity in terms of landscapes, heritage and economy (Syndicat Mixte du Pays Dieppois-Terroir de Caux, n.d.-b). The region has long been divided into numerous administrative units, and there has been an ongoing effort to reunite them under common flags; before the creation of PDTC, the villages and towns had already been regrouped administratively into inter-municipal structures (called *communautés de communes*). In 2006, the area under study was composed of six of them: Dieppe Maritime, Petit-Caux, Monts-et-Vallées, Trois Rivières, Saône et Vienne, and Varenne et Scie (please refer to appendix B).

Since then, these three different layers of administration (villages and towns, *communautés de communes* and PDTC) had been coexisting, each having its specific competences. In 2016, in a new effort to reunite small territories, villages and towns in France were regrouped into larger municipalities, which were, in turn, regrouped into new, larger, inter-municipal structures. Today,

within PDTC, there are three inter-municipal structures (please see figure 1 below): Dieppe Maritime, Falaises du Talou and Terroir de Caux.



*Figure 1: Inter-municipal structures in Pays-Dieppois-Terroir de Caux – since 2016
(Syndicat Mixte du Pays Dieppois-Terroir de Caux, n.d.-b)*

It is worth noting that PDTC, as a new administrative entity, does not yet have a unique destination management organisation; the tourism boards of the three inter-municipal structures work both separately on local projects, and together on the main strategies of the destination.

3.2 Cultural Heritage Tourism at the Destination

3.2.1 History and heritage

PDTC is an area rich in history; remnants from the past are present all over the territory. Back in the 17th century, Dieppe was the biggest harbour in France (Site officiel de la Ville de Dieppe, n.d.), and it is still the main scallop fishing port in the country; this is reflected in the

substantial port heritage of the area, and organisations such as *Estran, Cité de la Mer* aimed at preserving and enhancing this heritage as well as the coastline environment (ESTRAN Dieppe, n.d.-a).

It is from the 19th century onwards that Dieppe has been considered a tourism destination, as the first seaside resort of France (Corrieu-Chapotard, 2012). Other nearby towns and villages, such as Pourville, Varengeville-sur-Mer and Berneval (see locations in appendix C), were also attractive holiday locations at the time. These destinations notably attracted writers and painters, such as Oscar Wilde, Pissarro, Renoir and Monet. The vestiges of this period are still visible today under various forms, such as the architecture and design of the towns, and the Impressionist paintings – some of which are internationally renowned.

The First and Second World Wars deeply impacted the region. One of the main events in the local history is the Operation Jubilee, during which Allied troops (predominantly Canadian) landed in the area with the aim of fighting the German occupancy. This event, which took place on 19th August 1942, played a major role in influencing the preparation of the subsequent Normandy landings (Laurenceau, n.d.). The remnants of the war are still visible today and are part of the local heritage of the destination. For instance, blockhouses and memorials commemorating the soldiers who lost their lives during the wars can be found all over the territory.

3.2.2 Cultural heritage attractions

The cultural heritage landscape of the destination is characterised by attractions which are mainly of local scale. Examples of built heritage assets include (Seine-Maritime Tourisme, 2016)²:

- **Medieval castles and chateaux:** e.g. Dieppe's Castle, Castle of Arques la Bataille, Chateau de Vargemont (Derchigny), Chateau de Bosmelet (Auffay).
- **Museums:** e.g. Castle-Museum of Dieppe, Museum of Daily Life (Saint-Martin-en-Campagne), Clock-Making Museum (St Nicolas d'Aliermont), Cité de la Mer (Dieppe), Museum of the Forge (Saint Pierre Bénouville); Museum Jacques-Emile Blanche (Offranville).
- **Religious heritage:** e.g. Collegiate church of Auffay, some main churches in Dieppe and Envermeu, and smaller ones in every town and village.

² The locations of the towns and villages listed are indicated on the map in appendix C.

- **WWII heritage:** Canadian War Cemetery (Hautot-sur-Mer), Memorial of August 19th 1942 (Dieppe), and other small memorials in towns and villages.
- **Farming heritage:** The countryside is rich in farming heritage.

In addition to these built heritage assets, the cultural heritage of the destination also includes local know-how and craft industry, local cuisine, as well as famous people, e.g. Impressionist painters (Office de Tourisme Terroir de Caux, 2016).

3.2.3 Cultural heritage tourism at the destination

Normandy is a well-known destination which attracts tourists from all over the world. The majority of foreign visitors come from the United Kingdom, the Netherlands, Belgium and Germany (Comité Régional de Tourisme de Normandie, 2016). Apart from this inbound tourism at the regional level, PDTC mainly attracts visitors from nearby areas of Seine-Maritime, or from neighbouring regions such as Paris, the North and the East of France (professionals A & B³). In general, the audience attracted to the destination is mainly composed of families, with children of all ages (professional A).

The natural and cultural attributes of the area contribute to the uniqueness of the destination; PDTC is characterised by a varied heritage, connecting the coastline (the sea and the cliffs) to the countryside's hiking trails and built cultural heritage. This diversity enables the offer of a wide range of activities, from water sports and nature-based activities to the visit of gardens, museums and castles (professional B). Nevertheless, it should be noted that Normandy's image is mostly associated with the heritage of Lower Normandy, such as the D-Day beaches and the Mont Saint-Michel. As a result, the destinations of Upper Normandy are often overlooked by tourists. For instance, numbers of the visitors disembarking from the ferry in Dieppe do not stay at the destination, only passing through on their way to Paris or to the Lower Normandy beaches (Aubry, 2014).

Apart from some serious heritage tourists who come to the destination with the aim of discovering its particular heritage, such as those visiting war heritage sites or the clock-making museum, visitors in the area are mostly casual or accidental heritage tourists (professional A). This is mainly due to the fact that the heritage at the destination is of mostly a local or regional scale,

³ Professionals A and B are two tourism professionals responsible for the tourism development of PDTC, with whom preliminary conversations were organised at the beginning of the research. Both their roles at the destination and the preliminary conversation process are described in section 4.3.2.

and is lacking the “centrepiece that will draw tourists” (professional A). In addition, even though the destination is rich in cultural heritage attractions (with museums even in villages), the heritage tourism potential of the destination as a whole is not always noticed by tourists, who tend to converge around a few specific points of the territory, without exploring further. The majority of visitors explore the main town, Dieppe, and might also visit neighbouring cultural attractions in Varengeville-sur-Mer (see location in appendix C) or nearby beaches, but too often do not venture into the countryside. As a result, one of the major challenges (and aims) of the PDTC tourism boards is to attract visitors into the countryside (professional A).

As part of the current strategy of the PDTC destination, an inventory of the built heritage has been undertaken since 2013. The aim of this project is to make an inventory of the heritage assets, to study them, and to find ways to enhance this local heritage through touristic and cultural activities, mainly by highlighting themes common to the whole destination. This will then be used to develop heritage activities (Office de Tourisme Terroir de Caux, n.d.-b), such as heritage trails and thematic booklets.

Currently, these heritage assets are enhanced through a number of promotional and interpretational methods, most of which can be considered as being traditional. For instance, information about the attractions can be found on leaflets and booklets about culture and tourism (e.g. Office de Tourisme Terroir de Caux, 2016; Seine-Maritime Tourisme, 2016), as well as on the destinations’ and attractions’ websites (e.g. ESTRAN Dieppe, n.d.-b; Office de Tourisme de Dieppe, n.d.; Office de Tourisme Monts et Vallées-Petit Caux, n.d.). With regard to interpretation methods, guided tours, information panels, guidebooks, leaflets and audio-guides are predominantly used at the destination (professionals A & B). New technologies have not yet been widely integrated in the destination tourism offer. Nevertheless, professional A notes that the destination is currently working on the development of smartphone applications with the *Département’s* tourism board.

Events related to heritage are also regularly organised in the area, such as the “European Night of Museums” (an event during which museums are open after hours and some special activities are organised), or the European Heritage Days (Office de Tourisme de Dieppe, n.d.). Other less traditional activities are also run by tourism and heritage bodies, such as workshops and games around heritage topics (Dieppe Ville d’Art et d’Histoire, 2017). However, these are usually one-off activities, and are mostly provided in relation to main heritage attractions, such as museums or historical town centres. The destination’s “heritage of the ordinary” is less often

enhanced for tourism, with the exception of the Museum of Daily Life, which displays objects and tools used in the past by local inhabitants (Musée du Talou, 2014).

Only one all-year-round treasure hunt is organised at the destination, in the area of Auffay (see location in appendix C). This treasure hunt, “Trésors Auffay-Trois-Rivières”, uses a specific smartphone application as a platform, and leads players along a touristic circuit that links different points of interest (Office de Tourisme Terroir de Caux, n.d.-a).

3.3 The Destination and Geocaching

A preliminary study of the geocaching map of the area (see appendix D) helped the researcher to better understand the geocaching activity at the destination. Geocaches have been placed on this territory for nearly a decade, with the oldest one (still activated) dating back to 2008. Today, there are about 350 geocaches at the destination⁴. Among these, most are traditional caches; there are only twelve Multi-Caches, ten Mystery Caches and four EarthCaches. The most visited geocaches are the ones located in the main centres of attractions. Some traditional ones in Dieppe have received hundreds of logged visits since their creation; for example, the geocache of the dry dock has over 400 logged visits and the one hidden on the road between Dieppe and Pourville has over 600 logs. This analysis of the geocache map also highlighted that none of these 350 geocaches have been placed by tourism professionals, whereas tourism boards of neighbouring destinations have used the game as a tourism activity (e.g. in Saint Valery en Caux, town located about 20 kilometres west of the destination). Despite being placed by the players themselves, a number of caches are hidden near heritage attractions (e.g. near the Museum of Daily Life and the Clock-Making Museum), as well as close to heritage of the ordinary, such as near the mill in Ancourt (see location in appendix C) and near small churches in villages.

Among the geocaches of the area, some have been placed to form geotrails. Some cache-owners hid them on main hiking and cycling trails (see maps in appendices A and D), such as along the *Véloroute du Lin* (“Flax Cycle Route”), the *Avenue Verte* (“Green Avenue”) and the *Chemin Vert du Petit-Caux* (“Green way of Petit-Caux”). Others have placed the containers on existing but lesser known hiking trails in the countryside. In addition, a couple of Multi-Caches placed in Dieppe lead the players to various points of interest in the town before revealing the final containers. It is worth noting that, even though created by individual geocachers, these geotrails

⁴ The total number of geocaches at the destination cannot be stated precisely, as some of them are hidden in the countryside, more or less within the geographical boundary of PDTC.

correspond to circuits which are also promoted by the destination's tourism boards as activities oriented towards families (professional A). Some Event Caches have also been held at the destination. For instance, the "Event des 76" was organised in April 2016 by geocachers of the area. On that occasion, 76 geocaches were released (mostly traditional ones, but also a few Multi-Caches) to form two geotrails of 13 and 3 kilometres on existing hiking paths (Groundspeak, 2016a). Following the event, these geocaches remained activated and are still available as part of the game today.

Last but not least, the geocaching map also revealed that the descriptions of many geocaches in the area contain information about heritage (both natural and cultural). Some recount major historical events, such as the Multi-Cache about the Operation Jubilee placed on the seafront in Dieppe; and some report elements of the local past, e.g. the geocache *Le pont de pierre* (i.e. "the stone bridge") near Saint Aubin le Cauf (see location in appendix C).

The information provided in this chapter offers an overview of the PDTC's heritage tourism potential and of the way geocaching has been developed at the destination so far. Using the methodology described in the next chapter, the present research will focus on this destination to investigate how geocaching can be used in the cultural heritage tourism context.

CHAPTER 4 - METHODOLOGY

4.1 Approach

4.1.1 Paradigm

In order to identify the opportunities and drawbacks that geocaching offers for cultural heritage tourism and to make recommendations on how this digital treasure hunt could be used appropriately in this context, the present study was conducted with an inductive reasoning.

The information presented in this document was collected following a constructivist approach. As constructivism accepts the coexistence of multiple realities, this paradigm enabled the researcher to take into account the differing views of various groups of stakeholders, to obtain a more holistic picture of the issues and opportunities arising from the use of geocaching. This approach aimed at gaining a better understanding of the topic and providing recommendations based on information gathered from a diverse pool of participants.

4.1.2 Qualitative case study

To build this portrait of the issues and opportunities at the destination, the researcher selected a qualitative research method and used a case study approach, which involves the analysis of an individual example of the phenomenon being studied (Veal, 2011). This approach was selected as it is a suitable design for research aiming at answering a “how” question, and as it allows to study in-depth a contemporary phenomenon – here, the use of geocaching in heritage tourism – by investigating a single occurrence (Yin, 2014). Additionally, this method is compatible with the constructivist paradigm. In fact, one of the key features of a case study analysis is the use of triangulation methods; in addition to increasing the internal validity of the findings (Patton, 2002; Veal, 2011; Yin, 2014), it enables a “multi-perspectival” analysis of a phenomenon (Tellis, 1997, p. 2). In the present study, the researcher used data sources triangulation (Veal, 2011) to explore the many facets of the use of geocaching in heritage tourism through a variety of lenses (Baxter & Jack, 2008).

The destination “Pays Dieppois-Terroir de Caux” was used as an instrumental case study. In this type of case study, the issues are the focal point of the research, rather than the case itself, which mostly has a supporting role. The analysis of this specific case is supposed to enable the researcher to gain insight into an issue (Stake, 1995). Here, the examination of PDTC aimed at investigating the more general issue of geocaching and cultural heritage tourism. Besides, the use

of a single-case design enabled the researcher to obtain an in-depth understanding of the phenomenon within a delimited area, and to then use the resulting data for theory building.

This particular case was selected following a convenience case selection, in accordance with Stake's (1995, p. 4) advice of selecting cases that are "easy to get to and hospitable to our inquiry" as "time and access for fieldwork are almost always limited." Although being a convenience case, the destination was considered as particularly interesting, as all the geocaches currently present on site have been placed by individual geocachers, rather than by tourism professionals as it can be seen in other destinations.

4.2 Data Collection and Sampling Methods

4.2.1 Data collection method

The main data collection method selected was face-to-face semi-structured interviews. Participants from various groups of stakeholders were interviewed, so as to consider their various standpoints and to build a more complete picture of the opportunities and drawbacks of using geocaching for cultural heritage tourism. Due to time constraint and to the limited availability of participants, alternative methods were also used: Some participants (three tourists and a couple of geocachers) were interviewed via video calls using Skype, and three geocachers were emailed a questionnaire based on the interview guide. The questionnaire can be found in Appendix E.

4.2.2 Study population

The population the researcher was interested in for this study were the stakeholders of the area of Pays Dieppois-Terroir de Caux who could be affected by the use of geocaching at the destination. The groups of stakeholders were identified by the researcher as follows:

- Group 1a: geocachers who, on top of looking for geocaches, have also placed some in the area under study (i.e. cache-owners);
- Group 1b: geocachers who look for geocaches in the area under study, but have not placed any (i.e. cache-seekers);
- Group 2: tourism professionals working in the area under study;
- Group 3: tourists (non-geocachers) visiting the area under study;
- Group 4: residents (non-geocachers) of the area under study.

The study population was selected using non-proportional quota sampling, which is a non-probability purposive sample method. This means that the sampling method involved selecting

participants non-randomly (i.e. non-probability sampling) and with a purpose in mind (i.e. purposeful sampling). Here, the researcher defined the sample using the above-mentioned groups. A quota of participants was decided upon for each group, irrespective of the proportion of these sample units in the population (i.e. non-proportional). The benefit of this method is that it guarantees that smaller groups of the population are represented in the sample (Trochim, Donnelly, & Arora, 2016). Therefore, the study population was selected using the following sample frame:

- Group 1a: identified thanks to the map of local geocaches on Geocaching.com (Groundspeak, n.d.-d), and contacted by email;
- Group 1b: identified thanks to the logs on the local geocaches' webpages and through the researcher's own participation in the activity, and contacted via email;
- Group 2: identified by contacting local tourism boards and local tourism professionals, and contacted via email;
- Group 3: invitation for participation advertised on hotels' and campsites' notice boards (see appendix F);
- Group 4: convenience sample of residents of the destination; contacted by phone.

The size of the sample was decided upon based on both the data needed for the study and the time available to conduct the research; the participation of several interviewees from each stakeholder group was necessary in order to increase the validity of the findings. Following an inductive reasoning, the initial goal was to interview participants until reaching saturation. However, due to the limited time available, a quota of five participants per stakeholder group was decided upon.

Some of the interviews included two participants: In Group 1a, two geocachers playing under the same username were interviewed at the same time, and in group 4, residents from the same household were interviewed together. The researcher chose to count these multi-participants interviews as one sample unit each, due to the fact that these interviewees answered the questions together and could be influenced by each other's answers. The final sample was thus composed of 22 units:

- Group 1a, cache-owners: five units – saturation was reached.
- Group 1b, cache-seekers: two units – as players who place geocaches also look for them, it was judged unnecessary to include additional participants, as saturation was reached.
- Group 2, tourism professionals: six units – the number was revised upwards due to the varied range of occupations of the available participants, which provided a wide variety of

viewpoints on the topic. Even with this revision of the sample size, saturation of data was not achieved.

- Group 3, tourists: four units – as the field work was conducted during the shoulder season (April-May) and not during the peak (summer) season, participants of this stakeholder group were more difficult to reach. As a result, the projected number of participants was not reached, also failing to reach saturation.
- Group 4, residents: five units – saturation was reached.

In Chapter 5, interviewees are referred to by a number (e.g. geocacher 1; resident 5); this information is sufficient for the purpose of this study and allows the reader to easily identify which stakeholder group the quoted participant is from. To differentiate between two interviewees of a multi-participant interview, a letter is allocated behind the unit's number (e.g. the two geocachers who play under the same username are referred to as geocachers 5a and 5b). More details can be found in the list of interviewees in appendix G.

Tourism professionals were purposely selected in relation to their occupation to address the many aspects of tourism. Due to the nature of the research topic, it was relevant to interview tourism professionals specialised in new technologies and heritage. Therefore, the researcher interviewed professional 1 – in charge of the digital tourism development of the area; professional 2 – guide-lecturer and councillor responsible for Culture in one of the municipalities of the destination; and professional 3 – in charge of the heritage inventory on the territory of Terroir de Caux. A tourism professional specialised in promotion was also interviewed: professional 4, executive assistant of a tourist office, in charge of tourism promotion. Besides, the researcher also interviewed professional 5 – who was involved in the creation of the existing treasure hunt “Trésors Auffay-Trois Rivières”. In addition, as environment is one of the three pillars of sustainability, and due to the critics that geocaching received in relation to its impact on nature (see section 2.3.4), a tourism professional specialised in natural heritage was also interviewed: professional 6.

It is worth noting that one of the tourism professionals interviewed – professional 4 – does not work exactly within the geographical limits of the destination. The decision to include this interviewee was taken because tourism destinations have blurry boundaries for tourists, and also because a geotrail crosses the administrative border between PDTC and the neighbouring destination where professional 4 works – Villes Soeurs. Professional 4 is also one of the only tourism professionals interviewed who geocaches herself; hence, she was expected to have a very specific point of view both as a player and a tourism professional.

Besides, on the one hand, the tourism professionals and geocachers interviewed were informed in the first contact-email about the topic of the interview: “geocaching and heritage tourism.” A one-minute introductory video (Geocaching, 2013) was linked in the email sent to tourism professionals, for those who might not be familiar with the game. On the other hand, the research was not introduced to tourists and residents as being about geocaching, because this could have discouraged people unfamiliar with the activity to take part in the study. Therefore, the interview was presented to them as being composed of questions about tourism in the area, heritage tourism, and the use of new technologies in tourism (see invitation for tourists’ participation in appendix F). Hence, the first questions of the interviews addressed to these two stakeholder groups were more general, before delving deeper into the topic of geocaching, after a short introduction about the game.

4.3 Measurement Development

4.3.1 Interview guide

In preparation of the field work, an interview guide was developed. As indicated by Patton (2002), “an interview guide lists the questions or issues that are to be explored in the course of an interview” (p. 343). The interview guide designed for the present research was semi-structured, leaving the interviewer free to delve more deeply into a specific topic, while still ensuring that the main frame of the interview remained unchanged.

The interview guide was based on recurring themes of both the cultural heritage literature and the academic papers on geocaching and other location-based games. This review (see Chapter 2) helped identify three areas of opportunities and concerns that were used as a basis to develop interview questions:

- The educational potential of geocaching
- The impact of geocaching on the built and natural environment
- The benefits of geocaching for the tourism industry

A preliminary analysis of the geocaching map of the destination (please see appendix D) provided the researcher with a better understanding of the geocaching activity in the area and helped to develop questions and give examples that would trigger more concrete answers from the participants. The type of information extracted from this analysis included the location of the geocaches, their types (traditional, Mystery, Earthcache, etc.), their dates of creation, as well as who their cache-owners are (individuals or professionals) and data on visitation.

Additionally, newspaper articles on the use of geocaching by destination marketing organisations in other places were reviewed by the researcher prior to establishing the interview guide, so as to learn more about the possible applications of the game in tourism. The findings of this review were used to inform the interview questions.

Due to the heterogeneous knowledge that the different stakeholder groups were expected to have about heritage, tourism, the destination and geocaching, the researcher created five different interview guides: a common one for groups 1a and 1b, one for group 3 and one for group 4. Two different ones were created for group 2 to allow for adjustments to be made when addressing the professionals who were familiar with the game and those who were not. Most of the professionals who accepted to be interviewed informed the researcher about their knowledge of geocaching prior to the interview; the relevant guide could then be used depending on the situation. The full interview guides are presented in appendices H-L.

The interviews were designed to last between 30 and 45 minutes. The interview guides were composed of 25 questions in average, which formed the skeleton of the interviews, and their semi-structured design enabled the researcher to use probe questions to encourage the respondents to elaborate on their answers when needed. The questions of the five interview guides aim at addressing the same topics, but from different points of views, depending on the stakeholder group's knowledge. For example, "What are the attributes of a good geotrail?" is not a question that could be asked to tourists unfamiliar with the game. Questions involving an esoteric knowledge of geocaching were thus replaced by more general questions about games, digital technologies in tourism, or heritage tourism, such as "What is, in your opinion, an essential aspect of a tourism activity that presents heritage?"

The interview guides started with general, easy-to-answer questions, before delving deeper into the topic of geocaching and heritage tourism. E.g. Locals: Do you know about the history of the area? Tourists: What did you visit during your stay? Geocachers: How many geocaches have you found? Tourism professionals: Can you tell me more about your role? In addition to introducing the topic, these introductory questions help catch the participants' interest, and "once their experience has been described, then opinions and feelings can be solicited, building on and probing for interpretations of the experience" (Patton, 2002, p. 353).

Besides, the interview guides included a range of question types: A mix of open-ended and close-ended questions aimed at providing a variety of question formats to avoid respondent fatigue, which could otherwise lead to a reduction of the data quality (Lavrakas, 2008). For this reason, the guides were also composed of a mix of opinion and values, experience and knowledge questions,

following Patton's (2002) recommendations on question types. E.g. Opinion and value: What do you think of this game? Experience: Questions to geocachers about what they found. Knowledge: What do you know about the use of geocaching in tourism?

Open-ended questions were also phrased in various ways, so as to elicit more comprehensive data from the participants by addressing different facets of a same topic. This was done through the use of hypothetical, ideal position and interpretative questions (Strauss, Schatzman, Bucher, Ehrlich, & Sabshin, 1981). E.g. Hypothetical: If you could place a geocache, where would that be? Ideal position: In your opinion, what would be the best way to attract tourists other than just the geocachers towards the game? Interpretative: What is, for you, a good geocache vs. a bad geocache?

It should be noted that the interview guides were first written in English, as part of the research design. Due to the location of the case, the questions were then translated into French, while keeping an English version available for group 3 (tourists). Among the four tourists interviewed, two were interviewed exclusively in English, and one wanted to start in French but switched to English halfway through the interview.

4.3.2 Preliminary conversations

After drafting a first version of the interview guides, the researcher organised preliminary conversations with a tourism professional responsible for the tourism development of Falaises du Talou (professional A) and with a councillor responsible for the tourism and hiking trail development in one of the municipalities of the destination (professional B). In addition to providing information on the tourism strategy and the heritage tourism market of the destination, these meetings helped to verify the validity of the interview guides. It also helped to narrow down the questions and to re-word them in order to trigger appropriate answers from respondents. Additionally, a preliminary conversation with a local geocacher (geocacher A) also provided information used in the design of the questionnaire. For instance, this player expressed strong feelings regarding the use of geocaching by tourism organisations, and more specifically about the risk of not finding the proper balance between recreation and education.

Even though the prime objective of these preliminary conversations was to improve the interview guides, the data collected were also used for the data analysis, due to the relevance of the information provided by the informants.

4.3.3 Pre-tests

Once the interview guides were designed, pre-testing was used to test and improve the validity of the procedure before starting the actual data collection. To do so, pre-test interviews were organised. In accordance to Hurst et al.'s (2015) description of a typical pre-testing process, pre-test participants were selected so that their characteristics were similar to the ones of the study population. These interviews were conducted “in a manner that replicates how the data collection session will be introduced and what type of study materials will be administered . . . as part of the process” (Hurst et al., 2015, p. 4). Due to time constraints, only two pre-test interviews were conducted: one with a participant familiar with geocaching and one with someone unfamiliar with the activity. The aim of these pre-tests was to test the reliability of the measurement and interview process, and to verify the understanding and accuracy of the questions for non-geocachers.

Following the pre-tests, some questions had to be reworded, as it became evident that they could be misunderstood. For instance *présentation*, the French word for “interpretation”, was confused with the word *promotion* (“promotion”). *Présenter* was thus replaced by *donner des informations sur* (“to provide information about”) to clarify the meaning of the question. In addition, some questions that could be considered as “leading questions” were reworded so as not to influence the respondents’ answers. Also, the pre-tests highlighted a couple of occurrences where several issues had been combined into single questions. It was necessary to divide them into sub-questions to avoid creating confusion. Finally, although some questions did not trigger the expected answer, they were kept as part of the interview guide, as the information provided was of interest for the study.

4.4 Interview Process

The interviews were scheduled to take place in a one-month period from the 25th of April to the 27th of May 2017. The face to face interviews were planned to last between 30 to 45 minutes and lasted an average of 32 minutes. Each interviewee was asked for permission to record the interview, as well as to use the data obtained for the purpose of the Master’s thesis. Every participant gave their consent.

As mentioned above, after starting with rather general questions, the respondents were asked if they were familiar with geocaching. The basic principles of the game were then explained to all the participants unfamiliar with it. This was done using the text in appendix M, a one-minute introductory video (Geocaching, 2013), and the geocaching map of the area (see appendix D). The interview guides were used as a guiding thread to ensure that “the same basic lines of inquiry

[were] pursued with each person interviewed” (Patton, 2002, p. 343). The researcher used follow-up questions to explore more in-depth topics that were of particular interest to the study.

As qualitative research is an iterative process, the first interviews were analysed and used to improve the interview guides and refine the focus of the questions for the subsequent interviews to dig deeper into emerging topics.

4.5 Data Analysis

Following each interview, each recording was transcribed using a word processing software, and kept in the participant’s own words to reflect the interview as closely as possible (Zecha, 2012)⁵. The first step of the data analysis was to create a case study database by uploading the interview transcripts as well as field notes onto a computer-assisted qualitative analysis software – NVivo. Due to the large number of interviews, as well as their extensive length, only the transcript of one interview is included in appendix N. Nevertheless, in order to maintain a chain of evidence and to increase the reliability of the findings, all the external data used in the analysis have been stored and can be provided to the reader on request.

The data were then thematically coded following the general inductive approach detailed by Thomas (2006). After a close reading of the transcripts, categories were created to thematise the data obtained. As explained by Thomas (2006), main categories are developed using the evaluation aims of the research; here, the researcher used the five research questions stated in Chapter 2. These research questions are the following:

1. *How can geocaching be used to make cultural heritage tourism more accessible and relevant to a wider audience?*
2. *How can geocaching help to enhance the economic development of the destination by promoting cultural heritage tourism in the countryside?*
3. *As a self-regulated game, how can geocaching be managed to meet the conservation goals of cultural heritage tourism management and reduce negative visitor impacts?*
4. *How can geocaching be used as an interpretation method, balancing the need for both education and recreation?*

⁵ It is only after the complete data analysis that the quotes used in the final report were translated into English.

