PERSUASIVE TECHNOLOGY IN TOURISM ONLINE EXPERIENCES AND IMPLICATIONS ON TOURIST BUYING BEHAVIOUR

By

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AUTHOR'S DECLARATION

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Abstract

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Online User Experiences (UXs) act as persuasive technology that can nudge users toward making behaviour change. This makes online UX integral to marketing. The tourism industry relies on UX to attract potential customers. Made up of 80% SMEs, the competition is high, hence the SMEs must deliver robust UXs that capture, persuade and convert users into customers. Tourism, despite being an early adopter of technology lags behind in terms of delivering UXs that meet users' expectations. Furthermore, scholarly works exploring online UX as a persuasive technology within the tourism SMEs, specifically the day-attraction SMEs segment, are lacking. Using the theoretical framework of the Persuasive Systems Design (PSD) model, this research evaluates day attraction SMEs' online UXs as persuasive technology. The research uses three mixed-methods to present the service providers' and the users' perspectives. The first method is a website content analysis that reviews the persuasive architecture of 102-day attraction websites. The second method uses questionnaires to get insights on tourists' online usage, motivations, opinions and perceptions of online UX delivered by a single day attraction SME (case study). The third method, an eye tracking experiment is an extension to the questionnaires. The outcomes show that the SMEs' incorporate persuasive UX elements corresponding to usability, visual aesthetics and credibility, but fail at incorporating strategies to support dialogue. The tourists' suggest that usability, visual aesthetics and credibility UX elements affect their decision to buy, however, certain strategies that enhance dialogue, such as ability to win rewards, are likely to nudge them toward behaviour change. Furthermore, there appears to be a link between

visual aesthetics and perceived usability, and their combined effect on persuasiveness.

A final outcome establishes tourist's website reading patterns, emphasising the

placement of call-to-actions within an F-shape region. This research contributes through

a customised version of the PSD model applicable for tourism SMEs, delivers empirical

evidence suggesting additions to the model and, adds to the overall body of knowledge

on tourism online UXs and persuasive technology.

Table of Contents

Chapter 1: Introduction

1.1 Research background

Advancements in Information Communication Technologies (ICTs) have changed marketing dynamics. The divide that existed between service users and providers pre-ICTs has been bridged. Multiple ICT platforms that exist today (websites, social networking pages, mobile applications, online chat etc.) allow direct communication anytime and anywhere, between the service users and providers. The interactions offered by the service providers are not only fueled via online content, but the power of the interactions also lies in the ability of the selected ICT medium to appear as usable, aesthetic and credible (Oinas-Kukkonen and Harjumaa, 2009; Keinan and Kivetz, 2011; Hassenzahl, 2013; Nielsen and Norman, 2015). The holistic integration of the online content with the selected ICT medium's usability, aesthetics and credibility nurtures interactions with the end user. This experience is viewed as the user's- User Experience (UX) (Nielsen and Norman, 2015).

In this current era, where marketing activities are relationship driven and focused on employing service dominant logic, UX has been acknowledged as an integral element that supports this new paradigm (Vargo, Lusch and Morgan, 2004; Morgan, Elbe and de Esteban Curiel, 2009). With marketing's focus on sustaining user relationships, UX has gained a prominent position as the determinant of user satisfaction (Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). When users are satisfied, their attitudes and behaviours are likely to change, there by having implications on the decision-making process (Nielsen and Norman,

2005; Oinas-Kukkonen and Harjumaa, 2009; Gube, 2010; Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). As a result of UX's potency to persuade users to make purchases, the scholarly research and industrial practice of UX is a growing field of study (Gube, 2010; Hassenzahl, 2013).

Establishing a scholarly understanding of UX is essential for researchers as the field lacks constructive, consistent studies. However, academic analysis of UX also has implications for service providers and designers, who are constantly striving to produce better UXs (Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). The world has never before been connected in the manner that it is today. All varieties of online transactions are simply a click away, accessible from anywhere in the world with Internet connectivity. Not only have online transactions brought convenience to users but also the infinite amount of information available leaves users with multiple choices. This stresses the importance of persuading users before the competition can get to them (Dodds et al, 2010). Moreover, all service providers with an online presence are constantly competing with one another for customers (Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). Given this scenario, optimisation of online UX is the key to gaining sustainable competitive advantage (Dodds et al., 2010; Hassenzahl, 2013).

The purpose of this chapter is to present the premise behind the research queries, the literature supporting the queries and its influence on the structure and procedures employed for investigation. Section 1.1 has provided insights into the research background of UX. Section 1.2 introduces literature on the theory and practice of UX.

1.2 UX: Theory and Practice

As a field of study, UX research is rooted in the theory and practice of marketing and Internet technology (Binkhorst, 2002; 2005; Nijs and Peters, 2002; Nielsen and Norman, 2005; Boswik, Thijssen and Peelen, 2007; Morgan, Elbe and de Esteban Curiel, 2009; Gube, 2010). Both, marketing and Internet technology have undergone simultaneous evolution (Binkhorst, 2002; 2005; Nijs and Peters, 2002; Nielsen and Norman, 2005; Boswik, Thijssen and Peelen, 2007; Gilmore and Pine, 2007). The amalgamation of the two has resulted in the introduction of online marketing experiences, geared toward interacting with the end user (Gube, 2010). For these interactions to deliver positive implications, the strategic customisation of UX is necessary. Strategic UX development requires multiple perspectives drawn from fundamentals of marketing that are driven by human persuasion theories and human behaviour science (Ballantyne, Christopher and Payne, 2003). In addition to the perspectives from marketing, perspectives drawn from design thinking and human-computer interaction can provide information on the management of ICT systems (Gube, 2010; Lamprecht, 2015; Nielsen and Norman, 2015).

UX is a new field of study, hence, lacks consistency in terms of knowledge. Information regarding the theories and models, elements of UX, the outcome variables and processes for constructing UX systems, is scattered (Garrett, 2011; Sinkula, 2015). Furthermore, the experience providers' own intentions for the system are often not articulated clearly due to the involvement of multiple parties (e.g. service provider, website designer, marketing team etc.) (Hassenzahl, 2003; 2004; Fredheim, 2011). The general approach toward the development of UX involves giving consideration to the system architecture (front-end and back-end) and the end user (Garrett, 2002). Given the fact that there are a variety of service providers, combined with the fact that their

consumers' requirements are unique, establishing a coherent understanding of UX

optimisation can be a complex process (Hassenzahl, 2003; Fredheim, 2011; Cipan,

2013). The subjective nature of UX interpretation stresses the requirement for

theoretical frameworks (Fredheim, 2011). Application of theories or models that allow

flexibility and space for subjective interpretation can enable service providers in the

deliverance of effective UX (Hassenzahl, 2003; Nielsen and Norman, 2005; Fredheim,

2011).

Nielsen and Norman (2005) and Cipan (2013) have established that the primary

goal of any UX is to remove chaos from the system. It does so by focusing on the

system's usability and introducing an element of visual pleasure through aesthetics.

However, to do so, UX must seamlessly integrate into the service provider's online

experience. This integration can be done by following the three considerations

mentioned in the ISO 9241-210[1] (Nielsen and Norman, 2005). The considerations

referenced in the ISO 9241-210 ask the UX designer to think of- (1) the type of system

employed for persuasion and/or mediation; (2) the use context; and, (3) the user context.

These considerations can be applied across all sub-sets of design, including

technological, interface and content (Nielsen and Norman, 2005). Cooper, Reimann and

Cronin (2007), Rook (2009) and Cipan (2013) recommend the application of a theory or

model that incorporates all three UX considerations mentioned in the ISO 9241-210.

From a marketing standpoint, determining online user behaviour is the first step

toward generating user satisfaction. However, the UX models currently available at the

UX practitioners' disposal do not provide systematic steps that can be adopted by non-

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[1] ISO 9241-210:2010 provides requirements and recommendations for human-centred design principles
and activities conducted throughout the life cycle of interactive computer systems (ISO, 2015)

technical practitioners. Specifically, within the research context of tourism, which provides the premise for this investigation, there do not appear to be systematic procedures in place for the implementation of UX practices. The tourism industry is unique as a result of a high number of Small to Medium sized enterprises (SMEs) that compete with one another. The tourism industry could benefit from a systematic UX model that assists in delivering online experiences that persuade tourists to purchase online. Section 1.3 provides introductory insights into the context of tourism and the current state of tourism online experiences in literature and practice.

1.3 Research context

1.3.1 Tourism Industry in the UK

In the UK, tourism is one of the fastest growing industries (Buhalis, 2002; Rodriguez, 2009; Hernández-Méndez and Sánchez-Fernández, 2012). The UK's tourism sector currently generates 9% of UK's GDP and is expected to generate 10% of UK's GDP by 2025 (Tourism Alliance, 2014). These statistics suggest a promising future for the tourism sector. UK's tourism industry can be considered as unique, due to the fact that almost 80% of the service providers are Small to Medium Enterprises (SMEs) (Tourism Alliance, 2014; World Travel and Tourism Council, 2015). According to Tourism Alliance (2015), the tourism sector is a significant incubator for SME entrepreneurs. In 2014, a total of 26,875 SME businesses started up, which was a 24% rise from 2012. These tourism SMEs are currently operating across different sectors that cater to all leisure and business, domestic and international tourists (VisitBritain, 2015). Some of the most profitable UK tourism segments are- accommodation, food and beverages, air-travel, sports and recreation activities, and

cultural tourism activities (Tourism Alliance, 2014). Given the crossovers between various tourism segments, there is a general lack of clear distinctions.

The segment that is of most interest to this research is that of day (or visitor) attraction (or visitor attraction) tourism SMEs. Day attractions are generally viewed as those attractions, where visitors spend at-least 3 hours (Tourism Society, 2015; Visit England, 2015). In addition to this, a large proportion of day attraction visitors are generally local residents, barring exceptions such as day attractions in London that attract visitors from all over the globe (Visit England, 2015). According to Visit England (2015), the day attraction SMEs generated £2,947 million of the overall £10.7 billion grossed by the tourism sector in Great Britain in 2014. This segment is one of the most popular within the tourism industry (Visit England, 2015). However, due to the narrowness of the segment, most tourism SMEs based research studies focus on the overall tourism sector than the day attractions segment. As day attraction specific literature is unavailable, this research often uses the terms tourism SMEs, and day (or visitor) attraction tourism SMEs, interchangeably. It is understood that given the overlap and similarities (Visit England, 2015) between tourism SME segments, findings from one segment might easily be replicated across other tourism SME segments.

According to Law, Qi and Buhalis (2010), the widespread adoption of the Internet has contributed toward the growth of all tourism SMEs. Tourism service providers can now reach out to a larger global audience, allowing domestic, as well as international tourists the instant option to confirm travel plans (Law, Qi and Buhalis, 2010; Batinić, 2013). These factors that suggest technology led advancement in a sector, which is made up of almost 80% SMEs, points toward a competitive market (McMaster, Kato and Khan, 2005; AL-allak, 2010). The tourism SMEs that are able to

achieve sustainable competitive advantage are those that can harness the power of online experiences (Dodds et al., 2010).

Google Travel Report's (2014) statistics show that 74% and 77% of leisure and business travelers have relied on the Internet to plan their travels. Buhalis and Law (2008) and Ho, Lin and Chen (2012) have also found that most tourists turn to the Internet to get inspired, formulate plans and purchase. The Internet's significant role in the travel planning and purchase process is evident within tourism literature (Buhalis and Law, 2008; Morgan, Elbe and de Esteban Curiel, 2009; Law, Qi, Buhalis, 2010; Ho, Lin and Chen, 2012; Google Travel Report, 2014). However, regardless of the integral role played by the Internet in tourist decision-making, most tourism SMEs, have failed to strategise the ICT avenues to their fullest (Buhalis and Law, 2008; Kim and Fesenmaier, 2008; Nusair and Kandampully, 2008; Morgan, Elbe and de Esteban Curiel, 2009; Loda, 2011; Diaz and Koutra, 2013).

1.3.2 Online experiences in Tourism

The tourism industry has always been one of the first to adopt ICTs, which has greatly contributed toward innovation in marketing and management practices within tourism (Law, Qi and Buhalis, 2010; Batinić, 2013). The ICTs have found application across tourism practices involving reservation systems, customer relationship management systems and online shopping portals (Werthner, 1995; Spencer, Buhalis and Moital, 2012). Today, ICTs are used by tourism SMEs to develop a brand profile, manage customers and distribute services to the masses. In order to gauge the efficacy of these ICTs, generally the tourist users' levels of satisfaction are considered as an

index (Michopoulou and Buhalis, 2013). A tourism ICT system is deemed successful, when it has the power to deliver user satisfaction and, as a result, nudge the satisfied users by persuading them to make attitude and behavior changes such as shopping online, writing reviews or sharing media on social networking pages (Michopoulou and Buhalis, 2013).

Today, the subject of technology in tourism is considered as an interdisciplinary research but the overlaps and contributions from mainstream science and technology, within tourism literature are sparse (Gretzel, 2011). Although ICTs can prove to be profitable to the tourism SMEs, it is the tourism sector's recognition as that of being laidback and relaxed, which has created an impression that tourism requires low technological input innovation (Poon, 1993; Sørensen, 2001; Hjalager, 2002; Buhalis and Moital, 2012). Despite this impression, tourism literature is still rich with information on tourism online experiences (Zheng and Ulrike, 2009). Websites, social media and mobile apps are crucial to all tourism businesses (Gretzel, 2011; Spencer, Buhalis and Moital, 2012). This has led to the development of a number of research studies that explore the variety, efficacy, processes, elements and outcomes of tourism online experiences, specifically in relation to user satisfaction (Nielsen, 1998; Hashim, Murphy and Law, 2007; Kim and Fesenmaier, 2008; Lexhagen, 2008; Nusair and Kandampully, 2008; Wang et al., 2008; Loda, 2011; Wu et al., 2011; Hernández-Méndez and Sánchez- Fernández, 2012; Lee and Gretzel, 2012; Diaz and Koutra, 2013; Ibrahim, Shiratuddin and Wong, 2013).

The aforementioned research studies have each contributed greatly to the knowledge on current UX practices pursued by tourism SMEs. However, these studies do not offer comprehensive theoretical metrics or present strategies that specifically

take into consideration the UX facets that are required to motivate users to change behaviour. The tourists' travel planning and consumption activities are largely based on the usage of tourism websites, search engines, review sites, social networking sites and mobile apps. At any given moment, tourist users have access to extensive, overwhelming information (Pan and Fesenmaier, 2000; Lee and Gretzel, 2012). Given the high level of competition in the market, strategising online experiences is crucial (Lee and Gretzel, 2012; Loda, 2011). First impressions of the online experience determine whether a user will stay engaged, make a purchase, share their experience and possibly, return for a future purchase (Pan and Fesenmaier, 2000; Loda, 2011; Lee and Gretzel, 2012).

However, there are no concrete theoretical structures against which the current tourism online practices can be evaluated, or newer strategies could be designed. Furthermore, the current findings on tourism online experiences are contradictory. Nielsen (1998), Hashim, Murphy and Law (2007), Wang et al. (2008), Lexhagen (2008), Wu et al. (2011), and Hernández-Méndez and Sánchez-Fernández (2012) conclude that tourism websites are often not usable. On the contrary, Kim and Fesenmaier (2008), Nusair and Kandampully (2008) and Diaz and Koutra (2013) suggest that tourism SMEs' online experiences offer good usability but lack visual elements for inspiration and credibility.

Usability research within tourism has been popular for over two decades (Nielsen, 1998; Hashim, Murphy and Law, 2007) but the research on visual elements has gained interest only recently (Schlosser, 2003; Kim and Fesenmaier, 2008; Kim, 2010; Diaz and Koutra, 2013; Basitda and Huan, 2014). According to Kim and Fesenmaier (2008) and Diaz and Koutra (2013), the visual appeal of the tourism website

attracts the user's attention within the first instance. The quality of the visual appeal determines whether the website will be able to inspire, persuade and nudge the user to make a decision (Kim and Fesenmaier, 2008). From the tourist's point of view, inspiration is critical to the travel planning process. Google Travel Report (2014) confirms that 42% tourist respondents have turned to YouTube, while 61% have been led to search engines for inspiration. This puts the spotlight on the attractiveness of the tourism website's front page or landing page. The visual attractiveness of a website paired with the quality of information, can influence and persuade users (Schlosser, 2003; Kim and Fesenmaier, 2008; Hyun and O'Keefe, 2012; Bastida and Huan, 2014). Despite the importance of UX's visual appeal, research from Kim and Fesenmaier (2008), Nusair and Kandampully (2008); Diaz and Koutra (2013) shows that tourism websites fail to use attractive visuals that can inspire users.

In addition to the visual appeal, tourism SMEs websites also lack signs of credibility (Loda, 2011; Ibrahim, Shiratuddin and Wong, 2013). As an outcome variable that determines user satisfaction, credibility has not been studied extensively within the tourism SMEs context (Ibrahim, Shiratuddin and Wong, 2013). Furthermore, like any other UX, the role of tourist users too is integral to the tourist online UX. However, tourist users' motivations and intentions to use the website are not addressed within the tourism online experiences literature (Bastida and Huan, 2014). The tourist users' online usage, their perceptions and opinions of the online experience, along with their intentions and motivations to use the UX can provide tourism SMEs with useful insights on how to best cater the desired UX to their audience. According to Gretzel (2011) and Ho, Lin and Chen (2012) tourism SMEs often fail to persuade users to change their attitude and behaviour, due to the delivery of unplanned UX. If tourism

SMEs apply a UX model that considers the system's role, the use context and the user context, they are more likely to deliver persuasive online experiences.

1.4. Research aims and objectives

The foremost purpose of any UX is to instigate user satisfaction (Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). User satisfaction is a catalyst for attitude and behaviour change (Nielsen and Norman, 2005; Oinas-Kukkonen and Harjumaa, 2009; Gube, 2010; Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). In addition to this, an assumption can be made that many people engaging in marketing activities do not possess the technical skills of a web systems designer. Acknowledging these factors presents a gap within UX practice and the extant literature. This gap is highlighted in the form of a lack of a user behaviour driven, businesses and social sciences perspective toward developing a theoretical framework for UX.

The gaps that are presented through UX literature suggest the need to apply a behaviour science or persuasion led theoretical framework to UX design. In addition to this, the current UX models only appear to cater to the web systems designer who is likely to possess the required technical knowledge but might not possess the experience of a marketing professional. The popular UX models such as Hassenzahl's model of UX (Hassenzahl, 2004) or the triad implementation, mental and representation models used by UX practitioners are focused more on the system design than user satisfaction. This is potentially problematic since marketing professionals might not possess in-depth technical systems knowledge. Rather, marketing professionals are likely to focus more on generating user satisfaction, as it is crucial to the marketing process, something the

web systems designer might overlook. These findings create space for a behaviour sciences or persuasion led theoretical framework that can be applied to design and evaluate the efficacy of any UX. Furthermore, the application of a UX model that focuses on behaviour can prove useful to both- technical system designers and marketing professionals.

The context of the UK tourism SMEs suggests the crucial role-played by the online experiences in converting and confirming tourist users (Werthner, 1995; Spencer, Buhalis and Moital, 2012). At the same time, the SME dominant UK tourism sector, running on low resources (Tourism Alliance, 2015), highlights the role of online experiences to gain competitive advantage (Lee and Gretzel, 2012; Loda, 2011). Recognising areas for improvement by evaluating the tourism online experiences and providing strategies for optimisation can benefit the UK tourism SMEs.

Currently, the tourism online experiences in practice and research do not appear to use strong and comprehensive theories or models that can assist in the evaluation of UX efficacy (Binkhorst, 2006; Gretzel, 2011; Hernández-Méndez and Sánchez-Fernández, 2012; Ho, Lin and Chen, 2012; Bastida and Huan, 2014). Moreover, it is evident that tourist users are turning to the Internet to get inspired, plan and make purchases (Law, Qi and Buhalis, 2010; Batinić, 2013). However, the lack of strategised online experience architecture (Gretzel, 2011; Ho, Lin and Chen, 2012) shows a gap that can be filled by a human behaviour sciences or persuasion led theory or model.

The aforementioned issues and gaps have helped in designing the conceptual framework for this research. The research aims to introduce a human behaviour science and persuasion based online UX perspective that can be applied to tourism SMEs. This

offers the opportunity to address the persuasiveness of tourism SMEs' online experiences and evaluate their persuasive impact on the tourists' buying behaviour. The following research aims and objectives provide a step-by-step breakdown to achieve the primary aim of the research.

1.4.1 Aim 1: To explore the architecture of online experiences offered by tourism SMEs

The intention behind setting Aim 1 has been to present information about the current online UX practices within the day attraction tourism SMEs sector. In order to explore this aim, 102-day attraction tourism SMEs are reviewed. The aim has been approached using the following two objectives,

Objectives:

i. To determine the variety of online experiences offered by tourism SMEs

ii. To ascertain the nature of online experiences offered by tourism SMEs

1.4.2 Aim 2: To examine tourist online user motivations and experience provided by the selected tourism SME

The second aim of this research flips perspectives. The focus of Aim 1 is on presenting information regarding the practices of the tourism SMEs. Instead, Aim 2 focuses on the experience user- *the tourist*. A case study approach has been used to study this aim. The case study of Pennywell Farm, day attraction tourism SME, has helped the researcher in targeting and collecting data from actual tourists. Furthermore, Pennywell Farm's online experience acts as a valid premise to analyse tourist online behaviour. Aim 2 provides a wide range of information regarding the tourist users through the means of the following four objectives.

Objectives:

i.   To determine the nature of tourist online usage

ii.   To establish the nature of tourist online usage provided by the selected
      SME

iii. To identify tourist motivations for engaging with online experiences
      provided by the tourism SME

iv.   To ascertain tourists' perceptions and opinions of online experiences
      provided by the tourism SME

1.4.3 Aim 3: To evaluate the persuasive power of online platforms provided by the selected tourism SME on tourist buying behavior

Aim 2 has focused on presenting information on the tourist user's context but not on the implications of the UX. Aim 3 investigates how the tourist users are persuaded by the different UX elements. Pennywell Farm's online UX offers this aim the required premise to evaluate persuasiveness using Oinas-Kukkonen and Harjumaa's (2009) PSD model theoretical framework and study tourist buying behaviour in relation to the UX. This evaluation of the persuasiveness of Pennywell Farm's online UX is performed through the following three objectives,

Objectives:

i.   To identify specific elements of the architecture of online experiences
      provided by the selected tourism SME, which most encourage buying
      behavior

ii. To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most discourage buying behavior

iii. To elucidate reasons which explain why tourists abandon an online experience prior to a potential purchase

1.4.4 Aim 4: To test the applicability of Persuasive Systems Design (PSD) model as a tool for designing persuasive tourism online UX

Aim 4 takes the findings from Aim 2 and 3, to assess the suitability of the PSD model as a persuasive technology tool for designing tourism online experiences, specifically from the tourism SME point of view. Furthermore, the findings from Aims 2 and 3 will also assist the researcher in making any amendments to the PSD model, if necessary. As a Behaviour Change Support System (BCSS), the PSD model has been established as an effective health behaviour change tool; however, its applicability has never been tested within the tourism context.

1.4.5 Aim 5: To contribute to the enhanced knowledge of persuasive technology and its implication on tourist buying behavior

The final aim of this research is to employ the findings of Aim 1, Aim 2, Aim 3 and Aim 4, to introduce new knowledge and contribute to the fields of persuasive technology and tourism.

The next chapter (Chapter 2) introduces and presents in-depth insights into the research background of User Experience. Chapter 3 takes the findings of Chapter 2

forward by investigating the literature surrounding tourism online experiences using the theoretical framework provided by Oinas-Kukkonen and Harjumaa's (2009) PSD model. Merging the findings from the literature spanning across UX, persuasive technology and the tourism online experiences, the conceptual framework is presented in this chapter. Chapter 4 focuses on the methodological approach taken toward building the research design used to support the investigation of the research aims and objectives. Chapter 5 presents the data findings and analysis from the first research method- *website content analysis*. This research method helps in investigating the current persuasive UX practices of day attraction tourism SMEs. Chapter 6 and 7 provide the findings and analysis from the second of the three research methods employed in this research- *the questionnaire surveys*. Chapter 8 presents findings from the final research method- *eye-tracking experiments*. The eye-tracking analysis is an extension to the questionnaires. Chapter 9 concludes this research by triangulating the findings from the literature and the three research methods. The conclusion also presents the theoretical and methodological contributions of this study, efficacy of the PSD model as a persuasive technology model, the implications for day attraction tourism SMEs and Pennywell Farm (case-study), limitations of the research and recommendations for the future.

Chapter 2: User Experience and tourism online experiences

2.1 Introduction

As the first of the two literature review chapters, this chapter aims to review the extant literature, which is pertinent to this investigation, before the conceptual framework can be introduced. The chapter has been divided into two parts. The first part from Sections (2.2-2.7) focuses on the research background of User Experience (UX). The second part from Sections (2.8-2.9) focuses on the research context of tourism online experiences.

Section 2.2 introduces and explains the many terminologies associated with UX. Semantics is a common issue with UX as terms such as experience design, human computer interaction, interface design are used interchangeably within UX. Section 2.3 explores the dynamics of UX in context to the online environment. The two topics investigated within this Section are- the theory and practice of marketing and Internet technology. The other areas addressed within Section 2.3 are- evolution and convergence of the marketing and Internet technology, Internet and human behaviour sciences' influential contribution toward marketing, evolution of the Internet and Internet driven relationship marketing. Section 2.4 guides the reader further by focusing on the elements of UX. Section 2.5 presents a review of the role of emotions and the effect of UX on emotions. The following Section 2.6 reviews the various methods used for designing and evaluating UX. Section 2.7 delivers a summation of UX as a field of scholarly pursuits and practice.

The second part of this chapter presents online UX in context to tourism. Section 2.8 introduces the UK's tourism industry and investigates the role of ICT in the

evolution of tourism online experience. Section 2.8 also explores the application of technology by tourism SMEs. Section 2.9 introduces the ICT usage and online behaviour of tourism users and explores the implications of tourism online experiences on tourism users. The Section further reviews tourist user behaviour in relation to their Internet usage, search behaviour, social media and review sites. This literature review chapter concludes with a summary on both topics- UX and UX within the context of tourism online experiences in Section 2.10.

2.2. User Experience

User experience (UX) weaves together, all aspects of the end user's interactions with the service provider (Nielsen and Norman, 2015). In the online space, these interactions are affected by the online content, the website's usability, aesthetics, and presentation of arguments via effective storytelling (Keinan and Kivetz, 2011; Hassenzahl, 2013). The various aspects of the online UX have an impact on the end user's levels of satisfaction (Keinan and Kivetz, 2011). Improvement in user's satisfaction, often stimulated by the UX, has further implications on user's intentions and decision-making (Keinan and Kivetz, 2011; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). Due to the far-reaching implications of UX on the end user's buying behaviour, the research and practice of UX is an ever-transforming field (Nielsen and Norman, 2005; Gube, 2010; Hassenzahl, 2013). In the early days of the Internet, UX was not at the centre of marketing strategies. This was due to the limitations set forth by web browsers, coding languages and graphic designing. The dawn of the millennium brought with it, upgraded interactive browsers, advanced coding languages and high quality graphic designing capabilities. With these changes, UX as a field of study and practice began gaining exponential popularity (Malouf, 2014). Today, the term is most commonly associated with technology, specifically interactive online systems like websites and apps.

2.2.1 UX terminology: origin and semantics

Don Norman first introduced the term UX at Apple, in context to user-centred design (Gube, 2010). It was used as a replacement for the term Human Interface (Gube, 2010). According to Google's Ngram Viewer, the origin of the term can be traced to late 1930s, but this cannot be confirmed via any other credible references. UX in itself is a very broad term, leading to confusion over the semantics. Fredheim (2011) states that the term UX is often used incorrectly. Terms such as usability, user interface (UI), interface design (ID), human-computer interaction (HCI) and user experience (UX) are technically related, but are often used in inaccurate contexts (Nielsen and Norman, 2015).

2.2.2 Usability and Interface Design

Usability covers issues such as- ease of navigation and learning, system functionality and system errors (Hassenzahl, 2013; Nielsen and Norman, 2015). Usability is essential to the overall UX, but UX is still a much broader concept (Hassenzahl, 2014; Neal, 2014; Nielsen and Norman, 2015). On the contrary, interface design is the design of the system interface (Neal, 2014; Nielsen and Norman, 2015). An interface designer's main goal is to design a computing system that users can interact with easily (Lamprecht, 2015). Although interface design can be misinterpreted as UX, in simple terms it can be understood as the design of laying out the product versus conceptualising how the product feels to the user (Ming, 2014). The human feelings and emotions, which affect user's perception and the persuasive efficacy of the UX, are best addressed through HCI research (Carroll, 1997).

2.2.3 Human Computer Interaction

HCI is the science of design of those systems that offer human users the capability to interact with all technological systems (Schneiderman, 1980; Carroll, 1997). The research on HCI originates at the intersection between psychology and social sciences on one end of the continuum and technology on the other (Schneiderman, 1980). The primary goal of HCI is to spot difficult problems and provide solutions (Fredheim, 2011; Hassenzahl, 2014). The approach used by HCI researchers to resolve issues is based in human behaviour sciences (Hassenzahl, 2014). The knowledge borrowed from behaviour sciences can be used toward understanding the programming and application of an interactive system (Schneiderman, 1980; Carroll, 1997; Hassenzahl, 2014). Borrowing from this method of human computer interaction analysis, the modern day usability studies came into being (Scheniderman, 1980; Hassenzahl, 2013; Nielsen and Norman, 2015).

2.2.4 Difference between User Experience, Usability, Interface Design and Human Computer Interaction

Usability, UI and HCI in one way or another deal with the physical system, while experience is something that is mediated through the physical but transcends beyond the physical space (Fredheim, 2011; Hassenzahl, 2014). As a sub-category of experience, online UX focuses on the same mediation of the message through interactive products, as any other offline experience. Hassenzahl (2013) has argued the position of online UX in comparison to offline experiences. According to Hassenzahl (2013), UX does not have to remain merely symbolic due its confinement to the online domain. UX can be extremely meaningful in the context of technologies if applied correctly. A number of researchers (Rutledge, 2012: Hassenzahl, 2013; 2014; Malouf,

2014; Neal, 2014 and Nielsen and Norman, 2015) have predicted that in the near future, the UX of any product/service online will become more important than the product/service itself. This stresses the need to design experiences that carry the power to influence and persuade.

2.2.5 Difference between User Experience and Experience Design

Besides usability, UI and HCI, the term UX is also used interchangeably with the term Experience Design (XD). In order to reduce confusion, Neal (2014) suggests addressing what each of these two terms represent. UX and XD are classically different types of designs (Neal, 2014). The term UX deals with the interaction between the user and the experience, while XD deals with experiences on the whole (Hassenzahl, 2014; Malouf, 2014; Neal, 2014). The umbrella term, XD, is a design philosophy that helps to bring into focus what humans really care about (Hassenzahl, 2014; Neal, 2014).

The main purpose of XD is to design pleasurable, meaningful and treasured moments (Neal, 2014). These treasured moments clarify the needs and emotions of being involved in the experience activity, the meaning and the experience itself (Malouf, 2014). Upon answering the *Why*, XD determines the experience's functionality thereby answering the *What*. Finally, being able to put the functionality into action answers the *How* (Hassenzahl, 2013; 2014; Malouf, 2014). The *Why*, *What* and *How* put together help in devising experiences that are sensitive to the human experience. This research explores online experiences that operate on some level of interaction between the user and, the user-interface and user-experience. Given that the context of the primary research query is based around online experiences, the term UX is most

appropriate for the research. From this point onward, the term UX or online experiences will be used interchangeably.

2.3 UX: Dynamics at play

Technology has played a prominent role in assisting service providers presenting usable, immersive and persuasive UX. The hybridisation of technology has led to the blurring of boundaries between the offline and online spaces, providing service providers the abilities to present seamless UXs (Nielsen and Norman, 2005; Gube, 2010). As a result of this hybridisation, the end user interacts with the experiences that have taken on the complex role of creators, as well as mediators of stories (Gilmore and Pine, 2007; Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013). The level of stimulation that the technologically enhanced experiences offer is based on the experience's ability to be relatable, competent and popular amongst the masses (Hassenzahl et al., 2010).

Today, technological tools offer UX designers the opportunity to move away from the staged, commercial and artificial and into the territory of the emotive and rational (Binkhorst, 2002; 2005; Nijs and Peters, 2002; Bowswijk, Thijssen and Pellen, 2007 and Gilmore, 2007). In the context of online and/or hybrid space[2] experiences, the Internet plays a vital role. Specifically, the Internet's Web 2.0 functionalities, such as codes that allow dynamic interactivity, social networking and online transactions are highly relevant here. These functionalities are crucial to the front-end UX (Fruh et al., 2005; Gube, 2010; Milano, Baggio and Piattelli, 2011; Lamprecht, 2015; Nielsen and Norman, 2015). Furthermore, such functionalities offer experiences with variable

[2] Hybrid space- Space that comprises of both physical and virtual

character, which thereby breaks the limitations of the physical world (Edwards et al.,

2001).

The virtual nature of online experiences presents UX designers the opportunity

to develop widespread, ubiquitous connections. Interaction points can be built to engage

end-users anytime and anywhere, by dissolving the need for the users to be present

within the same physical space (Edwards et al., 2001; Benyon, O'Keefe and Mival,

2013). In addition to accessibility, Web 2.0 allows marketers to communicate in a

manner that each individual user interacts with their own private UX (Edwards et al.,

2001; Werthner and Ricci, 2004; Keinan and Kivetz, 2011; Hassenzahl, 2013).

This research only explores UX within the context of the online environment. In

order to understand the dynamics of UX, it is crucial to investigate the roots of UX.

These roots can be found in marketing and Internet theory and practice. The growth of

UX has been greatly stimulated by the advancements in the fields of marketing and

Internet technology.

2.3.1 Evolution of Marketing

The progressions in Internet technology and marketing have been simultaneous

(Binkhorst, 2002; 2005; Nijs and Peters, 2002; Boswik, Thijssen and Peelen, 2007;

Gilmore and Pine, 2007). Marketing and technology as fields of research and practice

share many characteristics. Both subjects have extensive implications on human society.

In addition to this, both borrow from multiple disciplines; in-fact the popularity of both

subjects has followed a similar trajectory (Binkhorst, 2002; Sharma and Sheth, 2004;

Binkhorst, 2005; Shaw and Jones, 2005). At various points throughout history,

humanity has seen a surge in technological advancements. The invention and extensive

adoption of technologies has always had direct implications on the way business is

conducted (Shaw and Jones, 2005). Furthermore, technological advancements have

often forced business practices to reinvent and customise technology to suit the

market's requirements (Binkhorst, 2002; Sharma and Sheth, 2004; Binkhorst, 2005;

Shaw and Jones, 2005). With the invention and growth of the Internet, marketing

thought and practice too have undergone transformation (Wilkie and Moore, 2003;

Shaw and Jones, 2005).

The Greek philosopher Heraclitus said –"*Nothing is permanent except change*".

This statement stands true to the thought and action of marketing and technology.

Marketing has existed for as long as human civilisations have been exchanging and

selling products and services. From a historical perspective, the ideas of marketing can

be traced back to the Lycian civilization (Wilkie and Moore, 2003; Shaw and Jones,

2005). The philosophical roots of contemporary marketing are found in macro

marketing ideas narrated by Plato (Shaw 1995). However, as an educational discipline,

marketing's history dates back to the cusp of the 20th century (Bartels, 1988; Wilkie and

Moore, 2003; Shaw and Jones, 2005). Marketing has always had a revolutionary facet,

which makes it responsible for the changes brought about in the socio-economic spheres

(Bartels, 1988). Over the years, marketing thought and practice have borrowed

influences from multiple disciplines such as economics, psychology, advertising and

technology (Bartels, 1988; Sheth et al, 1988). These influences have been responsible

for the bifurcation of marketing into a number of different schools of thought.

2.3.2 Economics' contribution to marketing

Amongst all the educational disciplines, economics is considered to be the first major discipline to have had an impact on the development of the marketing thought (Bartels, 1988; Shaw and Jones, 2005). In his influential historical documentation of marketing, Bartels (1988) draws upon well-known economists such as Adam Smith and David Ricardo. Adam Smith envisaged man as '*the economic man*'; keen on enhancing his current situation (Bartels, 1988). David Ricardo further acknowledged the uncertainties of the increasing disparity within a growing factory system (Bartels, 1988). These economics driven marketing ideas amalgamated into the early marketing thought.

Bartels (1988) further documents economist Alfred Marshall's notion of co-operation as an instinctive condition rooted in man's social nature. Components such as the desire to buy and the ability to purchase are often reflected in the demand for the product/service (Bartels, 1988). Furthermore, experimentation with salesmanship and advertising, led to the evidence that supports motivation and intention as drivers of buying behaviour, instead of sheer product supply (Bartels, 1988; Sheth et al., 1988).

2.3.3 Human behavioural sciences' contribution to marketing

Marketing chronologies developed by Sheth et al. (1988), Wilkie and Moore (2003) and Shaw and Jones (2005) suggest that the thought and practice of marketing underwent a paradigm shift from 1955 onward. Post 1955, along with economics, management studies too began influencing marketing (Shaw and Jones, 2005). The

ideas were initially borrowed from the field of management but soon influences were also derived from the field of psychology (Bartels, 1988; Sheth et al., 1988). This led to the amalgamation of the multidisciplinary knowledge that triggered innovation in marketing. Ideas from human behavioural science, which is the sub-field of psychology, began dominating marketing thought and practice (Weitz and Wensley, 2002).

Putting customers at the centre of marketing structures began to change the dynamics of traditional marketing (Shaw and Jones, 2005). Philip Kotler's work in marketing management and consumer behaviour is still considered to be one of the most influential (Weitz and Wensley, 2002; Shaw and Jones, 2005) and has led to the introduction of marketing management departments across the globe (White, 2010). Over time, influences from the leading German universities and manufacturing companies, nudged the developments in a new area known as relationship marketing (Bartels, 1988; Sheth et al., 1988; Maex and Mitchell, 2009). In 1983, Leonard Berry introduced relationship marketing as a concept that could be applied to service industries (Berry 1995; Maex and Mitchell, 2009). This practice was soon adopted by the manufacturing sector (Berry 1995; Brito, 2005; Maex and Mitchell, 2009). Issues such as customer's brand awareness, brand loyalty and the implications of both on the service industry's business profit, took centre stage (Maex and Mitchell, 2009). Furthermore, access to cheaper technologies began to further enhance customer relationship management practices (Berry, 1995; Ballantyne, Christopher and Payne, 2003).

2.3.4 The Internet and relationship driven marketing

Berry (1995) has mentioned the pivotal role played by information technology, specifically the Internet, which has facilitated the development of the practical value of relationship marketing. The roots of relationship marketing can be found in human persuasion theories (Ballantyne, Christopher and Payne, 2003). Today the persuasion based approach is also at the core of marketing's online experiences. Vargo, Lusch and Morgan (2005) credit the duos of C.K. Prahalad and Venkat Ramaswamy, and Joseph Pine and James. H. Gilmore, for in-depth exploration of relationship marketing. The works of Prahalad and Ramaswamy and Pine and Gilmore, moved the marketing paradigm's focus from being goods-dominant to service-dominant.

Vargo and Lusch's (2004) service-dominant logic suggests that the marketing processes and functions move their focus from the product on offer, to the services surrounding the product. The Internet supports this shift by providing tools that enhance services. Experiences, specifically online experiences, play an important role in this current era of relationship driven marketing that focuses on service-dominant logic (Vargo, Lusch and Morgan, 2005; Morgan, Elbe and de Esteban Curiel, 2009). In addition to this, the current era of marketing also draws heavily from the human behavioural science literature (Morgan, Elbe and de Esteban Curiel, 2009).

2.3.5 Evolution of the Internet and its implications on UX

The online experiences of today have come a long way from the first Galactic Network envisioned by J.C.R. Licklider of MIT in 1962 (Leiner et al, 2003). The years 1968-1969 saw the introduction of ARPANET, the first pioneering packet switching network, followed by the event of the first host computer going online at UCLA (Leiner et al., 2003). Vint Cerf created the TCP/IP protocol and alongside Robert Kahn, the team incorporated satellite data networks and ground based packet radio networks to transform ARPANET into the Internet (Cerf, 1993; Leiner et al, 2003). Michael Aldrich set up the roots for e-commerce in 1979 by inventing the first online shopping system for the B2B sector (Leiner et al., 2003; Aldrich, 2011). However, it took until the mid-1980s for the Internet to turn into a functional marketing tool (Cerf, 1993). Since then the Internet has achieved great strides, as exponential demand for the Internet has grown rapidly (Cerf, 1993) although, it has been the invention of the Hyper Text Markup Language (HTML) that has truly transformed online marketing (Leiner et al, 2003; Ariguzo, Mallack and White, 2006).

Early browsers like Mosaic and Netscape with their easy to use Graphical User Interfaces (GUIs), allowed an average Internet user to make the most of the World Wide Web (WWW) experience (Ariguzo, Mallach and White, 2006). However, despite this widespread adoption of the Internet technology, marketers had to limit their usage because the National Science Foundation's regulations forbid any online commercial activity (Sharma and Sheth, 2004; Ariguzo, Mallach and White, 2006). This regulation was removed in 1995 (Sharma and Sheth, 2004; Ariguzo, Mallach and White, 2006). Since the mid-90s the Internet has grown exponentially and has been accepted by millions around the world, giving marketers an easy non-location based access to the global audience (Sharma and Sheth, 2004; Neuman, 2013). Built upon the traditional

marketing practice, the Internet has converted the old school supplier focused and mass standardization driven format into a customer-centric and personalised approach (Sharma and Sheth, 2004; Morgan, Elbe and de Esteban Curiel, 2009; Neuman, 2013). The Internet has offered marketers opportunities to reduce costs incurred during customer acquisition and retention (Econsultancy, 2007). In addition to this, marketers are experiencing the ability to segregate and track their individual campaigns to deliver analytical insights like never before (Econsultancy, 2007; Elbe and de Esteban Curiel, 2009).

The digital age of marketing has presented capabilities to instantly quantify Return on Investment (ROI), track individual campaign sales and benchmark performance based user conversion (Econsultancy, 2007; Dominici, 2009; Hortal, 2011; Marketing Management Analytics, 2012; Shrivastava, 2012). Apart from providing data metrics that double up as quantifiable critical success factors (Dominici, 2009; Marketing Management Analytics, 2012; Shrivastava, 2012), the Internet's WWW technology has helped in improving the front-end, online marketing UX (Gube, 2010; Lamprecht, 2015; Nielsen and Norman, 2015). Any online UX seamlessly merges services/products that are on offer, through the application of various sub-sets of design to convey the marketer's agenda via the Internet (Nielsen and Norman, 2005; Gube, 2010). The following Section 2.4 provides insights into the key elements or sub-sets of UX design.

2.4 The key elements within an online UX

The field of UX research, scholarship and practice is only a recent development. As a result, the knowledge surrounding the topic is scattered. Descriptions of the key elements of UX are left to every individual researcher's or practitioner's own interpretation. On the surface of any UX, there appear to be three or four distinct categories that represent the key elements. These categories range from visual design, usability, and interaction design and information architecture. At first glimpse, the information vagueness is quite evident in UX literature but Garrett (2011) has presented some comprehensive descriptions through his UX elements model, presented in Section 2.4.1

2.4.1 Garrett's five elements of online UX

Garrett (2011) presents the most comprehensive descriptions of the key elements of online UX through the suggestion of five different types of categories, also known as the five planes. Garrett's (2011) planes provide a conceptual framework to resolve UX issues and build something concrete from the level of abstract (Garrett, 2011; Sinkula, 2015). The five planes that act as elements of UX have been presented in Figure 2.1 (Garrett, 2000; 2011).
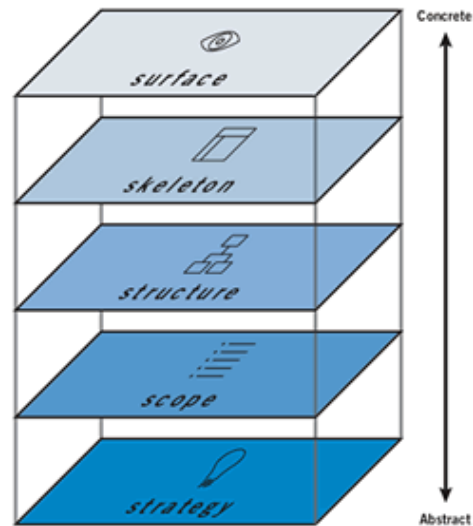
i. Strategy- At the abstract end of Garrett's elements of UX model is strategy. The role of strategy is to fundamentally define what the designer wants to do and what the users want from the system (Garrett, 2011). Clarification of strategy helps in translating user's needs and service provider's system objectives into scope (Sinkula, 2015).

ii. Scope- Scope helps in defining the purpose for the system features and functions (Garrett, 2011).

iii. Structure- Structure gives shape to the scope of the experience and helps UX designers in figuring out how the various pieces of elements will fit together (Garrett, 2000; 2011; Sinkula, 2015).

iV. Skeleton- Skeleton is the layout and placement of those elements that provide the maximum effect (Sinkula, 2015) and improve the efficacy of the website (Garrett, 2000; 2011).

V. Surface- Surface is the final plane that brings all elements together, visually (Garrett, 2011).

2.4.2 Duality of UX and terminologies

The sophisticated front-end and back-end aspects of the UX elements, provides online UX with a sense of duality. Front-end refers to what the online UX presents on the interface screen. Back-end refers to the actual UX system controlled through codes. Based on the UX surfaces mentioned in Figure 2.2, Garrett (2000) introduces the terminologies of the UX elements. These terminologies are separated according to their appropriateness to either front-end or back-end of the online UX. In Figure 2.2, the front-end terminologies are described under *web as software interface* and the back-end terminologies are explained under *web as hypertext system*.

Web as software interface

Concrete — **Completion**

Web as hypertext system

Visual Design: graphic treatment of interface elements (the "look" in "look-and-feel")

Visual Design: visual treatment of text, graphic page elements and navigational components

Interface Design: as in traditional HCI: design of interface elements to facilitate user interaction with functionality
Information Design: in the Tuftean sense: designing the presentation of information to facilitate understanding

Navigation Design: design of interface elements to facilitate the user's movement through the information architecture
Information Design: in the Tuftean sense: designing the presentation of information to facilitate understanding

Interaction Design: development of application flows to facilitate user tasks, defining how the user interacts with site functionality

Information Architecture: structural design of the information space to facilitate intuitive access to content

Functional Specifications: "feature set": detailed descriptions of functionality the site must include in order to meet user needs

Content Requirements: definition of content elements required in the site in order to meet user needs

User Needs: externally derived goals for the site; identified through user research, ethno/techno/psychographics, etc.
Site Objectives: business, creative, or other internally derived goals for the site

User Needs: externally derived goals for the site; identified through user research, ethno/techno/psychographics, etc.
Site Objectives: business, creative, or other internally derived goals for the site

task-oriented — **Abstract** — **Conception** — **information-oriented**

Visual Design
Interface Design / *Navigation Design*
Information Design
Interaction Design / *Information Architecture*
Functional Specifications / *Content Requirements*
User Needs
Site Objectives

time

Figure 2.2: Elements of UX model front-end and back-end (Garrett, 2000; 2001)

Source: Garrett (2000)

50

The technical terms used in Garrett's (2000) model in figure 2.2 are described in the following,

i. Site objectives- Site objectives are developed based on the goals of the service provider, regarding the function of the website (Garrett, 2000; Oinas-Kukkonen and Harjumaa, 2009).

ii. User needs- User needs can be identified through research on the user's use context (Garrett, 2000; Oina-Kukkonnen and Harjumaa, 2009).

iii. Functional specifications- Functional specifications help in defining what the content should look like from a user's point of view (Garrett, 2000; Kay and Friedlein, 2009). The specifications include content and functionality that arises out of the user's needs, along with a sitemap to define the structure of the website (Kay and Friedlein, 2009)

iv. Content requirements- Content requirements is a document that lists the necessary functions, characteristics, capabilities of the website, and a development plan (UsabilityGov, 2015).

v. Interaction design (IxD)- Interaction design involves the setup of tasks and features used to create interaction points on the website (Garrett, 2000). According to the IxDA (2015), interaction design provides a structure and behaviour guidelines for interactive systems. These guidelines can be used to further develop meaningful relationships between product and/or service providers and users.