5. *As a user-generated content game, how can geocaching involve local stakeholders whilst guaranteeing authenticity and quality?*

In addition, sub-categories were created through the identification of themes in the interview transcripts. Whereas some extracts of the text were coded into several categories, other parts of the transcripts remained uncoded, as they were not considered relevant to the present research. During this first round of thematisation, more than 50 sub-categories were created. It is by consistently reviewing the category system that the overlap of themes could be reduced. Through this iteration of the reviewing process, four main themes were obtained, each combining sub-themes which represent different variables and viewpoints. The main categories are:

- Heritage promotion through geocaching
- Development of the countryside
- Conservation and managing visitor impacts
- Geocaching as an interpretation method

Following this analysis process, these categories were used to establish the main sections of the following chapter.

CHAPTER 5 - ANALYSIS AND DISCUSSION

In this chapter, the information gathered from the interviews is linked to the main themes of the reviewed literature to explore the benefits and drawbacks that geocaching offers for cultural heritage tourism. This part is composed of four sections, corresponding to the main categories identified during the analysis described in section 4.5. Each of them is organised around sub-themes to answer the five sub-questions guiding this research and thereby develop a set of recommendations regarding the appropriate use of geocaching in the context of cultural heritage tourism.

The first section examines the ways in which geocaching can be used to promote cultural heritage to a wider audience by increasing its accessibility and relevance (sub-question 1). Then, the next section investigates how the game can contribute to the economic development of the destination by encouraging cultural heritage tourism in the countryside (sub-question 2). The following section focuses on how the activity can be in line with the conservation goals of heritage management, despite its self-regulated nature (sub-question 3). Lastly, the fourth section of this chapter explores how geocaching can be used as an interpretation method (sub-question 4) and provide high-quality authentic experiences despite its user-generated content (sub-question 5).

5.1 Heritage Promotion through Geocaching

In order to investigate how the game can be used to make cultural heritage tourism more accessible and relevant to a wider audience (sub-question 1), this section explores how geocaching can be used to attract the tourists of the 21st century. It then focuses on what needs to be done to make heritage accessible through this game, as well as the pros and cons of using this activity as a communication channel to promote heritage tourism.

5.1.1 Using geocaching to rejuvenate heritage tourism

5.1.1.1 *Usual audience vs. targeted audience*

The socio-demographics of heritage tourists in Pays Dieppois-Terroir de Caux do not differ from the traditional profile mentioned in the heritage tourism literature; they are usually middle-aged and over (professionals A), and interviewees from the various stakeholder groups comment that heritage assets in the area are not attractive for younger audiences (residents 1 & 3a; tourist 3).

Even though some purposeful heritage visitors come to the destination with the aim of visiting some specific sites, such as the Clock-Making Museum in Saint-Nicolas d'Aliermont

(professional A), most tourists visit heritage attractions as an adjunct to their trips, and they might discover heritage “whilst going for a walk, a bit by chance” (resident 1). Besides, the attracted audience is mainly composed of excursionists (professional 3), despite the fact that the tourism boards wish to attract overnight tourists (professional A).

Furthermore, the aim of the local tourism boards is also to attract the usual tourism audience of the destination (composed of families with children of all ages) towards heritage (professional A). When asked what could make heritage in the area more attractive to younger people and families, the interviewees mentioned the use of technologies (professionals B & 3; residents 1, 3a & 3b) and games (professionals 3 & 5; residents 1, 3a & 3b). In fact, new technologies offer opportunities to make cultural heritage more dynamic and interactive (Garau, 2014; Majdoub, 2013) and can thereby modernise and rejuvenate the image that people hold of heritage tourism (professionals A, 1 & 3; resident 3a). Games also make it easier for visitors to remember what they see and learn (professionals 3 & 5), which is a statement that several researchers highlight (Avouris et al., 2013; Costabile et al., 2010; Gram-Hansen, 2009). Besides, interviewees mention that younger generations are often looking for “something different” (tourists 2, 3 & 4), “less academic” (geocacher 6) and “something [they have] never done before” (tourist 4) rather than traditional activities. These statements are in agreement with the increasing interest of tourists for personalised and “off the beaten path” experiences, mentioned in Chapter 2 (section 2.2.1) and the rising demand for digital products (section 2.2.4).

5.1.1.2 Opportunity to attract the targeted audience

In contrast with the previously identified target audience’s interests, the tourism products and interpretation methods currently used at the destination are mostly traditional: e.g. museum exhibits, guided tours (please refer to section 3.2.2). Professional A mentions the need to “know how to diversify [this offer], to propose things that match the customer base” and “their expectations.” Although tourism professionals recognise the potential of games and technology to “attract more the families, the young people” (professional 3), only one digital treasure hunt currently exists at the destination, in the town of Auffay. It is also worth noting that this treasure hunt does not use geolocation, due to the price of this feature (professional 5). Consequently, professional 1 mentions the need for a smartphone application that would provide short geolocated heritage circuits. Geocaching can thus be seen as a suitable game to fill this gap in the tourism offer of the destination.

Geocaching, thanks to its recreational and technological aspects, is seen by the interviewees as having the potential to make heritage tourism more dynamic (geocacher 6; resident

4b; tourist 4), and thus more attractive to the newer generations (geocacher 5a; professionals B & 3). In fact, this game is considered as an unusual way of presenting heritage (geocacher 6; resident 4a) that matches the needs of new generations for alternative experiences (professionals 2 & 6; residents 1 & 5). It also provides tourists with meaningful and creative experiences (Ihamäki, 2008, 2015), answering visitors' desire for co-creating their tourism experience (tourists 1 & 4).

Stakeholders at the destination mention that heritage geocaches can make heritage accessible to “people of any age” (geocacher 7) and widen the heritage tourism audience (professionals 4 & 6). More specifically, the profile of geocachers is usually younger than the profile of the traditional heritage tourist, as most of the players are aged between 20 and 45 years old (Groundspeak, n.d.-g), and this activity is often undertaken by families (Telaar et al., 2014). The search for a geocache gives an aim to the players and is seen by the interviewees as having the potential to motivate the players to undertake a heritage tourism activity (professional 4; residents 2a, 2b & 3a; tourist 2), especially children and teenagers (geocacher 5a; professional 6). In addition, access to the geocaching website and the smartphone application is free of charge. Whereas entry fees may prevent some visitors to access heritage (Boyd, 2008; Garrod & Fyall, 2000), geocaching can be seen as a tool to make heritage accessible to anyone. Moreover, as this game is played all over the world, it could bring players from abroad to the destination. Thereby, geocaching attracts an audience with similar demographic characteristics as the one that tourism managers in Pays Dieppois-Terroir de Caux want to draw towards heritage tourism.

5.1.2 Making heritage more accessible

Even though geocaching has the potential to attract a wider audience towards heritage tourism, this is not necessarily sufficient to make heritage accessible to the targeted segment of the market. The content and format of the game need to be suitable for this specific public. The challenge in PDTC is that destination managers aim at making cultural heritage tourism attractive to a heterogeneous audience, composed of families, young people and tourists.

5.1.2.1 Targeting families and young people

With regard to attracting families, a lesson can be learned from past experience. The existing digital treasure hunt “Trésors Auffay-Trois-Rivières” aims at leading families and tourists around the town for them to discover its heritage and tourist attractions. However, the game involves answering questions in written form, and children participating in the game tend not to be able to answer them or find the format not appealing enough (professional 5). Hence, caution should be taken to make the content of the geocaches' descriptions “understandable by all.” For

example, the cache-owner should make use of more visuals and include anecdotes rather than simply narrating historical facts and figures. Recommendations on the description's content are presented in more detail in section 5.4.

Besides the level of intellectual difficulty, some geocaches are not physically or technically suitable for families with young children (professional 6). Children might easily get annoyed or bored if the game is too difficult (geocacher 7; professional 6; tourist 4), for example if it involves long hikes on difficult terrain: "Some trails are too complex. Children might find one of the boxes, but generally you need to climb up trees, you need to climb on things, and it can be a bit difficult" (geocacher 7). Some geocaches are also simply hidden in places too high for children. For example, the cache placed near the Museum of Daily Life, in Saint-Martin-en-Campagne, is not reachable by someone of small size (geocacher 1).

Even though geocacher 3 explains that a good tourism-oriented geocache should be accessible by anyone, it should be noted that some players might then find these "accessible-by-all" touristic geocaches not challenging enough to arouse their interest and satisfy them (tourist 4). Indeed, Ihamäki and Luimula (2013), in their publications about the geocacher's experience, mention that players can enjoy a deep and rewarding experience through the game, but only if the player's skills are matched with the level of the challenge.

Be that as it may, Geocaching.com enables players to plan ahead and look for geocaches corresponding to their skill level, as cache-owners rate their caches from 1 to 5 on two scales corresponding to terrain and technicity. The level of difficulty can therefore be clearly indicated (professional 6), enabling players to "know that some are not suitable for kids" (geocacher 7). Consequently, although some are not designed for a young public, there are "many geotrails which are suitable, so that there is something for every taste, and that even five-year olds can find boxes" (geocacher 7). Therefore, in the tourism context, it is important to grade geocaches' technicity with accuracy, and to provide a variety of geocaches of different levels of challenges, so as to offer a "good mix of harder ones to find and easier ones to find for the families that are a bit more leisure/touristy" (tourist 4).

Interviewees also expressed concerns with regard to geocaches placed in dangerous places (geocachers 2 & 6; professionals A & 2; residents 1, 2b, 3a & 5; tourist 2). As a matter of fact, some geocaches in PDTC have been hidden in places considered as unsafe by the interviewees (professional 4). This might be due to the cache-owner not being fully aware of the dangers associated with the location (tourist 2), or the desire to create challenging geocaches (geocacher 7; tourist 4). It should be noted that fatal accidents have happened to geocachers (e.g. falling down

a ravine; Mott, 2017), and even though players are responsible for their own safety (Groundspeak, 2016b), geocaches used for tourism should certainly not jeopardise visitors' lives. Geocacher 7 thereby insists that

geocaches should not be hidden in places that would endanger people's lives too much. For the game to be interesting and fun, we need to spice it up a little bit, but we don't want any death either. For example, there should not be any [geo]trail along the cliff, you see, as there is a risk of crumbling. (Geocacher 7)

A particularity of PDTC is, in fact, the presence of chalk cliffs on the territory. Whereas locals are conscious of the danger they represent, placing a geocache on the cliff could encourage visitors to wander too close to the edges, unaware that it could collapse (geocachers 3, 6 & 7; professionals A, 2 & 6; resident 1, 2b, 3a & 5; tourist 2). Similarly, visitors might not be familiar with the dangers of the coastline at low tide (professional 6). Furthermore, the placement of the cache needs to be thoroughly thought about so as to be safe for a younger public. For instance, professional 2 explains that a geocache placed near a road could endanger a young public, and professional 6 illustrates this statement by mentioning a geocache placed on a busy and windy road between Dieppe and Pourville (see location in appendix C): "There are places, like that, that are not for kids."

5.1.2.2 Targeting tourists

In addition to excursionists, destination managers wish to draw tourists to the destination (professional A). Among the tourists interviewed, some did not fluently speak French. Tourist 4, originally from the USA, talks about the difficulty to read information on heritage in another language: "It is hard here, sometimes, because [the information plaques] are more exclusively in French." Tourist 2, from Australia, thus mentions the need for the geocache's description to be available in several languages. It should be noted that this has already been done by some cache-owners in the area, such as geocachers 5a and 5b who provide historical information about the ferry terminal in both French and English. As foreign tourists at the destination are mainly from the United Kingdom, Belgium, Germany and the Netherlands, it is notably recommended to include translation of the cache's description in these languages. In particular, Germany has one of the world's largest geocaching communities (Telaar et al., 2014); providing geocaches' descriptions in German could thus be seen as a real advantage for the destination.

5.1.3 Geocaching as a communication channel?

During the interviews, when asked why some visitors do not visit heritage sites, several participants explained that people might “miss it” because they do not know that it exists (resident 2a ; tourist 2) and “pass by without seeing it” (resident 2b). According to the residents and tourists interviewed, this is partly due to a lack of communication and promotion, as well as to the use of inadequate means of communication to target young people (residents 1, 2a, 2b, 4a, 4b & 5; tourist 3). In fact, resident 2b points out that “those who have access to the information are those already interested by it,” and resident 5 comments that “if it requires an effort to go and find the information,” young people will not do it. Resident 5 and tourist 3 insist on the necessity to select communication channels which use new technologies when promoting heritage to young people.

Some interviewees think that geocaching can be an efficient tool to attract tourists towards heritage attractions, as “more and more tourists take part in geocaching at home, and so they might be happy to find geocaches” on holidays (resident 5). As both the geocaching application and the website give access to geocaches all around the world, the game does not require a different application for each destination or each geotrail. This game might therefore enjoy more visibility than local activities (e.g. “Trésors Auffay-Trois Rivières” requires a player to download a specific smartphone application). However, geocaching is still a niche market, and a critical mass of players is needed for tourism to benefit from it. The use of geocaching as a communication channel would only work if visitors are familiar with the game (geocacher 1; professional 2; resident 5). Thus, whereas visitors might pass by heritage without noticing it (resident 2b), the same thing can happen with geocaching: “People who might not know about it might miss out on the information that it provides” (resident 5). Thereby, the participants add that geocaching can only be used to promote heritage if tourists are informed about it (professionals B & 4; resident 5). It is also worth noting that visitors are not the only ones who need to become aware of the game; even 17 years after the launch of the activity, many tourism professionals have not yet heard of it or do not consider its use as a tourism product (professional 4).

To reach this critical mass of players, the treasure hunt at the destination needs to attract not only existing geocachers, but also tourists in general (professionals B & 6). Consequently, it “requires huge communication efforts . . . for people to be informed” (tourist 5). The tourism professionals interviewed mention several ways of advertising the game and the local geocaches. Most of them talk about promoting them on their websites and social networks (professionals 4 & 6), as well as in local tourist offices (professionals 2 & 4). They also mention, to a lesser extent, advertising them on their smartphone applications (professional 6), in local newspapers

(professional 4), and in holidays accommodations, such as bed and breakfasts and campsites (professional 2).

It is also necessary to take into account that PDTC is a rural destination and phone coverage may be limited in some areas of the territory (professionals A & 3). Moreover, although Internet access is now readily available on mobile devices, some people still do not have Internet data included in their mobile phone plans (especially foreigners) and rely on the Wi-Fi available at the destination (tourist 1). It should be noted that the game can be accessed offline if the geocaches' details have been downloaded beforehand by the player. However, even though the offline function might help to bypass the lack of connectivity, this requires a player to plan the activities at the destination well ahead; tourist 1 points out that, before leaving on her trips, she “do[es] not know in advance what [she] will do during [her] holidays.” As a result, this lack of connectivity can be seen as a barrier to the dynamism and interactivity that tourists are now looking for. This problem was already noted with the existing treasure hunt in Auffay. Professional 5 recommends providing free Wi-Fi access in various visitor areas, so as to enable tourists to download the application as well as the necessary information once already at the destination, before setting off on their hunt. Tourist 2 also mentions that the game should be promoted near these Wi-Fi access points, to encourage and facilitate access to it.

Although most of the non-geocachers interviewed did not realise the large number of players around the globe, the geocaching community and its 3 million members (Kettler, 2017) can be seen as a promotional opportunity for the destination. Members of this community communicate among themselves (Baudoux, 2012), share their experiences, express their opinion on geocaches, and give recommendations to one another. They do so through the logs that they post on the geocaches' webpages, but also on forums, via social media and face to face (geocachers 5a, 5b, 6 & 7; professionals A & 4). They also promote the game to non-players (geocacher 7; resident 5). This word of mouth is seen as an opportunity for promotion (Baudoux, 2012), and it is recommended to create memorable geocaches of very good quality, so as to encourage geocachers to share their discovery and satisfaction about the PDTC's geocaches with their peers (geocachers 6 & 7). For instance, geocacher 7 explains:

It may draw people for a weekend, because there is a nice touristic trail in place, with some decent caches with a neat maintenance. People will want to come geocaching, and because they liked the place, they will talk about it to other geocachers, saying “Hey, I went there, I went geocaching, and I stayed in this campsite. We were very well hosted, the surroundings are enjoyable. We would have never thought of going there otherwise.”

In addition to mentioning the necessity to hide the caches in clean places, away from garbage (geocachers 6 & 7), geocachers explain that to be memorable and benefit from positive word of mouth, caches need to be creative and ingenious, for example by involving some problem-solving skills. They also recommend using nice containers, rather than common tupperware boxes (geocachers 4, 6 & 7). Indeed, the quality of the heritage attraction impacts the visitor's satisfaction (Timothy, 2007) and the competitiveness on the market (Garrod & Fyall, 2000).

Besides, some of the residents interviewed mention that they tend to visit more cultural heritage attractions if a special event is organised (residents 2b & 3a). Actually, events are mentioned by McKercher and Du Cros (2002) as a strategy to develop cultural tourism attractions. The participants give two main reasons why they think events can make cultural heritage more attractive: Firstly, they often include a recreational aspect that allows to discover (or rediscover) the site differently (professional 2; residents 1 & 3a). For instance, resident 3a mentions the "European Night of Museums," when museums stay open to the public at night time, and special activities are proposed to visitors. According to professional 2, these types of events often attract "those people who usually never set foot in museums." The second reason is that one-off events are usually more promoted than activities which are regularly organised (resident 2b). This increased communication catches people's attention (tourist 4), especially with regard to local visitors: "If there is no event, they don't take advantage of it... They think that they will go later, and never go" (professional 5).

Consequently, on top of promoting geocaching on the destination's websites and other platforms, one of the recommendations coming from this research is to organise geocaching events related to cultural heritage. In fact, Groundspeak offers the possibility to organise Event Caches (as explained in section 2.3.1); such events could attract people both towards heritage and towards the game. It could help to introduce the activity to heritage tourists, and to encourage geocachers to visit heritage sites.

In summary, thanks to the findings presented in this section, the answer to the sub-question "*How can geocaching be used to make heritage tourism more accessible and relevant to a wider audience?*" can be summed up as follows:

- **By providing a mix of heritage geocaches**, by varying the types and the level of difficulty of the geocaches so as to match the players' different abilities and interests.
- **By providing support to the players**, by clearly indicating the difficulty level of each geocache on their webpages, enabling Wi-Fi access, and providing translations in several languages.

- **By organising heritage-related Event Caches**, to promote both heritage and the game itself.
- **By privileging quality over quantity**, to increase satisfaction and encourage positive word of mouth.

5.2 Development of the Countryside

Through this section, the researcher explores how geocaching can enhance the economic development of the destination by promoting cultural heritage tourism in the countryside (sub-question 2). It first focuses on how to promote the destination's heritage of the ordinary, before considering the economic impacts of the activity.

5.2.1 Promoting the heritage of the ordinary

5.2.1.1 *Ordinary landscapes*

The destination under study is rich in heritage. However, when compared to other destinations in Normandy, most of PDTC's cultural heritage assets are secondary and tertiary attractions. Whereas global attractions attract tourists from overseas (Timothy, 2011), Dieppe and the PDTC area have mainly a local and regional appeal and benefit from less exposure than internationally renowned places. Nevertheless, with the growing trend of visiting places off the beaten path, PDTC has the potential to cater for the needs of tourists interested in experiencing places away from traditional mass tourism and thus away from global attractions. The destination can draw tourists who “want to see something else than just the big Eiffel Towers” and look for the “small hidden treasures that no one else have seen . . . anecdotes, shared experiences” (professional 5). For example, the farming heritage of the destination is often overlooked despite its importance for the territory (professional A).

Besides, Dieppe, being the main town of PDTC, is often considered to be the main centre of activity at the destination. In fact, visitors tend to be more interested in “the big church in Dieppe” (resident 4a) rather than in tertiary heritage attractions in surroundings towns and villages, even though these are also part of the destination's heritage landscape (geocacher 1). Consequently, professional A mentions the need to attract tourists towards the rest of the destination, in order for “the countryside to structure itself, to organise itself, so that when someone comes to Dieppe on holidays . . . they can do things both in Dieppe and in the countryside” (professional A).

Geocaching can be used as a destination promotion tool (e.g. Gram-Hansen, 2009; Ihamäki, 2013, 2015; Santos et al., 2012) and can help to direct people towards smaller and lesser-known places (Morreale & Bertone, 2015), potentially helping to revitalise the small towns and villages, which often suffer from a lack of activity (professional 1; residents 1, 2a & 4a; tourist 4). Heritage geocaches can also help to give visibility to heritage attractions that tourists may not visit otherwise (geocachers 3, 4 & 5b; professional 1 & 2; residents 3b & 4a; tourists 1, 2 & 3). For example, at the destination, professional 1 thinks that “in Arques-la-Bataille, we could place [a geocache] near the church, which is beautiful and maybe not known enough” (see location in Appendix C).

By drawing casual and accidental heritage tourists off the beaten path and towards the heritage of the ordinary (professional A), this activity responds to another trend in heritage tourism: the heritagisation of the everyday past (Timothy, 2014; Timothy & Boyd, 2006). In fact, the game can lead visitors to “places to discover... maybe not outstanding or remarkable places, but ordinary places that are enjoyable” (professional 6), giving the players “reasons to explore and ‘get a feel’ for places they would otherwise have ignored” (Anton, 2008, p. 80). For instance, geocacher 6 recounts:

Saint Jacques church, when you are tourists, it is a must-see, and if you are interested in heritage, you will go and see it anyways. However, when you go and discover the history of Puys... The Multi-Cache of Puys is placed near the chapel, so you discover the seafront with a lovely landscape, then you stroll in the village, and you go to places you would not have gone to otherwise. Not around here, but... near Martainville, we also discovered a mortuary chapel which looked like a small basilica, but in the middle of a forest, two kilometres away from the nearest house. We never found the cache, but we were... it was amazing and we did not expect to find this there.

In order to promote the heritage of the ordinary at the destination, recommendations on how to choose appropriate locations for heritage geocaches have been developed. These recommendations are issued from comments made by the different groups of stakeholders interviewed during this study.

First of all, if geocaching is to be used to promote the cultural heritage of the destination, then the geocaches should be placed at a variety of locations to “cover a maximum of places and monuments” (geocacher 3). Indeed, as mentioned by O'Hara (2008), one of the reasons to geocache is to discover and explore new places. Nonetheless, geocaches should be hidden at places of interest (geocacher 1; professionals 4 & 6); insignificant geocaches, without any particular aim,

should be avoided, as it would disappoint the tourists and geocachers who wish to discover interesting places (geocacher 4; resident 2a). As a result, cache-owners should not simply “scatter boxes” (geocacher 2), and a good cache should start with “a preliminary reflection on why placing a cache here” (geocacher 4). For example, professional 6 recommends placing geocaches near historic houses in Dieppe or near an engraving of the old port, as these are locations “linked to something to discover.”

Interestingly, most respondents explain that if they were to place a geocache, they would hide it near heritage of the ordinary. Several interviewees even recommend not to place geocaches near main attractions, but near little known and unusual heritage sites (geocachers 2, 4, 5b & 6), which are often not promoted in guidebooks (resident 1) and on which people would otherwise miss out (geocacher 1). Professional 1 also mentions this point, explaining that “there are some municipalities that may be less known, whereas it is worth visiting them”, and that if the tourism board was to place geocaches, they would hide them in Offranville (see location in appendix C) rather than near the castle in Dieppe. As a matter of fact, the residents interviewed explain: “The big ones, we know them” (resident 2a), they are “already indicated on maps” and “we can find them anywhere on the Internet, we can have books, we can have leaflets” (resident 2b). Resident 2b illustrates her remark by comparing a well-known monument of the French capital with the local heritage of PDTC: “About Notre Dame de Paris, we can find some [information], whereas about Notre Dame de Liesse, or down there, about the Meknès⁶, we cannot find as much.”

Interviewees also mention the fact that there are not many geocaches at the destination compared to other places in France (geocacher 1; professional 4); many areas of PDTC do not host any geocache yet, whereas their history is often little known, and heritage caches could give visibility to their heritage assets (geocacher 7; professional 1). For instance, geocacher 1 explains that a heritage cache placed in Berneval le Grand could give details about Oscar Wilde, as most people are unaware of the sentimental link that this writer had with the village. Similarly, geocaches could be created to talk about the Impressionist artists who painted the landscapes of the area (geocacher 4; residents 2a & 2b).

Even though the more geocaches there are, the more geocachers might come and visit the destination (professional 4), professional 6 recommends privileging quality over quantity. Groundspeak established a rule stating that geocaches’ containers cannot be placed at less than

⁶ The Meknès was a vessel which sank in the English Channel in 1940. A memorial was erected in Saint-Martin-en-Campagne (see map in appendix C) to commemorate the victims (Raillot, 2015).

161 metres from one another (geocacher 4; Groundspeak, n.d.-c). Yet, when the containers are hidden at this minimum distance from each other, it tends to be overwhelming for the player (professional 6; tourist 2) and the goal of using geocaching as a touristic activity or as a way to promote the destination might not be reached. For instance, professional 6 comments on the geocaches placed on the “Flax Cycle Route”:

The aim is not to place... I think that they could have placed four of them on the whole length... especially if the aim is to help visitors to discover the cycle route. Because right now... if people do it with their children, it is not funny to stop every 200 metres. We cannot even go from Veulette to Cany Barville in one time because there are too many caches! It is not interesting, it is always the same thing. (Professional 6)

Moreover, geocaches need to be maintained over time (please see section 5.2.2), and if too many of them are placed, cache-owners might not have time to carry out the necessary maintenance and the geotrail will quickly lose in quality and in appeal (professional 6).

5.2.1.2 Heritage trails

Professionals A and 3 explain that the current tourism strategy of the destination is oriented towards using trails to highlight cultural heritage themes. Their aim is thus to develop trails around key themes linked to the identity of the region, such as Impressionism (professional 2), the clock-making industry, and WWII (professional A). They also mention the development of trails “linked to the destination’s heritage of the ordinary, such as wells and bread ovens” (professional A), and the farming heritage of the region (professional 3). Due to the benefits that heritage trails offer in regard to giving visibility to heritage assets (Timothy, 2014; Timothy & Boyd, 2006), it seems crucial to use geocaching in line with this current strategy of PDTC.

As mentioned in Chapter 2, geocaches can be placed in such a way as to create geotrails (Santos et al., 2012). Geotrails can be made of various geocache types; whereas some are simply composed of a series of traditional caches placed along an itinerary, some are created through the use of Multi-Caches. In fact, a Multi-Cache will lead the players from one place to another for them to pick up clues at every stopover in order to find the final cache, which is often the only physical cache of the series. Whichever type of cache is chosen for a geotrail, interviewees recommend creating the series as a logical sequence of geocaches, to encourage the visitors to follow the trail in its entirety, and also because it is more interesting than containers placed randomly (geocacher 6; professional 6). Despite this, some geocachers explain that, when part of a geotrail, the exact location of the container does not always need to be of particular interest, as

it is then the route itself that is of importance (geocachers 5a & 5b). Nevertheless, geocaches placed at random locations (e.g. in a tree, in a bush, or on a road sign) should be limited as “it lacks the enriching aspect” of the heritage cache (geocacher 1), and because it creates a recurrence that might demotivate the player (professional 4). Both professional 4 and geocacher 1 use the geotrail of the Green Avenue near Arques la Bataille (see maps in appendices A) to illustrate these remarks.