Unlike the design of UXs, designers who focus on interaction design are only concerned with the interactions that might occur between the user and the screen (IxDA, 2015; UXBooth, 2015). There are a variety of methodologies such as goal-oriented designs, personas and cognitive dimensions framework that can be used to develop more engaging interaction designs (Laurel and Lunenfeld, 2003; UXBooth, 2015). Some examples of commonly used interaction points that offer users opportunities to immerse themselves into the experience are- user forums, gamification, social networking, user generated content, and interactive animation.

vi. Information architecture (IA) - Information architecture is the key to good usability. It is a structural design that provides intuitive access (Garrett, 2000) to different informational content on websites, intranets, portals and online communities (Lykke, 2010; Whalen, 2011). According to Whalen (2011), there are four system components of IA- *organisation, label, navigation* and *search*.

IA plays the role of a change stimulator. Through the use of psychological principles, which can be applied to website design, website user's behaviour and/or attitude can be changed (Whalen, 2011). According to Lykke (2010), a website's likeability and uncomplicated invitation to continue web exploration, with minimal commitment, is the beginning of persuasion. Designs that are aesthetically appealing and appropriate for the target audience are also considered effective. Furthermore, designs that are intriguing, social and convey an allure of an enhanced self-image for the user, are most successful at effectively persuading website users (Oinas-Kukkonen and Harjumaa, 2009; Lykke, 2010).

vii. Information design- Websites can be filled with complex information. It is the role of information design to present knowledge that can create an impact by being concise, accessible and being able to facilitate comprehension (Garrett, 2000; IDA, 2015).

viii. Interface design (ID) - Interface design provides an integral set of elements to the UX. As part of HCI, ID's role is to create interfaces that facilitate interaction and functionality (Garrett, 2000).

ix. Visual design- Visual design incorporates visual elements such as typography, images, colours, navigation etc., (Garrett, 2000). Amongst all the visual design elements, it is colour and typography that often take on an important role (Faraday, 2000; Shuttleworth, 2013; Mackay, 2015).

2.5 Role of user emotions in UX

All the elements of UX mentioned in Section 2.5, appear to affect human psychology, in one way or another. Sylvester (1995) observed that emotions drive attention, a point that has been reviewed in-depth and agreed upon by Lam (2004); Cyr et al. (2009); Zhang (2013); Cyr (2014) and Walker (2014). This brings user emotions to the center of both, the receiving and reacting end of UX elements. Elements of the website play a hedonic or affective role in eliciting emotion within the user. The hedonic elements of a website include the colour, images, space, shapes and other forms of media. These hedonic elements give the website a sense of emotional appeal via its aesthetic nature (Lavie and Tractinsky, 2004; Cyr et al., 2009; Zhang, 2013). It was almost two decades ago that Robert Sylvester introduced the role of emotions in human action and learning. However, it is only recently that designers have started focusing on the affective elements of design (Cyr, 2014).

In the context of online experiences, affect is understood as the holistic integration of the elicited emotion, moods and feelings (Zhang, 2013). Amongst the three concepts of affect, it is emotion that is quite complex and difficult to address in relation to design (Zhang, 2013). While describing emotions, Smith and Lazarus (1993) have identified a spectrum that includes anger, guilt, sadness, fear and anxiety. Scherer (1997) has categorised emotions as joy, fear, anger, sadness, disgust, shame and guilt. According to Russell (1980); Deng and Poole (2010) and Cyr (2014), there are two components to all emotional responses- arousal and valence. Arousal depicts the intensity of the response, while valence identifies with the direct emotional response ranging from positive to negative (Russell, 1980; Smith and Lazarus (1993); Scherer (1997); Deng and Poole, 2010; Cyr, 2014). Website design elements that focus on generating affect can activate subjective feelings within the user. Affect further generates motivational states with action tendencies. In addition to this, it arouses the body to express an outward response in the form of loyalty or return behaviour (Izard, 1993; Damasio, 2001; Isen and Reeve, 2005; Zhang, 2013; Cyr, 2014).

From a sociological standpoint, emotion is an influential factor with implications on human decisions and behaviours (Zhang, 2013). These can result in a variety of outcome variables such as enjoyment, involvement, satisfaction and trust (Cyr, 2014). Section 2.6 takes the discussion further by presenting the various methods for designing UX.

2.6 Methods for designing UX

Establishing a coherent understanding of how to design the optimum UX experience is complex (Hassenzahl, 2003; Fredheim, 2011; Cipan, 2013) as UX interpretation can be highly subjective (Fredheim, 2011). This has not stopped researchers from inventing models that address the processes of designing a UX. Based on Hassenzahl (2003) and Fredheim (2011), if appropriate considerations are made in the model that allow flexibility and room for subjective interpretation, an influential UX can be designed. Such a UX will have the power to stimulate behaviour change (Hassenzahl, 2003; Fredheim, 2011; Nielsen and Norman, 2015).

According to Cipan (2013) and Nielsen and Norman, (2015) a UX model is effective if it has been designed in a manner to satisfy the primary goal of any UX, which is to make the product usable and likeable. Nielsen and Norman (2015) further use the considerations mentioned in the ISO 9241-210 to describe the process through which a high quality, seamless UX can be designed. These three considerations involve- *the type of system used for persuasion and/or mediation, the user context and the use context* (ISO 9241-210). All three considerations can be applied across multiple sub-sets of design (technological, industrial, interface, content etc.) (Nielsen and Norman, 2015). In order to understand the implications of various complex perspectives at interplay in the design process, a UX design model that incorporates the application of three inter-related models has been recommended by Cooper, Reimann and Cronin (2007); Rook (2009) and Cipan (2013). Figure 2.3 presents an illustration of these models.

2.6.1 Integrated triad UX model

The integrated triad UX model (presented in figure 2.3) is a popular tool amongst UX practitioners (Cipan, 2013). It was introduced as software UX processing model by Cooper and Reimann (2003). The three models that make up the triad are,

i. Implementation models: Implementation models are a representation of how the system actually works (Cipan, 2013). Models at this stage are often described through system diagrams and pseudo code, which can later be used to produce real structure (Cooper, Reinmann and Cronin, 2007). The implementation models reflect the designer's perspective of how they aim to build the experience using some form of a wireframe prototype (Cooper, Reinmann and Cronin, 2007; Cipan, 2013).

ii. Mental models: Mental models provide a hypothetical representation of how users think about an experience and their assumptions of how the system should work (Cipan, 2013). Mental models were first introduced by the psychologist, Kenneth Craik in 1943 (Laird, 2005). Craik did this using the understanding that the human mind constructs small scale models of reality, which it then uses to anticipate events, build reasons and process underlying explanations (Craik, 1943; Laird, 2005).

A mental model in the context of UX is a set of beliefs about how a system works and the interaction encountered by users with that system based on their beliefs (Cipan, 2013). There is usually a gap between the developer or designers' logic and the users' perception of the system. However, a mental model alone cannot help the web designers or programmers code the system (Cooper, Reinmann and Cronin, 2007; Cipan, 2013). This is why a third model, the representation or design model is required (Cooper, Reinmann and Cronin, 2007; Rook, 2009; Cipan, 2013).

iii. Representation models: Representations models are the UX designer's hypothetical perceptions of the users' expected mental models (Cipan, 2013). The system should be able to behave based on the user's expectation but at the same time incorporate the fundamentals of the implementation model (Cooper, Reinmann and Cronin, 2007). Moreover, the system should be able to deliver an experience based on the user's expectations (Cipan, 2013).

Implementation model   Various representation models   Mental model
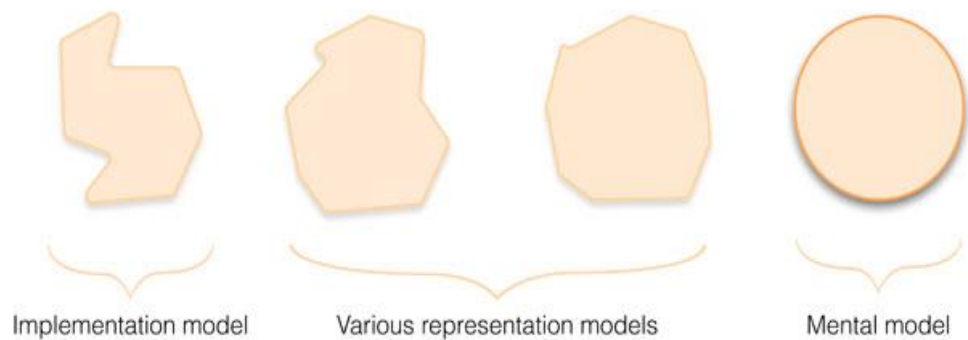
Figure 2.3: The triad models used to develop UX (Cooper and Reiman, 2003; Cipan, 2013)

Source: Cipan (2013)

The inter-web of implementation, representation and mental models (figure 2.3), is one of the few UX process models available at the disposal of UX specialists. Despite the popularity of functionality and usability based models in the HCI community, there is still a lack of a coherent understanding of designing experiences (Blythe et al., 2004 and Fredheim, 2011). Mark Hassenzahl who is the creator of one of the most successful UX models (Hassenzahl's UX model) explains the importance of expanding views. Hassenzahl (2003) suggests that UX designers' views tend to be centred on the attributes users assign to the experience. Instead, the UX designers' focus must move onto understanding the consequences of these attributes and the situation within which the product/service is being consumed (Hassenzahl, 2003; 2004; Fredheim, 2011).

2.6.2 Hassenzahl's UX model

The Hassenzahl UX model suggests that the attributes users assign to the experience remain the same but the perception of these attributes changes from one individual to the next (Hassenzahl, 2003; 2004). Figure 2.4 displays an illustration of Hassenzahl's model. Within this model the attributes assigned by users to the experience belong in four main categories.
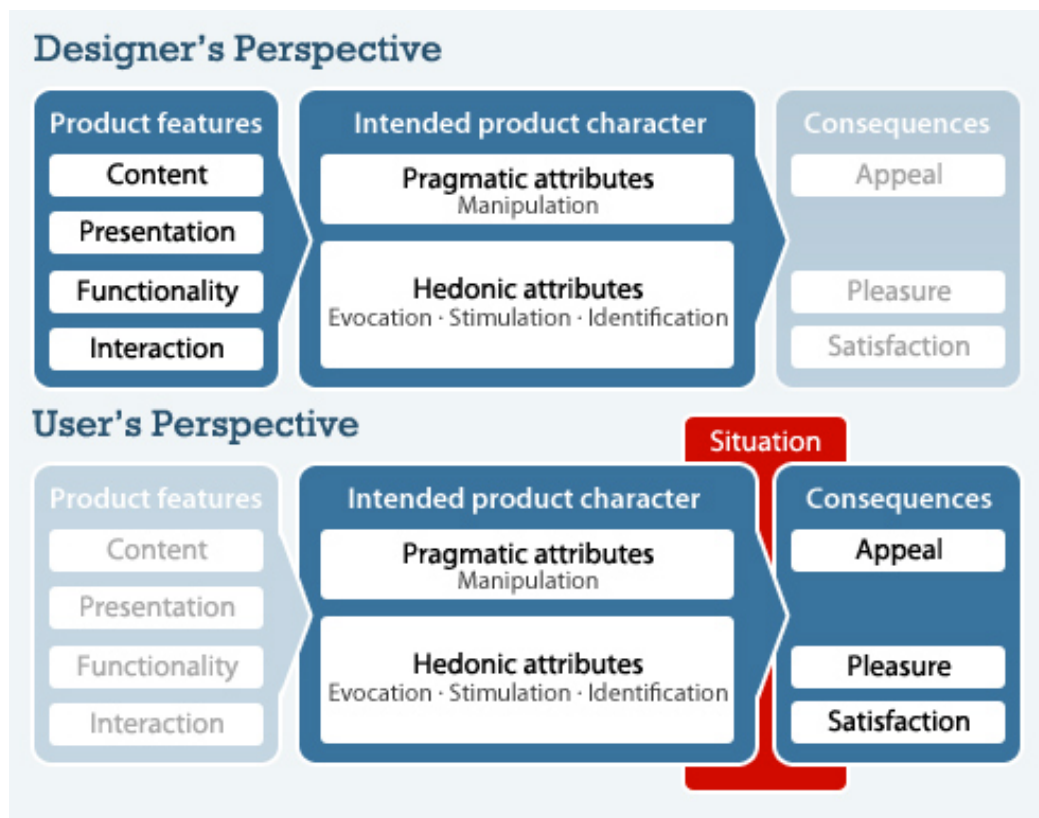
Figure 2.4: Hassenzahl's UX Model (Hassenzahl, 2003; 2004)

Source: Hassenzahl (2003)

The categories within Hassenzahl's UX model are,

i. Manipulation: Manipulation refers to the core functionalities of the product and their usage (Hassenzahl, 2003). Satisfaction is a consequence of pragmatic qualities

(Hassenzahl, 2003). The user encounters it when they successfully use the product and/or service to achieve certain goals (Hassenzahl, 2004). Attributes can be manipulated for satisfaction by providing support during the experience, appearing useful, offering clear and controllable features (Hassenzahl, 2004).

ii. Identification: The secondary function of an object is to communicate our identity to others (Hassenzahl, 2003;2004; Hassenzahl et al., 2010). To fulfill this function, the object or system should allow users the opportunity to express themselves within their social groups (Hassenzahl, 2003). This function is highlighted through the use of social media, where in users can use the social networking platforms to customise their profiles and share information about their purchases with their friends/followers.

iii. Stimulation: Hassenzahl (2003) draws upon the Pareto principle[3], which explains usability engineering as operations based on the 80-20 rule. Highlighting the Pareto principle, Hassenzahl (2003) explains that 80% of the available resources are typically utilised by 20% of the operations, an issue that results in designers having to fight for features to be included (Hassenzahl, 2003; 2004).

Traditionally, the features that were rarely used often got dropped from the final interface. However, with the focus shifting from usability onto the extensive area of UX, the functions that are not used frequently still exist for their hedonic role of generating stimulation (Hassenzahl, 2003; 2004; Hassenzahl et al., 2010). An example of this is the Gmail function used to notify users that they have forgotten to attach the document they mentioned in the drafted email. Even a rarely used function can create a positive UX (Hassenzahl, 2003).

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[3] Pareto principle- For most events, roughly 80% of the effects occur from 20% of the causes

iv. Evocation: Humans enjoy reminiscing past experiences (Sundbo Hagedorn-Ramussen, 2008; Scott and Ding, 2012) to such an extent that even the most useless of the souvenirs remind us fondly of the experience (Hassenzahl, 2003). According to Hassenzahl's UX model, UX can be designed in a manner that it reminds the user of a memorable, pleasurable event from the past.

Figure 2.4 shows how Hassenzahl (2003) has grouped the four categories into pragmatic and hedonic attributes. The pragmatic attributes relate to the practical use and functions of the product. On the contrary, the hedonic attributes relate with the user's psychological wellbeing.

The unique characteristic of Hassenzahl's UX model is that it goes beyond the simplified process of looking at the experience attributes set by the users (Fredheim, 2011). As UX interpretation is subjective in nature, Hassenzahl (2003; 2004; 2014) and Fredheim (2011) suggest incorporating the consequences of the experience attributes set by the users. Processing UX in this manner can bring UX designers closer toward designing for UX rather than designing the actual UX (Hassenzahl, 2003; Hassenzahl et al., 2010; Fredheim, 2011). Section 2.7 presents a summation of the findings that have emerged through the literature review on UX.

2.7 Summary of UX literature

Through Sections 2.2 to 2.6, the researcher has attempted to synthesise information by building the literature from the foundation upward. Section 2.2 has explored the origin of UX, explained the differences between the terminologies that are often mistakenly used interchangeably with UX and set the structure for further review into the dynamics at play. Section 2.3 has reviewed the contributions made by marketing and Internet technologies toward the development of UX. Section 2.4 has presented the key elements within an online UX. Section 2.5 explores the role of the user context in UX design, while Section 2.6 compiles the UX design methodologies in practice. A summarised overview of the findings is presented in Table 2.1.

User experience (UX): Holistic compilation of all aspects (content, aesthetics, usability, presentation of arguments) of the end user's interactions with the service provider (Nielsen and Norman, 2015).	**Semantics:** Terms such as usability, user interface (UI), interface design (ID), human-computer interaction (HCI) and user experience (UX) are technically related, but are often used in inaccurate contexts (Nielsen and Norman, 2015). Dynamics at play: Evolution of behaviour science driven marketing and advancements in Internet technology have merged and contributed toward the development of UX as a field of marketing practice and scholarly study.
Key elements of UX design: UX design is a combination of the front-end and back-end aspects of a system. Garrett (2000;2001) provides a comprehensive elements of UX model, which involved five elements that range from the abstract back-end level to the concrete front-end level. These elements are- strategy, scope, structure, skeleton and surface.	For a UX to function, it requires interplay between two parties-**the system provider and the user**. The two contexts therefore play a crucial role in ensuring the efficacy of UX delivery. System context: The elements that are in control of the UX designer can be found across Garrett's (2000;2001) elements of UX model. Some of these elements are- Site Objectives, Functional Specifications, Graphical User Interface (GUI), Architecture (IA), Information Design (ID), Interaction Design (IxD) and Visual Design (colour, typography etc.). User context: UX elements have direct implications on user's emotions; therefore it is critical to acknowledge the user's context. Emotions such as enjoyment, involvement, trust, satisfaction and perceived social presence play a role in how the user will perceive and use the UX.

Methods to designing UX: According to Nielsen and Norman (2005) and Cipan (2013), any model that assists in designing UX must satisfy the primary goal of making the UX 'usable' and 'likeable'. The ISO 9241-210 suggests using three considerations for developing any UX model-type of system used for persuasion/mediation, user context and use context. Currently, there are two models that are used frequently by UX designers. i.) Cooper and Reiman's (2003) triad of implementation, mental and representation integrated model and, ii.) Hassenzahl's (2003; 2004) UX model.

Key findings that emerge from the literature review: UX literature is unsystematic and scattered. This might be a result of the fact that the field of study is fairly new. Furthermore, the varied terminologies and interaction between the availability of the numerous UX elements can leave a non-designer confused. In addition to this, the two popularly used UX models are highly technical with roots in software designing. Both models lack a persuasion perspective (which has been highlighted as key to an optimum UX within the ISO 9241-210 and by Nielsen and Norman (2005; 2015) and Cipan (2013), and do not provide comprehensive but straightforward strategies that can be replicated by SME service providers who might not have the technical or financial resources required to design effective UX.

Table 2.1: Overview of the UX literature

Source: Author

In summation, UX as a field of scholarly study appears filled with scattered

information. The need to systematise the body of knowledge is quite evident from the

reviewed literature. Furthermore, there is a lack of UX models, specifically those models that can incorporate a persuasion perspective. The two models that are used frequently by UX designers (Cooper and Reimann's (2003) Triad model and Hassenzahl's (2003) UX model) are interpretive in nature and do not provide straightforward strategies. Furthermore, they appear to be designer centric than user centric, which can lead to the development of an ineffective UX. Given, that the goal of UX is to provide holistic means for supporting users' interactions with the service providers, a persuasion based perspective could benefit UX. Persuasive UX design can assist designers in producing experiences that can convey the service provider's intentions more clearly and persuade the users to perform or purchase (*change behaviour*).

2.8 Online UX in the context of tourism SMEs

In the UK, tourism is a rapidly growing (Buhalis, 2002; Rodriquez, 2009; Hernández-Méndez and Sánchez-Fernández, 2012) unique industry (Buhalis and Law, 2008; Morgan, Elbe and de Esteban Curiel, 2009), made up of almost 80% SMEs (Tourism Alliance, 2014; World Travel and Tourism Council, 2015). The UK tourism industry is expected to generate 10% of the UK's GDP by 2025 (Tourism Alliance, 2014; World Travel and Tourism Council, 2015).

The global tourism sector consists of a number of smaller segments such as hotels, transportation, restaurants, visitor attractions, tours, destination management organisations (DMOs) etc. All of these segments work closely with one another but there are also many overlaps between the segments (Visit England, 2015). For example, a day-tour package in London is likely to include a visit to an attraction such as the London Eye. According to Tourism Alliance (2015) and Visit England (2015), all

tourism segments have been equally responsible for contributing toward the success of the tourism sector in the recent years.

Describing the state of all segments is out of the scope of this research. The narrow focus of this research lies on the day attraction tourism SME context; further descriptions will be limited to this segment. According to Visit England (2015), visitors spent approximately £54 billion to take 1585 million tourism day visits across destinations in England, Scotland and Wales. The largest proportions of these visits (85%) were taken to destinations in England. London alone received 274 million visits, generating a total of £10.7 billion (Visit England, 2015).

Tourism day visits can include a number of activities, such as visiting friends or family, going out for a meal, participating in outdoor activities, or going to visitor attractions (Tourism Alliance, 2015; Visit England, 2015). The day attractions segment specifically includes visits that last for more than 3 hours but conclude within a day (Tourism Society, 2015). According to Visit England (2015), the day attractions segment is very profitable and has generated over £2947 million in 2014. It is interesting to note that most tourists who visit day attractions are local residents (Tourism Society, 2015). Within the UK, London is an exception because it attracts visitors from all over the globe (Tourism Alliance, 2015; Visit England, 2015).

For the purpose of this chapter, further focus of the review will remain on the tourism SME sector as a whole. To the researcher's best knowledge, there do not appear to be investigative studies that specifically address the nature, growth or profitability of the day attraction tourism SMEs within the UK. The lack of research focused on day attractions could be a result of the overlaps between day attractions and other segments

such as tours, transportation, and catering. On the contrary, many tourism researchers (Buhalis and Law, 2008; Morgan, Elbe and de Esteban Curiel, 2009; Law, Qi and Buhalis, 2010; Ho, Lin and Chen, 2012; Batinić, 2013) have documented the role played by the Internet in the growth and profitability of the tourism industry as a whole.

It is clear that within UK, the tourism industry is an important economic sector. The wide spread adoption of the Internet by tourist users has contributed greatly to the progress made by the tourism sector. Domestic and international tourists' demands have increased, as anybody, anywhere can instantly confirm their plans using the Internet (Law, Qi and Buhalis, 2010). Tourism service providers can use the Internet to instantly target a much larger audience (Law, Qi and Buhalis, 2010; Batinić, 2013). Buhalis and Law (2008) and Morgan, Elbe and de Esteban Curiel (2009) point out that, despite the widespread adoption of technology, tourism SMEs do not appear to have strategized this avenue. According to Buhalis and Law (2008), tourism SMEs could benefit from harnessing the power of online experiences, as it will help them keep up with the larger tourism service providers who have access to more resources. Furthermore, online experiences can help tourism SMEs in reaching out to a wider audience, thereby increasing their potential customer base, and at the same time build relationships.

According to the Google Travel Report (2014), 74% of leisure and 77% of business travelers rely on the Internet to make their travel plans. Today, most tourist users turn to the Internet for inspiration, travel planning and purchases (Buhalis and Law, 2008; Ho, Lin and Chen, 2012). This highlights the crucial role played by tourism websites including SMEs, as the first point of advertisement and contact. Tourist users use the tourism websites to assess, get inspired, make comparisons and improve their level of familiarity with the destination, prior to their travel (Ho, Lin and Chen, 2012).

The rapid proliferation of the Internet as a travel-planning tool has transformed the role of tourism websites from acting as standalone marketing brochures to providers of computer-mediated online experiences. These computer-mediated online experiences allow the tourist users to perform multiple activities, while retaining the power to change tourist user behaviour (Benyon, O'Keefe and Mival, 2013; Pitoska, 2013).

2.8.1 Role of ICT in the evolution of tourism online experiences

Technology has been responsible for providing efficient online experiences within the field of tourism, since the early 1990s (Law, Qi and Buhalis, 2010). The Internet has been responsible for contributing greatly to innovation within the field of tourism and hospitality (Batinić, 2013). It is widely accepted by academics and practitioners that the Information and Communications Technology (ICT) is indeed a valuable marketing tool for tourism (Buhalis and Law, 2008; Law, Qi and Buhalis, 2010).

As a concept, the ICTs found application in the field of tourism through the first reservation system introduced in the 1950s, which was followed by newer and more advanced systems by the 1980s (Werthner, 1995; Spencer, Buhalis and Moital, 2012). The 1990s saw advancement in ICTs within the travel industry through the introduction of SABRE and Amadeus (Poon, 1993), followed by the arrival of Web 2.0. According to Poon (1993), Sheldon (1997) and Buhalis and Law (2008) advancement in technology is something that has had a continuous effect on the advancement in tourism. Since the 1980s, the growth of ICTs has had a directly proportional impact on the growth of the global tourism industry. In keeping up with the radical changes in

consumers' purchasing habits, tourism became an early adopter of digital technologies (Think Digital, 2013a).

Business practices and marketing strategies within the tourism industry have changed rapidly, as a result of this advancement in ICTs (Buhalis, 2003; Buhalis and Law, 2008). ICTs have been responsible for pushing tourism service providers to re-engineer their processes and undergo a drastic paradigm-shift (Buhalis and Law, 2008). The scope of ICTs is not only limited to developing and building customer relationships but the online experience can also be used by tourism SMEs to develop, manage and distribute services globally. This was not achievable in the past.

The most significant measure of the effectiveness of ICT within tourism is the tourist user's level of satisfaction (Michopoulou and Buhalis, 2013). All ICT systems are designed to be user centric. This fact is confirmed through the provision of ICT system features that meet the requirements of the target users and address whether or not the users would be motivated to use the system (Buhalis and Law, 2008; Michopoulou and Buhalis, 2013). The most predictable reason for the failure of an ICT system is its inability to perform according to the user's requirements. This failure occurs because most likely the designer or service provider failed to understand the user segment they were targeting (Michopoulou and Buhalis, 2013). This is why addressing user goals and motivations through customer research is crucial to the design of an effective tourism ICT based experience.

In terms of literature on the implications of the ICTs on tourism, investigations into the topic did not pick up until the late 1990s (Buhalis and Law, 2008). By the dawn of the new millennium, the research community came together and introduced the

Journal of Information Technology and Tourism (JIIT), which increased the popularity of technology in tourism (Buhalis and Law, 2008). Today, technology in tourism has become an interdisciplinary research (Buhalis and Law, 2008; Gretzel, 2011). Yet, there remain fewer contributions and overlaps from researchers in the fields of science and technology, within mainstream tourism literature (Gretzel, 2011).

This lack of contribution from science and technology fields could be a result of multiple occurrences such as, tourism essentially being SME driven, instead of being run by large enterprises. Furthermore, tourism is viewed as an industry that is slow at accepting technology (Leiva, Leiva, Hernández-Méndez and Sánchez-Fernández, 2012; Spencer, Buhalis and Moital, 2012). The tourism sector has often been perceived as an easy and laidback sector, requiring low technology (Poon, 1993, Hjalager 2002) with no real need for innovation (Sørensen, 2001). However, globalisation and the proliferation of the Internet into everyday lives, has established tourism as an important player in online commerce (Werthner and Klein, 1999; Werthner and Ricci, 2004; Buhalis and Law, 2008). The key issue remains that other disciplines must recognise this unique potential of tourism to dictate e-commerce methodologies in many ways.

2.8.2 Tourism SMEs and the application technology

The global tourism sector is one of the most lucrative in terms of contribution to the world economy and job creation (GSME, 2015; World Travel and Tourism Council, 2015). The total contribution of travel and tourism to the global economy was worth £4.90 trillion in 2014 (Statista, 2015; World Travel and Tourism Council, 2015).

Statistically, 1 out of every 11 jobs in the world belongs to someone in the tourism sector (GSME, 2015). In the UK alone, tourism created 2.65 million jobs in 2010 (Tourism Alliance, 2010).

According to the World Travel and Tourism Council's (2015) research, the global tourism sector has recorded strong growth, consistently over the last 19 years. This growth has provided stability during the recent economically volatile times. Specifically, the UK tourism sector has been viewed as the fastest growing globally in terms of the number of jobs it has created since 2010 (Visit Britain, 2015 a; World Travel and Tourism Council, 2015). Visit Britain (2015 a) presents a forecast that by the year 2025 the UK's tourism industry will be worth approximately £257 billion. This figure is almost 10% of UK's GDP.

The UK continues to be a popular destination for international tourists. In the year 2014, 34.4 million overseas visitors spent about £21.8 billion in the UK (Visit Britain, 2015 a), giving the UK economy a boost. In 2010, UK had the 5th largest tourism industry in the world (Tourism Alliance, 2010). Ranked by visitor numbers, the country is the 8th largest international tourism destination in the world and 7th largest international tourism destination when ranked by visitor expenditure (Tourism Alliance, 2014). However, regardless of these numbers, the tourism SMEs continue to lag behind in terms of digital innovation (Gretzel (2011); Leiva, Hernández-Méndez and Sánchez-Fernández (2012) and Spencer, Buhalis and Moital (2012).

As an industry and a field of study, tourism is rich with information but there still exist gaps in practice and literature on designing online experiences (Zheng and Ulrike, 2009). This could be down to the fact that global tourism enterprises are largely

made up of SMEs (GSME, 2015). Out of the 200,000 plus tourism enterprises that existed in 2010, 80% were registered as SMEs (Tourism Alliance, 2010). The UK's tourism industry is made up of an affiliation between public and private sector organisations, which largely include SMEs, international private businesses and Destination Management Organisations (DMOs) (Visit Britain, 2015 b).

According to Gretzel (2011); Leiva, Hernández-Méndez and Sánchez-Fernández (2012) and Spencer, Buhalis and Moital (2012), regardless of the fact that such a large majority of the tourism sector relies on the efficient operation of tourism SMEs, it is the lack of experience with ICT systems that continues to affect the success of SMEs. Tourism SMEs might possess some eccentric characteristics that have delayed the acceptance of ICT systems (Leiva, Hernández-Méndez and Sánchez-Fernández, 2012). One would assume that this lack of acknowledgement and acceptance could be a result of the limited resources that the SMEs generally operate on but as Spencer, Buhalis and Moital (2012) found out, the cause for concern is leadership. Leadership within tourism SMEs is the strongest driver of change (Spencer, Buhalis and Moital, 2012). It is the leader's experience with the ICT systems that shapes up the marketing approach selected by the SME (Spencer, Buhalis and Moital, 2012). If the leader of an SME has not been comfortable using the Internet for private use, the chances are that they might not see the potential of ICT systems as marketing tools.

Statistics show that in terms of online travel booking revenue worldwide for the year 2014 alone, £220 billion were generated (Statista, 2015). This stresses the need for SMEs to acknowledge and accept ICT systems. Spencer, Buhalis and Moital (2012) have pointed out that there is a lack of investigation in the area of tourism SME leadership and its relationship with ICT-led online experiences. Most web based

tourism research is website specific and only evaluates the online experiences offered by tourism SMEs, rather than conducting a review of why the tourism SMEs fail to explore and exploit the ICT systems. Buhalis, (2002); Dittenbach et al. (2003) and Xiang and Gretzel (2010) have stressed that many tourism SMEs do tend to adopt ICT systems. Furthermore, many even provide a great visual experience for users through attractive images, accessibility and opportunities to generate user content (Zheng and Ulrike, 2009). However, given that these SMEs are competing neck to neck, their delivered experiences often appear generic and not well thought out (Binkhorst, 2006).

Website usability and experience design continue to be concerns that the SMEs must address (Buhalis, 2002; Xiang and Gretzel, 2010). Hashim, Murphy and Law (2007) criticize researchers for spending more than a decade studying website dimensions in a very scattered manner. According to Binkhorst (2006) there are too many models that have been employed, none of which are able to truly assess the tourism online experience as being central to the human experience. Recognising tourist user's needs is crucial but so are other factors such as the tourist user's goals, motivations and background context, which play an important role in enabling tourism service providers to deliver influential online experiences that can target user behaviour change (Binkhorst, 2006; Gretzel, 2011; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012; Ho, Lin and Chen, 2012; Bastida and Huan, 2014). Thus, it is imperative that greater attention is placed on the tourist. Section 2.9 presents insights into the tourist user.

2.9 Tourist users

2.9.1 Tourism online experiences and the impact on users

The widespread proliferation of the Internet has had a radical impact on the average tourist's purchasing habits (Buhalis and Law, 2008). In keeping up with these changes, the tourism industry itself has undergone transformation through Internet led innovation (Batinić, 2013). Today, the tourism industry remains at the forefront of experiential technology (Think Digital 2013a). Online experiences offer tourism service providers the ability to channel the essence of their unique experiences to large number of tourist users, all across the globe (Saeed et al., 2002; Lexhagen, 2008; Wu et al., 2011). The WWW has become a powerful media channel that can instantly influence tourist users (Buhalis and Law, 2008). It appears that if the entire phenomenon of Internet based tourism advancement is dissected; at the centre would be the tourist user's changing habits. These changes in habits have resulted in the development of newer technologies and vice versa affected user behaviour.

2.9.2 Tourist users and their Internet usage

The immediate adoption and popularity of the Internet has altered tourist behaviour over the past decade (Leiva, Hernández-Méndez and Sánchez-Fernández, 2012). More tourists are turning to the Internet for inspiration, travel planning and purchase (Buhalis and Law, 2008; Ho, Lin and Chen, 2012). Tourists use the tourism service providers' websites to assess, make comparisons and improve their level of familiarity with the destination prior to travel (Ho, Lin and Chen, 2012). The Internet offers flexibility, features that allow direct comparison, interactivity, ability to make

users feel like they are interacting directly with the actual business and any time availability (Wang, Head and Arthur, 2002; Ho, Lin and Chen, 2012). Tourists' expectations are changing. Furthermore, with the number of alternative options available at the click of a button, it is essential that tourism service providers do their best to make an impression that persuades users.

Google Travel Report (2014) presents interesting statistics that show the pattern of tourist online usage that is on the rise. According to Google Travel Report (2014), tourists use the Internet during five different stages- *inspiration, research, purchase, experience and post-travel.* The usage varies across these five stages. First and foremost, the tourist users see the Internet as a go to tool specifically used for planning. 65% of leisure and 69% of business travelers reported to Google that they go online before planning holidays. The second most commonly listed reason is to use the Internet to feel inspired (Google Travel Report, 2014). This inspiration is stimulated by information shared by the user's family, friends and colleagues online. 60% of leisure travelers use search engines to arrange their trip, followed by 48% who use specific destination/hotel websites and apps (Google Travel Report, 2014). This pattern, according to Google's report reverses when it comes to business travelers, with 60% booking directly from specific websites while 55% rely on search engines to plan the itinerary.

As this research focuses on day attraction based tourism SMEs within the UK, the segment that can provide the most insights is the leisure tourist segment. The pattern observed via Google's Travel Report (2014) shows that leisure tourists prefer to primarily search for information via search engines before heading over to the tourism service providers' websites.

The Internet has transformed tourists' planning and consumption activities (Buhalis and Law, 2008). Search engines like Google and Bing offer users easy accessibility to unlimited information. According to Xiang et al. (2008) and Xiang and Gretzel (2010), search engines are rich resources of information, reflecting the idiosyncratic imagery of travel destinations. The Internet with all its resources has helped in the creation of what Buhalis (2002) and Rodriquez (2009) address as *the new tourist*. This new tourist is more sophisticated, has high demands and increased expectations for quality products.

Open access to knowledge regarding travel destinations, tourism package deals and in many cases the assistance of a third party comparison website, has put substantial power in the tourists' hands. The average tourist cycle too has changed. People no longer feel the need to leave the comfort of their own surroundings and walk into the office of a travel agent only to select from the limited travel options on offer. Information that was traditionally only available through the intermediaries (Buhalis and Jun, 2011) can now be accessed via the Internet. Today's tourists can go online and find the desired package anywhere in the world, which can then be customised to meet their requirements. This makes the new tourist an experienced customer who chooses to put high value on time and money.

2.9.3 Tourist users and website user interaction

Tourism online experiences offered by service providers are dynamic and incorporate Social-Local-Mobile (SoLoMo). These online experiences provided by the tourism service provider's website do much more than improve the visibility of the service provider's brand. The experiences also provide users the ability to complete multiple tasks in accordance with their individual goals and motivations (Hyun and O'Keefe, 2012).

Successful communication with tourists over the Internet has led to more bookings and exposure for the SMEs (Pitoska, 2013). Today, websites are central to the tourist's travel experience. This puts a key focus on the functionality or usability of the website and its attractiveness. Usability and attractiveness are key drivers of online UX (Nielsen, 1998; Schlosser, 2003; Kim and Fesenmaier, 2008; Lexhagen, 2008; Kim, 2010; Wu et al., 2011; **Leiva, Hernández-Méndez and Sánchez-Fernández, 2012;** Diaz and Koutra, 2013; **Bastida and Huan, 2014**). In the context of tourism SMEs websites, usability addresses the comfort and ease with which the websites offer users the resources required to complete the primary task of finding information and making the purchase.

According to Saeed et al. (2002-2003), any tourism website's primary role is to be usable so that the tourist user can find the required information. This information should assist the user in completing the purchase and/or using the website as a mediator to get in touch with the service provider (Kim and Fesemaier, 2008; Saeed et al., 2002, 2003). Kim and Fesenmaier's (2008) further elaborate on the essentiality of usability and the level of inspiration provided by the tourism website. Both of these features act as the core factors utilised by the users to make instant judgments about the website.

Interestingly, usability along with inspiration, which is induced through visual attractiveness, strongly drives favourable first impressions (Kim and Fesenmaier, 2008). Research into the study of tourism websites' efficacy on the usability front has been going on for almost two decades. However, a lot of tourism websites, specifically SMEs appear to be struggling at providing websites with optimum usability (Nielsen, 1998; Hashim, Murphy and Law, 2007; Wang et al., 2008; Lexhagen, 2008; Wu et al., 2011; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012). Moreover, this inability of tourism service providers to view usability as a key component exists across research conducted in different countries (Zhou and DeSantis, 2005; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012; Wu et al., 2011; Diaz and Koutra, 2013).

A similar point has been put forth by Nielsen (1998) regarding website providers focus on displaying high quality information and a lack of attention toward usable interface design. This lack of effort put toward website usability can be attributed to the tourism service providers' lack of understanding of the customer segments (Wu et al., 2011). Factors such as gender, age and experience of using the Internet, heavily influence ones acceptance of the tourism website. This by default has implications on usability (Schlosser, 2003; Wu et al., 2011, Diaz and Koutra, 2013). Furthermore, these same factors can also have an effect on how users assess website's attractiveness (Schlosser, 2003; Kim and Fesenmaier, 2008; Wu et al. 2011).

Unlike usability research, research on the visual impact of tourism websites has taken slightly longer to attain popularity (Schlosser, 2003; Kim and Fesenmaier, 2008; Kim, 2010; Diaz and Koutra, 2013; Basitda and Huan, 2014). Although consistent, most research papers acknowledging visual impact of websites are only a little over a decade

76

old. This could be due to the fact that Web in its earlier days was fairly static. The visual flexibility offered by newer coding scripts and high quality graphics has transformed the Web. Today, the visual attractiveness of the front page is the first thing that attracts most users' attention (Schlosser, 2003; Kim and Fesenmaier, 2008; Kim, 2010; Diaz and Koutra, 2013; Basitda and Huan, 2014). After experiencing the first impressions of attractiveness, the user heads on to assess the information quality offered by the website (Kim and Fesenmaier, 2008; Diaz and Koutra, 2013).

The visual appeal of the website robustly influences website users to make a decision. Kim and Fesenmaier (2008) have further elaborated on inspiration by deriving links between visual attractiveness on the front page and the website's ability to inspire users. Inspiration is the key to attracting users and holding their attention until the message that can stimulate purchase, is transferred (Kim and Fesenmaier, 2008). This point is confirmed through a Google Travel Report (2014). The Google Travel Report (2014) found that 42% of the respondents admitted to using YouTube videos to feel inspired, while over 61% relied on search engines to lead them to inspiration.

The attractiveness of the front-page pushes users to pay deeper attention to the message conveyed by the website (Kim and Fesenmaier, 2008). If the quality of the information offered by the website strongly follows visual attractiveness, the website develops an appealing quality that can influence and persuade users (Schlosser, 2003; Kim and Fesenmaier, 2008; Hyun and O'Keefe, 2012; Bastida and Huan, 2014). Furthermore, Fong (1998) and Schlosser (2003) suggest that tourism service providers should focus on using imagery heavy online environments to influence and convert users. Images are also known to simulate experiences that are life-like, which can affect

the tourist user's intentions, attitudes and behaviour (Fong, 1998; Schlosser, 2003; Bastida and Huan, 2014).

It is quite evident from the varied research that website usability and attractiveness have implications on tourist user behaviour. Tourism websites performing on high efficacy can play an integral role in inspiring and influencing behaviour change in the tourist user. The tourism service provider's website is indeed fundamental to the online experience but so are the tourist users themselves (Bastida and Huan, 2014). Without the tourist users' motivations and intentions to use the website, the website itself would be a trivial source of standalone marketing information.

2.9.4 Tourist users and the social networking experience

For the tourist user, tourism in many ways is a social experience even if it is experienced in solitude. The intrinsic and extrinsic factors that influence the interaction between the tourist and the tourism attractions, events, sites and staff, both online and offline, can provide an insight into tourism as a social experience (Vittersø et al., 2000; Sharpley and Stone, 2010). This knowledge is essential in uncovering the dynamics of tourist user behaviour. Without an analysis and explanation of the *what*, *why* and *how* of tourist goals and motivations, there would be no way to define the tourist user behaviour (Vittersø et al., 2000; Lexhagen, 2008). Vice-versa, it is through the understanding of what enables tourist users in satisfactorily performing their chosen actions that tourism service providers are able to create well-suited, persuasive yet informative and leisurely experiences (Bowie and Chang, 2005).

Tourist users have a variety of goals they hope to complete through the Internet. These goals range from searching for information, comparing prices/deals, reading

reviews, contacting service providers, connecting with other tourist users to finally,

making online purchases (Lexhagen, 2008). The tourism service provider's website

should generally be able to satisfy all these user goals. Alternatively, from the service

provider's perspective, the tourism websites are marketing tools that ensure long-term

profit through advertisements and intelligent user experiences that continue to nudge

users to take action both pre- and post-purchase (Saeed et al., 2002-03; Lexhagen,

2008). However, from a tourist user's perspective, the website is a productive tool used

to satisfy their queries and bring them closer toward the experience they are after

(Lexhagen, 2008). Web 2.0 allows users the unique ability to take control of their own

itinerary and complete purchases within a few clicks, which was not possible pre-

Internet. Furthermore, the hyper connectivity offered by Web 2.0 in-fact extends the

role of tourism websites from being standalone mediating marketing experiences that

simplify the process of making purchases to being a connection of (and to other)

platforms that create a social experience for the tourist user (Doolin et al, 2002; Leiva,

Hernández-Méndez and Sánchez-Fernández, 2012).

    Pre-Internet, there was no way for tourists to experience connectivity with others

who have experienced or are experiencing the exact tourist experience as them. Tourism

websites offer users the opportunity to instantly get in touch with others via direct links

to their social networking pages. This in turn allows users the option to not only speak

to the service provider but also share their images, reviews and connect with other

tourists (Doolin et al., 2002; Hyun and O'Keefe, 2012). Moreover, some tourism

service providers offer transparency and give users the opportunity to assess their

credibility by directing users toward third-party reviews. These third-party reviews are

crucial to the creation of the tourist experience. Websites like Trip Advisor or Google

Reviews offer users the access to information produced by other similar users, who

have experienced the particular tourism service. User generated content is considered important across all industries but particularly more so in tourism (Akehurst, 2009) as tourism is an intangible product that in most cases cannot be returned, like a faulty product. According to PhoCusWright (2009), 9 out of 10 travelers who used the Internet to book holidays relied on online reviews to make decisions. The Northern Ireland Tourism Board (2013) reveals that 52% of UK travel customers put their trust in online reviews. Statistics from World Travel Market (2010) show that 66% of the tourists who participated in their survey relied on Trip Advisor to plan their travels. This stresses the importance of providing an online experience that enhances social connectivity and transparency.

Along with review sites, personal social networking sites like Facebook, Instagram and Twitter too tend to affect customer behaviour extensively. Social media is a significant mediator of tourism experience as it plays an important role in developing individual stages of the whole experience (Kim, Fesenmaier and Johnson, 2013). Social media possesses the WOM (Word of Mouth) influence as it incorporates the dynamics of interpersonal relationships. According to Bansal and Voyer (2000), interpersonal and non-interpersonal forces affect the WOM communications. The interpersonal forces as listed by Bansal and Voyer (2000) are "active seeking" and "relationship strength". The non-interpersonal forces are "perceived risk", "senders expertise" and "receivers expertise" (Bansal and Voyer, 2000).

Social relationships can heavily influence the travel planning process. In 2011, a third of the interviewed respondents changed their hotel bookings based on the information they found on social networks (World Travel Market, 2011; Ráthonyi, 2013). Kim and Fesenmaier (2013) attribute the popularity of social networking sites as

a platform for holiday related media exchange to our need to receive positive feedback from peers. Specifically, humans tend to crave positive feedback in relation to individual performance (Xiang and Gretzel, 2010; Kim and Fesenmaier, 2013). When a tourist receives positive feedback through interaction on social media, it affects their satisfaction levels and feelings of acceptance within the community (Xiang and Gretzel, 2010; Lo et al., 2011; Kim, Fesenmaier and Johnson 2013; Ráthonyi, 2013). Although social media's utility as a travel planning tool plays a significant role in the tourism online experience, (Xiang and Gretzel, 2010), the tourism based research addressing the role of social media as a travel planning tool is limited and conflicting. Social media is a representation of the powerful and far reaching capabilities of tourism's online domain (Xiang and Gretzel, 2010; Kim, Fesenmaier and Johnson 2013; Ráthonyi, 2013). Based on these assumptions and the statistics from World Travel Market (2010); Lo et al., 2011; World Travel Market Industry Report, (2011) and Ráthonyi (2013), one would expect the contribution via social networking sites to be quite extensive, yet Milano, Baggio and Piattelli's (2011) study shows that websites like Facebook and Twitter contribute lowly. This can be a result of the tourism service providers not exploring Web 2.0's social media integration functionalities properly (Hamill et al., 2009; Schegg et al., 2008) leading to limited diffusion.