Additionally, the tourism professionals interviewed explain that geotrails do not need to be developed from scratch; they even recommend using existing routes. For example, professional 5 mentions that the heritage walking tours in Auffay and Val de Saône (see locations in appendix C) could incorporate some geocaches near their points of interests. Likewise, professional 2 talks about using guided tours that she previously developed as itineraries for the game:

I already thought about a large number of themes and paths to develop in the area . . . For example, in any village in the valley, if there is a river... I studied the mills that were there in the past, so I would talk about these mills. I will want to present things that I discovered and which are not always visible. It would allow me to address history-related topics on paths that I designed for my guided tours. In a way it is an easy solution, but I think that if I already used these topics, it is because they are interesting. (Professional 2)

As explained by this interviewee, in addition to reducing the efforts and cost of creating new trails, using existing routes would guarantee the heritage interest of the geotrails (professional 2) and thereby reduce the risk of creating insignificant geocaches. These geotrails would also help to promote existing heritage tours and making them suitable to the needs and interests of new audiences (as mentioned in section 5.1). Alternatively, the geocache’s description also offers the possibility not to use informative panels on heritage trails. This is indeed an opportunity that digital tours provide, resulting in a reduced impact on the environment, as hardware infrastructures are not necessary to provide interpretation (Costabile et al., 2010; Grevtsova, 2013; 2015).

Professional A also mentions the difficulty of analysing visitation levels on tourism trails, due to the fact that visitors do not necessarily join the route at its start and follow it until its end. Geocaches placed along heritage trails could help to obtain more statistics on visitation as players “log” their visit for each cache, by indicating if they “found” it or “did not find” it.

However, a drawback of geotrails is the time it requires to complete the treasure hunt; some visitors may have limited time at the destination, and some may prefer collecting experiences rather than taking part in time-consuming activities (McKercher & Du Cros, 2002). For instance, professional 5 reports the fact that many visitors do not answer all the questions of the existing treasure hunt in Auffay and stop the pursuit half-way through, as they lose interest. Thus,

interviewees from all stakeholder groups agree that the length of a geotrail should be thoroughly planned in order not to discourage visitors to take part in the activity and to keep them involved throughout the game (geocacher 4; professional 6; resident 1; tourists 2 & 4).

It is also recommended to develop a mix of geotrails made both of stand-alone traditional caches and Multi-Caches; whereas geotrails made of Multi-Caches require visitors to follow the whole length of the route to collect clues and find the final container, trails composed of traditional caches would give visitors the choice of joining the hunt only for a few caches, if they prefer. In both types of geotrails, an overall theme could still be used as a link between the geocaches, in order to use this activity as part of the current tourism strategy and provide a more meaningful experience. In addition, within a geotrail or a series of geocaches, tourist 3 recommends varying both the type of heritage presented (not only cultural, but also natural) and the scale of the attractions (primary, secondary and tertiary). He also encourages providing a mix of container types (i.e. shape and size) and of placement (type of camouflage, height). This variety is expected to preserve the dynamic and engaging aspect of the treasure hunt for less serious cultural heritage tourists, who could otherwise easily lose interest if the game is redundant (geocachers 6 & 7; tourist 3).

5.2.1.3 Targeted audience and scale of attractions

Even though geocaching can help to increase the visibility of local heritage assets, interviewees of various stakeholder groups express concerns regarding the ability of the game to attract the audience targeted at. The respondents think that the game might attract existing geocachers and local visitors towards cultural heritage, but question the potential of the game to attract tourists, due to the local scale of the heritage of the ordinary. For example, professional A explains that the content of the attraction needs to be more substantial for tourists to travel to the destination. Geocaching would then mostly be a secondary activity for tourists already visiting the area. Likewise, after looking at the geocaching map of the destination, tourist 1 explains that caches placed near monuments of very local scale, such as the statue of Notre Dame de Chez Nous on the cliff in Saint-Martin-en-Campagne, might not be the type of places that tourists would want to explore when visiting the area for the first time. As a matter of fact, even though people increasingly seek to go off the beaten path, they still want to see the main landmarks mentioned in guide books.

Nevertheless, residents of the destination or neighbouring areas might be attracted by the game as a way of rediscovering their own region. It can help to draw their attention towards the

heritage assets they pass by every day without noticing anymore (geocachers 2, 6 & 7; professionals 1, 2 & 6; residents 1, 2a, 2b, 3a & 5; tourist 4). Tourist 4 explains:

You kind of just live in a place and you walk by things every day and you don't really... want to know. I guess you kind of become used to them; they become part of your life, every day, and you just kind of... After a while you kind of ignore them. They kind of become background noise.

It should be noted that locals are the best ambassadors of the destination (professional A); they are a fundamental part of the heritage landscape (Ashworth & Turnbridge, 1990; Schulz, 1990), and if they appreciate their heritage to the point that they can identify with it and be proud of it (Garrod & Fyall, 2000), they will contribute to its promotion (Ashworth & Turnbridge, 1990; Garrod & Fyall, 2000; Schulz, 1990). Additionally, the frequent use of a heritage attraction by locals is also a token of authenticity (Timothy, 2011). It is thus recommended not to place geocaches only at heritage sites that appeal to tourists, but also in places that are of interest to residents.

5.2.2 Geocaching, tourism and economic development

As mentioned in the literature review, many people geocache on holidays as a way of exploring destinations (O'Hara, 2008), and even travel with the purpose of practicing the activity (Ihamäki, 2012b; Santos et al., 2012). Therefore, geocacher 1 and 7 recommend creating geocaches in villages of the PDTC area, away from the main centre of attractions, in order to encourage players to make a detour and go from village to village when passing through the destination. In fact, many geocachers come from Belgium, the Netherlands and Germany and drive through PDTC on their way to the D-Day beaches of Normandy or to Brittany, often by-passing the small towns by using the main roads (geocacher 1).

With regard to the direct economic impact of the game, it should be noted that the basic version of geocaching is available free of charge, and players can take part in the activity at any time, without the need for a guide. Consequently, the game in itself is not a direct income earner. Tourist offices have the possibility to hire out GPS devices to increase accessibility to the game to non-smartphone owners. However, the cost of doing so often exceeds the economic benefits (professional A). Nonetheless, the tourism professionals interviewed see geocaching as an added value for the destination, as it can contribute, to some extent, to the economy of the area (professionals A, 3 & 4). Interviewees from the different stakeholder groups realise the opportunity that geocaching offers in terms of indirect economic contribution, through the players' expenditure

at the destination, e.g. spending on food and beverages (geocachers 4, 6 & 7; professionals A, 1, 2 & 3; residents 3b & 5). Yet, revenue rising is not the prime objective of heritage tourism (McKercher & Du Cros, 2002), and professional 6 mentions that geocaching can help to achieve greater goals than financial ones. He explains that the association he works for aims at making natural and cultural heritage more attractive, and that even if geocaching is not a money-making activity, it supports the objectives of the organisation.

Despite the above-mentioned economic benefits of geocaching, and the fact that revenue is not the main goal of heritage management, costs should not be overlooked. Heritage management often suffers from scarce funding (Timothy, 2007; Timothy & Boyd, 2006), and the operating costs of the activity need to be thoroughly considered in the planning phase to avoid the failure of the project. The initial investment comprises the material necessary to create the containers, and the human resources needed to develop the geocaches, including their placement and the development of their descriptions. The operating costs correspond to the on-site maintenance required to maintain the quality of the geocache over time. Indeed, caches suffer from wear and tear, as well as vandalism; it is not uncommon for a geocache to disappear (geocacher 4) or to be damaged (professional 6). Besides, logbooks need to be regularly replaced, once they are full, or have been damaged by both the users and the weather (geocachers 4 & 6). In addition, the cache-owner should also verify the logs (both on paper and on the website) to answer questions from players and check if problems have been reported (geocacher 4). Several interviewees insist on the fact that placing the geocache is only a fraction of the cache-owner's job, and that maintenance is a time-consuming task (geocachers 2, 4 & 6; professionals 1 & 6). It should be noted that failure to properly and regularly maintain the cache may negatively impact the player's experience, causing frustration and disappointment (geocacher 6). As a result, one of the recommendations of this chapter is for the destination's tourism boards to work directly with geocachers of the area. As the players already have the know-how and experience necessary to place geocaches, this would reduce the time and cost of training tourism professionals, and avoid replicating mistakes that existing cache-owners might have made in the past. Partnerships between the local tourism boards and the players are further discussed in section 5.4.

Furthermore, heritage geocaches often require more maintenance than other caches, because "the caches placed near historic monuments are often more visited by geocachers, so they also deteriorate faster" (geocacher 6). These places are also more visited by tourists, who might find the container by chance, and move it from its original hiding place, being unaware of the game and its rules (geocacher 4). For example, geocacher 3 mentions a heritage cache near Puys (see location in appendix C) which kept disappearing due to its inadequate placement in a highly visited

area. The researcher already recommended (in section 5.2.1) not to hide geocaches near main heritage sites at the destination; this point is further stressed in this section, so as to discourage the placement of geocaches in highly visited places. This will reduce the risk of damage and disappearance of containers, and the resulting need for constant maintenance.

Besides, as mentioned earlier, the digital treasure hunt organised in Auffay does not use an interactive map due to the high cost of the feature (professional 5). This activity could thus be paired with geocaching (by placing caches at the different points of interests), to make it interactive at a reduced cost. Similarly, professional 5 mentions the high cost of receiving statistics on the use of the existing game. Placing geocaches along this heritage trail could help the tourist office to obtain more statistical data about the visitors through the logs (e.g. number of visitors, nationalities, successfully found caches, etc.) as well as some feedback on the geocaches and their placements.

Moreover, in section 5.1, the researcher recommended to organise Event Caches to give more visibility to both the heritage and the geocaching activity. These Event Caches can also help to reduce the cost associated with using geocaching in heritage tourism, as the containers can be placed for a one-off event and be removed afterwards. This reduces the investment of the tourism board into the activity, as maintenance would not be needed after the event (Baudoux, 2012). If successful, the destination marketing organisation could then decide to develop some permanent geocaches following the event.

In brief, the findings of this section show *how geocaching can help to enhance the economic development of the destination by promoting cultural heritage tourism in the countryside* (sub-question 2) by highlighting the following recommendations:

- **Integrating geocaching as part of the destination's current heritage strategy:**
 - by creating themed geotrails which link heritage of the ordinary in the countryside;
 - by placing geocaches near low scale heritage assets, away from main centres of attractions, to promote the countryside; and
 - by using existing interpretational supports and linking them to the game (e.g. informative panels and existing treasure hunt).
- **Privileging quality over quantity** to increase the player's satisfaction and engagement, and to reduce the cost of maintenance.
- **Providing a mix of heritage geocaches** by offering a variety of cache types, varying the length of the hunt, and placing them at diverse heritage sites, to avoid redundancy and match the interests of various audiences.

- **Involving local residents** as players, to encourage the promotion of both geocaching and local heritage.
- **Communicating and collaborating with local geocachers** to benefit from their know-how and reduce costs.
- **Organising heritage-related Event Caches**, as a trial before developing the game more widely, and to reduce the costs of maintenance.

5.3 Conservation and Managing Visitor Impact

As mentioned in Chapter 2, heritage tourism has a twofold impact on conservation. On the one hand, increased visitation has a negative physical impact on the site (e.g. Garrod, 2008; Garrod & Fyall, 2000); on the other hand, visitation of heritage attractions helps to raise awareness about their significance and about the need to protect them (e.g. McKercher & Du Cros, 2002). Heritage geocaches, by attracting players near heritage assets, have the same dual impact. However, whereas many heritage attractions are professionally managed and often have opening hours to ensure that heritage remains undisturbed, geocaching is a self-regulated game in which players can take part at any time. This part of Chapter 5 focuses on identifying how geocaching can be used such as to be in line with heritage conservation, limiting its negative visitor impacts whilst still enabling geocachers to play, enjoy the location and learn about heritage (sub-question 3). In order to do so, the negative impacts of the game are highlighted in part 5.3.1, before discussing how they can be mitigated in part 5.3.2.

5.3.1 Visitor impact on the destination and its heritage assets

5.3.1.1 *The geocacher's profile*

Heritage tourists have traditionally been seen as being respectful of the environment and of heritage. Boyd (2002) notes that, by promoting heritage tourism to a wider audience, there is a risk that this level of respect would not be maintained. When placing geocaches near heritage sites, cache-owners encourage people to visit these places, despite the fact that heritage might not be the prime purpose of their visit.

It is worth noting that geocachers are also generally considered as being close to nature and environmentally-friendly (Hawley, 2010; geocachers 2 & 5a). This aspect was mentioned by most interviewees, including by non-geocachers. For instance, geocacher 7 explains that “the essence of geocaching implies sharing with others and respecting places”, and resident 5 (despite not taking part in the game) comments: “The way the game is presented is already, I think, fairly respectful

of the environment. I think this is a value that [geocaching] highlights.” Along these lines, as mentioned in Chapter 2, geocachers themselves organise events to protect the environment: the CITO events (geocacher 7).

However, the participants indicate that this is the profile of the “ideal geocacher” and mention that it is not representative of all the players (geocachers 2 & 6). The motivation of some players, the collectors, is mainly the collection of geocaches and the competitive aspect of the game. There are social and environmental implications to their activity; as those players’ prime goal is not the discovery of the place, nor spending time in nature, they might not always be respectful of their surroundings (Hawley, 2010). Additionally, a similar problem can arise when promoting geocaching to tourists in general; geocacher A explains that, when the game is promoted, it suffers an influx of new players who only seek to get a taste of the game for a short period of time. According to this geocacher, these new players are often not involved deeply enough in the activity and might ignore, purposely or not, the environmental awareness and mutual respect promoted by Groundspeak.

5.3.1.2 Negative social impact

Several interviewees from the geocacher and resident groups mention their concern with regard to the suspicious behaviour of some players. In fact, geocaching is a treasure hunt that has the particularity of being undertaken in full sight. Whilst searching for a geocache, the players’ activity might seem unusual to the public eye, as they can be seen spending a long time scanning the same area, and hiding small containers in concealed spots near public places (Hawley, 2010). Geocachers might then be mistaken for prowlers by local residents (geocacher 3), or even for terrorists, at touristic sites (geocacher 7; resident 5):

Placing plastic boxes in places that are a bit out of the way and hidden, in the middle of an era marked by terrorism, it is clear that it can sometimes worry people. At St Jacques church in Dieppe, the cops are often in the area, and some geocachers have been questioned; they had to explain what they were doing there. (Geocacher 7)

Some residents are also worried about geocaching attracting more tourists. Although they might realise the importance of tourism for their villages, some of them do not want the geocaches to be placed close to their homes (resident 4a & 4b), because of the potential influx of tourists and the inconvenience it might cause. To illustrate this, resident 4a explains that tourists park their cars in front of their house and look into their garden. Be that as it may, in the countryside, there is little chance that the game would attract “a horde of geocachers” (resident 2a), and “take such

proportions that it would create issues” (resident 1). Besides, several interviewees express their concerns regarding the placement of geocaches on private properties (professionals 2, 3 & 5; residents 1, 2a, 2b & 3b; tourist 3). These concerns are logical, seeing that some geocaches in PDTC are hidden on private land (geocacher 4, 5a, 5b & 6). For instance, professional 5 relates:

Not long ago, the owners of the Château de Bosmelet had to ask people to leave their property. I don’t know where the geocache is hidden, and I don’t even know if it is inside their garden... but apparently too many geocachers ended up there. Private properties should be respected, otherwise the game will not be accepted by locals. We don’t want to hear this type of feedback. (Professional 5)

It is therefore recommended to encourage cache-owners to ask for the landowner’s approval before placing a cache (professional A).

For PDTC tourism boards to develop geocaching as a visitor activity, the researcher recommends consulting local residents prior to placing the geocaches or to organising Event Caches. An informative meeting or a public consultation with residents would allow to answer questions about the game and its implications, as well as to discuss the appropriate placement of the geocaches so as to reduce the negative social impact of the game. The exact placement of the geocaches would not have to be revealed, so that the activity would remain attractive to residents as well. Also, in order not to attract geocachers to places they might not be welcomed in, such as in residential areas, geocacher 5b recommends hiding the geocaches on existing trails or visitor areas.

5.3.1.3 Negative physical impact

Even though interviewees all agree that “at the moment, geocaching is not a mass tourism activity” and “it will not, for the moment, lead to overuse or over-visitation” (professional 6), the physical impact of increased visitation needs to be considered when placing a cache near a heritage site. This is particularly important as geocaching makes heritage accessible to casual and incidental heritage tourists who might “come without being aware of the fragility of the sites” (geocacher 6).

The various physical impacts that visitation can have on built environments have been listed in the literature review. These include different types of vandalism, such as graffiti and pillage. Heritage caches – by attracting more visitors – might increase the risk of such deterioration. Professional 3 mentions that heritage caches might not have a negative physical impact if players respect the rules of the heritage site. Nonetheless, as opposed to the infrastructure usually in place in indoor museums or other main heritage tourism attractions, there might not be

any indicative sign, protective equipment or staff members present near heritage of the ordinary. Moreover, as geocachers search for hidden containers, they might interact with the heritage assets, leading to some immediate damages or increased deterioration over time. For example, some caches have been placed directly on monuments, and players need to climb to reach the container (geocachers 3 & 5a). Geocachers explain that caches have sometimes been placed on heritage assets made of loose stones or bricks (e.g. a stone wall or the ruins of a castle), and that some geocachers, like the collectors, might pursue their goal without considerations for the impact of their actions. This can lead to monuments being partly dismantled during their search for the geocache (geocachers 1, 4 & 6; professional 6).

Besides, with regard to the aesthetic aspect of built heritage, a container that is too visible might spoil the scenery for other heritage tourists. Interviewees from the geocacher, resident and tourism professional groups mention the need for geocaches to be discrete, small, and in harmony with the place, both in relation to their shapes and colours, so as to blend into the scenery (geocacher 1; professional 1; resident 3a). In the heritage tourism context, an “appropriate” cache was also described by the interviewees as not being a source of pollution or potential damage (geocacher 4; professional 2).

Furthermore, local geocachers were disconcerted when discovering that geocaches had been placed in cemeteries (geocachers 1, 2, 4 & 6). Geocacher 4 comments:

Some geocachers really aren't respectful! Some people placed caches in cemeteries. How awful! In cemeteries... these are not playgrounds! We need to preserve the dignity of places. I systematically ask the reviewer to delete the caches which are placed in cemeteries, and even sometimes on graves. I even saw one inside an old open vault! Some people have no sense of decency!

The tourism professionals interviewed insist that containers should not be placed inside religious monuments or graveyards (professionals 2 & 3); they can be hidden in nearby areas to provide interpretation about the heritage asset without being disrespectful (professionals A, 2, 4 & 5).

It is worth noting that the environmental damage caused by geocaching (e.g. pollution, littering, soil compaction and erosion) is not different from the one caused by tourism in general (resident 5): It is mostly the result of opening a site to the public (geocacher 6). However, as the presence of the geocache might influence visitation, the environmental impact of the activity, such as the development of “geohighways” (defined in section 2.3.4), needs to be taken into account.

Several interviewees mention natural heritage sites in nearby destinations that are already suffering from high visitation, like the cliffs of Etretat (geocacher 7; professional A). If geocaching

is used in these areas, it needs to be wisely managed as the sustainability of these visitor sites is already endangered at their current level of visitation. However, environmental damage is not only an issue for natural heritage or internationally famous attractions; the impact of the game in the natural area surrounding a cultural heritage site is also an issue that needs to be managed (professional 2). Moreover, in PDTC, cultural heritage cannot be dissociated from natural heritage, as the natural landscape of the area is linked to the historic aspect of the destination. For instance, Impressionist artists visited the destination to paint its landscapes, particularly the chalk cliffs, and their work is now part of the cultural heritage of the destination. These same cliffs played a non-negligible role during the WWII Canadian landing.

5.3.2 A self-regulated game: How to manage visitor impact?

These negative impacts need to be reduced in order to preserve the assets for future generations (Garrod, 2008; Garrod & Fyall, 2000). This can be done by developing geocaching near heritage attractions in a sustainable way. Professional 3 notes that if tourism professionals place geocaches, they will “inevitably . . . respect the site” and they could “change the location of geocaches that damage the environment.” Nonetheless, she wonders if individual geocachers would do the same. Indeed, geocaching is a game which is created and regulated by the players; this implies various challenges when it comes to managing the activity and its impacts (Patubo, 2010). In this part, after introducing Groundspeak’s actions to manage the game, recommendations regarding the role of the cache-owners and cache-seekers are provided.

5.3.2.1 Groundspeak and Geocaching.com

As mentioned in the literature review, Groundspeak developed a set of ethical guidelines (Groundspeak, n.d.-c; Santos et al., 2012) to encourage players to respect the environment as well as to be considerate of other players and members of the public. Groundspeak also encourages the organisation of CITO events to help clean the environment and raise awareness about nature preservation. Nevertheless, the rules of the game are not always respected (geocacher 7), and geocaches that do not comply with the guidelines are sometimes published, despite the review process used by Groundspeak. In fact, reviewers only read the geocache’s webpage, and do not always check its location and features on site (geocacher 6). Consequently, geocacher 6 mentions the need for reviewers to be more aware of the specific issues related to cultural heritage, in order to prevent the publication of inappropriate geocaches: “They are volunteers, right, but they still have a role.... They should have at least some instructions to check such and such points.”

In addition to the set of rules developed by Groundspeak, some geocachers mention that governments and local authorities have also developed regulations with regard to the use of the game on their territory. For example, in some countries, including France, it is not allowed to place geocaches in stone walls (geocachers 5a & 5b).

5.3.2.2 Role of the cache-owner

One way of reducing visitor impacts is to limit the contact with the artefact (Timothy, 2007). Many interviewees mention that the cache-owners should place the cache near the heritage asset, but not on the monument itself (geocachers 1, 3, 4, 5a & 5b; professional 3). This would enhance the positive aspect of heritage caches – raising awareness about cultural heritage – whilst reducing physical damage. Geocacher 5b recommends not to create geocaches that are too complex near monuments, in order to reduce the impact of a long search on a heritage site (e.g. trampling, touching the artefact).

In addition, geocacher 6 mentions the duty of the cache-owner to provide the player with precise coordinates. This would have several outcomes: First of all, it would clearly indicate that the container is not hidden on the monument, “so that people won’t go and climb on the wall nearby because of errors in the coordinates” (geocacher 6). Secondly, it would limit the span of the search area, and thereby reduce the environmental damage and the development of geohighways. The third outcome would be a social one: As the search area would be smaller, geocachers would not spend as much time looking around the area, potentially worrying locals and tourists unaware of the existence of the geocache (geocachers 3 & 7).

According to geocachers 5b and 7, even though not damaging the area during the search is the responsibility of the cache-seeker, it is the cache-owner’s duty to facilitate the search and place a “clean” and regularly maintained cache. Ultimately, creating a geocache which respects the game’s rules and the nature of the site will limit the deterioration of heritage.

Additionally, indirect management techniques can be used (Chavez et al., 2004): If reducing the physical impact cannot be done efficiently via general warnings and recommendations on the website, several interviewees explain that this can be done on a case to case basis, in the description of the geocaches (geocachers 2 & 6; professionals 2, 4 & 6). Indeed, interpretation helps with visitor management and contributes to the protection of resources, as it educates the visitor about the need to protect the environment (Edwards, 2013; Timothy, 2011). As indicated by professional 2, this type of information is usually provided on touristic brochures.

As a result, if the geocache's description is used as an interpretation medium⁷, then it should include a number of recommendations for the cache-seekers. Geocacher 6 explains that this can be done by asking the cache-seekers to follow some simple rules and detailing what precautions need to be taken at a specific heritage site. According to geocacher 6, "it is part of the cache-owner's role; it is essential to say these things."

As PDTC is a coastal destination, the activity of the French Coastal Protection Agency (*le Conservatoire du Littoral*; Conservatoire du Littoral, n.d.) cannot be ignored. Professional 6 points out that the aim of this agency is not only to preserve the environment, but also to raise awareness about it. Thereby, their objective is not to prevent access to sensitive areas, but to manage it so that people can discover the sites and learn about the need to protect them. Professional 6 thus sees geocaching as an additional tool for that matter. Nevertheless, he recommends informing the natural resource managers of the area about the existence of the geocache, so that they can judge if the location is appropriate. This is in line with the recommendation made by Ballagas et al. (2008) in their study on REXplorer, to work with heritage professionals to identify which assets can be included in the game.

Besides, in the geocaching literature, the use of EarthCaches and other Virtual Caches (defined in section 2.3.1) has been recommended for sensitive areas, such as national parks, as their physical impact is lesser than physical containers (Hawley, 2010; Reams & West, 2008). However, when questioned about this type of geocaches, the players were doubtful about it. For many geocachers, the attractive part of the game is related to the actual search for the container (geocachers 5a, 5b, 6 & 7). Without this aspect, EarthCaches are often seen as being too educational and not entertaining enough:

With the EarthCaches, there isn't any box to find. I like finding boxes... so it is not as fun. Geocaching should remain a treasure hunt, and with Virtual Caches, there is no treasure. Also, often, an EarthCache will make you read a whole information panel to answer questions. . . . If I have to spend my whole weekend reading all the information signs... Well, I'd rather read a book about the place. (Geocacher 7)

Due to this lack of recreational aspect, Virtual Caches might not be as successful in drawing players towards local heritage. Yet interviewees recognise their potential for raising awareness about fragile heritage assets and their reduced impact on the environment. They also mention that they still enjoy finding EarthCaches occasionally (geocacher 5b & 7). Therefore,

⁷ The use of geocaching as an interpretation method is further discussed in section 5.4.

geocacher 6's idea of providing an alternation of geocaches of both types (physical and virtual) is taken on as a recommendation in this study. Geotrails in the area could be composed of a mix of cache types, with Virtual Caches placed where a physical container would be inappropriate due to conservation needs or safety reasons (e.g. on top of or under the cliffs), or simply where searching for a container in a public place might attract unwanted attention.

Another recommendation is to create temporary geocaches (geocacher 7); in fact, caches can be permanent or temporary (Chavez et al., 2004; Webb, 2001). Even though made of physical containers, the impact of these geocaches would be reduced due to their limited lifespan. Geocacher 7 explains that these geocaches could be archived or moved to new locations once they reach a certain number of logs. The outcome would be twofold: On the one hand, it would reduce the damage to the environment, especially the development of geohighways; and on the other hand, it would renew the geocaching map for locals, who often run out of new geocaches to look for in their region (geocacher 5a). However, it should be noted that temporary caches would increase the operating costs of the activity.

5.3.2.3 Role of the cache-seeker

Even though the cache-owners can encourage players to behave appropriately via the accurate placement of their caches and the caches' descriptions that they provide, it is first and foremost the responsibility of the cache-seekers to make sure that their actions do not have a negative impact on the sites (geocachers 5b & 7). The game is self-regulated, and whereas it is difficult to make sure that rules are respected by the players, there are ways for cache-seekers to participate in the management of the game.

Rowland (2013) recommends for site managers and visitors to engage with each other through the geocaches' logs. Indeed, a role that the geocacher can play in the management of the game is to report issues to the cache-owner; players can easily contact the cache-owner via email or by writing a comment when logging the geocache. Geocachers' presence on site can help with monitoring the geocaching activity and its impacts. For example, the cache-owner could be kept updated of potential vandalism and littering. Also, using the same communication channels, site managers can comment on the suitability of the geocaches in relation to their placements, or on the quality of the information in the descriptions (geocachers 5b & 6). When the geocaches are placed by a tourism board as a tourism activity, this type of feedback from the players would be invaluable for the prioritisation of maintenance efforts. Consequently, local tourism boards should communicate with local players to encourage this collaboration.

The findings included in the section provide the information necessary to answer the third sub-question which guides this research: *“As a self-regulated game, how can geocaching be managed to meet the conservation goals of cultural heritage tourism management and reduce negative visitor impacts?”* The answer can be summarised as follows:

- **By consulting local residents** to reduce negative social impacts.
- **By limiting contact with the artefacts and other sensitive environments** through the placement of the cache, as well as by using the geocache’s description to provide cache-seekers with advice to reduce negative impacts.
- **By communicating and collaborating with local geocachers:**
 - To provide cache-owners with recommendations regarding the placement of the geocache. This would reduce the negative social and environmental impacts and avoid the placement of dangerous caches;
 - To encourage cache-owners to include recommendations for the cache-seekers in the caches’ descriptions;
 - To encourage players to follow existing geocaching rules;
 - To encourage geocachers to contact local tourism boards or cache-owners to report issues; and
 - To obtain visitation data from existing geocaches.
- **By providing a mix of heritage geocaches**, including virtual and temporary caches, to reduce the physical impact of the activity in sensitive areas.