These ever demanding and metamorphosing tourist expectations from the online experience can only be catered for through the use of appropriate technology. At the core of it, up to a great extent the Internet itself is responsible for changes in users' demands, which in turn seems to affect the way tourism functions operate in the online space (Buhalis and Law, 2008; Gretzel, 2011). Regardless of which actor within the system has a greater impact on the other, tourist goals, tourism websites and availability of technology are integrated within the tourism online experience.

2.10 Summary

The first part of this chapter has focused upon the literature surrounding User experience (UX). Sections 2.2-2.7 present UX as a field of study that incorporates all the processes that offer the end user opportunities to interact with the service provider (Nielsen and Norman, 2015). With the evolution of marketing practice and introduction of ICTs, the concept of UX has diversified and seamlessly integrated across all user-service provider interaction points (Binkhorst, 2002; 2005; Nijs and Peters, 2002; Nielsen and Norman, 2005; Bowswijk, Thijssen and Pellen, 2007 and Gilmore, 2007; Gube, 2010). This popularity of UX practice has also led toward an exponential rise in UX research (Gube, 2010; Fredheim, 2011).

For the UX process to convene, it is essential to consider the user on the receiving-end (Oinas-Kukkonen and Harjumaa, 2009). All elements of the UX, directly or indirectly affect human psychology (Lam and Kin, 2004; Cyr et al., 2009; Zhang, 2013). This brings to focus the role of users' emotions and their interactions with the hedonic or affective elements of the UX (Lavie and Tractinsky, 2003; Cyr et al., 2009; Zhang, 2013). According to Zhang (2013) and Cyr (2014), it is important to consider users emotions because from a sociological standpoint emotions are the strongest influencers for decision-making. Specifically, within the context of online UX, user emotions have implications on outcome variables of enjoyment, involvement, trust, satisfaction and perceived social presence (Cyrs, 2014). However, despite this crucial role-played by the users' emotions, it is interesting to note that the UX design process is often driven by service provider's requirements. Furthermore, it must also be noted that there is a lack of a persuasion-based approach to UX. According to ISO 9241-210, UX is seen as a medium for persuasion or mediation, yet the methodologies used by UX practitioners appear to be designer centric, with focus on the technicalities, instead of

the intention behind presenting the UX. In addition to this, the methodologies for

designing UX can overwhelm SME service providers who might lack the technical

know-how or the financial resources to outsource the talent.

The second part (Sections 2.8-2.9) of this research has focused on UX in relation

to the tourism online experiences. The tourism industry in UK is largely (80%) made up

on SMEs (Visit Britain, 2015b). According to Buhalis and Law (2008) and Morgan,

Elbe and de Esteban Curiel (2009) tourism SMEs rely on limited resources to compete

in a highly competitive UK market. Despite the widespread adoption of technology,

tourism SMEs have not been able to strategise ICTs to improve the outcome variables

of their online experiences (Buhalis and Law, 2008; Law, Qi and Buhalis, 2010;

Batinić, 2013). Binkhorst (2006) explains that it is the competitiveness of the tourism

SME market that has left tourism SMEs' online experiences looking generic. Website

usability and content are two areas that have received considerable amount of support

from tourism SMEs (Kim and Fesenmaier, 2008; Nusair and Kandampully, 2008; Loda,

2011; Diaz and Koutra, 2013). However, visual design and credibility are online UX

areas where tourism SMEs' appear to struggle (Kim and Fesenmaier, 2008; Ibrahim,

Shiratuddin and Wong, 2013).

The trends in online UX within tourism are generic and lagging behind in

comparison to ICT advancements (Buhalis, 2002; Binkhorst, 2006; Hashim, Murphy

and Law, 2007; Xiang and Gretzel, 2010). According to Gretzel (2011) and Ho, Lin and

Chen (2012), tourism SMEs' online UXs often lack the ability to persuade users into

changing their intentions, attitude and behaviours due to inadequate user research. As

determined by Lavie and Tractinsky (2003), Cyr et al. (2009) and Zhang (2013), users

are an equally integral component of UX, along with the front-end and back-end aspects

of the ICT system. Recognition of the tourist user's needs, goals, habits, motivations and background context is essential in order to deliver an influential online UX that persuades tourists to change their attitudes and behaviours (Binkhorst, 2006; Gretzel, 2011; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012; Ho, Lin and Chen, 2012; Bastida and Huan, 2014).

The underlying theme of persuasive online UX and its implications for tourism SMEs has emerged through the literature review in this chapter. In the following chapter, persuasion will be explored in-depth, followed by introduction to the theoretical framework and its relevance in context to tourism online experiences.

Chapter 3: Persuasive technology for behaviour change within tourism online UX

3.1 Introduction

Section 3.2 introduces the definition, history and evolution of persuasion studies. The chapter further continues on to introduce persuasion and the behavior models that have influenced marketing, over the years. A review of ICT driven persuasion concludes the first Section. Section 3.3 shifts the perspective from the persuader to the user being persuaded. The role of user motivation, along with other variables that may affect the user's ability to be persuaded, are reviewed within Section 3.3. In Section 3.4, the reader is taken further in-depth into persuasion using ICTs, as the relationship between persuasion and UX is explored. Section 3.5 presents the variables of persuasion from the persuader's perspective, while Section 3.6 presents the variables of the knowledge learner (persuadee). The following Section 3.7 introduces the concept of persuasive technology including B.J. Fogg's Captology and Oinas-Kukkonen and Harjumaa's (2009) Persuasive Systems Design (PSD) model, which is integral to this research. Persuasive technology can be seen as the meeting point between persuasion and ICTs.

Section 3.8 presents the role of the PSD model as a behavior change support system. The research query is based around the evaluation of tourism online experiences as potential persuaders that can instigate behavior change amongst tourists by encouraging them to buy online. Thus, the explanations within this section are crucial toward understanding the value of implementing a persuasive technology based perspective to tourism online UX. Section 3.9 goes onto review the various applications and research that has been conducted using the PSD model as a theoretical framework. The limitations of these studies, which have been used to establish the gap within the

extant literature, are also addressed within this section. Section 3.10 investigates and reviews persuasion studies in context to online UX within tourism. Section 3.11 presents an overview of the conceptual framework, which is based upon the findings of the literature review conducted in Chapter 2 and the current Chapter 3. Section 3.12 provides a conclusion that summarises the literature surrounding the role of persuasion in UX and, the efficacy and purpose of persuasive technology as a tool for designing persuasive online UX for tourism.

3.2. Persuasion: Origin and evolution

3.2.1 Definition

Persuasion literature is diverse and can provide insights into the various branches of human psychology such as motivation, intention, beliefs, perceptions, opinions etc. However, the manner in which the term is defined often remains the same, with varied usage of vocabulary. A few definitions of persuasion that have been documented within the literature are presented in this section.

"*A conscious attempt by one individual or group to change the attitudes, beliefs, or behavior of another individual or group of individuals through the transmission of some message.*" (Bettinghaus and Cody, 1994, p. 6)

"*Persuasion takes place when a motivator is able to either change or confirm an existing attitude in the minds of listeners.*" (Hazel, 1998, p. 2)

"*Persuasion is the name we give to the type of communication that brings about change in people*." (Bostrum, 1983, p. 8)

"*Persuasion is the process of preparing and delivering verbal and nonverbal messages to autonomous individuals in order to alter or strengthen their attitudes, beliefs, and behaviors.*" (Woodward and Denton, 1992, p.21)

"*Persuasion is the attempt to influence people's attitudes or behavior*" (Fogg, 2009, p.1)

"Persuasion is an attempt to change either the user's attitude or behaviour or both. Persuasion tries to alter the way in which others think, feel or act, it is the form of "attempted influence." (Harjumaa and Oinas-Kukkonen, 2007, p.1)

As is evident from the definitions, persuasion commonly refers to the formation or change of attitudes (that might eventually lead to change in behaviour and belief) within individuals, in response to information that is processed upon encountering a persuasive message (Bostrum, 1983; Hassan and Michaelidou, 2013). The long history of persuasion is based upon its proven ability to act as an integral participant in the behaviour change process, establishing its instrumental position in the success of marketing campaigns (Petty and Cacioppo, 1981; Petty et al., 2003; Harjumaa and Oinas-Kukkonen, 2007; Hass and Michaelidou, 2013). The history of persuasion has been documented in the following Section 3.2.2.

3.2.2 History of Persuasion

Approximately 2000 years ago, the Greek philosopher and scientist, Aristole, began working on the 'art of rhetoric' (Henning, 1998). Rhetoric, the art of speaking without distinction of topic or purpose (Bellová, 2010) has always been a part of human civilisation (Henning, 1998; Ramage and Bean, 1998; Bellová, 2010). Over time rhetoric became associated with government, politics and most importantly, persuading people. However, the great mathematician and philosopher, Plato, argued that rhetoric was an art of manipulation. Although rhetoric could be used for dishonest manipulation, it is only a question that the speaker's conscience can address (Bellová, 2010). The reason Aristotle's description of rhetoric is prevalent to this date is due to its significance in modern day persuasion (Bellová, 2010).

3.2.3 Rise in persuasion studies as a result of marketing

Persuasion commonly refers to the formation or change of attitudes. It works under the assumption that eventually change in behaviour will occur as a response to information that is processed when faced with a persuasive message (Bostrum, 1983; Hassan and Michaelidou, 2013). Persuasion has a long history, which is based on its proven ability to play the integral participant in the behaviour change process. This has established persuasion's instrumental position in the success of marketing campaigns (Petty and Cacioppo, 1981; Petty et al., 2003; Hass and Michaelidou, 2013). Persuasion has always been central to the study of marketing, specifically consumer behaviour. As it plays a key role in attitudinal and behavioural change (Petty and Cacioppo, 1981; Petty et al., 2003), persuasion is instrumental to the success of marketing communications and promotional campaigns. Durani (2012) explains that advertisers spend billions of pounds annually in an attempt to influence or change consumer's attitudes towards products/services. Therefore, it is no wonder that persuasion studies have taken precedence in marketing literature (Petty and Cacioppo, 1981; Petty et al., 2003). As an explicit concept, persuasion studies have come a long way in learning how to influence the public using pervasive persuasive messages through the medium of mass media.

3.3 Growth in persuasion studies as a result of the introduction of persuasion and behaviour models

For a long time persuasion researchers were not able to agree upon, when and how the different variables such as source, message, recipient and channel would affect the persuasion process (McGuire, 1985; Petty and Cacioppo, 1986). This occurred despite the fact that persuasion literature had gathered the most data that any theory has compiled under a single topic in social sciences (McGuire, 1985). Finally, it was Ajzen and Fishbein's (1972) research on the Theory of Reasoned Action (TRA) (Appendix 13) that changed this state of affairs. The TRA inspired considerable progress in terms of theoretical and methodological contributions. Imagining a relationship between user attitude and intention, Fishbein and Ajzen (1975) and Ajzen and Fishbein (1980) argued that human social behavior is not controlled by unconscious motives or desires but is instead the result of our analysis of the implications of our actions before we engage in any particular behavior. As human beings, we usually make rational use of the information that has been made available to us (Ajzen and Fishbein, 1980). The TRA indicates that the roots of an individual's decision-making process lie in the amount and intensity of volitional efforts put into performing the behavior (Fishbein and Ajzen, 1972, 1975; Ajzen and Fishbein, 1980; Ajzen, 1985; 1991; Han, Lee and Lee, 2011). An individual's specific behavior can only be determined by an individual's intention to act out the behavior. The behavioral intention is determined by a cognitive evaluation of the attitude and perceptions of social/peer pressures (subjective norms). Here, attitude refers to an individual's personal judgment that can be in favor of or against the behavior and subjective norm is seen as the individual's perceptions of what the people they look up to would think about their decision to buy.

Ajzen (1985) suggested that individual behaviour is not fully voluntary. The assertion of this argument led to the development of the Theory of Planned Behaviour (TPB) (Appendix 14), which is a modification by Ajzen (1985) on Fishbien and Ajzen's (1972) TRA model. The TPB accomplishes its purpose through the establishment of a connection between intention function and perceived behavioral control (Ajzen and Fishbein, 1975). Ajzen's (1985) TPB model is based on three core constructs (attitude, subjective norm and perceived behavioral control). The transformation of TRA into TPB involves addition of another set of factors that affect intention and behavior- the perceived behavioral control. Perceived behavioral control is the perceived ease with which an individual can carry out their behavior. This falls along the lines of self-efficacy (Bandura, 1986; 1997 and Terry et al. 1993).

However, within the persuasion literature, it is Petty and Cacioppo's (1981), Elaboration Likelihood Model (ELM) (Appendix 15), which appears to have gained considerable reputation. The ELM is a comprehensive model that addresses how different stimuli are processed, why they are utilised and how their outcome affects attitude change. Petty and Cacioppo (1986, p. 125) define ELM as the "*framework for organizing, categorizing, and understanding the basic processes underlying the effectiveness of persuasive communications*". The ELM proposes two major routes to persuasion- the central route and the peripheral route (Petty and Cacioppo, 1981). Under the central route, a high-level message elaboration is involved, which allows a greater level of cognition. The cognition relates to the arguments that are generated by the individual who receives the message (Petty and Cacioppo, 1981; 1986). This type of persuasion is likely to result from a person's careful and thoughtful consideration of the true merits of the information presented in support of the argument. Such a persuasive

argument is relatively enduring, resistant and predictive of human behaviour (Mitz and Aagaard, 2010).

The second route is the peripheral route, where in persuasion occurs from an individual's association with positive or negative cues in the stimulus. Alternatively, such persuasion can also occur through the processing of a simple inference about the merits of the advocated position (Petty and Cacioppo, 1981; 1986). Cues received under the peripheral route relate to factors like credibility, visually attractive imagery, or production quality of the message, forgoing a deep cognitive evaluation (Petty and Cacioppo, 1981; 1986; Mitz and Aagaard, 2010). The likelihood of elaboration within the ELM is determined by the individual's motivation and ability to evaluate the argument on different levels.

Introduction of the TRA, TPB and ELM behaviour and persuasion models have encouraged research within the field, leading to a rapid development throughout the 80s and 90s (Mintz and Aagaard, 2010; Alhammad and Gulliver, 2013). However, the introduction of ICTs transformed the persuasion research even further.

3.4 Persuasion using ICT

The diversification of ICT technology from 1970s to 1990s (Chapter 2, Section 2.3.5, p.45) is responsible for driving ICT research into multidisciplinary fields (Carroll, 1997; Kim and Fesenmaier, 2013). In order to find solutions, researchers began investigating rhetoric in the context of psychological, social and behavioural sciences (Parkes, 2009; Alhammad and Gulliver, 2013). Exploring these disciplines helped in creating a systematic flow for the rhetoric put forth via the medium of ICTs (Carroll,

1997; Parkes, 2009; Alhammad and Gulliver, 2013; Kim and Fesenmaier, 2013).

Rhetoric studies in the fields of psychology, social and behavioural sciences, paired

with ICTs, helped in the creation of persuasive design (Parkes, 2009; Mintz and

Aagaard, 2010; Alhammad and Gulliver, 2013; Kim and Fesenmaier, 2013).

Mintz and Aagaard (2010) argue that even though persuasion should first and

foremost be valued as a communication process, the concept arouses multidisciplinary

outlooks. Within the communication process, the persuader is responsible for sending

out a persuasive message to the user. The intention behind sending the persuasive

message is to influence the user's attitude and/or behaviour (Alhammad and Gulliver,

2013). Persuasion generally renders the power to make decisions, into the user's hands

(Mintz and Aagaard, 2010; Alhammad and Gulliver, 2013; Kim and Fesenmaier, 2013).

In the case of ICT systems, persuasion has been noted as the systems' ability to arouse a

positive impression toward the system (Kim and Fesenmaier, 2008).

According to Parkes (2009), persuasion acts as a component of the holistic

online experience. Although, all persuasive ICT systems are built with the intention to

persuade, the success of each case is independent. The type, nature and intended

outcome of the communication offered by the ICT determines the ICT's efficacy as a

persuasion tool (Parkes, 2009; Kim and Fesenmaier, 2013). In addition to the system's

offerings, the users' perceptions of the ICT system are equally responsible for

determining the success of the system (Kim and Fesenmaier, 2013). A persuasive ICT is

capable of putting forth an experience that is perceived by the user as positive and worth

their time (Parkes, 2009; Mintz and Aagaard, 2010; Alhammad and Gulliver, 2013;

Kim and Fesenmaier, 2013).

3.4.1 Relationship between persuasion and UX

As established in Chapter 2, Section 2.2 (p.35), the primary role of UX is to narrate the service provider's message. In order for this message to be an effective determinant of behavior change, it should be able to persuade the users. This is where persuasion plays a role. Persuasion ensures that the UX provided works toward fulfilling its role of communicating the message effectively. However, not all UX is intentionally persuasive. Simon and Wickramasinghe (2014) state that the usage of technology influences user's behavior, regardless of whether or not this was the system designer's intention. Whether the system designer intends to simply put a point across or actually sell a product/service, their direct or indirect intent is to persuade the person on the other end to buy their idea or the product/service. This power of UX to intentionally or unintentionally influence users highlights the importance of a persuasive user experience.

Prior to the prolific advancements that ICTs underwent in the late 90s and early 00s (Chapter 2, Section 2.3.5, p.45), most e-commerce sites were an online version of bricks-and-mortar stores with barbed wire fences (Schaffer, 2009). However, as more service providers continued to build online presence, the marketing practices underwent transformation bringing into focus the key role played by UX in converting users into confirmed customers (Econsultancy, 2010; Hortal, 2011; Shrivastava, 2012). Furthermore, the simultaneous advancements in usability and design practices, offered system designers opportunities to integrate different factors such as- persuasive colours, language, visuals etc., to make the UX even more persuasive (Eagly and Chaiken, 1993; Kim, 2010; Abbasi et al., 2014; Mackay, 2015) According to Fogg (2009), when any traditional means of persuasion (usage of language, colours, visuals, psychological tactics etc) are applied to online UX, they lead to the creation of persuasive UX. Any

UX that is persuasive is able to nudge users toward making a behavior change through persuasive tactics (never coercion or deception) (Oinas-Kukkonen and Harjumaa, 2009).

As established in Chapter 2, Section 2.9.3 (p.75), any UX is not fully functional without any input from the user. The user must interact with the UX in some manner for persuasion to occur. The various variables at interplay in the persuasion process are presented in the following Section 3.5.

3.5 Variables of persuasion

The persuasion author's purpose, dialogue comprehension and perceived credibility, along with readers' characteristics such as their knowledge, beliefs and motivations, mediate the persuasion process (Jackson and Allen, 1987; Chambliss, 1995; Alexander et al., 1998: Murphy, 2001; Murphy et al., 2003). According to Aristotle, the most important aspect of persuasion, whether written or oral, is the argument (Cooper, 1932). Even today, the argument is a defining feature of persuasive text, whether it is rational, casual or concrete (Murphy et al., 2003). Authors Chambliss (1995) and Murphy et al. (2003), suggest that the text structure and content of the persuasive message combined with the argument maker's purpose, has an effect on how the users retain such arguments. Allen (1991) and Stiff (1994) have found that comprehension of argumentative text is dependent on how the author presents both sides of the argument. In addition to the presentation of both sides, the author must successfully refute one of the two arguments presented. Text that presents only one side of the argument or both sides in a neutral fashion is less persuasive (Jackson and Allen, 1987).

Comprehension of the text is also dependent on the simplicity of the message. If a reader cannot comprehend the basic meaning of the argument, they are not likely to be persuaded (Murphy et al., 2003). Many readers might not even possess the basic knowledge required to understand the text, therefore, it is vital that the persuader is aware of the knowledge and motives of the reader. Finally, a crucial variable, which dictates persuasion, is the credibility of the argument maker (Henning, 1998; Ramage and Bean, 1998; Oinas-Kukkonen and Harjumaa, 2009; Bellová, 2010; Loda, 2011; Hamari, Kolvisto and Pakkanen, 2014). Messages from credible sources carry a stronger persuasive power than those occurring from a less credible source (Kardash and Scholes, 1996). Moreover, when the author or communicator is unbiased, they are also more likely to be perceived as a credible expert (Bellová, 2010; Loda, 2011; Hamari, Kolvisto and Pakkanen, 2014).

3.6 Variables of the knowledge learner

Regardless of how well designed the message is, and how explicit the instructions are, an individual's pre-formed conceptions are difficult to alter (Murphy et al., 2003). A number of cognitive and motivational variables can interact with the reader's/listener's beliefs or attitudes (Petty and Caioppo, 1986; Murphy, 1998). The knowledge possessed by the reader is the deciding factor in how the message will be understood and stored in the memory (Murphy et al., 2003). If an individual possesses some but not complete knowledge about a topic, it is relatively easier to change their attitudes and/or behaviours (Manfredo and Bright, 1991; Johnson, 1994). Alternatively, individuals who are highly knowledgeable on the topic might feel as though they have less to gain from the message.

Perceived knowledge is extremely critical and possibly an even more important predictor of persuasion than the amount of knowledge the individual possesses in reality (demonstrated knowledge) (Murphy, 1998 and Murphy et al., 2003). Perceived and demonstrated knowledge are both seen as behaviour change variables in the persuasion process. When attitudes and intentions change in response to a persuasive message, it is likely that actual behaviour change will follow (Falk et al., 2010). Self-reported attitudes and intentions always serve as dominant constructs in psychological models, which are used in predictive psychology to study behaviour responses in reaction to persuasive messages (Ajzen and Fishbein, 1980; Falk et al., 2010).

3.7 Persuasion and technology

Technology has created an evolved understanding of persuasion. Consequently, the key to technology adoption is its persuasive impact (Fogg; 1999; 2003; Rutledge, 2012). Traditionally, elements of persuasion were attributed to communication rhetoric because computers were never viewed as capable of delivering persuasive experiences (Fogg; 1999; 2003; Fogg, Cuellar and Danielson, 2007; Mustaquim and Nyström, 2014). As established in Chapter 1, Section 1.1 (p.21) the increasing popularity of technological devices has put focus on ICTs to communicate experience, identity and emotion (Fogg, 1999; Buhalis and Law, 2008; Kim and Fesenmaier , 2008; Oinas-Kukkonen, 2010; Batinić, 2013). The emergence of online technologies that enable information sharing between communities, has in turn opened up opportunities for the development of ICTs, which can influence and persuade (Fogg, 1999; 2003; Oinas-Kukkonen and Harjumaa, 2009; Oinas-Kukkonen, 2010; Huang, 2012).

The original intention behind the development of computer technology was not to turn machines into persuaders (Fogg, 2003). Computers were created to calculate, store and retrieve information (Fogg, 1999; 2003; Fogg, Cuellar and Danielson, 2007). However, society has witnessed the evolution of computers from quantitative research labs to homes and offices, in the form of personal computers (PCs). Following the millennium, various technologies metamorphosed into enriched communication platforms (Buhalis and Law, 2008). Besides offering users the accessibility to unlimited data, computer technologies have played an important role in the creation and development of human relations (Oinas-Kukkonen and Harjumaa, 2009; Lehto and Oinas-Kukkonen, 2011; Huang 2012; Alhammad and Gulliver, 2013). These characteristics have been leveraged to transform computer technologies' communicative abilities into optimal pathways for persuasion, there by giving birth to persuasive technologies (Huang, 2012).

Fogg (2003) defines the study of persuasive technologies as- Captology (Computers as Persuasive Technologies). Fogg's captology focuses on the application of computers as persuaders or persuasion mediums that have the ability to persuade users to make attitude and behavior changes (Fogg, 2003; Oinas-Kukkonen and Harjumaa, 2009).

3.7.1 Fogg's captology

The earliest signs of persuasive technology can be traced back to the 1970s and 1980s. During this period, the first computing systems were used to promote health, well-being and increase workplace productivity (Fogg, 2003). According to Fogg

(2003), it was only during the late 1990s that the world finally witnessed emergence of persuasive technology based systems. As computers and web technologies evolved, designers and service providers began employing persuasive strategies with the aim to instigate attitude and behavior changes amongst users (Fogg, 2003; Lehto and Oinas-Kukkonen, 2011; Huang 2012; Alhammad and Gulliver, 2013). This evolution of technology from making it function to making it usable and now to making it persuasive has been depicted in Figure 3.1 (Fogg, 2003).

| Make Technology Function | ⇨ | Make Technology Usable | ⇨ | Make Technology Persuasive |
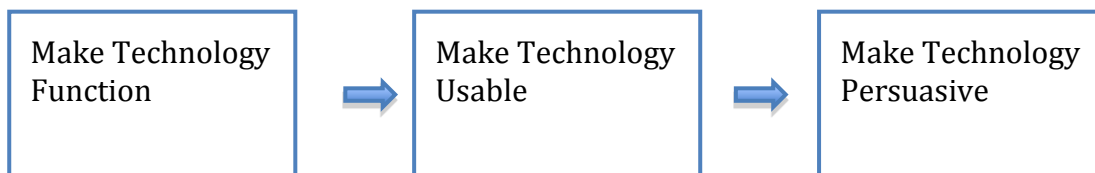
Figure 3.1: Trends in technology (Fogg, 2003)

Source: Fogg (2003) reprinted by Author

Captology is a result of the changing trends in the capabilities of technology (Fogg, 2003). It allows inquiry into the overlapping space (Figure 3.2) that resides between human persuasion (motivation, behavior and attitude change) and computing technology (Fogg, 2003).
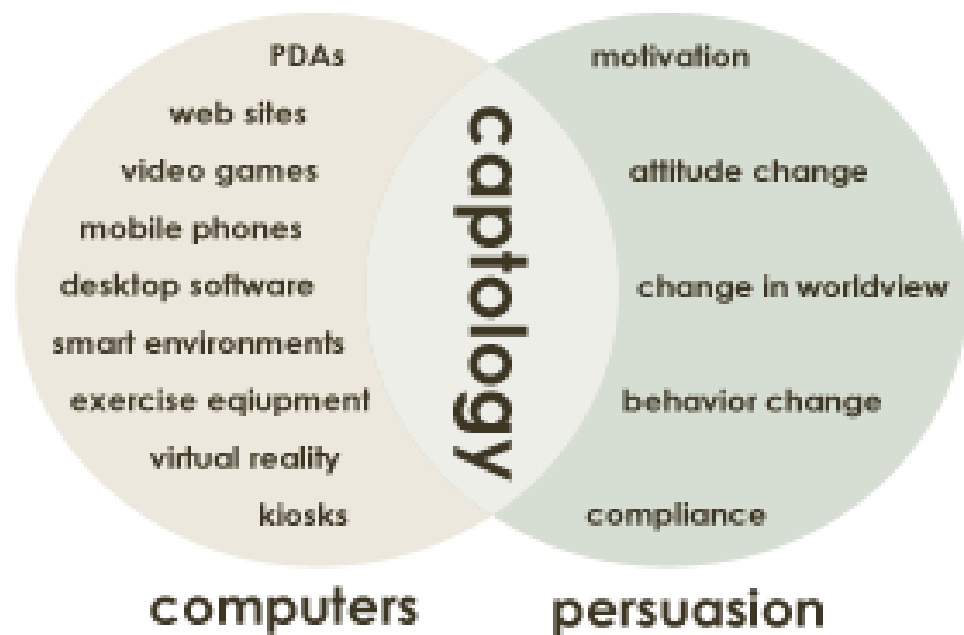
Figure 3.2: Venn diagram showcasing the intersection point between the system and the user behaviour (Fogg, 2010)

Source: Fogg, (2010)

Captology views computer technology in three different manners- as a tool, as a medium and as a social actor (Fogg, 2003). Acting as a tool, computers can influence people by facilitating certain tasks that motivate users (Fogg, 2003; Mustaquim and Nyström, 2014). As a medium, they can persuade by means of compelling interactive stimulations (Fogg, 2003; Mustaquim and Nyström, 2014). In addition to this, when computers act as social actors, they can exploit the techniques that human persuaders use in order to foster a behavioural change through feedback and positive encouragements (Fogg, 2003; Mustaquim and Nyström, 2014).

Fogg's argument in favour of captology is based on the notion that any website's primary goal is to persuade the users to convert (Kim, 2008). Users are actively or passively seeking information that can assist them in giving a meaning to the online experience. A persuasive computing system acts as an ethical conversation agent that persuades people to change their attitudes and behaviors through a dialogue. The key to

99

ethical persuasion is that it takes into consideration the user's voluntary participation in the persuasion process (Narita and Kitamura, 2010). Although persuasive technologies can and have been used across a varied number of disciplines, their implementation has been popular within the health industry (Huang, 2012). Some examples of persuasive technology applications are- simulation of infants to reduce rates of teen pregnancies (Parmar, Keyson and deBont, 2008; Huang, 2012); using social media to help people lose weight or give up smoking (Huang, 2012) and inspiring women in rural India to make better health choices (Parmar, Keyson and deBont, 2008).

Even though the persuasive technology research has only been around for a decade, Fogg (1999); Bogost (2007); Kim and Fesenmaier (2008); Nusair and Kandampully (2008) and Oinas-Kukkonen and Harjumaa (2009) agree that persuasion should be the key element in behaviour and attitude change models. Being a fairly new field of study, few persuasive technology concepts and models have been tested empirically. B.J. Fogg who is the earliest contributor to persuasive technology, has empirically proven the efficacy of persuasive technology through a behaviour change framework. Further contribution to the topic was presented through the works of Bogost (2007); Kim and Fesenmaier (2008); Nusair and Kadampully (2008) and Oinas-Kukkonen and Harjumaa (2009). Persuasion is the key element in behaviour and attitude change, however, it has only been a decade since the research on persuasive design and technology has caught momentum (Fogg, 1999). Some of the influential persuasion models have been documented in the following sections.

3.7.2 Cialdini's six principles of influence

Cialdini's (1984) six principles of influence are deeply rooted in persuasion psychology and can provide a perspective, which can be applied directly to an online experience design context. Cialdini's (1984) six principles that determine influence are,

i. **Reciprocity:** As humans, we like to return the favour because it is within our nature to treat others, the way they have treated us. When someone lends us a hand, we feel obliged to return the favour (Cialdini, 1984; Oinas-Kukkonen and Harjumaa, 2009). For example, when someone sends us a free sample we might feel obliged to buy that product in the future.

ii. **Commitment and Consistency:** When humans commit to a goal, orally or in writing, they are more likely to honour that commitment even after the original goal is removed (Cialdini, 1984; Oinas-Kukkonen and Harjumaa, 2009). For example, if someone has shown interest toward a start-up by funding them during their conception phase, they are more likely to continue supporting them over time too.

iii. **Social Proof:** People tend to do things that others are doing. If we see someone tip in a jar, we are more likely to follow the same pattern. We are more susceptible to social proof when we haven't made a decision or are feeling confused (Cialdini, 1984; Oinas-Kukkonen and Harjumaa, 2009). For example, if we are thinking of buying shoes and see someone we know purchase a specific brand of shoes, we are likely to want that same brand of shoes.

iv. **Liking:** People we like, influence us. When someone appears similar to us, we are more prone to liking than hating them (Cialdini, 1984; Oinas-Kukkonen and Harjumaa, 2009). Most advertisers use this concept when they hire a popular celebrity to promote their campaign.

v.   **Authority:** When someone in authority delivers information, we are more likely to be persuaded (Cialdini, 1984; Oinas-Kukkonen and Harjumaa, 2009) For example, dental products companies using doctors to sell their products.

vi.   **Scarcity:** Perception of scarcity increases the demand as people equate scarcity with increased value (Cialdini, 1984). For example, a product with limited availability is likely to attract attention and persuade people to buy it.

Cialdini's six principles are straightforward and effective, but they are limited by their simplistic nature (Oinas-Kukkonen and Harjumaa, 2009). As the principles only suggest what creates influence, there still exists the need to have a more comprehensive model, which can enable developers in designing strategies to meet specific behaviour changes. Fogg's Behaviour Wizard is one such comprehensive model, made up of Fogg's Behaviour Grid and Fogg's Behaviour Model that can be used to resolve the query from a design perspective.

3.7.3 Fogg's behaviour wizard

Fogg's (2011) behavior wizard is made up of the behavior grid (Figure 3.3) and behavior model. The foundations for the wizard are based on seven principles,

     i.   Reduction (Compressing complex behaviour)

     ii.   Tailoring (Customized information)

     iii.   Tunneling (Guiding through interactive system)

     iv.   Suggestion (Suggesting at the right moment)

     v.   Self-monitoring (Helping users achieve predetermined outcomes)

vi.   Surveillance (Observation of certain behaviour increases likelihood of performing that behaviour)

vii.   Conditioning (Reinforcing and shaping complex behaviour)

The first component of the behavior wizard is the behavior grid, which highlights 15 types of behaviors. These behaviors are color coded to simplify the process of implementing persuasive technology strategies. Each of the 15 behaviour types use different psychological strategies and persuasive techniques. For example, the method for persuading people to buy a book online (BlueDot Behaviour) is different from that required to motivate people to quit smoking forever (BlackPath Behavior). Giving behaviour a path name can help designers focus on precision (figure 3.3).

	GREEN Do new behavior	BLUE Do familiar behavior	PURPLE Increase behavior intensity	GRAY Decrease behavior intensity	BLACK Stop existing behavior
DOT One time	GREEN DOT *Do a new behavior one time*	BLUE DOT *Do familiar behavior one time*	PURPLE DOT *Increase behavior one time*	GRAY DOT *Decrease behavior one time*	BLACK DOT *Stop behavior one time*
SPAN Period of time	GREEN SPAN *Do behavior for a period of time*	BLUE SPAN *Maintain behavior for a period of time*	PURPLE SPAN *Increase behavior for a period of time*	GRAY SPAN *Decrease behavior for a period of time*	BLACK SPAN *Stop behavior for a period of time*
PATH From now on	GREEN PATH *Do new behavior from now on*	BLUE PATH *Maintain behavior from now on*	PURPLE PATH *Increase behavior from now on*	GRAY PATH *Decrease behavior from now on*	BLACK PATH *Stop behavior from now on*

Figure 3.3: Fogg's behaviour grid (Fogg and Hreha, 2010)

Source: Fogg and Hreha (2010)

The second component of Fogg's behaviour wizard is the behaviour model made up of the three elements- motivation, ability (or simplicity) and triggers (Figure 3.4). The model aims to create a better understanding of the elements involved in human behaviour, thereby assisting in the development of more efficient persuasive systems (Jawdat, Obeidat and Aljanaby, 2011). A user should be motivated enough, have the ability and be provided with triggers that can enable them to perform the behaviour (Fogg, 2009; Fogg and Hreha, 2010; Ash, 2012).

The first element of the behaviour model is motivation (Figure 3.4). The three, two-sided core motivators are (Fogg, 2009)-

i.   Sensation (pleasure/pain)

ii.   Anticipation (hope/fear)

iii.   Social cohesion (acceptance/rejection)

The second element is ability (Figure 3.4). Designers of persuasive experiences must understand the user's ability to take action (Fogg, 2009; Fogg and Hreha, 2010). One can either train users to perform hard tasks, which in itself is a difficult option. The other route is the application of simplified design in a manner that affords users the ability to perform tasks instantly (Gibson, 1977; Terrenghi, 2007; Fogg and Hreha, 2010; Coyle, 2015).

The third element in Fogg's (2011) behaviour model is the trigger (figure 3.4). Without triggers, the behaviour cannot happen. The three type of triggers mentioned by Fogg (2009) are based on the behaviour model (Figure 3.4),

i.   Facilitator: High motivation + Low ability

ii.   Signal: High motivation + High ability

iii.   Spark: Low motivation + High ability

High
motivation

Triggers
succeed
here

Motivation

Action line

Low
motivation

Triggers
fail here
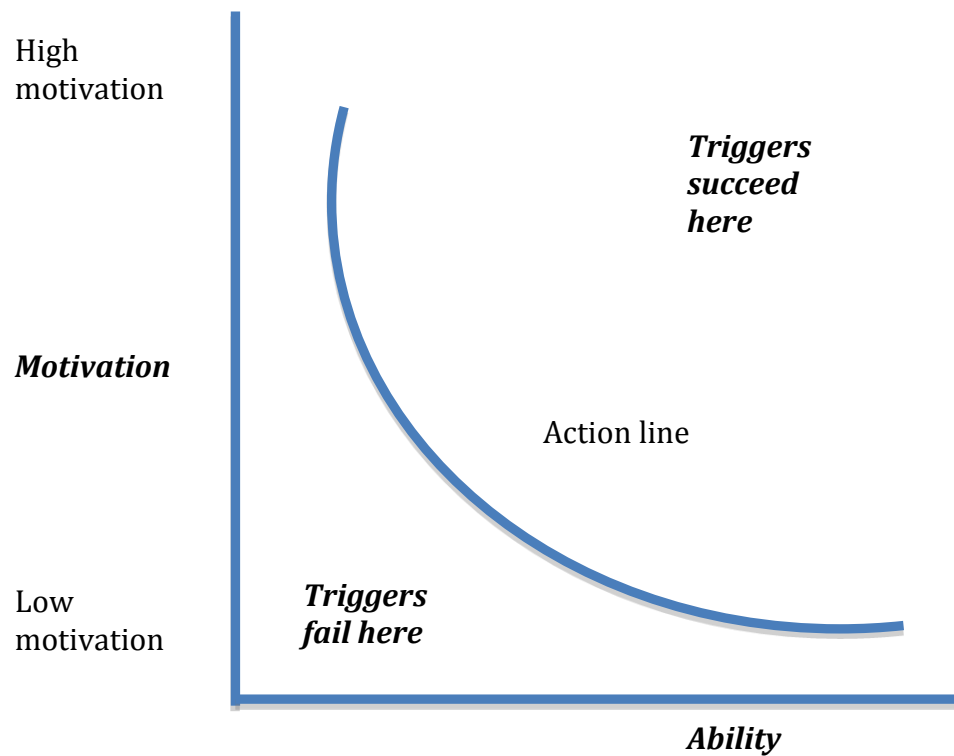
Ability

Behaviour= Motivation/Ability/Triggers working simultaneously

Figure 3.4: Fogg's Behaviour Model (Fogg ,2009)

Source: Fogg (2009) reprinted by Author

Although Fogg's (2011) behaviour model is fairly straightforward and comprehensive, it does not provide explicit information on strategies. Chapter 2, Section 2.8 (p.64) addresses the realities and current circumstances within which the

tourism industry operates. The industry is made up of 80% tourism SMEs, with low financial and human resources. Although, Fogg's (2011) behaviour model can be adapted by tourism SMEs, the limitation shows through the fact that the model has to be interpreted. Given the assumption that tourism SMEs might not have the required expertise, stresses the requirement for an explicit model that does not require complex interpretation and can be used by anyone with basic to intermediate level knowledge of ICTs.

3.7.4 Oinas-Kukkonen and Harjumaa's Persuasive System Design Model

Fogg's (2011) behaviour wizard is a comprehensive tool for designing persuasive strategies, which can nudge users toward behaviour change but Oinas-Kukkonen and Harjumaa (2009), have taken Fogg's (2011) behaviour wizard a step further. Oinas-Kukkonen and Harjumaa (2009) have introduced 28 strategies that can be compiled under four design principles. Oinas-Kukkonen and Harjumaa's (2009) Persuasive System Design (PSD) model provides flexibility and usability by allowing designers to target behaviour changes using specific design features and strategies. The PSD model has been inspired by Cialdini's (1984) six principles of influence and Fogg's (2002) behaviour change framework. Incorporating theoretical constructs from other persuasion models, the PSD model is able to provide design and evaluation strategies that have been compiled under the four design principles. These can be applied to the online experience context (Hamari, Kolvisto and Pakkanene, 2014).

The design principles mentioned by Oinas-Kukkonen and Harjumaa (2009; 2013) are,

i.   Primary task support (features supporting core behaviour and activity)

ii.   Computer-human dialogue support (some sort of feedback from the system)

iii.   Perceived system credibility (features that make system appear credible and trustworthy)

iv.   Social influence (features in the system that induce motivation through social influence)

Oinas-Kukkonen and Harjuma (2009) summarise the potential outcomes of a successful persuasive system as- the voluntary reinforcement, change in or shaping of attitudes and/or behaviors. A growing number of ICT systems and services are being developed to change users' attitudes and/or behaviors (Fogg, 2003; 2011; Oinas-Kukkonen and Harjumaa, 2008; 2009; 2013). Attitudinal theories from social psychology have been applied extensively to the study of user intentions and behavior. These theories can predict user acceptance of information technology, but cannot provide systematic analysis or design methods for developing persuasive software solutions (Oinas-Kukkonen and Harjumaa, 2009). The PSD framework aims to fill this gap. Although it is not possible for computers to communicate with humans the way two humans would, Oinas-Kukkonen and Harjumaa (2013) suggest that certain patterns of human social interaction can be applied to the development of persuasive ICT systems.

3.7.4.1 Steps in designing PSD model

Oinas-Kukkonen and Harjumaa (2009) follow a three-step process to create and apply the PSD model to any design context. The first step involves critically examining and understanding the fundamental issues under which persuasive systems should

function before they are implemented (Oinas-Kukkonen and Harjumaa, 2009; 2013).

Based on these critical analyses, the decision is been made as to whether or not a

reasonable system can be designed and evaluated. The second phase highlights the role

of the persuasion context. The study of persuasion context involves an analysis and

recognition of intent, event and persuasive system strategies (Oinas-Kukkonen and

Harjumaa, 2009; Hamari, Kolvisto and Pakkanene, 2014). The first and second step

combine together to finally address the development of an actual ICT system that can be

designed and evaluated for persuasiveness. Figure 3.5 provides a detailed graphical

representation of these three steps, however Oinas-Kukkonen and Harjumaa (2009)

recommend understanding the seven postulates that should be considered by the system

designer (Please refer to Appendix 5)
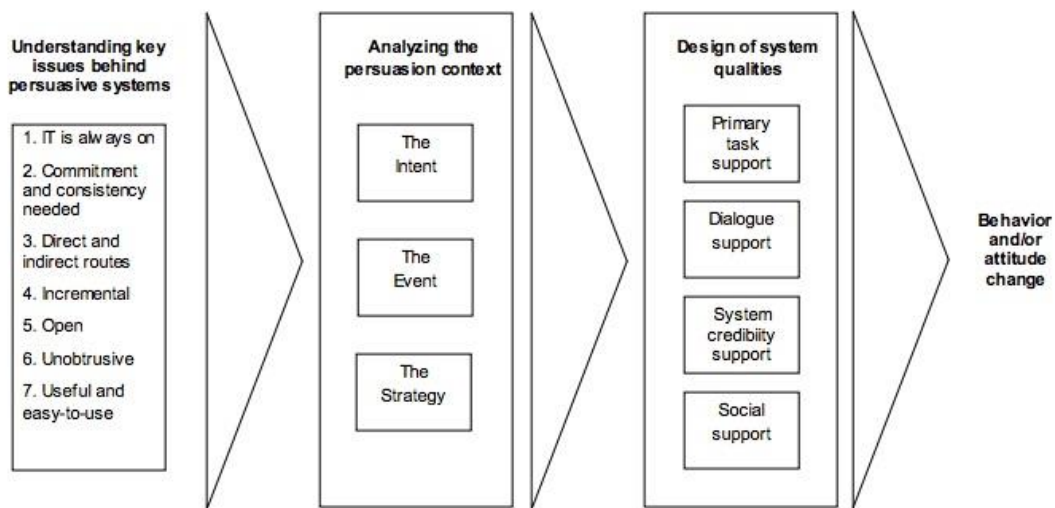
Figure 3.5: Steps in the design of the PSD model (Oinas-Kukkonen and Harjumaa, 2009)

Source: Oinas-Kukkonen and Harjumaa (2009)

3.7.4.2 Persuasion contexts in the PSD model

Oinas-Kukkonen and Harjumaa (2009) advise investigating the persuasion context, only after the postulates (Appendix 5) have been followed. The persuasion context is an integral part of the PSD framework. Without a careful analysis of the persuasion context, it is almost impossible to recognize inconsistencies in a user's thinking. Without a context it is also impossible to review opportune and/or inopportune moments for interjecting with persuasive messages (Oinas-Kukkonen and Harjumaa, 2009; 2013). The PSD framework in Figure 3.6 suggests a map for analyzing and recognizing persuasion context strategies,
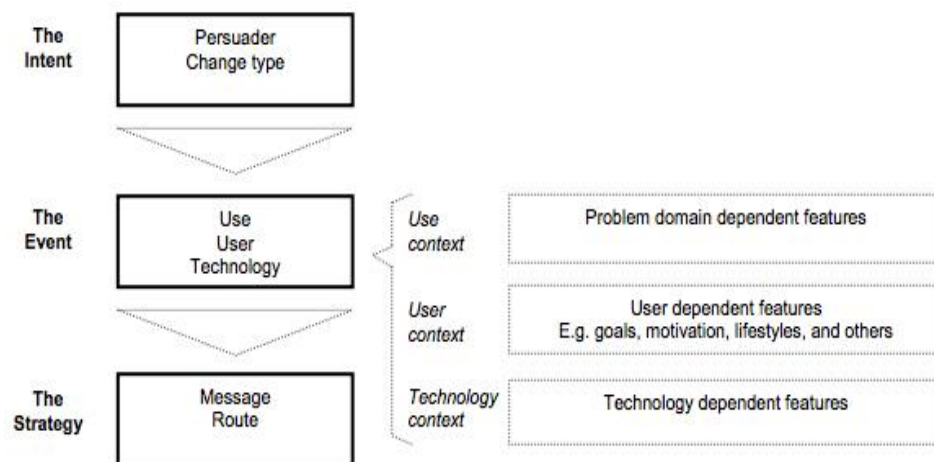
Figure 3.6: PSD framework mapping (Oinas-Kukkonen and Harjumaa, 2009)

Source: Oinas-Kukkonen and Harjumaa (2009)

The Intent

As computers do not have any intentions of their own, the person who adopts, creates and distributes the technology will have their own intentions to affect someone's

109

attitudes or behavior (Fogg, 1998; 2002; 2011; Oinas-Kukkonen and Harjumaa, 2009; Kegel and Wieringa, 2014). There are three sources of intention that have been recognised by Fogg (1998).

      i.   **Endogenous:** Those who create or produce interactive technology

      ii.   **Exogenous:** Those who give access to or distribute the interactive technology to others

      iii.   **Autogenous:** The person adopting or using the technology.

The most prominent feature of analyzing the intent is to consider the change type, specifically whether the persuasion is geared toward attitude and/or behavior change (Oinas-Kukkonen and Harjumaa, 2009). A one-time non-recurring behavior change is easy to accomplish as opposed to a permanent behavior change. Moreover, an attitude change that directs behavior may be the most difficult to produce. Attitudes can be rooted in emotions, beliefs, past experiences and behaviors, and they may be internally consistent or ambivalent (Petty and Wegener, 1998). To study attitude change, theories such as the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975; Ajzen and Fishbeing, 1980) (Section 3.3, p. 89) or Theory of Planned Behavior (TPB) (Section 3.3, p.87) (Ajzen, 1985) can also be applied to investigate user intent.

The Event

The use context for the persuasion event is considered a central facet for analysing persuasive systems (Oinas-Kukkonen and Harjumaa, 2009). The use context

describes why the user is expected to use the system (Oinas-Kukkonen and Harjumaa, 2009; Kegel and Wieringa, 2014). For example, people who probably have the right attitude toward health and fitness know exactly why they want to download a health and fitness application. The issue arises down the line when the system is faced with the problem of keeping people connected and engaged with the application once the initial excitement has faded. The user context is in parallel to the use context.