5.4 Geocaching as an Interpretation Method

The geocache’s description can be used by the cache-owner to provide the players with details about the cache itself and its location. This information is provided to the players in a dynamic manner, whilst on site, thus reaching them at the right time and place (Gram-Hansen, 2009), making geocaching a good method for informal learning (Clough, 2010). As a result, this section explores the use of geocaching as an interpretation method. The researcher first investigates what needs to be taken into account when using this game for the interpretation of cultural heritage (sub-question 4). This is achieved by identifying the challenges that arise from the use of a game as an interpretation method, and proposing recommendations on how to balance its educational and recreational aspects. The second part of this section then focuses on the benefits and drawbacks of geocaching’s user-generated content. The purpose of this is to explore how to

involve locals in the creation of geocaches whilst ensuring the quality and authenticity of the interpretation (sub-question 5).

5.4.1 Using a game as an interpretation support

5.4.1.1 A threat to existing interpretation methods?

One of the concerns brought to attention by the interviewees is the risk of geocaching replacing current interpretation methods. According to Timothy (2011), new technologies are taking over tour guides. Some interviewees are concerned that this could happen with geocaching (geocachers 1 & 7; residents 1 & 2a). Nevertheless, the tour guide interviewed (professional 2) explains:

Audio-guides, far from taking work away from tour guides, target another audience. . . . Individuals who will not ask for a guided tour... or a public with children... Children prefer to have their audio-guide and press the buttons themselves rather than listening to someone.

She adds:

Young adults are not the right audience for guided tours... really not the main public. And families... Parents are always scared that their children will be bored during a tour which is not addressed to them. . . . So, there is something in [geocaching] for both the parents and the children.

Therefore, this game should not be considered as a threat and a replacement, but as an additional support, complementing the offer (geocachers 1, 5a, 5b, 6 & 7; professionals b & 6; residents 2a, 2b, 3a & 3b).

The game also makes it possible to discover a destination in an unconventional way, without replacing the need for traditional information (professional 5). Indeed, as geocaching does not involve any human contact between the guide and the visitor, and as the geocache's description is restricted to a limited number of characters, questions might be left unanswered. People willing to learn more will have to use traditional methods to obtain more in-depth information about the topic (geocacher 7; professionals A, 2 & 4; residents 2b, 3b & 5; tourist 4). This is one of the reasons why one of the recommendations of this section is to use geocaching mainly as an introduction to heritage. In addition, geocaching can also help to attract the visitor's attention towards existing interpretation supports set up by tourism boards and municipalities (geocachers 6 & 7; professional 2). Geocacher 7 explains: "We can pass by an information panel 15 000 times

without reading it, but because there is a cache there, we will read it.” Using these existing information supports as a basis for the geocaches’ descriptions can also reduce the risk of misinformation.

Furthermore, geocaching also allows visitors to visit heritage sites autonomously, whenever they want (geocacher 5a; professional 5; tourist 1). By enabling players to “construct their own narratives about the areas and to explore them in their own way” (Ihamäki, 2013, p. 295), geocaching offers the flexibility and freedom needed by the tourists who are not attracted by guided tours and other traditional interpretation methods (geocacher 6; tourist 1). Additionally, professional 6 identifies the fact that this game could fill a gap in the supply side of tourism. He explains that guided tours cannot always be organised all year round or frequently enough to satisfy the demand; geocaching, by providing a self-guided experience, could be an alternative interpretation method for visitors who wish to discover the area out of season, making it a tool for “permanent guided tours” (professional 6). However, this freedom is not suitable for everyone; at the destination, professional 5 explains that some visitors need the structured framework of an organised tour, or of an event, to find the motivation and interest to explore a heritage site without feeling “lost.” Similarly, not everyone is attracted by adventure, and the experience offered by geocaching might be seen as being too challenging for some visitors (tourists 1 & 2). As a matter of fact, the treasure hunt is not always straightforward, and searching for the cache may turn out to be a frustrating venture. For instance, geocacher 7 comments: “Sometimes, I am infuriated not to find a box, even though I searched everywhere. Geocaching can be hard!” Nevertheless, it is worth noting that each tourism product cannot satisfy all tourists (McKercher & Du Cros, 2002), especially as the heritage tourism audience is very heterogeneous (Light & Prentice, 1994). Therefore, geocaching can be used to satisfy the need of one target audience, and different interpretation methods (like the ones currently used at the destination) can be used to address others.

5.4.1.2 New technologies and gamification

The fact that geocaching integrates new technologies has a twofold impact on its use as a heritage interpretation method. On the one hand, new technologies can help to attract the younger generations towards heritage, and mobile devices can facilitate learning thanks to the autonomy and on-site education that it provides to the user (Ibáñez-Etxeberria et al., 2012; Schwabe & Göth, 2005). However, on the other hand, the dynamism and interactivity that they provide might overshadow the artefact (Timothy, 2011); visitors might attach greater importance to the support itself rather than to the message it conveys (Goulding, 1999). This issue is mentioned by

interviewees from the resident and tourist groups, who explain that the use of mobile phones might “disconnect” the visitors from their surroundings and prevent them from fully appreciating the artefacts (residents 3a, 4a & 4b; tourists 3 & 4). Yet the participants were more concerned about the heritage interpretation being dominated by the recreational elements of the game. In line with the competitive aspect of geocaching highlighted in the literature (Anton, 2008; Hawley, 2010; Telaar et al., 2014), interviewees mention the fact that competitive players tend to be mostly interested in collecting geocaches, rather than in the discovery of the destination and its heritage (geocachers 2, 4, 6 & 7; professional 6; tourist 3). Hence, these collectors often do not pay attention to the description of the cache and its educational content (geocacher 4).

Nevertheless, even though the players’ main goal might not be to discover or learn about the area, geocachers might still gain knowledge whilst playing, consciously or not (geocacher 3; professional 4; residents 1 & 3a; tourist 4). Tourism professionals even see a potential in using this game to introduce heritage to people who might not initially be interested in it (professionals 2 & 6). For example, professional 2 explains that people might “start by playing, and will then ask themselves questions about what they discovered.” These comments are in line with the findings of Albach (2014), Burns (2013), and Clough (2010) regarding the potential of geocaching for informal learning.

5.4.1.3 The surprise of the discovery

Geocaching, as a treasure hunt, involves an aspect of uncertainty and surprise related to the hunt and the discovery of the cache (geocachers 1, 5a & 5b). Players explain that they do not usually choose a particular geocache to discover a specific monument, but are led by the game to discover places by chance (geocachers 1 & 7; professional 4). Some interviewees are thus concerned about the fact that tourists might not know where the game is leading them. As a matter of fact, according to McKercher and Du Cros (2002), visitors want experiences that are controlled and easy to consume, so that they are guaranteed to make the most of their limited time at the destination. In order to reduce this uncertainty when using geocaching as an interpretation method, one of the recommendations of the present study is to provide visitors with a list of geocaches, categorising them by themes and types (geocacher 6; resident 2a). This could be done either via existing classifications of geocaches that can be found on websites, like Geo-Map (Eolas, n.d.), or on the destination’s web portal. Geocaches placed in nearby destinations could also be included to encourage visitors to keep geocaching during their holidays.

5.4.1.4 Recreation and sensitive historical topics

Tourism professionals also mention that it might not be appropriate to use geocaching to address elements of history which are considered as sensitive in people's mind, such as the heritage linked to WWII (professional 2 & 5). However, professional A thinks that geocaches can be placed near remembrance places, as these are meant to be visited by the public, as well as because the placement of the geocache and the information provided in the description can help to raise awareness about these topics. For instance, geocacher 6 explains:

The cache about the Canadian landing in Dieppe is interesting; I did not realise that there were so many steles along the seafront. . . . They are right in front of us, on the promenade, but this Multi-Cache made me notice them. Many people commented on the geocache's webpage that they discovered, or became aware of, the scope of the massacre... that there were really people [who died] at this place. . . . It gives it another dimension.

Geocaches could thereby be used as interpretation tools near commemorative monuments if they are placed appropriately, following the recommendations presented in this chapter. It would also be recommended to deactivate these caches during remembrance activities (e.g. the remembrance ceremony on the 19th August), out of respect for the war veterans and their relatives.

5.4.1.5 Balancing education and recreation

As mentioned in Chapter 2, finding the right balance between the demand for entertainment in tourism and the need for education in heritage management can be challenging. Whereas geocaching offers the opportunity to give heritage tourism a recreational aspect, its educational content needs to be closely managed when used as an interpretation method. For instance, cache-owners do not have any obligations with regard to the content of the geocache's description. As a result, some caches' webpage might be left blank, some may contain minimal information about directions, and others can be very long and daunting (geocacher 5b). The following recommendations are therefore made to help cache-owners to create more "edutaining" geocaches that will catch the players' attention. These recommendations are based on both the comments made by the various stakeholders interviewed, and the literature review on heritage interpretation.

Firstly, interpretation helps to make heritage relevant to visitors and to highlight the need for conservation (Moscardo, 1999; Tilden, 1977). All the interviewees agree that it is necessary for the geocache's description to provide a minimum of information about the place where the container is hidden. Among them, some mention the fact that visitors want to know why the game

brought them to this place (geocachers 2, 4, 5a & 5b; professional 4; resident 5). For instance, geocacher 5b explains:

Not long ago, we found a geocache, and the description was blank, whereas we were at a place which was beautiful. It was a shame, something was missing: just a description. . . . There needs to be an explanation of the place. I mean, it was good to bring us there! It made me happy to see what I saw, but a short story would have been much appreciated. Something was missing... just a line or two. So, we did not really understand why the cache was there.

Others explain that when information is not provided, visitors might not realise the importance of the artefact and appreciate its value (professional A; residents 2b & 3a).

Besides, most geocachers are not serious heritage tourists and might get discouraged by extensive descriptions about historic places. Families are part of the target audience, and it should be noted that the existing treasure hunt in Auffay failed to engage many children because it involved too much reading (professional 5). It is, in fact, important to avoid trying to educate the visitor above what they are willing to learn (Boyd, 2002). Hence, the description should not be too long or too detailed (geocachers 2 & 7; professionals A, 1 & 3; residents 1, 2b & 5; tourist 4). Another mistake mentioned by the interviewees is the copy-pasting of text from other sources into the geocache webpage. This often creates descriptions that are too long, very academic, and lack the recreational aspect needed in a game (geocachers 5a, 5b & 6; professional 1). Therefore, interviewees recommend for the description to be composed of a small paragraph summarising the most important points about the heritage asset (resident 5; professional A). The language used should also be easily understandable to make the interpretation accessible to a wide audience (tourist 2). Additionally, the use of visuals could help to catch the player's attention (geocacher 4; professional 5; resident 2a). Interestingly, although the interviewer did not mention the word "anecdote," most of the interviewees recommend using some for interpretation:

The game could tell us some small anecdotes that we wouldn't have known without it. This is what I find interesting: Every place, no matter how small, has a story... For example, Oscar Wilde used to stay in Berneval; it might be nothing on the scale of history, but it gives it charm. Taking part in [geocaching] could make you discover small places and stories you wouldn't know without this type of game. (Tourist 3)

Rather than simply recounting historic dates and facts, cache-owners should, therefore, share anecdotes about the past. These are more likely to catch the visitors' interest, to be remembered,

as well as to make interpretation more entertaining (geocachers 3 & 6; professional 3; residents 2a, 2b & 5; tourists 1, 2 & 4).

Nevertheless, interviewees from different stakeholder groups point out that some players may look for more in-depth explanations about the heritage asset (geocacher 2; professionals A & 3; resident 2a). This issue could be overcome by including a hyperlink in the cache's description to redirect users towards more information (professional 3; resident 2b), while still using the main text as a brief introduction to heritage addressed to casual and accidental tourists. Alternatively, the description can also be used to encourage the players to read on-site information panels (professional 3), visit nearby tourist offices or follow guided tours (geocacher 1; tourist 4). Similarly, this introduction to heritage can also be used as a promotional tool for heritage attractions; for example, the description of the geocache placed near the Museum of Daily Life (in Saint-Martin-en-Campagne) encourages visitors to visit the museum (geocacher 1).

Besides, players might not read the description of the geocache if this is not needed to find the container (tourist 3). Hence, interviewees recommend making the description an integral part of the game instead of a side note (geocacher 4; professional 6; tourist 3). Indeed, if a specific knowledge or skill is necessary to achieve a game's goal, learning then becomes an inherent part of the activity (Costabile et al., 2010; Mortara et al., 2014). This can be done by using certain types of caches – the EarthCaches, Virtual Caches, Mystery Caches and Multi-Caches – as they include questions or tasks to be completed before finding the final container. The questions could refer to elements of the description (geocacher 4), or to information that can be found on site, by reading information panels or by observing the place meticulously (geocachers 3 & 7). These types of geocaches are therefore more educational than traditional ones (Hamm, 2010; Reams & West, 2008; Rosier & Yu, 2011), whilst maintaining the recreational aspect of the game (geocacher 7). These can thus be considered more suitable in the context of heritage tourism (geocacher 5b; professional 6).

Nonetheless, some interviewees think that players should be free to read, or not read, the description (geocacher 3; professional 5; residents 1 & 3b), depending on their interest in the heritage topic and in the location of the cache (geocachers 5b & 7; resident 5). It should also be noted that many geocachers avoid non-traditional geocaches, as they are often more difficult to find and more time consuming than traditional ones (geocachers 4 & 5b). Consequently, it is recommended to create caches of various types to encourage learning (e.g. through Multi-Caches) while still giving the visitor the option to simply enjoy the scenery without being compelled to read the description (geocacher 5b; professional 4; resident 4a; tourist 3).

5.4.2 User-generated content

5.4.2.1 Locals as guides

As highlighted in Chapter 2, tourists nowadays tend to look away from traditional holidays and ask for more personalised experiences (e.g. Boyd, 2002; Timothy, 2014). An increasingly popular way of obtaining a personalised experience at the destination is to be guided by locals. In PDTC, this trend is already addressed with the “greeters”: residents who offer to guide tourists around the area for free (professional 1). Geocaching can be another support to address this new trend, as local players are behind the creation of the geocaches. In fact, this treasure hunt is based on a user-generated content, and whereas, in some places, tourism organisations and tourism boards also place geocaches, it is not the case in PDTC, where all the existing containers have been placed by independent geocachers.

Garrod and Fyall (2000) mention the importance of the involvement of local communities in heritage tourism for the sustainability of both heritage and tourism. As mentioned in section 5.2, it allows residents to embrace the local heritage and identify with it, resulting in them feeling more concerned about their environment (Nuryanti, 1996). As geocaches are placed by the players, the game can be used as a tool for inclusion that enables locals to “claim their heritage” (geocacher 6; professional A) and choose what assets to promote for tourism (professional 3). In general, cache-owners select areas that they particularly enjoy as cache locations, and that they want to share with others (geocachers 6 & 7). In addition to selecting the sites to promote, geocachers can allocate “favourite points” to existing geocaches (geocacher 5b) and thereby participate in highlighting the geocaches and sites that they like.

It should be noted that the user-generated nature of the geocaches can affect both positively and negatively the quality of the game as a heritage tourism activity. First of all, with regard to authenticity, the user-generated content is seen as providing more authentic experiences (Ihamäki, 2013), as interpretation is provided by the locals themselves (Timothy, 2011). Secondly, geocaches placed by players are often hidden in places that tourism professionals would not promote (Gillin & Gillin, 2010); for instance, at the destination, professional A mentions that “official organisations will guarantee things that are certainly way more... let’s say formal, more disciplined . . . there are things that they cannot say.” As a result, some residents explain that they consider geocaches hidden by locals, and the places they promote, as more objective than if they were placed by professional bodies (residents 1& 2b; tourist 2). Additionally, the game offers the possibility to tell anecdotes which might not be included in history books (geocacher 3; resident 2b; tourist 4). This type of information provided by locals can also contribute to creating a more

accurate image of heritage, instead of promoting “sanitized and idealized pasts,” as mentioned by Timothy & Boyd (2006).

Nevertheless, as the descriptions are written by the players themselves, there is a risk of inaccuracy and lack of veracity (geocachers 3 & 5b; professional 3; tourists 1 & 2). This user-generated content can thus also be a threat to authenticity. However, even though this risk is identified by the interviewees from different stakeholder groups, tourism professionals highlight that this is not a significant danger: Professionals 1, 2 and 5 explain that, as cache-owners often spend time designing geocaches of quality, they would have no reason to include false information deliberately. Inaccurate information is more likely to result from mistakes and from the use of unreliable sources (residents 1, 3b & 4a). As a matter of fact, in addition to using information that they find on site (geocachers 2, 4 & 6), in tourist offices and the destination’s website (geocachers 5a & 5b), several players explain that Wikipedia is one of their main sources of information (geocachers 1, 2, 4 & 5b), despite the fact that this website is “not a 100% reliable source, is community-based, and . . . anyone can [add information] on it” (resident 5).

In order to reduce this risk of misinformation whilst preserving the benefits of using user-generated content, Groundspeak solicits help from volunteer reviewers, who are in charge of verifying the geocaches’ content before publication (geocacher 2; professional 4). However, considering that the reviewers may not be heritage specialists, other solutions are needed. For example, cache-owners should be encouraged to double check the information they use and to use reliable sources (professional 2; resident 5). This could be done through the guidelines and tips provided on Geocaching.com.

Moreover, even though tourism boards cannot easily prevent cache-owners from creating the geocaches they like, they can check the descriptions provided on the geocaches’ webpage and contact the cache-owners or the reviewers to provide them with accurate information if needed. This can be done through the Geocaching.com messaging service. In addition, as this risk of inaccurate content cannot be totally prevented, the tourism professionals interviewed emphasise the importance of informing players about the nature of the game and its user-generated content (professionals A & 5).

5.4.2.2 Professional use

Geocaching has sometimes been used by tourism professionals. This can solve some of the issues mentioned in this study, such as the inappropriate placement of a geocache or the inaccuracy of the description. Professional organisations are more likely to create geocaches with an

interesting content and to carry out the necessary maintenance (geocachers 5a, 6 & 7; tourist 4). Additionally, tourism boards are aware of aspects of the destination often overlooked by an individual geocacher; for instance, they would not place a geocache in an area where an event is being organised or where conservation work is to be undertaken (professional 2).

However, the use of geocaching by tourism professionals is not straightforward. Firstly, the game's rules need to be respected (geocacher 5a), and the geocaching community is often worried that the game might not be established correctly by professional bodies (geocacher 7; professional 6). Geocacher A highlights the fact that caches used in the context of heritage tourism often focus mostly on education, overlooking the recreational aspect of the activity. Learning about the rules of geocaching and how to properly create a cache is a time-consuming process that professionals are not always willing to undertake. For example, professional 1 explains that she gave up on the idea of using the game as a tourism activity in the area: "Among us, no one had experience [in geocaching] nor time to learn the habits and customs of the [geocaching] community. . . . So it seemed really too complicated to set up."

Hence, in order to use the game as a tourism activity without spoiling its nature and core components, communication with local geocachers is necessary (professional 1). As the participation of local stakeholders is crucial to sustainably develop heritage tourism (Boyd, 2002; Boyd & Timothy, 2001; McKercher & Du Cros, 2002; Timothy & Boyd, 2006), the creation of partnerships between the tourism boards and local geocachers is recommended. In addition to engaging local populations in heritage tourism management, such cooperation would also benefit both parties, by combining the professionalism and knowledge of the former with the experience and know-how of the latter, in offering an activity that fulfils the needs of visitors. For instance, it responds to the visitors' desire to explore the destination off the beaten path, whilst improving the quality and sustainability of the activity (geocacher 6; professional 3). Moreover, geocachers often have limited resources to create geocaches, and the cooperation with a tourism board could provide them with suitable means to develop the game in the area (geocacher 6). However, it is worth noting that these geocaches do not need to replace the existing ones, but simply to complement the geocaching map of the area, thus offering more variety to the players.

As a conclusion to this section, the various recommendations mentioned in this part can be regrouped into the following main points, in order to answer the last two sub-questions of this study. Firstly, *geocaching can be used as an interpretation method, balancing the need for both education and recreation* (sub-question 4), by:

- **Using the game as an introduction to heritage:**
 - By including heritage-related information in the geocache's description and using questions, or non-traditional cache types, to encourage learning, and ensure that the game does not overshadow the content.
 - By composing concise geocaches' descriptions, to keep them attractive, entertaining and accessible to all players. Information about other interpretation supports available can be provided, in case the players want to learn more.
 - By using anecdotes and visuals to ensure the diverting aspect of the game.
- **Providing a mix of heritage geocaches,** with a varied amount of information related to the site, to meet the needs of players who might be less interested in heritage.
- **Communicating and collaborating with local geocachers** to ensure that the entertaining aspect of the game is maintained, when the geocaches are created by tourism organisations.

Secondly, as *a user-generated content game*, geocaching can involve local stakeholders whilst *guaranteeing authenticity and quality* (sub-question 5), through:

- **Communicating and collaborating with local geocachers:**
 - To ensure that the rules of the geocaching community are respected when the geocaches are placed by tourism organisations.
 - To provide cache-owners with recommendations regarding the description's content, when the geocaches are placed by individual players.
 - To provide local cache-owners with relevant information, and to encourage them to use existing interpretation supports, to reduce the risk of misinformation.
- **Providing support to the players** by creating a list of heritage geocaches for the destination.

CHAPTER 6 - CONCLUSION

Over the past few decades, geocaches have been hidden all over the world. Even though players tend to place them at locations of interest, including natural and cultural heritage, only a few academic publications have focused on the application of the game to the cultural heritage tourism context. The placement of geocaches has not always been deemed appropriate, and despite the rapid expansion of the activity, the limited literature on the topic often identifies the issues geocaching creates and the potential it offers from the point of view of a single stakeholder group. This research was conducted to address both the benefits and the drawbacks of the game from a multi-stakeholder viewpoint, so as to provide recommendations on how to use the activity in the context of cultural heritage tourism.

6.1 Summary of the Research and Findings

The present study therefore aimed at researching **how geocaching can be appropriately used in the cultural heritage tourism context**. It is with this aim in mind that existing literature was reviewed to highlight the various challenges of managing heritage tourism, as well as the new trends heritage tourism is faced with. This enabled the researcher to identify the issues that need to be considered for geocaching to be used appropriately. By interviewing stakeholders of the destination Pays Dieppois-Terroir de Caux, the researcher connected the dots between the needs of various stakeholders at the destination, the principles of heritage management and the benefits and drawbacks that arise from the use of geocaching in this context. This information was then analysed and organised to show how the appropriate use of the various geocaching elements could contribute to heritage promotion (section 5.1), the development of the countryside (section 5.2), the management of visitor impacts (section 5.3) and the interpretation of heritage (section 5.4). Throughout these sections, the five sub-questions guiding this research were addressed, and the answers were used to develop recommendations regarding the adequate use of geocaching.

Nonetheless, this research faced some limitations, which may have affected the validity of this study, as well as the generalisability of the results.

6.2 Limitations

Understandably, as a master's thesis research, this study was limited by the small number of resources available – mainly funds and the time scale available for the project (one academic semester). These conditions restricted the research in a number of ways. It should be noted that,

due to the sampling frame and the method used to advertise the invitation for participation, all the tourists interviewed were staying in Petit-Caux. As a result, despite the fact that Berneval le Grand is a small locality (a part of the municipality of Petit-Caux), every tourist participating in the study mentioned the place. Similarly, the residents interviewed were only from two areas of the overall destination: Petit-Caux and Dieppe Maritime. On the other hand, the tourism professionals interviewed worked in five of the six areas which form PDTC, and geocachers were from various locations across the whole territory. It would nonetheless be worth conducting a theory testing study with participants from more diverse locations within the boundaries of PDTC in order to assess the applicability of these recommendations to the whole destination.

Other limitations of the research include the fact that most interviews (19/22) were conducted in French, due to the location of the destination under study. In order to use the information collected in the final report, in-text quotes were translated into English. This might have affected the accuracy of some statements as, despite the researcher having a background in language studies, some nuances of meanings might have failed to be conveyed once translated. Besides, most of the interviewees from group 2, 3 and 4 had only limited knowledge of geocaching. Their lack of experience with the game may have reduced their ability to properly think about the consequences the activity might imply. Their limited knowledge of the game also means that their answers might have been influenced by the wording of the questions as well as the information provided by the interviewer.

6.3 Recommendations

The nine recommendations developed as a result of this research are listed below. This list highlights how each recommendation makes the use of geocaching appropriate by being consistent with the goals of heritage management, i.e. sustainability, conservation, finances, authenticity, quality, education, recreation, accessibility, relevance, visitor impact management, promotion, interpretation, stakeholder involvement and partnerships.

Recommendation 1 – Communicating and collaborating with local geocachers: Local tourism boards can increase the overall *quality* of geocaching as a heritage tourism activity by collaborating with geocachers of the area, as the experience of local players can be combined with the industry knowledge of tourism professionals. Both groups of stakeholders will be able to advise each other regarding the creation of geocaches. On the one hand, this is important to ensure that geocaches placed by professionals contain enough *recreational* elements to be an integral part of the game. On the other hand, it guarantees that those hidden by individual cache-owners provide

authentic information and include the *educational* aspect needed in heritage *interpretation*. By the same token, tourism professionals will also benefit from players' know-how and thereby *reduce the costs* of developing the activity in the area. As heritage tourism often suffers from scarce funding (Timothy, 2007), this will help to guarantee the *financial sustainability* of the activity. In the same manner, this communication between the two groups will help to *manage visitor impacts* and ensure the *environmental and social sustainability* of the game. Indeed, it will facilitate the provision of recommendations to players regarding the placement of geocaches and how to behave near cultural heritage assets. Additionally, it will allow tourism boards to obtain data on visitation from local cache-owners and enable players to report issues happening on site. Ultimately, this increased *involvement of local players* in a tourism project and the creation of *partnerships* between these two groups of stakeholders also contribute to the *social sustainability* of the activity.

Recommendation 2 – Involving and consulting local residents: *Local resident consultation* prior to the development of the activity in the area is important to reduce the potential *negative social impacts* that the game could have. It thus ensures the *social sustainability* of the activity. Besides, the *involvement of locals* as both cache-seekers and cache-owners is also recommended: As residents tend to communicate their satisfaction when they appreciate local heritage attractions (Ashworth & Turnbridge, 1990; Garrod & Fyall, 2000; Schulz, 1990), their participation will be beneficial for the *promotion* of both the geocaching activity and the destination as a whole.

Recommendation 3 – Integrating geocaching as part of the destination's current heritage tourism strategy: In PDTC, the current heritage tourism strategy aims at promoting cultural heritage assets to families and young people, to attract tourists towards the countryside, and to develop more heritage trails. Geocaching can be integrated into this strategy by developing heritage geotrails which link the heritage of the ordinary in the countryside. Whereas this strategy corresponds to some emerging trends in heritage tourism (i.e. heritagisation of the everyday past and heritage trails), the use of this digital treasure hunt will help to meet other trends: the demand for activities involving technologies and co-creation. As such, the integration of geocaching will participate in the *promotion* of existing heritage activities by increasing their *relevance* and *accessibility* to the targeted audience. Using geocaching as part of the strategy will also result in a *reduction of implementation costs*, as existing interpretation supports and trails can be used, thereby helping to ensure the *financial sustainability* of the activity.

Recommendation 4 – Using geocaching as an introduction to heritage: Through the cache's description and the use of non-traditional geocache types that involve answering questions,

the *educational* goal of heritage management can be met. Nevertheless, it is recommended to integrate only basic information or particularly interesting facts about heritage into the game, without in-depth explanations, in order to maintain the *recreational* aspect of the treasure hunt. It is therefore important to design the geocache as an “introduction” to heritage, in order to maintain the balance between *education* and *recreation* when using the game as an *interpretation* method. This subtle integration of historical information into the game is also likely to facilitate *access* to heritage information to a wider and more diverse audience. In addition, these “introductions” also allow to raise players’ awareness about the need for *conservation* and thus contribute to *managing visitors impacts*.