Individual differences can influence information processing (Oinas-Kukkonen and Harjumaa, 2009). According to Cacioppo and Petty (1984) and Jackson (2013), some individuals have a higher need for cognition whereas others have a lower need. An individual who has a higher need for cognition tends to follow the direct route to persuasion (Petty and Wegener, 1998; Jackson, 2013). Along with the direct delivery of information processing situations such as through learning, persuasive messages can also cater to larger contexts in the users lives (Oinas-Kukkonen and Harjumaa, 2009; 2013). The larger context analysis involves analyzing the facets of users' interests, goals, motivations, past performances, attitudes, consistency, progress in the system, cultural factors, needs, commitment and possibly the entire personality (Oinas-Kukkonen and Harjumaa, 2009). Theories such as the TRA (Section 3.3, p. 89) and Locke and Latham's (2002) goal setting theory can help toward improving the task. The final context in the PSD model is the technology context. In a computer-human or computer-mediated persuasion process, the technology context plays a critical role. The strengths and weaknesses of each technological system along with the risks and opportunities must be researched thoroughly by developers Oinas-Kukkonen and Harjumaa (2009).

The Strategy

Analysis of the message is a central feature for defining persuasion strategies (Cacioppo and Petty, 1984; Petty and Wegener, 1998; Oinas-Kukkonen and Harjumaa, 2009; Jackson, 2013). Drawing the line between a convincing message and a persuasive message is difficult (Oinas-Kukkonen and Harjumaa, 2009). Persuasion is usually dependent on the symbolic strategies that can effectively trigger the emotion (Miller, 2002). Conviction relies on strategies rooted in logic, something that applies to the persuadees' reason and intelligence (Petty and Wegener, 1998). Within the PSD framework, along with the message, the route taken becomes a central consideration for any persuasion strategy (Oinas-Kukkonen and Harjumaa, 2009). Direct and indirect routes can act simultaneously (Cacioppo and Petty, 1984). The route selected by the user is dependent on the user's potential to carefully evaluate the persuasive message (Jackson, 2013).

The complete PSD framework along with the persuasion context and design features is presented in Figure 3.7. The strategies are explained in-depth in Appendix 1.

PERSUASIVE DESIGN FEATURES				
PERSUASION CONTEXT	**PRIMARY TASK SUPPORT**	**DIALOGUE SUPPORT**	**CREDIBILITY SUPPORT**	**SOCIAL SUPPORT**
The Intent *Persuader* *Change type* **The Event** *Use context*[a] *User context*[b] *Technology context*[c] **The Strategy** *Message* *Route*	*Reduction* *Tunneling* *Tailoring* *Personalization* *Self-monitoring* *Simulation* *Rehearsal*	*Praise* *Rewards* *Reminders* *Suggestion* *Similarity* *Liking* *Social role*	*Trustworthiness* *Expertise* *Surface credibility* *Real world feel* *Authority* *Third party endorsements* *Verifiability*	*Social learning* *Social comparison* *Normative influence* *Social facilitation* *Cooperation* *Competition* *Recognition*

[a] Problem domain dependent features
[b] User dependent features e.g. goals, motivation, lifestyles, and others
[c] Technology dependent features

Figure 3.7: The PSD Model (Oinas-Kukkonen and Harjumaa, 2009)

Source: Oinas-Kukkonen and Harjumaa (2009)

Oinas-Kukkonen and Harjumaa (2009) are of the opinion that Fogg's (2003) behaviour change model and design principles have been utilised widely in persuasive technology. However, the main weakness of Fogg's (2003) model is that the model cannot explain how the suggested design principles can and should be transformed into software system requirements. Furthermore, the model also does not explain how these principles can be implemented as the system's actual features. Regardless, many of Fogg's design principles have been adopted in the PSD framework.

The postulates (Appendix 5) described in the PSD model cover a number of aspects that need to be recognized while designing persuasive systems, including r*esponsiveness, error free, ease of access, ease of use, convenience, information quality, positive user experience, attractiveness, user loyalty and simplicity* (Oinas-Kukkonen and Harjumaa, 2009). Oinas-Kukkonen and Harjumaa (2009) recommend customising the PSD model by choosing only those persuasion strategies that are the most applicable within the context selected. Along with the design principles and their strategies, it is also important to be able to communicate ideas across the team, from those who generate them to those who engineer them. The three steps as per Oinas-Kukkonen and Harjumaa (2013) that can help to develop an idea into reality are presented in Figure 3.8.

Step 1: Analysis of persuasion context and selection of persuasion strategies	Step 2: Requirement definition for software qualities	Step 3:Software implementation	Behaviour and/or attitude change
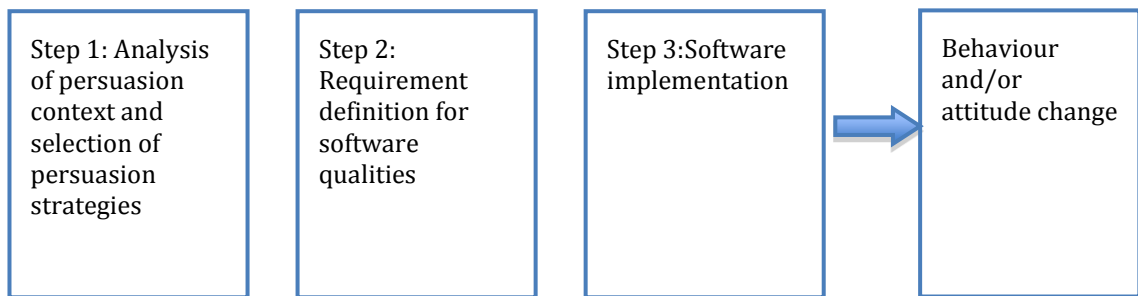
Figure 3.8: Developing a web development idea into reality (Oinas-Kukkonen and Harjumaa, 2009) Source: Oinas-Kukkonen and Harjumaa (2009)

3.8 PSD's functionality as a Behaviour Change Support System

The PSD model is a "*state of the art*" (Ploug, Hasle and Oinas-Kukkonen, 2010, p. 5) conceptualisation for the design and development of a Behaviour Change Support System (BCSS), which has been defined as - "*an information system designed to form, alter or reinforce attitudes, behaviours or an act of complying without using deception, coercion or inducements*" - (Oinas-Kukkonen, 2010 b, p.3). Due to their ability to persuade people to change, BCSSs are considered a key construct within persuasive technology research. In order to develop a BCSS, the PSD carefully analyses the persuasion context (intent, event and strategy for persuasion) to discern opportune and/or inopportune moments for delivering the persuasion message(s) (Oinas-Kukkonen and Harjumaa, 2008; 2013).

BCSS as a field of research and application is integral to the studies on persuasive technology (Oinas-Kukkonen and Harjumaa, 2008). BCSSs not only include human-computer interaction but also computer-mediated communication. In addition to this, it includes factors such as approaches, methodologies, tools and processes to develop and design systems (Oinas-Kukkonen, 2010). BCSSs also allow researchers to study the situation from both contexts (the system and the user) and address organisational, social and end-user implications (Ploug, Hasle and Oinas-Kukkonen, 2010). BCSSs research focuses on qualities and the characteristics of the software, analysis and design of the system and a review of end-user behaviour along with perceptions of the system (Oinas-Kukkonen and Harjumaa, 2008; 2013; Oinas-Kukkonen, 2010; Ploug, Hasle and Oinas-Kukkonen, 2010).

Oinas-Kukkonen and Harjumaa's (2008) PSD model allows development of a BCSS based on the 28 strategies classified under four design principles mentioned in the framework (figure 3.7). The design strategies under primary task support help users in performing the primary activities. Design strategies that relate to dialogue-support (human-computer dialogue) help users move toward the goal through interaction and feedback. Credibility based design strategies allow users to look at the system as a believable entity, thereby improving persuasiveness. The social support design strategies motivate users by leveraging social influence. Figure 3.9 shows a representation of the four design principles in operation. Besides the design principles, the PSD model also allows integration of other theories and models to conduct further investigation into the user's context. The PSD model relies on social and cognitive psychology by including theories such as the Technology Acceptance Model (TAM)[4] and TAM's extensions, ELM, Theory of Planned Behaviour (TPB) and Theory of

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[4] The TAM and its extensions have not been mentioned in this study as describing them is out of the scope of this research

Reasoned Action (TRA) (Oinas-Kukkonen, 2010 a). These theories can be optimised to be used on all types of ICTs but most ICT researchers, specifically web developers, might not be aware of them (Oinas-Kukkonen, 2010 b).
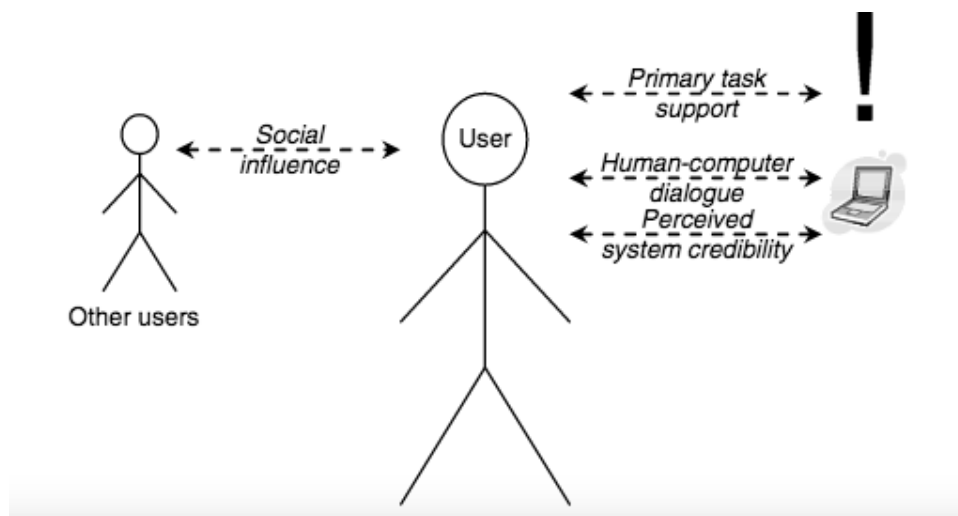
Figure 3.9: How BCSS works (Oinas-Kukkonen, 2010 a)

Source: Oinas-Kukkonen (2010 a)

3.8.1 Role of computers in persuading BCSS users

BCSSs use computer-mediated or computer-human persuasion (Oinas-Kukkonen, 2010 a; 2010 b). Computer-mediated persuasion is the persuasion of people through computers (for example, e-mail, instant messages, social networking sites) (Fogg, 2003; 2011). Web applications cannot communicate the way humans do because

they lack the social cues we are used to encountering when speaking with other humans. However, web applications do offer some patterns of interaction, similar to social communication, which may also be utilised in computer-human persuasion (Oinas-Kukkonen, 2010 a; 2010 b; Lehto, Oinas-Kukkonen and Drozd, 2012; Alhammad and Gulliver, 2013; Lehto, 2013). As computers do not have any intentions of their own, a BCSS system requires stakeholders who have an intention to influence someone's attitudes or behaviour.

Oinas-Kukkonen (2010 b) recommends that all web designers and software developers should be aware of the variance in how people react and are influenced through system designs. Most issues that arise within a BCSS are the usual software design issues faced by all other software designers (Oinas-Kukkonen, 2010 b). These issues include- usefulness, ease of use, accessibility, information quality, convenience, simplicity, attractiveness, errors, responsiveness and positive experience that drives user loyalty (Oinas-Kukkonen and Harjumaa, 2009; Oinas-Kukkonen, 2010 b). These factors are all responsible for either nudging users toward making a behaviour change or pushing users away from the system. A positive UX encourages users to engage with the BCSS system over an extended period of time (Oinas-Kukkonen, 2010 b).

According to Oinas-Kukkonen and Harjumaa (2009), a BCSS designed to create persuasive experiences draws from psychology through the inclusion of the following three factors,

    i.   People like their views about the world to be organised and consistent.

    ii.   Persuasion is often incremental.

    iii.   There are direct and indirect routes to persuasion strategies.

Furthermore, Oinas-Kukkonen and Harjumaa (2009) also draw two additional requirements for persuasive experiences, from the field of software design.

    i.   BCSS should be useful and easy to use.

   ii.   Persuasion through BCSS should always be transparent. Consequently, if a system is useless or difficult to use, it is unlikely to be persuasive.

3.8.2 Perceived persuasiveness as a construct of BCSS

Along with the four design principles, external theories and design requirements drawn from psychology and software engineering, a BCSS based on the PSD model also includes an additional construct known as "perceived persuasiveness" (Oinas-Kukkonen and Harjumaa, 2009), which is essentially the user's perception of the system's persuasiveness. It has been established in Chapter 2, Section 2.9.3 (p. 75-79) that persuasion can arouse within the user, a positive impression toward the system (Kim and Fesenmaier, 2008). Persuasion can change attitude but it cannot change how different personalities respond to a specific mode of communication (Hovland et al., 1982). Consequently, the success of an IT system, in relation to an individual user, is dependent on the design, the type, the nature of communication and the intended outcomes (Parkes, 2009). These limitations highlight the significance of investigating how users perceive persuasive interactions.

There is currently no definition for persuasiveness of how persuasively a system is able to influence the user (Andrew and Manandhar, 2009). The issue with persuasiveness is that, persuasion has only been limited to positive impressions toward

the system (Alhammad and Gulliver, 2013). This limits the evaluation of a system to only the positive attributes (Alhammad and Gulliver, 2013). Oinas-Kukkonen and Harjumaa (2009) argue that persuasiveness relates to users' perceptions of the system's qualities. Aladwani and Palvia (2009) define users' evaluation of a system's features to drive conclusions about whether the system meets their needs and expectations of excellence. Drozd, Lehto and Oinas-Kukkonen (2012) define perceived persuasiveness as the subjective evaluation of the system by the individuals using it and the impact of that system on their selves. These definitions go beyond addressing persuasiveness from a positive perspective alone and are a contradiction to the idea that persuasiveness can only be measured if it has a positive impact (Alhammad and Gulliver, 2013).

The efficacy of any BCSS system is eventually dependent on how recipients choose to utilise their decision-making powers. Without user acceptance and willingness, no persuasive BCSS strategy can be implemented (Ploug, Hasle and Oinas-Kukkonen, 2010; Alhammad and Gulliver, 2013). Persuasion is the communication process by which a persuader transmits a persuasive message to the persuadee, with the intention of influencing the persuadee's attitudes or behaviours, leaving the persuadee with the power to make decisions (Oinas-Kukkonen and Harjumaa, 2009; Oinas-Kukkonen, 2010 a; 2010 b; Alhammad and Gulliver, 2013). However, what makes persuasion a unique concept under the BCSS is that persuasion relies on the user's voluntary participation in the persuasion process. Any deceitful attempts to influence, such as a pop-up windows or forced advertisements cannot be considered a part of the BCSS (Alhammad and Gulliver, 2013). By definition, these are not persuasive elements.

3.9 PSD Model: Application, Research and Limitations

A review of a variety of different measurement scales and models that are applied within persuasive technology establish the PSD model as the most comprehensive, systematic and well-suited model for this research. The PSD model serves a dual purpose of assisting designers in developing and evaluating persuasive technologies for behaviour change (Wiafe et al. 2012; Lehto, 2013). The PSD model's ability to structure thinking and provide a guideline for selecting system features, gives it an edge over other persuasive technology models. Furthermore, the PSD model can be successfully applied to the development and evaluation of a number of technologies (Oinas-Kukkonen and Harjumaa, 2009; Tørning and Oinas-Kukkonen, 2009; Oinas-Kukkonen, 2010 a; 2010 b; Lehto and Oinas-Kukkonen, 2011; Alhammad and Gulliver, 2013; Lehto, 2013). The literature review on persuasive technology (Please refer to Appendix 2) shows that most studies have either designed their own persuasion metrics or applied Fogg's persuasion principles. Only, Harjumaa, Segerståhl, and Oinas-Kukkonen (2009); Ploug, Hassle and Oinas-Kukkonen (2010); Lehto (2013) and Alhammad and Gulliver (2014) have tested the PSD model empirically.

In terms of application, persuasive technology has been adopted as a BCSS within the health industry to foster improved and healthy lifestyles (Fogg, 2009; Fogg and Hreha (2010). These BCSSs have been most successful in smoking cessation, binge drinking, obesity, diabetes and anxiety control, and improvement amongst users. Oinas-Kukkonen (2010 b) highlight the variety in the BCSSs, which have been developed to date, such as systems that allow easy-to-use password creation to create stronger passwords, a ubiquitous sensor based kitchen application for improving home cooking by providing calorie awareness regarding ingredients used in meals (Chi et al., 2008) or a personal health information system that influences the health behaviours regarding

menses and maternal health within rural Indian women (Parmar, Keyson and de Bont, 2009).

According to Tørning and Oinas-Kukkonen (2009), upon analysis of scientific research publications from the PERSUASIVE conferences (2006-2008), the most utilized features of a BCSS system have been *tailoring, tunneling, reduction* and *self monitoring-* (Primary Task Support); *suggestion* (Dialogue Support); *surface credibility* (Credibility Support) and *social comparison, normative influence and social learning* (Social Support). Tørning and Oinas-Kukkonen (2013) in an extended research, further confirmed that the most popular strategies that showed up in BCSSs research are, *tailoring, tunneling, reduction* and *social comparison* (Please refer to Figure 3.7 on p. 113 for the PSD model strategies).

Harper et al. (2007) studied the roles that *social influence* and *social comparison* play in online communities in order to motivate members to contribute and moderate forum content. Furthermore, Andrew et al. (2007) establishes the challenges incurred in implementing *suggestion* and how it differs from and overlaps with other techniques such as *tunneling, reduction* and *self-monitoring*. Cugelman et al. (2007) further demonstrates the role of system credibility and system trustworthiness in the formation of user's behavioural intent. Gamberini et al. (2007) construe that in some situations a persuasive strategy based on reciprocity is more effective than one based on a reward system. Moreover, the social proof features of the system seem counterproductive when used along with reciprocity strategies. On the contrary, these features improve compliance when used alongside a *reward* strategy. Although there appear to be a number of conceptual and some empirical studies (Appendix 2), none of the interventions designed have used the PSD model as a theoretical framework.

Tørning and Oinas-Kukkonen (2009) report that there appears to be a lack of specialised thinking in terms of describing software systems and persuasion context (user, user and technology contexts). Lack of actual descriptions may make the research obsolete. Most studies are also limited by gender and age as their samples only include students as a homogenous mass. There is a crucial requirement to consider other user segments in order to truly understand persuasive systems (Tørning and Oinas-Kukkonen, 2009). Description of a persuasive system requires a clear understanding of the technology context. Many research studies also fail to describe the message and the route for persuasion in detail. In addition to this, the designer's bias is also not mentioned clearly within the persuasive technology literature. Tørning and Oinas-Kukkonen (2013) further assert that due to the lack of clear guidelines and supportive empirical research, there is still some vagueness, which persists within the field.

3.10 Persuasion and online experiences within tourism

Sections 3.2 to 3.9 have presented insights into persuasion, persuasive technology and the application of the PSD model as a behaviour change support system. The role of this Section 3.10 is to apply persuasive technology within the tourism SMEs context (Please refer to Chapter 1, Section 1.3, p.21 for insights into the research context).

Intelligent ICTs allow tourism service providers to implement persuasion strategies that can influence attitude and behaviours (Gretzel and Fesenmaier, 2006). Research on persuasion in online tourism experiences is limited, both in practice and scholarship (Diaz and Koutra, 2013). The studies on online experience led persuasion

that do exist within the tourism literature are either composed of unique models devised by the researchers or based on persuasion theories. Kim and Fesenmaier (2008) and Nusair and Kandampully (2008) have conducted extensive research studies on persuasion within tourism online experiences. Both studies have introduced similar online persuasion measurement scales. Kim and Fesenmaier (2008) evaluate the relationship between the elements of a website and the perceived persuasiveness of those design elements. Nusair and Kandampully (2008) recognise six dimensions of the website that act as antecedents to online customer satisfaction. Both Kim and Fesenmaier's (2008) and Nusair and Kandampully's (2008) studies focus on the end user as a key component of the persuasion process. In addition to these two, Lee and Gretzel (2012) have developed a conceptual model that studies the visual effect of design features on tourism websites. According to Lee and Gretzel (2012), it is the perception and processing of mental imagery that has implications on the persuasiveness of the tourism website.

Besides the aforementioned models (Kim and Fesenmaier, 2008; Nusair and Kandampully, 2008 and Lee and Gretzel, 2012), Loda (2011) has developed a persuasion model built on the combination of TRA and ELM (Please refer to Section 3.3, p. 89-91). Loda's (2011) study particularly focuses on credibility as the key element that has implications on the user's purchase intentions. Furthermore, Diaz and Koutra (2013) have expanded on Kim and Fesenmaier's (2008) online persuasion measurement scales to conduct empirical tests. Using a similar approach, Ibrahim, Shiratuddin and Wong (2013) have used Cialdini's (1984) principles of influence to evaluate persuasion on tourism websites.

The various persuasive technology based scholarly studies offer different perspectives on persuasiveness of tourism websites. However, the persuasive role of social networking/review sites has not been investigated in any of the papers cited in Section 3.10.

3.10.1 Key persuasion findings in the persuasion in online tourism experience studies

There are a multiple number of persuasion measurements that have been used in the research studies that evaluate the efficacy of persuasiveness of online experiences within tourism. Table 3.1 summarises these research studies.

Authors	Key findings
Kim and Fesenmaier (2008)	Most tourism websites showed characteristics of informativeness and usability, but lacked credibility, inspiration, involvement and reciprocity. Credibility and visual stimulus have implications on users' intentions to purchase.
Nusair and Kandampully (2008)	Tourism websites are underperforming on playfulness and personalisation, although they appear to be informative and usable.
Loda (2011)	In destinations that are already popular, the tourism websites must focus on providing something beyond visuals. Credibility is seen as the key component for persuading tourist users, which seems to be lacking.
Diaz and Koutra (2013)	Tourism and hospitality websites show highest involvement in displaying their credibility.
Ibrahim, Shiratuddin and Wong (2013)	Tourism websites lack visual representations of credibility, specifically links to third party reviews. Both credibility and visual stimulus translate into trust, which determine the efficacy of the online experience.

Table 3.1: Persuasion measurements in tourism online experiences

Source: Author

Table 3.1 shows that credibility appears to be noted as the key component that can nudge tourist users toward being persuaded. Kim and Fesenmaier (2008), Loda (2011) and Ibrahim, Shiratuddin and Wong (2013) have all recorded the lack of attention given to credibility elements, in the reviewed tourism UX literature. Specifically, Ibrahim, Shiratuddin and Wong (2013) stress upon the lack of visual representation of credibility via third party reviews like those from TripAdvisor.com. Furthermore, Kim and Fesenmaier (2008), Nusair and Kandampully (2008), Loda (2011) and Diaz and Koutra (2013) confirm the attention given by tourism service providers toward delivering informative and usable experiences. However, Kim and Fesenmaier (2008) and Nusair and Kandampully (2008) establish that usability alone cannot persuade tourist users. Visual elements that display inspiration and playfulness are responsible for online persuasion, but tourism websites appear to lack these elements (Kim and Fesenmaier, 2008; Nusair and Kandampully, 2008).