Recommendation 5 – Limiting contact with the artefacts and other sensitive environments: The wise and informed placement of geocaches contributes to *managing visitor impacts* by ensuring that players do not damage heritage assets in their hunts for geocaches. Similarly, using the geocache’s description to provide information about how to behave when playing near a heritage site is important to meet the *conservation* goals of heritage management, and thus to ensure the *environmental sustainability* of the activity. This recommendation also contributes to the *social sustainability* of developing geocaching for heritage tourism, as the damage of resources might also result in the non-acceptance of the activity by local stakeholders. Furthermore, by reducing the physical impact on the artefacts, the maintenance needs are reduced, thereby contributing to the *financial sustainability* of the game.

Recommendation 6 – Providing a mix of heritage geocaches: Providing an assortment of geocaches will help local tourism boards to meet several goals of heritage management. Firstly, varying the cache types, the kind of heritage presented, and the length of the game allows to offer a wide range of experiences. All visitors do not have the same interests, and creating a diverse set of geocaches contributes to making this heritage tourism activity *relevant* to a wider audience. Similarly, creating geocaches of various difficulty ratings enables catering for the different abilities and needs of visitors, and thereby makes the game *accessible* to a more heterogeneous audience. Lastly, selecting alternative types of geocaches depending on the heritage asset and its location can contribute to heritage *conservation* and *environmental sustainability*: Virtual and temporary geocaches can be used to help *manage visitor impacts* at sensitive heritage sites.

Recommendation 7 – Organising heritage-related Event Caches: The creation of Event Caches is proposed as a solution for the initial introduction of the game as a heritage tourism activity at the destination. Due to the higher participation events often generate, compared to permanently run activities, a heritage-related Event Cache is expected to facilitate the *promotion*

of both geocaching and local heritage among residents and visitors. Additionally, the geocaches placed for the event can then be removed if judged unsuccessful, resulting in a *reduction of the maintenance costs*. Considering the budgetary challenges that heritage managers are confronted with, Event Caches can thereby contribute to the *financial sustainability* of the activities' implementation.

Recommendation 8 – Privileging quality over quantity: When too many geocaches are placed in the same area, players tend to lose interest in the hunt, especially if these geocaches are made of basic containers and are hidden in standard locations using well-known hiding tricks. Considering the nearly infinite possibilities of geocache creation offered by the game, it seems important to design a geocaching map made of varied, high-quality and creative geocaches. This will improve the *quality* of both the activity and the visitor's experience. By increasing the players' satisfaction, the destination, its heritage and its geocaches are more likely to benefit from positive word of mouth, which is an important element of the *marketing* mix. Besides, whereas the creation of well-designed geocaches might increase the initial investment in the development of the game, a lower quantity of hidden containers implies a reduction in the maintenance needs. By *lowering the maintenance costs*, privileging quality over quantity contributes to the *financial sustainability* of the activity.

Recommendation 9 – Providing support to the players: To encourage visitors and locals to take part in the geocaching activity and to look for heritage geocaches, it is recommended to provide support to the players. The provision of Wi-Fi hotspots, notably in the countryside, as well as a list of the geocaches available in the area are examples of actions that will facilitate the *access* to geocaching as a heritage tourism activity to a diverse audience. These actions will also contribute to increasing the overall *quality* of the visitor's experience.

6.3 Practical Implications and Theoretical Contribution

As a case study, the recommendations provided are based on specific characteristics of Pays Dieppois-Terroir de Caux. They were developed with the aim of providing guidelines to further develop geocaching at the destination, in such a way that the interests of various stakeholders are taken into account. These recommendations also ensure that the development of the activity as a tourism product is not opposed to the core principles of geocaching, the goals of heritage management and the strategies currently in place at the destination. Thereby, this research has practical implications, as the findings can be used by tourism practitioners in the area to sustainably develop a coherent geocaching map as part of their cultural heritage tourism offer.

This research fills a gap in the geocaching literature by focusing on the specific application of the game to the field of cultural heritage tourism. It also goes beyond an analysis of a case to offer recommendations for the further development of geocaching in this field. Furthermore, as the findings are based on the viewpoints of various stakeholders, and not only on the stance of the heritage manager, the tourism professional or the geocacher individually, this study contributes to building the holistic representation missing in the existing literature. This research also enriches the heritage tourism management literature by falling within the scope of several emerging tourism trends and by highlighting the opportunities that the game offers for the rejuvenation of the notion of cultural heritage.

6.5 Further Research

The present research is a step forward in the development of geocaching as a tool for cultural heritage tourism. Nonetheless, further research needs to be conducted to verify the effectiveness of the recommendations provided, once implemented in Pays Dieppois-Terroir de Caux. In fact, tourism boards at the destination have not yet tried to use geocaching as part of their heritage tourism strategy, and applying the proposed theory would allow to test it and refine it. Moreover, it should be noted that, as a case study, the findings of this research are not intended to make generalisations about the use of geocaching for cultural heritage tourism in general, but to explore the topic and gather observations that may guide further research. The findings of the present research suggest that other destinations might need to be examined to test if the recommendations that have been developed have a wider applicability.

Lastly, according to the initial concept of geocaching, a cache contains a logbook as well as items that the players can trade. Surprisingly, whereas geocaching is often considered as a treasure hunt, most of the interviewees did not mention the actual content of the geocaches found at the destination. Consequently, this aspect of the game has not been taken into account in the development of the recommendations provided in this study. Further research on the geocache's content and its potential for cultural heritage tourism could therefore be conducted, notably in relation to the literature on memorabilia in tourism.

In an era marked by increased connectivity and the demand for personalised experiences, geocaching shows evident opportunities for the future of cultural heritage tourism. It is only recently that the heritage sector has started to gain interest in the game, and its benefits have not yet been fully investigated. The findings of this master's thesis add to the existing literature, contributing to bringing to light this activity and its hidden potential.

References

- Aas, C., Ladkin, A., & Fletcher, J. (2005). Stakeholder Collaboration and Heritage Management. *Annals of Tourism Research*, 32(1), 28-48.
- Albach, D. (2014). Geocaching as a means to teach botany to the public. *Plant Science Bulletin*, 60(2), 100-103.
- Anderson, E. F., McLoughlin, L., Liarokapis, F., Peters, C., Petridis, P., & de Freitas, S. (2010). Developing serious games for cultural heritage: a state-of-the-art review. *Virtual Reality*, 14, 255-275.
- Anton, M. (2008). *Geocaching*. (Unpublished master's thesis). University of London, London, UK.
- Apostolakis, A. (2003). The Convergence Process in Heritage Tourism. *Annals of Tourism Research*, 30(4), 795-812.
- ArchivesBeaune. (2016, September 5). *Journées du patrimoine : inscriptions visites des réserves et géocaching [Heritage days: signing-up tour of the reserves and geocaching]*. Retrieved from Archives municipales de Beaune: <https://archivesbeaune.wordpress.com/2016/09/05/journees-du-patrimoine-inscriptions-visites-des-reserves-et-geocaching/>
- Arvanitis, K. (2005). Museums outside walls. Mobile phones and the museum in the everyday. *IADIS International Conference Mobile Learning*. (pp. 251-255). Qwara, Malta: IADIS.
- Ashworth, G. (1988). Marketing the historic city for tourism. In B. Goodall, & G. Ashworth (Eds.), *Marketing in the Tourism Industry: The Promotion of Destination Regions* (pp. 162-175). London: Routledge.
- Ashworth, G. J., & Turnbridge, J. E. (1990). *The Tourist Historic City*. London: Belhaven Press.
- Aubry, P.-A. (2014, July 31). Les Anglais sont de retour mais... [The English are back but...]. *Les Informations Dieppoises*. Retrieved July 10, 2017, from https://actu.fr/normandie/dieppe_76217/les-anglais-sont-de-retour-mais_4338982.html
- Avouris, N., & Yiannoutsou, N. (2012). A Review of Mobile Location-based Games for Learning across Physical and Virtual Spaces. *Journal of Universal Computer Science*, 18(15), 2120-2142.
- Avouris, N., Sintoris, C., & Yiannoutsou, N. (2013). Learning in the city through pervasive games. *The Hybrid City II: Subtle Revolutions* (pp. 192-195). Athens: Greece.
- Azadegan, A., Baalsrud Hauge, J., Harteveld, C., Bellotti, F., Berta, R., Bidarra, R., . . . Stanescu, I. A. (2013). The move beyond edutainment: Have we learned our lessons from the entertainment industry? *De Gloria, Alessandro ed. Games and Learning Alliance: Second International Conference, GALA 2013. Revised Selected Papers of the Second International Conference* (pp. 77-89). Paris, France: Springer.
- Ballagas, R., Kuntze, A., & Walz, S. P. (2008). Gaming Tourism: Lessons from Evaluating REXplorer, a Pervasive Game for Tourists. *Pervasive 2008, LNCS 5013* (pp. 244-261). Sydney, Australia: Springer-Verlag Berlin Heidelberg.

- Baudoux, M. (2012). Le géocaching, levier de développement de la randonnée dans l'Aisne [Geocaching, lever for development for hiking tourism in Aisne]. *Espaces* 305, 47-49.
- Bauer-Krösbacher, C. (2013). Mobile Interpretation at Cultural Attractions: Insights into Users and Non-users of Audio-guides. In R. Raj, K. Griffin, & N. Morpeth (Eds.), *Cultural Tourism* (pp. 64-73). Willingford: CAB International.
- Baxter, P., & Jack, S. (2008). Qualitative Case Study Methodology: Study. *The Qualitative Report*, 13(4), 544-559.
- Beck, L., & Cable, T. T. (2011). *The Gifts of Interpretation* (Third Edition ed.). Urbana, IL: Sagamore Publishing.
- Bélisle, C., & Rosado, E. (2007). *Analysing digital literacy frameworks*. Lyon, France: Research Report for "A European Framework for Digital Literacy" (eLearning Programme 2005-2006).
- Bellotti, F., Berta, R., De Gloria, A., Ferretti, E., & Margarone, M. (2003). Designing Mobile Games for a Challenging Experience of the Urban Heritage. *Proceedings of the Annual International Conference on Parallel Processing*, (pp. 1129-1136). (n.p.).
- Benckendorff, P., Moscardo, G., & Murphy, L. (2006). Visitor perceptions of technology use in tourist attraction experiences. *Cutting Edge Research in Tourism –New Directions, Challenges and Applications* (pp. 1-17). Surrey, UK: (n.p.).
- Bengs, A., Hägglund, S., Wiklund-Engblom, A., & Staffans, S. (2015). Designing for Suburban Social Inclusion: A Case of Geo-Located Storytelling. *Interaction Design and Architecture(s) Journal* -, 25, 85-99.
- Blouin, N. (2008, May 7). *Does Geocaching Violate Leave No Trace?* Retrieved March 12, 2017, from Backpacker: <https://www.backpacker.com/stories/does-geocaching-violate-leave-no-trace>
- Boulaire, C., & Hervet, G. (2012). New Itinerancy: the Potential of Geocaching for Tourism. *International Journal of Management Cases*, 14(4), Special Issue Papers from the 9th International CIRCLE Conference 11th-13th April, 2012, Ibiza, Spain, 77-86.
- Bowker, J. M., Bergstrom, J. C., & Gill, J. (2007). Estimating the Economic Value and Impacts of Recreational Trails: A Case Study of the Virginia Creeper Rail Trail. *Tourism Economics*, 13(2), 241-260.
- Boyd, S. W. (2002). Cultural and heritage tourism in Canada: Opportunities, principles and challenges Author(s):. *Tourism and Hospitality Research*, 3(3), 211-233.
- Boyd, S. W. (2008). Marketing Challenges and Opportunities for Heritage Tourism. In A. Fyall, B. Garrod, A. Leask, & S. Wanhill, *Managing Visitor Attractions (Second Edition)* (pp. 283-294). Oxford, UK: Butterworth Heinemann.
- Boyd, S. W., & Timothy, D. J. (2001). Developing Partnerships: Tools for Interpretation and Management of World Heritage Sites. *Tourism Recreation Research*, 26(1), 47-53.
- Brown, K. B., Hughes, A. J., Crowder, I. G., & Brown, P. M. (2006). Hunting for Treasures Through Learning - Using Geocaching to Motivate Young Adolescent Learners. *Gifted Child Today*, 38(2), 95-102.

- Buhalis, D., & O'Connor, P. (2005). Information Communication Technology Revolutionizing Tourism. *Tourism Recreation Research*, 30(3), 7-16.
- Burns, P. J. (2013). *Geocaching, learning, and nature in a location-aware sport (Master's thesis)*. Victoria, BC: Royal Roads University.
- Chavez, D. J., Courtright, R., & Schneider, I. (2004). Over the river and through the woods. *Parks & Recreation*, 39(4), 68-72.
- Christie, A. (2007). Using GPS and Geocaching Engages, Empowers, and Enlightens Middle School Teachers and Students. *Meridian*(1), 1-30.
- Clough, G. (2010). Geolearners: Location-Based Informal Learning. *IEEE Transactions on Learning Technologies*, 3(1), 33-44.
- CNIL. (n.d.). *Géolocalisation [Geolocation]*. Retrieved April 15, 2017, from CNIL: <https://www.cnil.fr/fr/definition/geolocalisation>
- Comité Régional de Tourisme de Normandie. (2016). *Chiffres Clés 2015 du Tourisme Normand [Key Figures 2015 of the Tourism in Normandy]*. n.p. Retrieved from <http://ctn.pro-normandie-tourisme.com/docs/5264-1-obs-brochure-chiffres-cles-2015-ed-2016.pdf>
- Conservatoire du Littoral. (n.d.). *Le Conservatoire du littoral*. Retrieved from Conservatoire du littoral: <http://www.conservatoire-du-littoral.fr/3-le-conservatoire.htm>
- Corrieu-Chapotard, D. (2012). *1850-1939 Le développement des petites stations balnéaires [1850-1939 The development of small seaside resorts]*. Unpublished master's thesis. Université du Maine, Le Mans, France.
- Cossette, J. (2014). "How Far Is It?" Of Geocaching and Emplacement. *Totem: The University of Western Ontario Journal of*, 22(1), 78-100.
- Costabile, M. F., Ardito, C., & Lanzilotti, R. (2010). Enjoying Cultural Heritage Thanks to Mobile Technology. *Interactions*, 17(3), 30-33.
- Crompton, H. (2013). A historical overview of mobile learning: Toward learner-centered education. In Z. L. Berge, & Z. L. Muilenburg (Eds.), *Handbook of mobile learning* (pp. 3-14). Florence, KY: Routledge.
- Cutri, G., Naccarato, G., & Pantano, E. (2008). Mobile Cultural Heritage: the case study of Locri Springer, Berlin, Heidelberg. *International Conference on Technologies for E-Learning and Digital Entertainment* (pp. 410-420). Berlin, Heidelberg: Springer.
- Deeside and Cairngorms Ltd. (n.d.). *Explore Royal Deeside Geocaching Passport*. Retrieved March 28, 2017, from Visit Royal Deeside: <http://visitroyaldeeside.com/explore-royal-deeside-geocaching-passport/>
- Department of Economic & Social Affairs. (2010). *International Recommendations for Tourism Statistics 2008*. New York: United Nations Publications.
- Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining "Gamification". *Proceedings from MindTrek '11* (pp. 9-15). Tampere, Finland: ACM.

- Dieppe Ville d'Art et d'Histoire. (2017). *Rendez-vous - Dieppe - Juillet-Septembre 2017 [Brochure]*. Dieppe: (n.p.).
- Dobyns, S., Dobyns, M. S., & Connell, E. E. (2007). *Educaching: Capturing the spirit of the hunt for learning. Teaching for High Potential*. Washington, DC: National Association for Gifted Children.
- Donnawell, K. (2011). *Scuba Geocaching*. Retrieved June 7, 2017, from Alert Diver: http://www.alertdiver.com/Scuba_Geocaching
- Du Cros, H., & McKercher, B. (2014). *Cultural Tourism, 2nd Edition*. London: Routledge.
- Edigraphie. (2010, 12). *Carte du Pays Dieppois-Terroir de Caux [Map of Pays Dieppois-Terroir de Caux]*. Retrieved July 21, 2017, from Monts et Vallées-Petit Caux: http://www.tourisme-falaisesdotalou.com/files/monts-et-vallees/files/brochures/pdf/carte_du_pays_dieppois_terroir_de_caux.pdf
- Edwards, J. (2013). Managing Heritage and Cultural Tourism Resources. In R. Raj, K. Griffin, & N. Morpeth (Eds.), *Cultural Tourism* (pp. 13-25). Wallingford: CAB International.
- Elkington, J. (1997). *Cannibals with forks: the triple bottom line of*. Oxford (UK): Capstone Publishing.
- English Heritage. (2008). *Conservation Principles - Policies and Guidance*. London: English Heritage.
- Eolas. (n.d.). *Geocaches et sites inscrits au patrimoine mondial [Geocaches and world heritage listed sites]*. Retrieved May 23, 2017, from Geo-Map: <http://www.mides.fr/>
- ESTRAN Dieppe. (n.d.-a). *L'association [The organisation]*. Retrieved March 21, 2017, from Estran Cité de la mer: <http://www.estrancitedelamer.fr/l-association/>
- ESTRAN Dieppe. (n.d.-b). *Publics*. Retrieved May 25, 2017, from Estran Cité de la Mer: <http://www.estrancitedelamer.fr/publics/groupe-adultes/>
- European Commission. (2017). *Management and Content Provision for ICT and Tourism Business Support Portal*. (n.p.): European Commission.
- Ferrari, S. (2013). An experiential approach to differentiating tourism offers in cultural heritage. In M. Smith, & G. Richards (Eds.), *The Routledge Handbook of Cultural Tourism* (pp. 383-388). Oxon: Routledge.
- Feulner, B., & Kremer, D. (2014). Using Geogames to foster Spatial Thinking. In R. Vogler, A. Car, J. Strobl, & G. Griesebner (Eds.), *GI_Forum 2014. Geovisualisation* (pp. 344-347). Berlin: Wichmann.
- Fyall, A., & Garrod, B. (1998). Heritage tourism: at what price? Alan. *Managing Leisure*, 3(4), 213-228.
- Garau, C. (2014). From Territory to Smartphone: Smart Fruition of Cultural Heritage for Dynamic Tourism Development. *Planning Practice & Research*, 29(3), 238-255.
- Garney, W. R., Young, A., McLeroy, K. R., Wendel, M. L., & Schudiske, E. (2016). A Qualitative Examination of Exergame Motivations in Geocaching. *Games for Health*, 5(1), 34-39.

- Garrod, B. (2008). Managing Visitor Impacts. In A. Fyall, B. Garrod, A. Leask, & S. Wanhill, *Managing Visitor Attractions (Second Edition)* (pp. 165-180). Oxford, UK: Butterworth Heineman.
- Garrod, B., & Fyall, A. (2000). Managing Heritage Tourism. *Annals of Tourism Research*, 27(3), 682-708.
- Garrod, B., & Fyall, A. (2001). Heritage Tourism: a Question of Definition. *Annals of Tourism Research*, 28(4), 1049-1052.
- Geocaching. (2013, August 21). *What is Geocaching*. Retrieved March 16, 2017, from Youtube: <https://www.youtube.com/watch?v=1YTqitVK-Ts>
- Geosoft Team. (2016, September 19). *Bungee Jumping*. Retrieved June 7, 2017, from Geocaching: https://www.geocaching.com/geocache/GC6T6EM_bungee-jumping?guid=95e0e9c2-8297-4947-bf5e-5c59ed6bb8bc
- Gillin, P., & Gillin, D. (2010). *The Joy of Geocaching: How to Find Health, Happiness and Creative Energy Through a Wolrdwide Treasure Hunt*. Fresno, CA: Quill Driver Books.
- Girard, L. F., & Nijkamp, P. (2009). *Cultural Tourism and Sustainable Local Development*. Surrey, UK: Ashgate.
- Goulding, C. (1999). Heritage, nostalgia, and the "grey" consumer. *Journal of Marketing Practice: Applied Marketing Science*, 5(6/7/8), 177-199.
- Graham, B., Ashworth, G. J., & Tunbridge, J. E. (2000). *A Geography of Heritage: Power, Culture and Economy*. London: Arnold.
- Gram-Hansen, L. B. (2009). Geocaching in a Persuasive Perspective. *Proceedings of the 4th International Conference on Persuasive Technology*. 350. Claremont: (n.p.).
- Grand Paris Sud. (n.d.). *Géocaching à Grand Paris Sud [Geocaching in Grand Paris Sud]*. Retrieved March 28, 2017, from Sortir Grand Paris Sud: <https://sortir.grandparissud.fr/evenements/geocaching-a-grand-paris-sud>
- Gretzel, U., Sigala, M., Xiang, Z., & Koo, C. (2015). Smart Tourism: Foundations and Developments. *Electronic Markets*, 25(3), 179-188. *Electronic Markets*, 25(3), 179-188.
- Grevtsova, I. (2013). How to make urban archaeology understandable? Interpreting the heritage: from the stable panels to the new mobile devices. *Proceedings of the 17th International Conference on Cultural Heritage and New Technologies 2012* (pp. 1-8). Vienna, Austria: Museen der Stadt Wien – Stadtarchäologie.
- Grevtsova, I. (2015). Mobile Devices: an Educational Tool for Learning in Historic Cities. *International Scientific-Practical Conference "XXXVII international conference dedicated to the problems of social sciences"* (pp. 14-16). Moscow: Center for Humanitarian Research "Social".
- Groundspeak. (2016a, April 23). *[E76]#76# La finale*. Retrieved May 24, 2017, from Geocaching: https://www.geocaching.com/geocache/GC6D418_e7676-la-finale?guid=50141458-396f-499c-8780-55dfa4dbea10

- Groundspeak. (2016b, June 27). *Terms of Use Agreement*. Retrieved June 14, 2017, from Geocaching: <https://www.geocaching.com/account/documents/termsfuse>
- Groundspeak. (n.d.-a). *Follow the guidelines*. Retrieved May 15, 2017, from Geocaching: <https://www.geocaching.com/help/index.php?pg=kb.chapter&id=22&pgid=718>
- Groundspeak. (n.d.-b). *Geocache Types*. Retrieved May 15, 2017, from Geocaching: https://www.geocaching.com/about/cache_types.aspx
- Groundspeak. (n.d.-c). *Geocaching Guidelines*. Retrieved May 15, 2017, from Geocaching: <https://www.geocaching.com/play/guidelines>
- Groundspeak. (n.d.-d). *Search for Geocaches*. Retrieved March 26, 2017, from Geocaching: <http://coord.info/map?ll=49.874294,1.084489&z=10>
- Groundspeak. (n.d.-e). *Submit your cache page*. Retrieved May 15, 2017, from Geocaching: <https://www.geocaching.com/help/index.php?pg=kb.chapter&id=97>
- Groundspeak. (n.d.-f). *The History of Geocaching*. Retrieved March 14, 2017, from Geocaching: <https://www.geocaching.com/about/history.aspx>
- Groundspeak. (n.d.-g). *Travel with GeoTours*. Retrieved May 15, 2017, from Geocaching: <https://www.geocaching.com/travel/>
- Grüntjens, D., Groß, S., Arndt, D., & Müller, S. (2013). Fast Authoring For Mobile Gamebased City Tours. *Procedia Computer Science*, 25, 41-51.
- Haahti, A. (2006). Experience design management as creation of identity economies: Reflections from periphery on entrepreneurial designs in tourism. *Environment – Sixth international conference: Entrepreneurship in United Europe – Challenges and opportunities* (pp. 1-15). Sunny Beach, Bulgaria: (n.p.).
- Hamm, B. (2010). *Geocaching in Education: A Literature Review*. Bowling Green, OH: Bowling Green State University. Retrieved from <http://cte6010.bgsu.wikispaces.net/file/view/HammLit>
- Hansmann, R., Mieg, H. M., & Frischknecht, P. (2012). Principal sustainability components: empirical analysis of synergies between the three pillars of sustainability. *International Journal of Sustainable Development & World Ecology*, 19(5), 451-459.
- Hausmann, A., Weuster, L., & Nouri-Fritsche, N. (2015). Making Heritage Accessible: Usage and Benefits of Web-based Applications in Cultural Tourism. *International Journal of Cultural and Digital Tourism*, 2(1), 19-30.
- Hawley, F. F. (2010). Agon and Ecstasy: Transgression, Transformation, and Transcendence in Competitive Geocaching. *Deviant Behavior*, 31(3), 225-250.
- Hellgren, J. M., Stewart, K., & Sullivan, K. P. (2014). Student Experiences of Geocaching : Exploring Possibilities for Science Education. *Nordic Research Symposium on Science Education (NFSUN): Inquiry-Based Science Education in Technology-Rich Environments*. Helsinki, Finland: (n.p.).
- Herbert, D. T. (1995). Heritage Places, Leisure and Tourism. In D. Herbert (Ed.), *Heritage, Tourism and Society* (pp. 1-20). New York: Mansell.

- Herbert, D. T., Prentice, R. C., & Thomas, C. J. (Eds.). (1989). *Heritage Sites: Strategies for Marketing and Development*. Aldershot: Ashgate.
- Huizenga, J., Admiraal, W., Akkerman, S., & ten Dam, G. (2009). Mobile game-based learning in secondary education: engagement, motivation and learning in a mobile city game. *Journal of Computer Assisted Learning*, 25, 332-344.
- Hurst, S., Arulogun, O. S., Owolabi, A. O., Akinyemi, R., Uvere, E., Warth, S., & Ovbiagele, B. (2015). Pretesting Qualitative Data Collection Procedures to Facilitate Methodological Adherence and Team Building in Nigeria. *International Journal of Qualitative Methods*, 14, 53-64.
- Ibáñez-Etxeberria, Asensio, M., Vicent, N., & Cuenca, J. M. (2012). Mobile devices: a tool for tourism and learning at archaeological sites. *International Journal of Web Based Communities*, 8(1), 57-72.
- Ihamäki, P. (2007). Geocaching at the Institute of Paasikivi – new Ways of Teaching GPS Technology & Basics of Orientation In Local Geography. *CTA07 New Trends in Information and Communication Technology & Accessibility* (pp. 154-158). Hammamet, Tunisia: (n.p.).
- Ihamäki, P. (2008). Geocaching – A new Experience Designed for Enchanted Sports Tourism. *World Journal of Tourism Leisure and Sport*, 2(1), 53-56.
- Ihamäki, P. (2012a). Geocachers: the creative tourism. *Journal of Hospitality and Tourism Technology*, 3(3), 152-175.
- Ihamäki, P. (2012b). Geocaching Event - On the moves: The Iron Wheels of the Helsinki City Transport. In L. Lyck, P. Long, & A. X. Grige (Eds.), *Celebrate to prosper, Potential for Tourism, festivals and cultural events in times of crisis* (pp. 63-73). Copenhagen: Copenhagen Business School Publications.
- Ihamäki, P. (2012c). Geocaching: Interactive Communication Channels Around the Game. *Eludamos. Journal for Computer Game Culture*, 6(1), 133-152.
- Ihamäki, P. (2013). Geocachers ' creative experiences along coastal road in Finland. *International Journal of Tourism Marketing*, 3(3), 282-299.
- Ihamäki, P. (2014). The potential of treasure hunt games to generate positive emotions in learners: experiencing local geography and history using GPS devices. *International Journal of Technology Enhanced Learning*, 6(1), 5-20.
- Ihamäki, P. (2015). *User Experience of Geocaching and its Application to Tourism and Education*. (Unpublished doctoral thesis). University of Turku, Turku, Finland.
- Ihamäki, P., & Luimula, M. (2013). Players' Experiences in a Sports Geocaching game. In K. Blashki, & P. Isaias (Ed.), *IHCI book - Emerging Research and Trends in Interactivity and the Human-Computer Interface* (pp. 127-143). (n.p.): IGI Publishing.
- INSEE. (2017, October 12). *Comparateur de territoire [Territory comparator]*. Retrieved June 6, 2017, from Insee -Institut national de la statistique et des études économiques: <https://www.insee.fr/fr/statistiques/1405599?geo=COM-76217+EPCI-247600786>

- Kettler, A. (2017, April 19). *3 million geocaches: the infographic*. Retrieved April 20, 2017, from Geocaching Official Blog: <https://www.geocaching.com/blog/2017/04/3-million-geocaches-the-infographic/>
- Kildahl, J. (2011, March 10). *Snowshoe Geocaching: Searching for Booty*. Retrieved April 15, 2017, from Snowshoe Magazine: <https://www.snowshoemag.com/2011/03/10/snowshoe-geocaching-searching-for-booty/>
- Kovář, J. J. (2013). Archeologie a geocaching [Archaeology and geocaching]. *Zprávy památkové péče*, 73(6), 528–531.
- Laamarti, F., Eid, M., & Saddik, A. E. (2014). An overview of serious games. *International Journal of Computer Games Technology*, 1-15.
- Lary, L. M. (2004). Hide and seek - GPS and Geocaching in the Classroom. *Learning & Leading with Technology*, 31(6), 14-18.
- Laurenceau, M. (n.d.). *Operation Jubilee – Dieppe landing – 19 august 1942*. Retrieved May 14, 2017, from D-Day Overlord: <http://www.dday-overlord.com/en/d-day/origins/operation-jubilee>
- Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*. Thousand Oaks, CA: Sage Publications.
- Law, R., Qi, S., & Buhalis, D. (2010). Progress in Tourism Management: A Review of Website Evaluation in Tourism Research. *Tourism Management*, 31(3), 297-313.
- Lawrence, M., & Schleider, Y. (2009). Mobile Learning and GPS - From Geocaching to Participatory GIS. In K. Donert (Ed.), *Using GeoInformation in European Geography education* (pp. 132-144). Rome: Società Geographica Italia.
- Light, D. (1995). Heritage as informal education. In D. T. Herbert (Ed.), *Heritage, tourism and society* (pp. 117-145). London: Mansell.
- Light, D., & Prentice, R. (1994). Market-based product development in heritage tourism. *Tourism Management*, 15(1), 27-36.
- Lisenbee, P., Hallman, C., & Landry, D. (2015). Geocaching is Catching Students' Attention in the Classroom. *The Geography Teacher*, 12(1), 7-16.
- Lo, B. (2010). *GPS and Geocaching in Education*. United States: ISTE.
- MacLeod, N. (2013). Cultural routes, trails and the experience of the place. In M. Smith, & G. Richards (Eds.), *The Routledge Handbook of Cultural Tourism* (pp. 195-200). Oxon: Routledge.
- Majdoub, W. (2013). Cultural Sites and their Management: Co-creation of Value or Co-Creation of Experience? In R. Raj, K. Griffin, & N. Morpeth (Eds.), *Cultural Tourism* (pp. 53-63). Wallingford: CAB International.
- Malegiannaki, I., & Daradoumis, T. (2017). Analyzing the educational design, use and effect of spatial games for cultural heritage: A literature review. *Computers & Education*, 108, 1-10.

- Malone, T. W., & Lepper, M. R. (1987). Making learning fun: A taxonomy of intrinsic motivations for learning. In R. E. Snow, & M. J. Farr (Eds.), *Aptitude, learning and instruction: III. Conative and affective process analyses*, Erlbaum, (pp. 223-253). Hillsdale, NJ: Erlbaum.
- Matherson, L., Wright, V. H., Inman, C. T., & Wilson, E. K. (2008). Get Up, Get Out with Geocaching: Engaging Technology for the Social Studies Classroom. *Social Studies Research and Practice*, 3(3), 80-85.
- Mayben, R. E. (2010). *Instructional Geocaching: An Analysis of GPS receivers as tools for technology integration into a middle school classroom*. (Unpublished doctoral dissertation). University of Alabama, Tuscaloosa, Alabama.
- McKercher, B., & Du Cros, H. (2002). *Cultural Tourism: The Partnership Between Tourism and Cultural Heritage Management*. New York: Haworth Hospitality Press.
- McNamara, J. (2004). *Geocaching for Dummies*. Hoboken, NJ: John Wiley and Sons.
- Mendes, R. N., Rodrigues, T., & Rodrigues, A. M. (2013). Urban Geocaching: what Happened in Lisbon during the Last Decade? *International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*. XL-4/W1, pp. 7-12. London: (n.p.).
- Millar, S. (1989). Heritage management for heritage tourism. *Tourism Management*, 10(1), 9-14.
- Millar, S. (1999). An overview of the sector. In A. Leask, & I. Yeoman (Eds.), *Heritage Visitor Attractions: An Operations Management Perspective* (pp. 1-21). London, UK: Cengage Learning EMEA.
- Moreno, A., van Delden, R., Poppe, R., Reisda, D., & Heylen, D. (2016). Augmenting playspaces to enhance the game experience: A tag game case study. *Entertainment Computing*, 16, 67-79.
- Morreale, D., & Bertone, G. (2015). Alternate reality game and cultural heritage : The "Aequilibrium" project. *Digital Studies / Le champ numérique*, 1-7.
- Mortara, M., Catalano, C. E., Bellotti, F., Fiucci, G., Houry-Panchetti, M., & Petridis, P. (2014). Learning cultural heritage by serious games. *Journal of Cultural Heritage*, 15(3), 318-325.
- Moscardo, G. (1999). *Making visitors mindful*. Champaign, IL: Sagamore.
- Moscardo, G., & Ballantyne, R. (2008). Interpretation and Attractions. In A. Fyall, B. Garrod, A. Leask, & S. Wanhill, *Managing Visitor Attractions (Second Edition)* (pp. 237-252). Oxford, UK: Butterworth Heineman.
- Mott, M. (2017, March 13). *Man dies after plunging 20m down ravine at Hallett Cove*. Retrieved March 14, 2017, from The Advertiser: <http://www.adelaidenow.com.au/news/south-australia/person-plunges-10m-down-ravine-at-hallett-cove/news-story/dbc7cc57b8f34620fe751a8eb61f6a87>
- Musée du Talou. (2014, May). *Le musée d'histoire de la vie quotidienne - Saint Martin en Campagne - Talou [The museum of daily life's history]*. Retrieved May 25, 2017, from Le Musée des Arts et Traditions Populaires du Talou: <http://www.museedulou.fr/index.php?page=talou-projet>

- National Trust for Heritage Preservation. (2015, June 17). *[Preservation Glossary] Today's Word: Heritage Tourism*. Retrieved July 28, 2017, from National Trust for Historic Preservation: <https://savingplaces.org/stories/preservation-glossary-todays-word-heritage-tourism#.WeNIO2hSy70>
- Northumberland National Park. (n.d.). *Geocaching*. Retrieved March 28, 2017, from Northumberland National Park: <https://www.northumberlandnationalpark.org.uk/things-to-do/get-active-outdoors/geocaching/>
- Nuryanti, W. (1996). Heritage and Postmodern Tourism. *Annals of Tourism Research*, 23(2), 249-260.
- Nyaupane, G. P., & Timothy, D. J. (2010). Heritage awareness and appreciation among community residents: perspectives from Arizona, USA. *International Journal of Heritage Studies* ISSN:, 16(3), 225-239.
- Office de Tourisme de Dieppe. (n.d.). *To see and do*. Retrieved April 25, 2017, from dieppe-maritime tourisme: <http://uk.dieppetourisme.com/see-and-do>
- Office de Tourisme Monts et Vallées-Petit Caux. (n.d.). *Découvrir les Monts et Vallées -Petit Caux [Discover Monts et Vallées -Petit Caux]*. Retrieved March 25, 2017, from Tourisme Falaises du Talou: <http://www.tourisme-falaisesdotalou.com/decouvrir-les-monts-et-vallees-petit-caux>
- Office de Tourisme Terroir de Caux. (2016). *Le Pays du Terroir de Caux [Brochure]*. (n.p.): Office de Tourisme Terroir de Caux.
- Office de Tourisme Terroir de Caux. (n.d.-a). *Chasse au Trésor à Auffay-Trois Rivières [Treasure hunt in Auffay-Trois Rivières]*. Retrieved April 25, 2017, from Pays d'Accueil Touristique de Terroir de Caux: <http://www.tourisme-terroirdecaux.fr/bouger/loisirs-et-decouverte/la-chasse-au-tresor/>
- Office de Tourisme Terroir de Caux. (n.d.-b). *L'inventaire du patrimoine bâti [The inventory of built heritage]*. Retrieved March 15, 2017, from Pays d'Accueil Touristique de Terroir de Caux: <http://www.tourisme-terroirdecaux.fr/le-territoire/nos-actions/inventaire-du-patrimoine-bati/>
- O'Hara, K. (2008). Understanding Geocaching Practices and Motivations. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1177-1186). Florence, Italy: ACM.
- Patton, M. Q. (2002). *Qualitative research and evaluation methods*. Thousand Oaks, CA: Sage.
- Patubo, B. (2010). *Environmental impacts of human activity associated with geocaching*. (Unpublished research paper). California Polytechnic State University, San Luis Obispo, CA.
- Pavlic, I., & Vrdoljak-Raguž, I. (2013). Case Study 6: Managing Heritage and Cultural Tourism Resources. In R. Raj, K. Griffin, & N. Morpeth (Eds.), *Cultural Tourism* (pp. 163-177). Wallingford: CAB International.
- Pine, B. J., & Gilmore, J. H. (1998). Welcome to the Experience Economy. *Harvard Business Review*, 97-105.

- Poria, Y., Butler, R. W., & Airey, D. (2003). The core of heritage tourism. *Annals of Tourism Research*, 30, 238-254.
- Prentice, R. (1993). *Tourism and Heritage Attractions*. London: Routledge.
- Prentice, R. C. (1994). Heritage: a key sector of the new tourism. In C. P. Cooper, & A. Lockwood (Eds.), *Progress in Tourism; Recreation and Hospitality Management* (Vol. 3, pp. 309-321). Toronto: Wiley.
- Prentice, R. C. (1995). Heritage as Formal Education. In D. T. Herbert (Ed.), *Heritage, Tourism and Society* (pp. 146-169). London: Mansell.
- Raillo, D. (2015). *Les oubliés du Meknès [The forgotten victims of the Meknès]*. Dieppe: Editions Rose-Marine.
- Rapeepisarn, K., Wong, K. W., Fung, C. C., & Depickere, A. (2006). Similarities and differences between "learn through play" and "edutainment". *Proceedings of the 3rd Australasian Conference on Interactive Entertainment* (pp. 28-32). Perth, W.A: (n.p.).
- Reams, V., & West, S. (2008). Agency-Sponsored Treasure Hunts: Providing Alternatives to Traditional Geocaching. *U.S. National Park Service Publications and Papers*, 33, 144-150.
- Richards, G. (Ed.). (1996). *Cultural tourism in Europe*. Oxon: CAB International.
- Rosier, J. L., & Yu, A. H.-C. (2011). Exploring the Effects of Geocaching on Understanding Natural Resources and History. *Proceedings of the Northeastern Recreation Research Symposium*, (pp. 1-5). (n.p.).
- Rowland, M. J. (2013). Geocaching and cultural heritage. *The Artefact*, 36, 3-9.
- Rubino, I., Barberis, C., Xhembulla, J., & Malnati, G. (2015). Integrating a Location-Based Mobile Game in the Museum Visit: Evaluating Visitors' Behaviour and Learning. *ACM Journal on Computing and Cultural Heritage*, 8(3), 15:1-15:18.
- Santos, T., Mendes, R., Rodrigues, A., & Freire, S. (2012). Treasure Hunting in the 21st century: A Decade of Geocaching in Portugal. *6th European Conference on Information Management and Evaluation - ECIME2012* (pp. 273-282). Cork, Ireland: University College Cork.
- Schlatter, B. E., & Hurd, A. R. (2005). Geocaching: 21st century hide and seek. *Journal of Physical Education, Recreation, & Dance*, 80-85.
- Schneider, J., & Jadcaková, V. (2016). Mutual Impacts of Geocaching and Natural Environment. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, 64(5), 1739-1748.
- Schudiske, E. (2013, November 18). *The First Geocaching First-to-Find in Space*. Retrieved April 15, 2017, from Geocaching Official Blog: <https://www.geocaching.com/blog/2013/11/the-first-geocaching-first-to-find-in-space/>
- Schugurensky, D. (2000). *The forms of informal learning: towards a conceptualization of the field (NALL Working Paper No. 19)*. Toronto, ON: Centre for the Study of Education and Work.
- Schulz, C. N. (1990). *Genius Loci: Towards A Phenomenology of Architecture*. London, UK: Academy Editions.

- Schwabe, G., & Göth, C. (2005). Mobile learning with a mobile game: design and motivational effects. *Journal of Computer Assisted Learning*, 21(3), 204-216.
- Schwabe, G., Göth, C., & Froberg, D. (2005). Does Team Size Matter in Mobile Learning? *International Conference on Mobile Business (ICMB'05)*, (pp. 227-234). (n.p.).
- Seine-Maritime Tourisme. (2016). *Patrimoine et Loisirs - Heritage and leisure [brochure]*. (n.p.): Seine-Maritime Tourisme.
- Sharples, M., McAndrew, P., Weller, M., Ferguson, R., FitzGerald, E., Hirst, T., & Gaved, M. (2013). *Innovating Pedagogy 2013: Open University Innovation Report 2*. Milton Keynes: The Open University.
- Shaunessy, E., & Page, C. (2006). Promoting inquiry in the gifted classroom through GPS and GIS technologies. *Gifted Child Today*, 29(4), 42-53.
- Sherman, E. (2004). *Geocaching - Hide and Seek with your GPS*. Berkeley, CA: APress Media, LLC.
- Site officiel de la Ville de Dieppe. (n.d.). *Découvrir Dieppe - La ville aux quatre ports. Pêche: l'identité dieppoise*. Retrieved June 25, 2017, from Dieppe.fr: <http://www.dieppe.fr/menus/decouvrir-dieppe-2/la-ville-aux-quatre-ports-55/peche-l-identite-dieppoise-90>
- Somers, J. (2012, July 14). *Geocaching turns to tourism to draw in more participants*. Retrieved April 19, 2017, from Seattle Times: <https://www.seattletimes.com/business/geocaching-turns-to-tourism-to-draw-in-more-participants/>
- Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: Sage Publications.
- Stebbins, R. A. (1996). Cultural Tourism as Serious Leisure. *Annals of Tourism Research*, 23, 945-948.
- Stefan, I. A., Stefan, A., & Gheorghe, A. F. (2016). Using Entertainment Games in Education. *The 11th International Conference on Virtual Learning ICVL 2016*, (pp. 185-191). (n.p.).
- Stephens, C. (2009). *Geocaching and GPS in the Classroom. UCNET Conference*. Retrieved March 15, 2017, from The EdTech Zone: <https://sedclint.com/?s=UCET&searchsubmit=>
- Strauss, A., Schatzman, L., Bucher, R., Ehrlich, D., & Sabshin, M. (1981). *Psychiatric ideologies and institutions*. New Brunswick, NJ: Transaction Books.
- Strauss, C. H., & Lord, B. E. (2001). Economic Impacts of a Heritage Tourism System. *Journal of Retailing and Consumer Services*, 199-204.
- Swartling, D. J., & Threet, J. (2009). Geocaching as a way of engaging students and the public in chemistry. *Abstracts of papers of the American Chemical Society. vol. 237*. Washington, DC: Amer Chemical Soc.
- Syndicat Mixte du Pays Dieppois-Terroir de Caux. (n.d.-a). *Le SCOT du Pays Dieppois Terroir de Caux [The territorial coherence scheme of Pays Dieppois Terroir de Caux]*. Retrieved March 5, 2017, from Pays Dieppois Terroir de Caux: <http://www.paysdieppois-terroirdecaux.fr/le-scot/le-scot-du-pays-dieppois-terroir-de-caux>

- Syndicat Mixte du Pays Dieppois-Terroir de Caux. (n.d.-b). *Rubrique - Le territoire [Section -The territory]*. Retrieved March 5, 2017, from Pays Dieppois Terroir de Caux: <http://www.paysdieppois-terroirdecaux.fr/index.php/le-territoire>
- Telaar, D., Krüger, A., & Schöning, J. (2014). A Large-Scale Quantitative Survey of the German Geocaching Community in 2007. *Advances in Human-Computer Interaction*, 1-11.
- Tellis, W. M. (1997). Application of a Case Study Methodology. *The Qualitative Report*, 3(3), 1-19.
- Thomas, D. R. (2006). A General Inductive Approach for Analyzing Qualitative Evaluation Data. *American Journal of Evaluation*, 27, 237-246.
- Thomas, M., Selsjord, M., & Zimmer, R. (2010). Museum or Mausoleum? Electronic Shock Therapy. In M. Lytras, P. Ordóñez de Pablos, E. Damiani, & L. Diaz (Eds.), *Digital Culture and E-Tourism: Technologies, Applications and Management Approaches* (pp. 10-34). Hershey: IGI Global.
- Throsby, D. (2009). Tourism, heritage and cultural sustainability: three “golden rules”. In L. F. Girard, & P. Nijkamp (Eds.), *Cultural Tourism and Sustainable Local Development*, (pp. 13-29). Surrey: Ashgate.
- Tilden, F. (1977). *Interpreting Our Heritage*. Chapel Hill, NC: University of North Carolina Press.
- Timothy, D. J. (1997). Tourism and the Personal Heritage Experience. *Annals of Tourism Research*, 24(3), 751-754.
- Timothy, D. J. (2007). *Managing Heritage and Cultural Tourism Resources - Critical Essays, Volume One*. Aldershot: Ashgate.
- Timothy, D. J. (2011). *Cultural Heritage and Tourism: An Introduction*. Bristol, UK: Channel View Publications.
- Timothy, D. J. (2014). Contemporary Cultural Heritage and Tourism: Development Issues and Emerging Trends. *Public Archaeology*, 13(1-3), 30-47.
- Timothy, D. J., & Boyd, S. W. (2003). *Heritage Tourism*. Harlow: Prentice Hall.
- Timothy, D. J., & Boyd, S. W. (2006). Heritage Tourism in the 21st Century: Valued Traditions and New Perspectives. *Journal of Heritage Tourism*, 1(1), 1-16.
- Timothy, D. J., & Nyaupane, G. P. (Eds.). (2009). *Cultural heritage and tourism in the developing world: a regional perspective*. London: Routledge. London: Routledge.
- TOURISMLink. (2012). *The European Tourism Market, its structure and the role of ICTs*. Brussels: The TOURISMLink Consortium.
- Towner, J. (1996). *An Historical Geography of Recreation and Tourism in the Western World: 1540-1940*. Chichester, UK: Wiley.
- Trochim, W., Donnelly, J. P., & Arora, K. (2016). *Research Methods: The Essential Knowledge Base -2nd Edition*. Boston, MA: Cengage Publishing.
- UNESCO. (n.d.). *Tangible Cultural Heritage*. Retrieved July 20, 2017, from UNESCO: <http://www.unesco.org/new/en/cairo/culture/tangible-cultural-heritage/>

- UNWTO. (2016). *International Recommendations for Tourism Statistics 2008 Compilation Guide*. New York: United Nations.
- Valčić, M., & Domšić, L. (2012). Information Technology for Management and Promotion of Sustainable Cultural Tourism. *Informatica*, 36, 131-136.
- Van Aart, C., Wielinga, B., & van Hage, W. R. (2010). Mobile cultural heritage guide: location-aware semantic search. *Proceedings of Knowledge Engineering and Knowledge (EKAW 2010)*, (pp. 1-15). Lisbon, Portugal.
- Veal, A. J. (2011). *Research Methods for Leisure & Tourism - A Practical Guide - Fourth Edition*. Harlow, UK: Pearson Education Ltd.
- Vincent, J. (2014). L'appropriation des nouvelles technologies de la mobilité par le tourisme : nouveaux enjeux créatifs [The appropriation of new technologies by tourism: new creative issues]. *Mondes du Tourisme*, 10, 62-74.
- Wall, G. (2009). Tourism and Development: Towards Sustainable Outcomes. In L. F. Girard, & P. Nijkamp (Eds.), *Cultural Tourism and Sustainable Local Development* (pp. 13-30). Surrey: Ashgate.
- Walz, S. P., & Ballagas, R. (2007). Pervasive Persuasive: A Rhetorical Design Approach to a Location-Based Spell-Casting Game for Tourists. *Situated Play, Proceedings of DiGRA 2007 Conference*, (pp. 489-497). (n.p.).
- Webb, R. (2001). Recreational Geocaching: The Southeast Queensland Experience. *A Spatial Odyssey Australian Surveying Congress* (pp. 1-12). Brisbane: (n.p.).
- Yin, R. (2014). *Case Study Research, Design and Methods - 5th Edition*. Los Angeles, CA: Sage Publications.
- Zecha, S. (2012). Geocaching, a tool to support environmental education!?!– An explorative study. *Educational Research*, 1(2), 177-188.
- Zemko, M., Vitézová, Z., & Jakab, I. (2016). Geocaching as a Means for Modernization of Educational Process. *European Conference on e-Learning* (pp. 709-717). Kidmore End: Academic Conferences & Publishing International Limited.

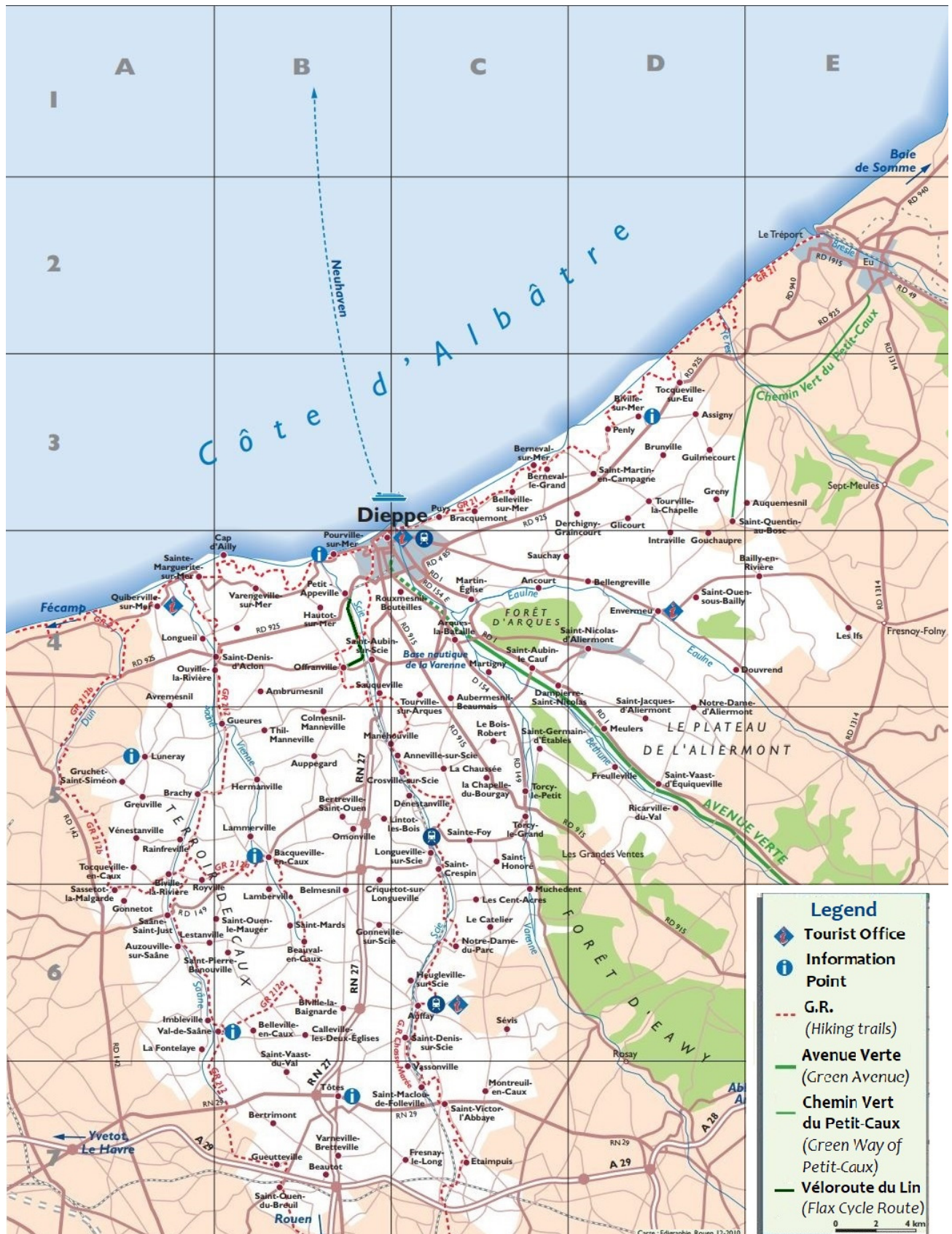
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Appendix A

Map of Pays Dieppois-Terroir de Caux

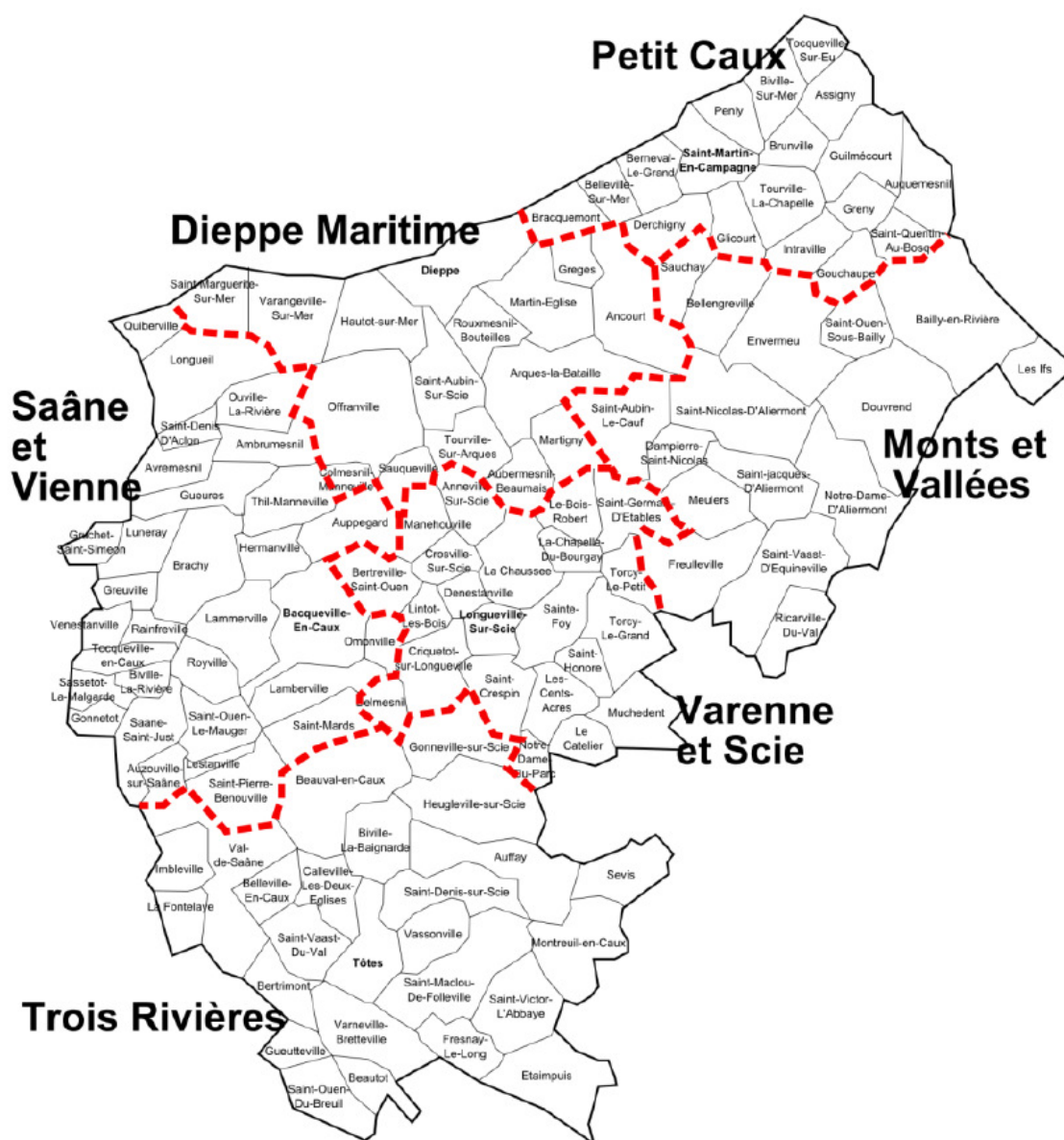
Map modified from Edigraphie (2010)



Appendix B

Inter-municipal structures in Pays Dieppois-Terroir de Caux – until 2015

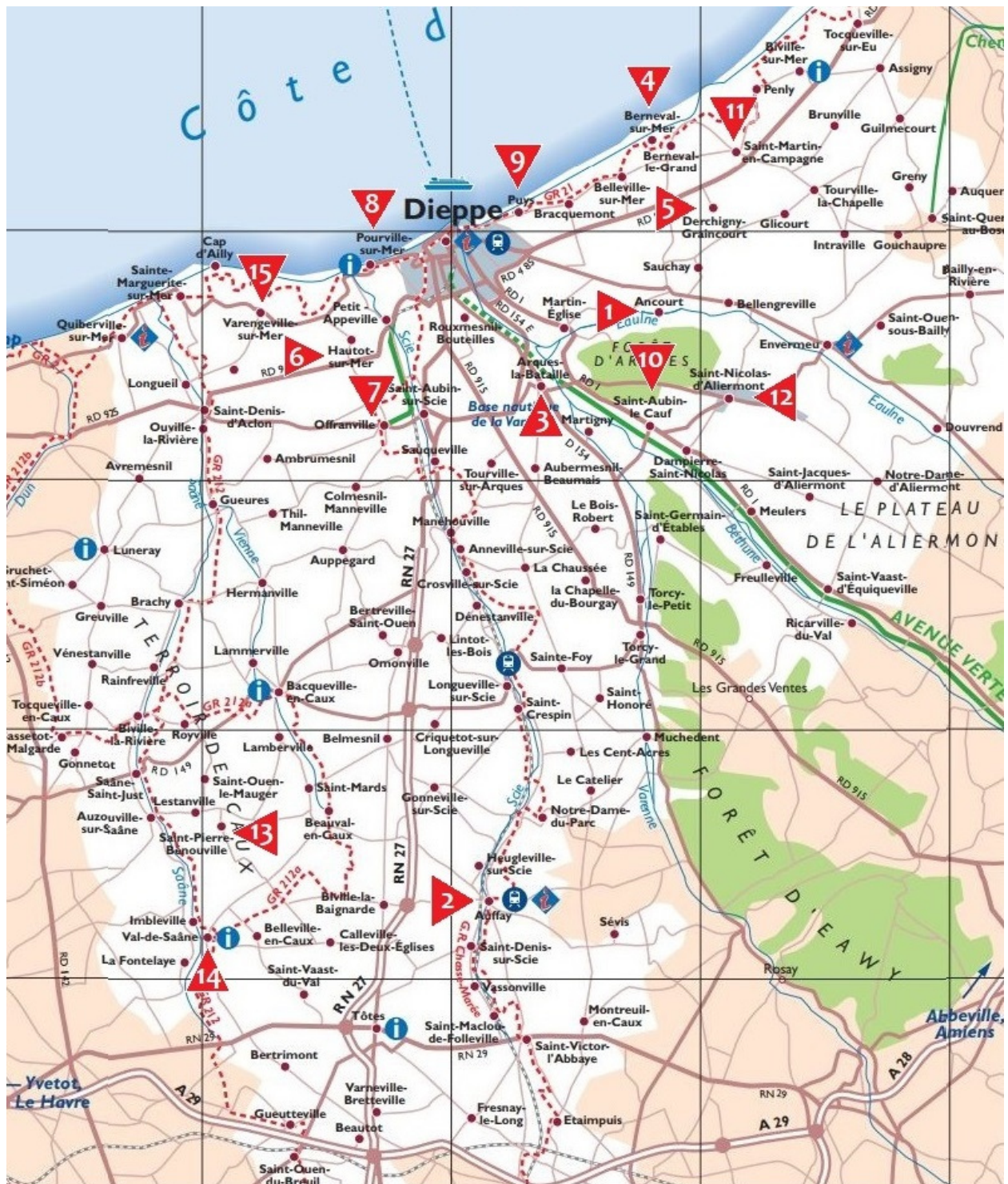
Map from Syndicat Mixte du Pays Dieppois-Terroir de Caux (n.d.-a)



Appendix C

Locations of the villages and towns mentioned in the research

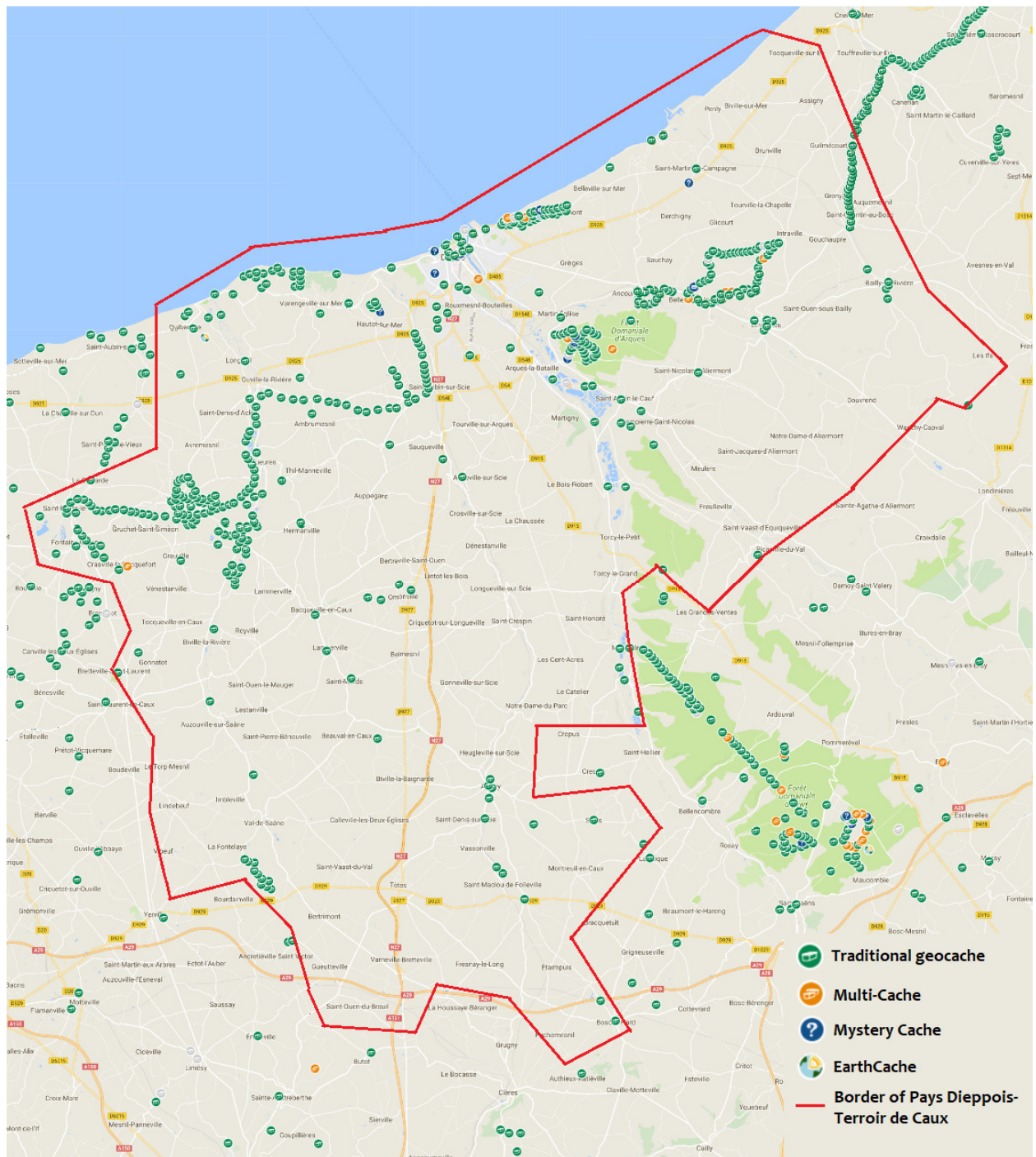
Map modified from Edigraphie (2010)



- | | | |
|------------------------|------------------------|------------------------------|
| 1 Ancourt | 6 Hautot sur Mer | 11 Saint Martin en Campagne |
| 2 Auffay | 7 Offranville | 12 Saint Nicolas D'aliermont |
| 3 Arques la Bataille | 8 Pourville | 13 Saint Pierre Bénouville |
| 4 Berneval le Grand | 9 Puy | 14 Val de Saône |
| 5 Derchigny-Graincourt | 10 Saint Aubin le Cauf | 15 Varengeville |

Appendix D

Geocaching map of the destination Map modified from Groundspeak (n.d.-d)



Appendix E

Questions sent via email to geocachers unable to attend an interview

1. Pourquoi placez-vous des géocaches ?
Why do you place geocaches?
2. Comment choisissez-vous l'endroit où les placer ?
How do you choose where to place them?
3. Où trouvez-vous les informations que vous mettez dans leur description ?
Where do you find the information that you include in their descriptions?
4. Qu'est-ce que vous pensez des géocaches du coin (région dieppoise) ?
What do you think of the geocaches in the area (in the region of Dieppe)?
5. Que pensez-vous des caches placées près de monuments historiques ? Les bons et les mauvais côtés ?
What do you think about the geocaches placed near historical monuments? The pros and cons?
6. D'après vous, qui est intéressé par les géocaches dont la description présente des faits historiques ?
According to you, whom is interested in geocaches which descriptions relate historical fact?
7. A certains endroits, les géocaches sont placées par des offices du tourisme, ou autre organisme de tourisme : Qu'en pensez-vous ?
In some places, geocaches are placed by tourist offices, or other tourism-related bodies: What do you think about it?
8. Ici, toutes les géocaches des environs ont été placées par des géocacheurs (et non pas par des organismes de tourisme): qu'en pensez-vous ? A votre avis, quels sont les avantages et inconvénients de ces géocaches ? Ont-elles le potentiel de promouvoir le patrimoine?
Here, all the geocaches of the area have been placed by geocachers (and not by tourism professionals): What do you think about it? In your view, what are the benefits and drawbacks of these geocaches? Do they have a potential to promote heritage?
9. Que pensez-vous des Event Caches qui visent à promouvoir le patrimoine? Ex : à l'occasion des journées du patrimoine.
What do you think of the Event Caches which aim at promoting heritage? (E.g. on the occasion of the European Heritage Days).
10. Quelles sont les caractéristiques d'un bon circuit de géocaching (géotrail)?
What are the features of a good geocaching trail (geotrail)?
11. Les géocaches ne sont pas toujours placées près de monuments principaux: On en trouve près de petites églises, petits monuments dans les villages, etc. Qu'en pensez-vous ?
Geocaches are not always placed near the main monuments: Some are placed near small churches, small monuments in villages, etc. What do you think about it?
12. Quel genre d'information avez-vous apprise en géocachant dans le coin (région dieppoise) ? En êtes-vous satisfait ou auriez-vous aimé trouver autre chose dans les descriptions des caches ?
What kind of information have you learned whilst geocaching in the area (region of Dieppe)? Are you happy with it, or would you have liked to find something else in the caches' descriptions?

Appendix E (continued)

Questions sent via email to geocachers unable to attend an interview

13. En ce qui concerne le fait de donner des informations sur le patrimoine, quel est le potentiel/les inconvénients du géocaching ?
Regarding heritage interpretation, what is the potential or geocaching? Its drawbacks?
14. Quelles sont, d'après vous, les caractéristiques d'une « bonne » vs. une « mauvaise » géocache placée près d'un monument historique? Ex : en termes de placement, d'information, etc.
What are, according to you, the features of a « good » vs. a « bad » geocache placed near a historical monument? E.g. regarding its placement, information, etc.
15. Certains pensent que le contenu « éducatif » d'une cache réduit l'aspect ludique du jeu : qu'en pensez-vous ?
Some might think that the « educational » content of a cache reduces the recreational aspect of the game: What do you think about it?
16. D'après vous, quel genre de géocache est le plus approprié pour une géocaches « historique »? Pourquoi ?
According to you, what type of geocache is more appropriate for « historical » geocaches? Why?
17. D'après vous, y a-t-il des endroits où on ne devrait PAS placer de géocaches ? Lesquels ? Pourquoi ?
According to you, are there places where geocaches should NOT be placed? Where and why?
18. Y a-t-il une particularité de notre région qui pourrait avoir un impact sur l'utilisation du géocaching?
Is there any specificity of our region which could have an impact on the use of geocaching?
19. Que pensez-vous que le géocaching peut apporter à la population locale?
What do you think that geocaching can bring to the local population?
20. Avez-vous des inquiétudes en ce qui concerne l'impact du géocaching l'environnement ? Sur les sites/monuments historiques ? Pouvez-vous m'en dire plus ?
Do you have any concern regarding the impact of geocaching on the environment? On historical sites/monuments?
21. Comment peut-on réduire ces effets négatifs ?
How can we reduce these negative impacts?
22. Quelles sont les erreurs à ne pas faire concernant l'utilisation du géocaching pour la promotion du patrimoine ? Que faut-il prendre en compte ?
What are the mistakes that should not be made regarding the use of geocaching to promote heritage? What needs to be taken into account?

Avez-vous d'autres commentaires ?
Is there anything else you would like to add?

Appendix F

Invitation for participation advertised on hotels' and campsites' notice boards

ANNONCE



Vous êtes ici en vacances ou en weekend ? J'ai besoin de vous !

Etudiante en master, je cherche à recueillir le témoignage de touristes et visiteurs.

De quoi s'agit-il ?

Une discussion, pendant laquelle je vous poserai quelques questions sur ce que vous pensez du tourisme culturel, et de l'utilisation de nouvelles technologies en tourisme.

Ça ne prendra que 30 minutes maximum : rapide et sympathique ! 😊

Si vous êtes intéressé(e), pourriez-vous me contacter au 0611306799 ?

Merci beaucoup,

Hélène



Are you here on holidays? I need you!

Currently writing my master's thesis, I am looking for volunteers for a short interview.

What is it exactly?

A conversation, during which I will ask you some questions about what you think about cultural tourism, and the use of new technologies in tourism.

It will take less than 30 minutes! Just a nice talk with a local 😊

Interested? Please call me or send me a text: +33 6 11306799 or +44 7 447879876

Thank you so much,

Hélène

Appendix G

List of interviewees

List of Interviewees 1/2				
Preliminary conversations	Group	Interviewee	Occupation	Date
Destination development		Professional A	Tourism professional responsible for the tourism development of Falaises du Talou	10/04/17
		Professional B	Councillor responsible for the tourism and hiking trail development in one of the municipalities of the destination	12/04/17
		Geocacher A		05/04/17
Pre-test				
	Group	Interviewee		Date
Person unfamiliar with geocaching		Pre-test 1		23/04/17
Person familiar with geocaching		Pre-test 2		23/04/17
Group 1 - Geocachers				
	Group	Interviewee		Date
Group 1a: Cache-owners		Geocacher 1		04/05/17
		Geocacher 2		28/04/17
		Geocacher 3		01/05/17
		Geocacher 4		28/04/17
		Geocacher 5a & 5b		18/05/17
Group 1b: Cache-seekers		Geocacher 6		01/05/17
		Geocacher 7		02/05/17

Appendix G (continued)

List of interviewees

List of Interviewees 2/2				
Group 2 - Tourism professionals	Group	Interviewee	Occupation	Date
Tourism and digital development		Professional 1	In charge of the digital tourism development of the area	18/05/17
		Professional 2	Guide-lecturer and councillor responsible for Culture in one of the municipalities of the destination	19/05/17
Heritage interpretation		Professional 3	In charge of the heritage inventory on the territory of Terroir de Caux	02/05/17
		Professional 4	Executive assistant of a tourist office, in charge of tourism promotion	07/05/17
Tourism promotion		Professional 5	Tourism professional involved in the creation of the existing digital treasure hunt "Trésors Auffay-Trois Rivières"	05/05/17
		Professional 6	Tourism professional specialised in natural heritage	10/05/17
Group 3 - Tourists				
Interviewee		From	Language used during the interview	Date
Tourist 1		The Netherlands	English and French	26/04/17
Tourist 2		Australia	English	27/04/17
Tourist 3		Nantes, France	French	27/04/17
Tourist 4		From the USA, lives in Paris	English	18/05/17
Group 4 - Residents				
Interviewee		Resident of	Interview type	Date
Resident 1		Arques-la-Bataille (Dieppe-Maritime)	Face to face interview	03/05/17
Resident 2a & 2b		Berneval-le-Grand (Petit-Caux)	Face to face interview	19/05/17
Resident 3a & 3b		Neuville-lès-Dieppe (Dieppe-Maritime)	Face to face interview	21/05/17
Resident 4a & 4b		St Martin-en-Campagne (Petit-Caux)	Face to face interview	11/05/17
Resident 5		Berneval-le-Grand (Petit-Caux)	Face to face interview	08/05/17

Appendix H

Interview guide for interviews with geocachers (English version)

Note: the text in italic corresponds to potential probing questions.

A. Introduction about the research. Ask if I can record the interview.

B. Geocaching

- How long have you been geocaching? How many caches have you found?
- What do you think of the caches placed in the area?
- Why do you geocache?
- Do you place geocaches?

If yes:

- *Why?*
- *How do you choose where to place them?*
- *What do you include in the geocache's description? Where do you find this information?*

C. Promotion: Branding and audience

- What do you think of caches placed near cultural heritage sites?
- Whom is attracted by caches placed near heritage sites?
- In some places, tourism offices use geocaching: What do you think about it?
- What are the pros and cons of encouraging tourists to go geocaching?
- So far, caches in the area have only be placed by geocachers (not tourism organisations): To what extent do these caches promote the heritage of the destination? *What are the advantages and disadvantages of these caches?*
- What do you think of geocaching events that promote heritage?
- What are the characteristics of a good geotrail?
- Caches are not always placed near main tourism attraction sites: Some are near small churches, small monuments, places mainly known by locals, etc. What do you think about it?
- What are the pros and cons of encouraging geocachers to visit heritage sites?

D. Interpretation and authenticity

- What kind of information have you learned when geocaching in the area?
- In terms of heritage interpretation, what is the potential of geocaching? *And its drawbacks?*
- What are the advantages and drawbacks of using geocaching to discover a destination, rather than more traditional interpretation methods (e.g. guided tours, information signs, and guide books)?
- Could geocaching replace existing interpretation methods?
- Do you read the descriptions of the geocaches that you find? *What influences your decision to read them (or not)?*
- What are the features of a "good" vs. a "bad" geocache placed near a heritage site?
- What types of caches (cache characteristics) do you think are the more suited to present heritage?
- Some geocachers think that a cache with an educational content removes the "fun" aspect of the game: Can you comment on that?

Appendix H (continued)

Interview guide for interviews with geocachers (English version)

E. The area

- Are there places in the area where you think that geocaches should not be placed?
- Is there any specificity of this area that would have an impact on the use of geocaching?

F. Local stakeholders and economic impact

- How can geocaching benefit locals?

G. Visitor impact management and conservation

- What do you think of the impacts of geocaching on the environment? On the historic monuments?
- What would be the best way to reduce these impacts?
- What do you think of the use of virtual caches (EarthCaches)?
- If you could advise geocachers who place geocaches near heritage sites at the destination, what would you tell them? *What needs to be considered?*

Appendix I

Interview guide for interviews with tourism professionals familiar with geocaching (English version)

Note: the text in italic corresponds to potential probing questions.

A. Introduction about the research. Ask if I can record the interview.

B. Question about the organisation's aim and their role within the company: Can you tell me more about the role of your company/organisation? About your role?

C. Preliminary questions about the destination:

- What do you think about the use of new technologies to interpret history/heritage?
- Have your company ever used games to interpret heritage?

D. Geocaching in tourism:

- What do you know about geocaching?
- What do you know about the use of geocaching in tourism (by DMOs/tourism organisations)?
- To your knowledge, is there any demand for geocaching in the area?

E. Promotion: Branding and audience

- What do you think of caches placed near cultural heritage sites?
- In your opinion, can geocaching be used to promote heritage in the area?
- Whom do you think is attracted by caches placed near heritage sites?
- So far, caches in the area have been placed only by geocachers (not by tourism organisations): What do you think about it? *What are the advantages and disadvantages of these caches? To what extent do you think that these caches promote the heritage?*
- Caches have not always been placed near main tourism attraction sites: some are near small churches, small memorials, or places mostly known among locals. Can you comment on that?
- In your opinion, what would be the best way to attract other tourists than just the geocachers towards the game?
- According to you, what are the differences between geocaches placed by tourism professionals and players?

F. Tourism offer

- What is geocaching currently adding to the tourism offer of the destination? What would geocaches placed by the tourist offices add to the offer?

G. Interpretation and authenticity

- In terms of heritage interpretation, what is the potential/drawbacks of geocaching? *Compared to traditional methods (e.g. guided tours, information panels, and guide books)?*
- If geocaching was used as an interpretation method, what would be the impact of this game on your professional activity?
- What do you think about the fact that anyone can place a cache and provide information about a site?
- Some geocachers say that a cache with an educational content removes the "fun" aspect of the game: Can you comment on that?
- What needs to be considered when placing a cache near a heritage site?

Appendix I (continued)

Interview guide for interviews with tourism professionals familiar with geocaching
(English version)

H. The area

- Where would be, according to you, the best places to hide geocaches in the area?
- Are there places in the area where you think that geocaches should not be placed?
- Is there any specificity of this area that would have an impact on the use of geocaching?

I. Local stakeholders and economic impact

- What are the pros and cons of geocaching, in economic terms?
- If geocaching was further developed at the destination, what could it bring to locals?
- Nowadays in tourism, we talk a lot about the involvement of local community: how do you think geocaching could be used as a tool in this regard?

J. Visitor impact management and conservation

- To what extent is geocaching in line with heritage conservation?
- What are the impacts of the game on the environment? On built heritage?
- According to you, what would be the best way of reducing its negative impacts?
- What do you think of the use of Virtual Caches/EarthCaches?
- If you could advise geocachers who place geocaches near heritage sites at the destination, what would you tell them? *What needs to be considered?*

Appendix J

Interview guide for interviews with tourism professionals unfamiliar with geocaching (English version)

Note: the text in italic corresponds to potential probing questions.

A. Introduction about the research. Ask if I can record the interview.

B. Question about the tourism organisation's aim and their role within the company: Can you tell me more about the role of your company/organisation? About your role?

C. Preliminary questions about the destination:

- What do you think about the use of new technologies to interpret history/heritage?
- Have your company/the destination ever used games to interpret heritage?

D. Make sure that the interviewee knows about geocaching:

- Do you know what geocaching is? *What do you know about geocaching?*

Presentation of the game to the interviewee, using the introductory text in appendix M, a one-minute video (Geocaching, 2013), and the geocaching map (appendix D).

F. Promotion and audience

- In your opinion, what are the opportunities/drawbacks of this type of treasure hunt for the tourism industry in the area?
- Whom do you think is attracted by these “treasures” hidden near heritage sites?
- What are the pros and cons of promoting heritage to the players of this game?
- In your opinion, what would be the best way to attract other tourists than just the geocachers towards the game?
- What needs to be considered before placing a cache near a heritage site?
- Caches are not always placed near main tourism attraction sites: some are near small churches, small memorials, places mainly known by locals, etc. Could you comment on that?

F. Tourism offer and the destination

- What could geocaching add to the offer of the area?
- Is there any specificity of this area that would have an impact on the use of geocaching?
- Are there places in the area where you think that geocaches should not be placed?

G. Interpretation and authenticity

- What are the pros and cons of using this type of digital treasure hunt to provide information about heritage, in comparison with more traditional interpretation methods (e.g. guide books, guided tour, and informative panels)?
- What do you think about the fact that anyone can place a cache and provide information about a site?
- Some geocachers think that a cache with an educational content removes the "fun" aspect of the game: Can you comment on that?
- If geocaching was used as an interpretation method, what would be the impact of this game on your professional activity?

Appendix J (continued)

Interview guide for interviews with tourism professionals unfamiliar with geocaching (English version)

H. Economic impact and local stakeholders

- What are the pros and cons of geocaching, in economic terms?
- Nowadays in tourism, we talk a lot about the involvement of local community: how do you think geocaching could be used as a tool in this regard?

I. Visitor impact management and conservation

- To what extent can geocaching be in line with heritage conservation?
- What are the impacts of the game on the environment? On built heritage?
- What would be the best way to reduce its negative impacts?
- If you could advise geocachers who place geocaches near heritage sites at the destination, what would you tell them? *What needs to be considered?*

Appendix K

Interview guide for interviews with tourists (English version)

Note: the text in italic corresponds to potential probing questions.

A. Introduction about the research. Ask if I can record the interview.

B. Their visit

- Where are you from?
- Is it your first time in the area?
- What is the purpose of your trip?
- What did you visit during your stay?
- Have you visited any historical place or monument during your stay?
If yes: which ones? Did you like them? Did you learn anything?
If no: why?
- Whom do you think is interested in heritage when visiting the area?
- According to you, why are some visitors not interested in the heritage of the place?
- Can you think of ways of making this heritage more attractive to them?

C. Interpretation - part A

- What is, in your opinion, an essential aspect of a tourism activity that presents history?
- In your opinion, what are the pros and cons of using mobile phones to give/receive information about heritage?
- When you visit a place, do you read the information panels in front of monuments, etc.? Why do you think that people read/ do not read them?
- Have you ever taken part in a game, such as a treasure hunt to visit a city? *Can you tell me more about it? What did you like about it? Did not like?*

D. Make sure they know about geocaching:

- Do you know what geocaching is? *Have you ever geocached?*

Presentation of the game to the interviewee, using the introductory text in appendix M, a one-minute video (Geocaching, 2013), and the geocaching map (appendix D).

- Would that be something you would be interested in doing when visiting a place?
- What could this game add to your experience at the destination?

E. Audience and promotion

- Whom do you think would be attracted by this game?
- Geocaching does not only bring people to main tourism attractions, but also to smaller churches, to smaller monuments in villages, to places mainly known by locals, etc. What do you think about this?

F. Interpretation - part B

- Geocaching has been used to provide information about history in the area: In your opinion, what are the pros and cons of using a game to present heritage to tourists? *In comparison with more traditional interpretation methods, such as guided tours, guide books, or information panels?*

Appendix K (continued)

Interview guide for interviews with tourists (English version)

- Some geocachers think that a cache with an educational content removes the "fun" aspect of the game: Can you comment on that?
- What do you think about the fact that anyone can place a cache and provide information about a site?

G. The area

- If you could place a geocache in the area, where would that be?
- Are there places in the area where you think that geocaches should not be placed?

H. Visitor impact management and conservation

- What problems do you think geocaching may cause?
- What would be the best way of solving these issues?
- If you could advise geocachers who place geocaches near heritage sites at the destination, what would you tell them? *What needs to be considered?*

Appendix L

Interview guide for interviews with residents (English version)

Note: the text in italic corresponds to potential probing questions.

A. Introduction about the research. Ask if I can record the interview. Note in which municipality of the destination the interviewee lives.

B. Preliminary questions

- Do you know about the history of the area?
- Do you visit places of heritage in your own area? *How often?*
- Is there a place that you really like and would like to recommend to people visiting the area?

C. Heritage audience

- According to you, how important is it to promote the heritage of the area?
- Whom do you think is interested in heritage when visiting the area?
- According to you, why are some visitors not interested in the heritage of the place?
- Can you think of ways of making this heritage more attractive to them?
- In your opinion, what is an essential aspect of an activity that presents history?
- What are the pros and cons of using mobile devices to give/receive information about heritage?
- Have you ever taken part in a game, such as a treasure hunt to visit a city? *Can you tell me more about it? What did you like about it? Did not like?*

1. Make sure they know about geocaching:

- Do you know what geocaching is? *Have you ever geocached? Have you ever seen people geocaching in the area?*

Presentation of the game to the interviewee, using the introductory text in appendix M, a one-minute video (Geocaching, 2013), and the geocaching map (appendix D).

- Whom do you think would be attracted by this game as a way to discover the area?
- What could this game add to the experience of the tourist at the destination?

E. Interpretation - Part B

- Geocaching is sometimes used to interpret heritage. For example, here, there is a geocache near the Bonsecours Chapel. There is also one on the seafront, to provide information on the Operation Jubilee. What do you think about that? *Compared to traditional interpretation methods (e.g. guided tours, informative panels, and guide books)?*
- Geocaches are not always placed near main tourism attractions, but also near smaller churches, near smaller monuments in villages, near places mainly known by locals, etc. What do you think about this?
- What do you think about the fact that locals, like you, can place caches and present places to the players?
- Some geocachers say that if a cache placed near a heritage has an educational content, it removes the "fun" aspect of the treasure hunt: Can you comment on that?
- What should be considered by the person making the geocache in order for the cache to successfully attract tourists?

Appendix L (continued)

Interview guide for interviews with residents (English version)

F. The area

- If you could place a geocache in the area, where would that be?
- Are there places in the area where you think that geocaches should not be placed?

G. Visitor impact management and conservation

- What problem do you think geocaching may cause?
- What would be the best way of solving these issues?
- If you could advise geocachers who place geocaches near heritage sites at the destination, what would you tell them? *What needs to be considered?*

Appendix M

Text used to introduce geocaching to the interviewees (English version)

Geocaching is a treasure hunt for which you need to have a GPS (a smartphone or a hiking GPS), and to be registered on Geocaching.com (it is free). The “treasures” are boxes of different shapes and sizes hidden by other players. The location of the box – the geocache – is indicated by GPS coordinates and hints on Geocaching.com. The aim of the game is to find the geocaches, but not to take them! Inside the box, there is at least a log book, in which the player can log their discovery (by writing their names). If the container is big enough, there might also be some small “treasures” that the players can take, on condition that they leave something else of similar value.

Geocaching was created in the year 2000 in the USA. Since, geocaches have been hidden all over the world. They can be placed nearly anywhere in public places; there are more than 300 of them in our area (Pays Dieppois-Terroir de Caux). They are often “hidden in full sight”, using creative camouflage tricks. Many geocachers (the players) hide them at locations that they like and want to share with others: a viewpoint, a place of sentimental value, etc. A number of them have been placed near historic monuments, but some are simply hidden behind lampposts or in bushes.

The player who hide a geocache can also provide a “geocache’s description” (which will appear on Geocaching.com along with the geocache’s coordinates). This description is often used to provide information to other players about the place where the container is hidden. In addition to the coordinates, some geocaches require to solve riddles to find their final locations.

Recently, geocaching has also been used by professionals to promote destinations and their attractions. For example, a tourism board in Ile de France used it on the occasion of the European Heritage Days to promote the local heritage. In Brittany, a tourist office used it to promote hiking trails. Here, in Pays Dieppois-Terroir de Caux, all the geocaches have been placed by geocachers (not by tourism professionals).

Appendix N

Example of an interview transcript

Interviewer : *Que pensez-vous de l'utilisation des nouvelles technologies pour présenter le patrimoine ?*

Professional 2 : J'ai l'impression que ça devient indispensable avec un certain type de public, en particulier les publics les plus jeunes. Quand je dis « les plus jeunes », c'est aussi les jeunes adultes. Présenter le patrimoine tel qu'on l'a toujours fait, au cours de visites guidées, ce n'est pas que ça plaît pas : ça plaît toujours... mais si on ajoute, effectivement, quelque chose avec les nouvelles technologies, ça peut être un plus.

Interviewer : *Est-ce qu'il y a aussi des côtés négatifs ?*

Professional 2 : Ce qui serait négatif, c'est si ça remplaçait totalement le contact avec des gens. Mais ça dépend des circonstances aussi. On peut imaginer – bon ce ne sont pas les nouvelles technologies – mais quand on parle des audio-guides : les audio-guides, loin de retirer du travail aux guide conférenciers ça cible un autre public. C'est un autre public, des publics d'individuels qui ne vont pas faire appel à un guide pour une visite, des publics avec des enfants. Les enfants préfèrent avoir leur audioguide et puis appuyer sur les boutons eux-mêmes que d'écouter quelqu'un. Ça c'est un exemple – l'audioguide, ça date quand même d'il y a un moment – mais c'est un exemple d'une technologie moderne qui est adaptée à certains types de publics.

Interviewer : *Dans votre travail, utilisez-vous d'autres manières de présenter l'histoire, par des jeux, par exemple, des choses ludiques ?*

Professional 2 : Avec les classes, oui. Systématiquement avec les classes, on essaie de faire quelque chose de ludique : soit avec des manipulations : toucher des choses, sentir des choses, faire des choses. Ça peut être : dessiner. Tout simplement, ça ce n'est pas une nouvelle technologie, mais ça peut être de dessiner. Avec les enfants, oui on essaie qu'ils aient quelque chose à faire, des manipulations, si possible. Avec les adultes, on peut aussi utiliser des jeux. Par exemple, quand on cherche à leur faire découvrir la vérité, découvrir un endroit. Ça peut être des chasses aux trésors, aussi, même pour adulte, effectivement. J'en ai peu fait, mais j'en ai fait.

Interviewer : *Donc ça attire aussi un public adulte alors ?*

Professional 2 : Ah oui ! Oui, oui, oui, oui. Chasses au trésor. Ou alors dans les visites, aussi, ce qui marche pas mal, c'est des jeux... pas vraiment de rôle, mais ça va être : découvrir quel est le personnage qui a fait telle chose, en suivant, justement, des indices. Ça, ça marche bien.

Interviewer : *Connaissez-vous le géocaching, et son utilisation en tourisme ?*

Professional 2 : En tourisme, je ne connais pas grand-chose. J'ai plutôt des idées, en fait, sur ce qu'on pourrait faire, puisque moi le peu de géocaching que j'ai fait, c'était à la campagne, et ça ne concernait pas vraiment des éléments patrimoniaux. C'était plutôt de découvrir des endroits dans la nature. Mais je pense qu'il y a pas mal d'endroits qui s'y prêtent niveau patrimoine.

Interviewer : *Vous avez dit « des idées » : quelle sont vos idées ?*

Professional 2 : Des idées... Alors, ça pourrait être un circuit sur un thème dans une ville, dans un village. Je pense, par exemple, à l'impressionnisme. On pourrait aller d'un endroit à un autre en découvrant des endroits qu'ont fréquentés des impressionnistes. Dans la région de Dieppe, il y en a pas mal. Par exemple. Mais ça pourrait être un circuit, aussi, c'est vrai, sur la Seconde Guerre Mondiale... Mais c'est peut-être moins adapté... parce qu'un jeu sur ce thème-là, ça passerait sans doute moins. Mais ça pourrait être, j'imagine, j'en reviens à Dieppe : Dieppe au Moyen-Âge, et découvrir des endroits... On peut avoir pas mal de thèmes qu'on développe en visite guidée qu'on pourrait développer comme ça.

Interviewer : *D'après vous, qui est-ce qui serait intéressé par les géocaches qui sont placées près de monuments ou de sites historiques ?*

Professional 2 : Des géocacheurs, je pense, pratiquement obligatoirement. Je pense qu'un géocacheur, dans sa région, il va essayer de faire un maximum de géocaches. Enfin, j'imagine. Je ne suis pas géocacheur, mais j'imagine qu'il va chercher à toutes les faire. Je pense qu'on peut avoir.... Enfin, des très jeunes, peut-être pas, ou alors des très jeunes avec des familles. Des familles. Ça peut permettre à des parents de suivre un trajet à la découverte du patrimoine tout en faisant participer les enfants à la chasse au trésor, en fait, à cette sorte de chasse au trésor. Ça peut s'adresser effectivement aux touristes. Je pense que les touristes... il doit y avoir de plus en plus de touristes qui pratiquent le géocaching chez eux, et donc ils vont peut-être être très contents de trouver des géocaches. Ils connaissent le système, donc ça peut leur permettre de...

Interviewer : *Donc, ce serait pour des gens qui connaîtraient déjà le système ?*

Professional 2 : Qui connaîtraient le système, et puis ça peut attirer, justement, ce public dont je parlais, qui vient précisément quand on a des sortes de chasses au trésor.

Interviewer : *Donc un public attiré plutôt par les événements, à ce moment-là ?*

Professional 2 : Plutôt par les événements, et les événements ludiques. Ça va attirer les gens qui ne mettent jamais les pieds au musée habituellement, et qui vont venir à la « Nuit des Musées »,

qui a lieu samedi prochain, parce qu'on met en scène les objets, on cherche un objet dans le contexte d'une énigme à résoudre.

Interviewer : *Vous avez dit que les parents pourraient suivre le parcours et les enfants pourraient avoir la chasse au trésor. Donc, pensez-vous que ça devrait être fait sur des parcours déjà existants, ou bien ce serait des nouveaux parcours pour le géocaching ?*

Professional 2 : Je pense que ça peut être les deux. Mais si moi, en tant que guide-conférencière, j'avais à mettre en place des géocaches, je pense que j'aurai tendance à suivre... Etant donné que j'ai quand même passé pas mal de temps à faire des trajets qui permettaient de découvrir Dieppe, ou une autre ville, ça me permettrait, moi, je pense... J'aurai tendance à suivre ces trajets-là, parce que je pense que ce sont des trajets qui présentent un intérêt au niveau patrimonial. J'ai suffisamment travaillé dessus pour me dire : « je montre ça habituellement à mes visiteurs, donc ça risque d'intéresser les potentiels chasseurs de géocaches ».

Interviewer : *Pour le moment, toutes les géocaches du coin ont été placées par des géocacheurs, et non pas par des organismes de tourisme. Qu'en pensez-vous ?*

Professional 2 : C'est un bon début [laughing]. Que c'est un bon début, mais je pense que le géocaching c'est quelque chose à quoi s'intéressent les gens dans les offices du tourisme, les gens qui sont en lien avec le patrimoine.

Interviewer : *Dans les géocaches, il y a souvent une description. Que pensez-vous du fait que n'importe qui puisse placer une géocache et donner des informations ?*

Professional 2 : Alors, j'imagine et j'ose espérer que les géocacheurs qui mettent des informations, je dirais, historiques, ou architecturales – ça pourrait arriver que ce soit sur l'architecture – ils se renseignent un minimum. Alors, ils peuvent, je pense trouver ces renseignements.... Internet, c'est une source importante, mais ils peuvent trouver ce type de renseignements dans les offices du tourisme. Et je pense que, bon, un géocacheur qui veut faire ça sérieusement, qui veut avoir des caches patrimoniales, a priori, il va se renseigner. Enfin, je suppose.

Interviewer : *Donc, d'après vous, ces caches placées par des géocacheurs indépendants ont-elles un potentiel pour le patrimoine ?*

Professional 2 : Oui.

Interviewer : *Les géocaches ne sont pas toujours placées près de monuments principaux. Elles sont parfois, d'ailleurs, juste placées dans la nature. Elles sont aussi placées près du petit*

patrimoine : par exemple le monument du Meknès, ou bien la Vierge en haut de la falaise. Qu'en pensez-vous ?

Professional 2 : Du bien [laughing]. Non, non, c'est très bien. Ça permet d'attirer l'attention des gens... Alors, à la fois des géo-trouveurs locaux qui, peut-être, n'auraient pas eu l'idée de grimper sur la falaise pour aller voir jusqu'à la Vierge... Peut-être de se poser des questions, justement, sur la présence de cette Vierge à cet endroit-là ! Alors, je ne sais pas si cette géocache parle du fait... du nom de la Vierge, et pourquoi elle est placée là. Mais voilà, elle pourrait en parler. Et peut-être que les gens vont se poser cette question-là. Les attirer près du monument au Meknès, ça les pousse... alors, il peut y avoir une explication par le géocacheur, mais, tout simplement, ça les attire près d'un monument où il y a des choses inscrites dessus. Donc, j'imagine que ça pousse les gens à lire ce qu'il y a sur les monuments.

Interviewer : *A votre avis, que faudrait-il faire si on veut que les géocaches n'attirent pas que les géocacheurs, mais aussi les touristes ?*

Professional 2 : Sans doute faire la promotion de ça sur... alors peut-être par les offices du tourisme, et peut-être par les campings. Que les propriétaires de campings sachent qu'il y a des géocaches dans le coin. Ou bien les hébergeurs, les propriétaires de chambres d'hôtes, qu'ils puissent dire « Oui, si vous êtes géocacheur, il y a des trajets dans le coin ».

Interviewer : *Que pensez-vous que le géocaching, tel qu'il est pour le moment – donc, développé simplement par des géocacheurs – ajoute à l'offre touristique de la région ?*

Professional 2 : Je n'en ai pas beaucoup entendu parler. Je pense que ça peut offrir quelque chose de plus, si j'en vois les réactions des géocacheurs que je connais, qui chaque fois qu'ils se déplacent quelque part, regarde, avant de se déplacer, s'il y a des géocaches dans l'endroit où ils vont. Donc, je pense que ça peut attirer... effectivement, apporter quelque chose de plus, dans la découverte, justement, d'un petit patrimoine... Ou d'un grand... Mais d'un petit patrimoine d'ils auraient ignoré. Les amener dans des endroits où ils n'auraient pas mis les pieds, autour d'un endroit qu'ils sont en train de visiter.

Interviewer : *En ce qui concerne la présentation du patrimoine – donc le fait de donner des informations – si on compare le géocaching avec de méthodes plus traditionnelles : la visite guidée, le panneau d'information, le guide papier : quels sont les avantages et les inconvénients du géocaching ?*

Professional 2 : Alors, je pense que ça ne remplacera pas... [laughing] - Evidemment vous me direz, c'est normal que je dise ça de par mon métier – mais que ça ne remplacera pas le contact

avec un guide, parce qu'un guide est beaucoup plus bavard que ce qui sera inscrit sur le site du géocacheur, ou les indications qu'il aura. Je pense que c'est difficile d'être en compétition avec un guide, qui est – par définition – bavard, s'il aime ce qu'il fait. Donc, ça ne remplacera pas. Le guide papier... Peut ajouter des choses. Tant que ceux sont des géocacheurs qui ne sont pas des professionnels, ça va aborder quand même qu'une facette des caractéristiques de l'endroit où l'on se trouve. Donc, c'est complémentaire, je pense.

Interviewer : *Quels seraient les avantages que le géocaching aurait sur ces méthodes-là ?*

Professional 2 : Je vois principalement la partie « jeu », et donc attirer des gens qui ne sont pas attirés par des visites classiques, par les guides touristiques classiques – que ce soit papier ou ... Ou qui n'ont pas encore eu envie d'aller chercher les plaquettes de randonnées à l'office du tourisme. Donc, pour moi : les familles... Je vois vraiment bien ça pour les familles et les jeunes : les ados et les jeunes adultes. Je pense que c'est vraiment un public qu'on peut particulièrement cibler avec ça. Après, je pense qu'il y a des adultes plus âgés qui vont bien s'amuser aussi.

Interviewer : *Donc, pour vous, ça pourrait cibler ce public-là, qui n'est pas le public habituel des visites guidées ?*

Professional 2 : Non, tout à fait. Ce n'est pas un public... Les jeunes adultes ne sont pas un public de visites guidées... Vraiment pas le public principal. Et les familles... les parents ont toujours peur que leurs enfants s'ennuient pendant une visite qui ne leur est pas destinée. Donc, quand on a une visite qui est destinée aux enfants, c'est autre chose, mais il n'y en a pas tant que ça. Donc, ça permet... je pense que ça peut permettre à la fois aux parents d'y trouver leur compte, et aux enfants.

Interviewer : *Si le géocaching était utilisé pour donner des informations sur le patrimoine, quel serait son impact sur votre profession, votre activité ?*

Professional 2 : Je ne pense pas qu'il y ait un impact. Je suis d'ailleurs la première à... ça m'est arrivé sur un circuit qui n'est pas très loin, d'avoir une visite guidée, et d'engager les gens à aller découvrir les caches pour aller se promener dans la nature.

Interviewer : *Certains géocacheurs pensent que, quand une description de cache est trop éducative, ça enlève l'aspect ludique du jeu. Pouvez-vous commenter ?*

Professional 2 : Alors, peut-être qu'il pourrait y avoir deux parties dans la description : c'est-à-dire la description pour la trouver, et puis un ajout... Un petit peu, justement, comme dans les audioguides ! Où, dans les audioguides, on a une description simple – alors il y a souvent la

description pour les enfants – mais il y a une description simple, et puis il y a une touche : on vous dit « appuyer sur la touche étoile si vous voulez plus de détails ». Donc, ce type de chose, avec plus de détails pour les gens qui sont intéressés. Ça garderait le côté ludique mais complet quand même. On arriverait quand même à avoir le truc complet, et on pourrait ajouter, pour ceux qui voudraient en savoir plus... voilà. Ils ont un ajout, une annexe quelque part.

Interviewer : *D'après vous, qu'est-ce qui doit être pris en compte lorsqu'on place une géocache près d'un site historique ?*

Professional 2 : Qu'il n'y ait pas de dégradation du site. Ça, ça semble indispensable, sinon ce n'est pas la peine de demander qu'on ne touche pas dans les musées, etc. Donc, pas de dégradation, à la fois du monument – si c'est un monument – dégradation des abords du monument, puisqu'en général les monuments sont fleuris, végétalisés, etc. Il faut, je pense, que le géocacheur précise qu'on n'a pas besoin d'aller farfouiller aux endroits fragiles.

Interviewer : *Donc ça ce serait un rôle du géocacheur qui place la cache ?*

Professional 2 : Oui. De dire que la géocache se trouve... Qu'on n'a pas besoin de grimper sur le monument, qu'on n'a pas besoin de marcher dans les plates-bandes pour trouver la cache. Sinon, je pense qu'on risque d'aller vers des problèmes avec les collectivités qui s'occupent de ces monuments.

Interviewer : *Ces collectivités, est-ce qu'elles devraient être au courant qu'il y a des géocaches ?*

Professional 2 : Elles peuvent l'être en tant qu'acteur touristique... mais bon, je pense que c'est dans des endroits publics et qu'il n'y a pas de dégradation, je ne crois pas que ce soit obligatoire.

Interviewer : *Vous avez déjà un peu répondu : dans le coin, où est-ce que les géocaches devraient être placées ? Vous avez dit : sur des circuits déjà existants...*

Professional 2 : Moi, c'est ce que j'aurais tendance à faire, mais bon, il se trouve que j'ai réfléchi à un bon nombre de thèmes et de sentiers à développer dans la région. Donc, à partir du moment où j'ai réfléchi à ça... J'imagine, je prends n'importe quel village, dans une vallée, s'il y a une rivière : j'ai travaillé sur les moulins qui existaient autrefois, alors je vais parler des moulins. Je vais avoir envie de parler des choses que j'ai découvertes et qui ne sont pas forcément visibles. Ça me permettrait d'aborder des choses sur l'histoire... Donc sur des circuits que j'ai déjà créés pour une visite guidée. Alors, d'un côté, c'est une solution de facilité, mais je crois aussi que c'est le fait que j'ai déjà pensé que c'était intéressant. Donc si c'est intéressant, ça l'est aussi pour ce type de découverte.

Interviewer : *Y a-t-il des endroits où vous pensez qu'il ne devrait pas y en avoir ?*

Professional 2 : Les cimetières, évidemment. Les cimetières... On peut en avoir aux abords des cimetières, c'est possible, mais ne pas pousser les gens à rentrer... dans les propriétés privées, mais ça, je pense que ça va de soi aussi. Dans les églises, j'imagine qu'il vaut mieux éviter aussi. On peut, par contre, peut-être indiquer aux gens s'il y a des choses intéressantes dans l'église qui est à côté d'une géocache, par exemple. Je pense que ça, on peut le faire. Sinon... Les endroits dangereux, aussi. Les endroits dangereux : aux abords des rivières, par exemple, et aux abords des falaises, ou sous la falaise. Aussi aux abords des routes : faire attention quand on est sur une route, s'il y a des endroits où il y a peu de visibilité, et où les gens seraient tentés de chercher alors qu'il y a peu de visibilité pour les automobilistes, par exemple. Il faut faire attention à ça. Faire attention aussi, s'il y a des animaux. Des animaux qui peuvent être dangereux, aussi les clôtures électriques : enfin bon, tout ce qui est... au niveau sécurité, je pense, tout simplement.

Interviewer : *Est-ce que vous pensez qu'il y a une particularité de notre région qui pourrait avoir un impact sur l'utilisation du géocaching ?*

Professional 2 : Il y a pas mal à développer. Ça peut effectivement être, donc, tous les thèmes historiques qu'on peut aborder, mais aussi, ça peut être la découverte de la faune, la flore. On pourrait faire des circuits sur ça, je pense : sur les caractéristiques... J'imagine qu'on pourrait faire un circuit... alors peut-être pas de géocaching... Sur la découverte des orchidées, des champignons. Mais là encore, il y aurait effectivement, quand on découvre des éléments de flore qui sont protégés, je pense qu'il faut être prudent aussi. Justement, ce n'est peut-être pas... Bon, c'est difficile à dire, s'il faut le montrer ou ne pas le montrer. C'est toujours la difficulté.

Interviewer : *D'un point de vue économique, quels sont les pour et les contre de l'utilisation du géocaching ?*

Professional 2 : Les pour, ce sont les mêmes que ce quand on attire du public. C'est-à-dire que si on attire des gens près d'un endroit où il y a un café, dans une campagne, bah on a peut-être des chances que les gens viennent consommer. Je sais que quand on crée des nouveaux circuits de randonnées, on fait attention à ça aussi. On fait attention à la sécurité, à l'intérêt, et aussi aux commerces qui se trouvent dans le coin, puisqu'en campagne c'est important que les gens puissent... Alors puissent, pour leur confort, et puis, ma foi, pour le développement économique. C'est intéressant de savoir qu'il y a un café près de l'endroit où l'on va laisser sa voiture avant de partir en randonnée.

Interviewer : *Pensez-vous qu'il y a des « contre » ?*

Professional 2 : Contre le géocaching, au niveau économique ? Non, je n'en vois pas.

Interviewer : *D'accord. Bon, on a parlé de l'apport économique, mais sinon, que pensez-vous que le géocaching peut apporter à la population locale ?*

Professional 2 : Ah, bah la découverte, encore une fois, la découverte de leur environnement autrement !

Interviewer : *D'après vous, quelle serait la différence entre des géocaches qui sont placées par des géocacheurs indépendants, comme c'est fait pour le moment, et des géocaches qui seraient placées par un organisme touristique ?*

Professional 2 : Alors, je pense que l'organisme touristique aurait, sans doute, plus de facilité à avoir les références historiques, ou architecturales, ou patrimoniales, exactes. Il va pouvoir y avoir une réflexion à ce niveau-là, qui, je dirais, va être la même que la mienne, en disant : « on a déjà réfléchi à un circuit touristique sur ce sentier », j'imagine une ville, par exemple à Eu, « Il y a un sentier de découverte qui est déjà mis en place. » On peut avoir une fiche à l'office du tourisme, avec « petit 1, l'Hôtel-Dieu, petit 2 », je le mets dans le désordre, « la collégiale, petit 3... ». Bon, les gens qui ont réfléchi à ça, je pense qu'ils vont être tentés de suivre ce chemin, parce que ce sont justement des endroits qui présentent un intérêt.

Interviewer : *Est-ce qu'il peut y avoir des inconvénients au fait que les caches soient créées par un office du tourisme ?*

Professional 2 : Je n'en vois pas. Je pense qu'ils sont à même de détecter les intérêts ce que ne verra pas forcément le particulier : les contre-indications – si on peut dire ça comme ça – c'est-à-dire le problème d'avoir trop de population à un endroit à un moment, trop de passants... Je pense qu'ils sont plus à même de voir ça, même... puisqu'en fait ils dépendent des collectivités ces offices du tourisme. Donc, ça veut dire qu'ils vont savoir si ça peut poser un problème avec les plates-bandes fleuries, avec la foire annuelle, avec... Ce type de choses, que peut oublier le particulier. Le particulier peut éventuellement oublier que tous les vendredis, à tel endroit, il y a un marché, et que lors du marché, voilà. Il y a des contraintes qu'il peut ignorer.

Interviewer : *En géocaching, il y a des géocacheurs qui sont vraiment dans l'esprit du jeu, et dans la collection de géocaches. Que pensez-vous du fait de les attirer vers le patrimoine ?*

Professional 2 : De toute façon, c'est toujours positif. Plus on en apprend, mieux c'est [laughing]. Donc oui, tant mieux. Je pense qu'effectivement, ça peut être une manière de découvrir : on

commence par jouer, et puis on se pose des questions sur ce qu'on a découvert. Ou pas ! Chacun est libre de prendre ce qu'il a envie de prendre !

Interviewer : *Donc, pensez-vous que le géocaching est en accord avec la conservation du patrimoine ?*

Professional 2 : Si les géocaches respectent l'environnement, que ce soit l'environnement architectural ou l'environnement naturel, oui.

Interviewer : *Vous avez déjà évoqué certains moyens de réduire les impacts négatifs : le rôle du placeur.*

Professional 2 : Oui, un petit peu. Alors quand je dis que le placeur encourage à respecter, c'est un petit peu comme quand on a des sentiers de randonnées qui permettent d'aller dans des endroits où on n'irait peut-être pas... On a des petites plaquettes, et sur les plaquettes, il y a un certain nombre de recommandations : ne pas s'éloigner des sentiers, ne pas jeter des ordures, ne pas... Un petit peu ça. Je pense que le rôle du géocacheur, c'est aussi de rappeler le b.a.-ba du randonneur, que ce soit à la campagne ou en ville.

Interviewer : *Si vous aviez des recommandations à faire concernant l'utilisation du géocaching pour le tourisme patrimonial, qu'est-ce que ce serait ? Des choses à prendre en compte, ou des erreurs à ne pas faire ?*

Professional 2 : Non, je crois qu'il y a vraiment... il y a un potentiel intéressant. Pour moi, il y a un potentiel intéressant. Je pense qu'il faut du temps pour le développer, donc du côté des offices du tourisme, des services du patrimoine. Il y a des choses à faire, et ça demande du temps, mais c'est une valorisation de la ville, ou de l'endroit qui est intéressante.

Interviewer : *Quand je parlais de l'impact économique : le temps, c'est une ressource aussi. Pensez-vous que l'apport de cette valorisation, ce serait un bon retour sur investissement de ce temps ?*

Professional 2 : Je pense que oui, ce serait un bon retour. De toute façon, c'est quelque chose qui est assez dur à évaluer, parce que quand on met en place, par exemple, des visites guidées, on va savoir combien on a eu de visiteurs. Si on ouvre un monument au public, on va savoir combien il y a de gens qui sont rentrés dans le musée, dans le château, dans l'église, etc. Donc ça on peut le savoir. Par contre, quand on met en place, par exemple, des panneaux explicatifs devant un monument : c'est très difficile de savoir combien il y a de personnes qui ont profitées de ça. Ceci dit, on continue à les mettre, et on continue à mettre des explications, et plus il y en a, plus moi

j'ai tendance à penser que c'est une bonne chose. Donc, je dirai que c'est un peu dans le même ordre d'idée. Plus on fait connaître le patrimoine, mieux c'est. Après, c'est difficile d'évaluer ce qui se passerait s'il y avait des bus entiers qui... Si un bus entier débarque et se met à faire du géocaching. Là, je ne suis pas sûre que ce soit à ce public-là que soit destiné le géocaching. Là, ce serait peut-être trop.