Contrary to the findings of Kim and Fesenmaier (2008) and Nusair and Kandampully (2008), Loda (2011) concludes that tourism websites focus more on the visual experiences. The variance in these findings could be a result of differing samples. Regardless, all studies have focused on the implications of credibility on users' purchase intentions, a finding that is similar to Fogg's (2003) and Oinas-Kukkonen and Harjumaa's (2009) studies. In addition to credibility, Kim and Fesenmaier (2008) and Ibrahim, Shiratuddin and Wong (2013) bring to focus the role of visual stimulus and its exponential implication on persuasion. According to Lee and Gretzel (2012), visual imagery plays a positive role in tourism. Highly visual experiences, if utilised properly can improve the persuasiveness of the tourism websites. Fogg (2003) and Oinas-Kukkonen and Harjumaa (2009) stress upon the importance of likeability of visual

elements and their role in nudging users toward making attitude and/or behaviour changes.

Apart from credibility and visual elements, Kim and Fesenmaier (2008), Nusair and Kandampully (2008) and Diaz and Koutra (2013) have found usability to be a determinant of persuasiveness. According to Kim and Fesenmaier (2008), the problem with usability is that most tourist service providers consider it to be the sole indicator of persuasiveness. Nusair and Kandampully (2008) state that there are other indicators of persuasion such as personalisation and playfulness, which are often overlooked. Nusair, Kandampully (2008), Alhammad and Gulliver (2013) and Ibrahim, Shiratuddin and Wong (2013) suggest that persuasion is a process that includes multiple features such as credibility, usability, visual aesthetics and entertainment. All these combined together have an effect on user's satisfaction toward the online experience, which in turn affects their purchase intentions.

To sum up, the research on online persuasion within the tourism context suggests that tourism service providers are aware of the role played by usability but have missed the significance of credibility, visual aesthetics and inspiration/playfulness. Furthermore, tourism experiences are synonymous with leisure and having fun, which stresses the importance of visual stimulus. Finally, despite the multiple persuasion indicators stated in the studies, there appears to be no mention of social elements (networks and review sites) and their role in online persuasion within the tourism context. Along with credibility (credibility support), usability (primary task support), likeability (dialogue support), the social support elements are also seen as key components of persuasion, within Oinas-Kukkonen and Harjumaa's (2009) PSD model.

Sections 3.2 to 3.10 have provided insights into persuasion driven online experiences as persuasive technology that has implications for the tourism SMEs. Section 3.11 via Figure 3.10, compiles the findings of the literature review Chapters 2 and 3 and their contribution toward developing the research query, aims and objectives and research methodology.

3.11 Summation of the conceptual thinking

Chapters 2 and 3 have presented a review of literature spanning across the topics of UX, tourism SMEs, persuasive online experiences and implications of behaviour change support systems for tourism SMEs. The following figure 3.10 presents a visualisation of the various processes involved in the development of the conceptual thinking.

Chapter 2 focuses on UX literature (**key points**: lack of persuasive approach to UX design; scattered literature, lack of straight forward strategies)

Chapter 2 focuses on UK's tourism industry (**key points**: 80% are SMEs running on low resources; highly competitive market; essential to integrate ICTs to gain competitive advantage)

The purpose of tourism online UX is to persuade users toward purchasing online. The underlying theme of persuasion driven online UX within the context of tourism online UX is explored in **Chapter 3**

Chapter 3 presents the theoretical framework.
Persuasion techniques and processes have remained the same throughout history but the mediums for persuasion have evolved. B.J. Fogg proposes Captology (Computers As Persuasive Technology), which considers any ICT system as capable of creating behaviour change through system UX. A review of behaviour change and persuasion models has led to Oinas-Kukkonen and Harjumaa's (2009) Persuasive Systems Design (PSD model), which acts as the **theoretical framework** for this research.

Chapter 3 presents suitability of the theoretical framework for application within research context.
Review of both empirical and conceptual persuasive technology studies and studies specifically using the PSD model suggest a gap within literature. The PSD model (to the researcher's best knowledge) has not been applied within the context of tourism online experiences. Furthermore, in relation to the tourism SME context, the day attractions segment appears to be under researched, making it a suitable context for conducting the empirical research, which will not only contribute to the body of knowledge on persuasive technology and tourism SMEs but also make significant contributions to the day attractions segment.

Construction of the research query: PSD model considers both- *system provider's* and *user's contexts* and presents 28 strategies compiled under four UX design principles (primary task, dialogue, credibility and social support). This provides an opportunity to evaluate the persuasive power of tourism online experiences using the PSD model, from the SMEs' and tourist user's perspective. (*Please refer to Aims and Objectives in Chapter 1, section 1.4*)

System provider's context
Explored through Aim 1 with website content analysis

User's context
Ascertained through Aim 2 and 3 with questionnaire analysis and eye tracking

Triangulate findings to address Aim 4 and Aim 5

Figure 3.10: Conceptual Thinking   Source: Author

129

3.12 Summary

The passage of 2000 years has seen Aristotle's art of rhetoric transform into a field of study that borrows from multiple disciplines (Section 3.2). Specifically, the advent of marketing practices and introduction of mass media channels have had implications on the process of persuasion (Petty and Cacioppo, 1981; Bostrum, 1983; Hassan and Michaelidou, 2013). Persuasion's purpose has moved focus from directly persuading the recipient of the message to agreeing with the persuader, toward a more complex process that acts on multiple direct and indirect levels (Petty and Cacioppo, 1986) (Section 3.3). Today, persuasion is pursued via different routes, for instant/immediate as well as long lasting attitude and/or behaviour changes. More importantly, today the persuasion process not only involves the persuader's intent but also the recipient's motivations, intentions, perceptions and opinions (Sections 3.4-3.6). This transformation has been the result of the introduction of behaviour change and persuasion models like Ajzen and Fishbien's (1972) Theory of Reseasoned Action (TRA), Petty and Cacioppo's (1981) Elaboration Likelihood Model (ELM) and Cialdini's (1984) six principles of influence.

Further introduction of newer ICTs (Section 3.7) has led to the creation of persuasion models that fit the technology contexts. In 2002, B.J. Fogg introduced the term Captology to define the purpose of computers as persuasive technology. Intelligent persuasive technologies have seen rapid development since the late 1990s (Fogg, 2003). The inquiries into the overlapping space that resides between human persuasion and computing technology (Fogg, 2003), has led to the creation of Fogg's (2002) behaviour change framework (model + grid).

In addition to Fogg's behaviour change framework, Oinas- Kukkonen and Harjumaa's (2009) Persuasive Systems Design (PSD) model (Section 3.8) has also been developed to conceptualise the design framework for persuasive architecture. Both, Fogg's (2002) behaviour change framework and Oinas-Kukkonen and Harjumaa's (2009) PSD model have been tested theoretically and empirically by Harjumaa, Segerståhl, and Oinas-Kukkonen (2009), Mintz and Aagaard (2010), Oinas-Kukkonen (2010), Ploug, Hasle and Oinas-Kukkonen (2010), Midden et al. (2012), Wiafe et al. (2012), Alhammad and Gulliver (2013), Basamh et al. (2013), Lehto (2013), Alhammad and Gulliver (2014) and Lin (2015).

Section 3.9 presents literature findings to suggest that studies involving the PSD model have mostly been limited to the education or health sectors. Being a new field of academic interest, empirical studies assessing tourism persuasive technologies are even fewer. Kim and Fesenmaier (2008), Nusair and Kandampully (2008), Loda (2011), Lee and Gretzel (2012), Ibrahim, Shiratuddin and Wong (2013) Kim and Fesenmaier (2013), Marcus, Cantoni and Schieder (2013) and Pourabedin and Nourizadeh (2013) have applied a variety of persuasion led theoretical constructs to study the persuasiveness of tourism online experiences (Section 3.10). Amongst all the aforementioned studies, only Marcus, Cantoni and Schieder's (2013) tourism related study has employed Fogg's design principles for captology. The lack of persuasion led tourism studies that use Fogg's (2002) behaviour change framework or Oinas-Kukkonen and Harjumaa's (2009) PSD model is quite evident.

Like all other sectors, persuasion is also practiced across tourism online experiences (Kim and Fesenmaier, 2008; Nusair and Kandampully, 2008, Loda 2011, Lee and Gretzel, 2012; Diaz and Koutra, 2013; Ibrahim, Shiratuddin and Wong, 2013).

According to Kim and Fesenmaier (2008), Nusair and Kandampully (2008) and Diaz and Koutra (2013), tourism websites appear to display high involvement in the presentation of online experiences but they seem to only be focused on usability and informativeness. The combination of findings from persuasion, persuasive technology and persuasion in tourism online experiences literature suggest areas for research exploration, evaluation and analysis, which have been presented through the conceptual framework (Section 3.11). Although there are two dominant models used within the persuasive technology practice, comparison shows that Oinas-Kukkonen and Harjumaa's (2009) PSD model is a step up from Fogg's (2002) behaviour change framework. The PSD model is not only comprehensive and straightforward, but most importantly, it is usable by users with varied levels of technological knowledge. This makes Oinas-Kukkonen and Harjumaa's (2009) PSD model's application viable across a sector like tourism, where the SMEs might not possess resources with advanced technical know-how.

The next chapter presents the methodological structure of this research study.

Chapter 4: Research Methodology

4.1 Introduction

As established in Chapter 1, Section 1.4 (p. 27), this research evaluates the persuasiveness of the online experiences offered by UK tourism SMEs and their implications on tourist buying behaviour. Although tourism has been an early adopter of ICTs (Law, Qi and Buhalis, 2010; Batinić, 2013), tourism SMEs have not succeeded in harnessing the power of online UX for changing user behaviour (Gretzel, 2011; Ho, Lin and Chen, 2012; Bastida and Huan, 2014). Secondly, the research and practice of tourism online experiences does not appear to use any comprehensive theories or models that can assist in the design and evaluation of the UX (Binkhorst, 2006; Gretzel, 2011; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012; Ho, Lin and Chen, 2012; Bastida and Huan, 2014). Finally, Oinas-Kukkonen and Harjumaa's (2009) PSD model provides the comprehensiveness that is required to design and structure a persuasive online UX, however, the model has never been tested in the context of tourism online experiences. The three aforementioned factors have provided the researcher with an opportunity to conduct exploratory and explanatory research.

This chapter begins with the introduction of the various philosophical, epistemological and ontological stances, to explain the selection of the pragmatic philosophy. Upon establishing the reasoning for the selection of the pragmatic paradigm, the chapter explains the research philosophy in the context of the research background. Pragmatism and UX research often go hand in hand (Rogers, 2004; Dalsgaard, 2014) due to the similarities pragmatism shares with design thinking. Design thinking is a commonly employed research approach used in the field of UX (Rogers, 2004). Section 4.2 introduces and explains the chosen research methodology. This research uses the mixed methods approach to conduct the research operations. The

pragmatic philosophy supports the researcher in selecting any methods necessary to answer the research enquiries (Tashakkori and Teddlie, 2003; Teddlie and Tashakkori, 2009; Dalsgaard, 2014). The mixed methods approach offers the opportunity to include a multiple number of research methods to answer the research queries. Section 4.3 presents an overview of the research design followed by an explanation of the three phases of the research, developed using the mixed methods approach. The advantages, limitations and justifications for using the three different research methods have been explained in this section. In addition to this, the sub-sections of the three phases of the research also present information on the design of each research instrument and the sampling methods. This is followed by a brief overview of the data analysis techniques employed in the study. As the research involves interaction with people, following the research ethics guidelines has been a crucial step. The research ethics that the study abides by are presented in Section 4.4. Section 4.5 acknowledges the limitations of the research design. The chapter concludes in Section 4.6 with a summary of the research methodology.

4.2. Research Design

As explained through Chapter 2, the research background for this study is found in UX, and the research queries are explored within the context of tourism online experiences. Furthermore, as presented in Chapter 3, Section 3.9 (p. 121), to the researcher's best knowledge, the theoretical framework of Oinas-Kukkonen and Harjumaa's (2009) PSD model has not been studied empirically in relation to tourism online experiences. Given this characteristic, the study takes on a combination of an exploratory and explanatory approach. Applying the process of inductive -> deductive -> inductive reasoning, this research opts for the pragmatic paradigm. The advantage of using the pragmatic paradigm is that it can successfully satisfy the study's research queries by offering flexibility in the selection of the research methodology. In addition to this, the pragmatic paradigm can help the researcher in making contributions to the broader knowledge of UX research, by offering a blueprint that can act as an inspiration for future studies. The following sections will present information to justify the selection of the pragmatic paradigm toward the construction of the research design.

The research design is a blueprint for the collection, measurement and analysis of the research data (Guba and Lincoln, 1994; Tashakkori and Teddlie, 2003; Cresswell and Plano Clark, 2007). The process of developing a research design begins with the selection of a research paradigm that is best suited to the research enquiry (Creswell, 2003; Howell, 2013). The research paradigm is what influences the manner in which knowledge is interpreted. The paradigm assists the researcher in setting intentions, motivations and expectations for the research (Mackenzie and Knipe, 2006). Without a research paradigm, there would be no basis for a research methodology (Mackenzie and Knipe, 2006; Howell, 2013). There are a variety of theoretical paradigms but the most commonly used paradigms are, positivist, constructivist and pragmatic (Coll and

Chapman, 2000; Cousins, 2002; Mackenzie and Knipe, 2006). The use of different terms often creates confusion for early researchers; this section first and foremost presents the commonly used paradigms (Howell, 2013), before presenting the actual research methodology employed.

4.2.1 Research Philosophies

The positivist paradigm is often referred to as the rational or scientific research (Mackenzie and Knipe, 2006). Relying on the rationalist, empiricist philosophy of Aristotle, Francis Bacon and Emmanuel Kant (Mertens, 2005), the positivist paradigm is used to test theory or phenomenon. Positivism assumes that reality can be completely understood, because it exists to be discovered (Howell, 2013). Post world war, the positivist paradigm underwent a transformation and became the post-positivist paradigm (Mackenzie and Knipe, 2006). The researchers who follow post-positivism consider theories that support the fact that reality may only be understood imperfectly because humanity is not capable of understanding it totally (Howell, 2013). The difference between positivist and post-positivist paradigm is that post-positivists approach research with critical realism as opposed to positivism's naïve realism (Merterns, 2005; Howell, 2013).

The constructivist paradigm grew out of the philosophies of Edmund Husserl's phenomenology and William Dilthey's hermeneutics (Husserl, 1928; Dilthey, 2002; Mertens, 2005). Constructivism finds alignment with post-positivism (Mackenzie and Knipe, 2006). Constructivism and post-positivism both view reality as ambiguous, variable and multiple (O'Leary, 2004). The constructivist paradigm focuses on the participant's view of reality (Mackenzie and Knipe, 2006; Howell, 2013). Although

both, post-positivism and constructivism rely on theory, the constructivist researcher builds theory along the way, using the approach of relative realism (Mackenzie and Knipe, 2006).

The pragmatic paradigm was formed out of the philosophical contributions from Peirce, Dewey, James and Rorty (Hall, 2012). The philosophy of pragmatism is unique to that of positivism, post-positivism and constructivism. Pragmatism brings the researcher back into reality to solve practical problems concerning the real world, than rely on assumptions (Maxcy, 2003; Johnson and Onwuegbuzie, 2004; Morgan, 2007 and Feilzer, 2010). Pragmatism offers flexibility that cannot be found through other paradigms (Creswell, 2003). Flexibility allows the researcher to place importance on the research problem, and experience the freedom to use those data collection and analysis methods that would provide the most insights (Creswell, 2003; Mackenzie and Knipe, 2006). Table 4.1 presents a comparison of the four popular research paradigms, based on their ontology, epistemology and methodology, inspired from Howell (2013).

	Positivism	Post-positivism	Constructivism	Pragmatism
Ontology (The form of reality)	Reality exists and it can be discovered	Reality exists but humans might not be able to understand it	Reality is based locally and is dependent on person/group	Reality is practical and made up of ideas
Epistemology (Relationship between the researcher and what can be discovered)	Researcher and research are two separate entities	Researcher and research are not separate entities	Theory is constructed as the research proceeds	Any way of thinking or doing research that can help in finding pragmatic solutions
Methodology (How the researcher goes about finding what they believe)	Research methods are usually scientific and quantitative	Research methods that pursue falsification of hypotheses, mostly quantitative but can also be qualitative	Individual constructions that allow creation of a consensus, using both, qualitative and quantitative research	Research employs mixed methods (quantitative and qualitative). The researcher selects the method that is considered to be the most effective.

Table 4.1: Paradigms of inquiry inspired by Howell (2013)

Source: Author

4.2.2 Researcher's position on the choice of philosophy

Table 4.1 presents four different philosophical paradigms that are often used within social sciences research. At the outset of this PhD study, the researcher believed that the constructivist paradigm might offer the required support, however, with the introduction of the theoretical framework of the PSD model, this belief changed. Constructivist philosophy allows incorporation of both quantitative and qualitative data analysis, but it is well suited within a research that aims to construct a theory, rather than evaluate one. The aim of this research study is to evaluate the persuasive power of tourism online experiences using the theoretical framework of the PSD model that already exists within literature. The researcher's background in UX consulting had a significant impact on the decision to choose the pragmatic philosophy. Working as a UX practitioner the researcher had the opportunity to use design thinking to deliver UX solutions. Design thinking, in the researcher's view is a highly pragmatic and agile approach that helps in resolving UX issues as and when they occur, using the most feasible options. This previous experience of resolving queries using a pragmatic design thinking approach, led the researcher to investigate design thinking in relation to the pragmatic paradigm. The search introduced the researcher to the literature describing the relationship between design thinking and the pragamatic philosophy. The following section will provide further insights into the selection of the pragmatic paradigm and its applicability in UX research.

4.2.3 UX research benefits from pragmatism

Design thinking is the process or methodology that can be used to develop UX and resolve queries as and when they arise (Harrison, Back and Tatar, 2006; Dalsgaard, 2014; Gibbons, 2016). Design thinking asserts that focusing on the user can help to solve problems and create innovative ideas, which can then result in competitive advantage (Gibbons, 2016). As mentioned in section 4.2.2, the researcher is experienced at using the design thinking approach and considers it to be appropriate for use within the UX context due to its flexibility, selective nature and the ability to translate ideas smoothly into practice. The pragmatic philosophy operates on similar notions to resolve queries. According to Dalsgaard (2014), the pragmatist perspective and the design thinking approach have a rich inter-relationship due to the commanilities within their natures. Dalsgaard (2014) further states that pragmatism offers a coherent conceptual framework for design thinking methods (experiments, tools, techniques and materials) to function effectively. The pragmatist paradigm offers the scientific support that design thinking methods often require when faced with challenges (Rogers, 2004; Dalsgaard, 2014). Given that the pragmatist philosophy can use a combination of various mixed methods based upon the research context, it is able to bring newer perspectives to design thinking.

The researcher's own experience (section 4.2.2) and the literature review suggest that the pragmatic paradigm is often used in UX research (Dalsgaard, 2014; Gibbons, 2016). UX research queries are generally resolved using a design thinking approach, which goes hand in hand with the pragmatic paradigm (Dalsgaard, 2014). Design thinking, according to Gibbons (2016), is the deep human process through which we tap into the abilities we possess that we often tend to overlook. This process

is highly influenced by intuition, pattern recognition and construction of emotional and meaningful ideas (Rogers, 2004; Kimbell, 2011; Dalsgaard, 2014). The ideology of design thinking asserts that a hands-on, user centric approach to UX research query resolution can provide innovative solutions (Gibbons, 2014). Using the design thinking approach, the UX researcher carefully assembles and uses only those parts of the heterogeneous pool of knowledge that are most suitable for the research query (Rogers, 2004; Gibbons, 2016).

The convergence between design thinking and the pragmatic perspective emerges through the flexibility afforded to the researcher in terms of applying methodological positions (Rogers, 2004; Dalsgaard, 2014). Upon encountering issues, designers often use the thinking and doing or the action and reflection approach (Schön, 1985), which is similar to the pragmatic paradigm. Design problems and solutions tend to co-evolve as designers act to not only resolve issues but also explore the nature of the problem, a pattern that is also observed through the usage of the pragmatic paradigm (Schön, 1991; Dalsgaard, 2014). Furthermore, John Dewey's 1882-1953 (Dewey, 1998) works on pragmatism follow a path similar to that of design thinking. According to Dewey (1938), pragmatism gets it's meaning from pragmatic maxim, which is referred to as the primacy of the practice principle. The pragmatic maxim proposes that our conceptualization of the world must be evaluated on the basis of consequences and implications in practice (Dewey, 1938). In simple terms, it means that within pragmatism, the experience takes precedence over doctrines. From the design thinking as well as the pragmatism perspective, the UX or the external world exists, but it is fluid and unstable (Dewey, 1938; Rogers, 2004; Dalsgaard, 2014). The UX design or the world can be made stable by using the most appropriate of the possibilities or solutions (Dalsgaard, 2014). Pragmatism asks the researcher to use appropriate, flexible and

practical solutions to resolve research queries as and when they are encountered. These similarities between design thinking and pragmatism, suggest the philosophy's suitability for UX research.

In relation to this research study, the pragmatic philosophy has assisted the researcher in developing the thought processes and beliefs required to best satisfy the aims and objectives. The researcher believes that the research background of UX and the context of tourism online experiences, are full of possibilities waiting to be discovered. In addition to this, the pragmatic philosophy has also enabled the researcher to think of UX as a two-way process, hence the resolution of research queries must involve strategies to get inputs from the user as well as the system designer. Under Deweyen pragmatism (Dewey, 1938) users are considered to be resourceful actors (Harrison, Back and Tatar, 2006; Dalsgaard, 2014). The pragmatic philosophy supports the inclusion of the user in the decision-making process, as the user's responses can nudge the researcher in a direction that was not considered previously (Dalsgaard, 2014). From a design thinking perspective, users are also seen as integral to the process of experimentation, reflection and action (Harrison, Back and Tatar, 2006; Dalsgaard, 2014). This research too considers the tourist user's input as integral to the overall evaluation of the persuasiveness of tourism online experiences. Using the pragmatic philosophy, which finds confirmation through design thinking, the research queries are addressed using multiple methodologies (qualitative, quantitative and mixed) The justification for the design of the research methodology is presented in the following Section 4.3.

4.3. Research Methodology

The term research methodology refers to the overall approaches and perspectives of the research process (Sivasubramaniyan, 2012). It is mainly concerned with the questions- *why, what, where* and *how* the data has been "collected and analyzed" (Collis and Hussey, 2003, p. 55). Research methodology extends beyond methods; it is the manner in which research enquiries are resolved systematically (Sivasubramaniyan, 2012). The scope of the research methodology is wider than research methods (Collis and Hussey, 2003; Kothari, 2004; Sivasubramaniyan, 2012). Furthermore, research methodology assists the researcher in finding the relevant methods to address individual research objectives, develop tests or indices and, select and apply various statistical techniques (Sivasubramaniyan, 2012).

The research methodology used in this research involves incorporation of a mixed methods approach using three research methods. The data collected from the three methods not only provides insights from the user as well as the system designer's perspectives, but it can also be triangulated to establish gaps and patterns within the research background and the context. The following section presents information about the mixed methods approach.

4.3.1 Research Method: Mixed methods research

Research methods can be understood as all the methods and techniques that are required to conduct the research operations (Kothari, 2004; Sivasubramaniyan, 2012). Pragmatism supports the researcher in selecting any practical means necessary to answer the research enquiries. As the research aims to study persuasiveness from the tourism SMEs' as well as the users' perspectives, multiple research methods are required to satisfy the various queries. This has resulted in the development of a mixed methods approach that relies on quantitative as well as qualitative data analysis, to best address the individual aims and objectives.

Mixed methods research is considered the third methodological movement of the last 20 years, following up from the quantitative and qualitative movements (Tashakkori and Teddlie, 2003; Teddlie and Tashakkori, 2009). Descombe (2008) too addresses the mixed methods approach as the *third paradigm* for social research. The ideas and practices developed under the mixed methods paradigm have proven to be a viable alternative to quantitative and qualitative research paradigms (Tashakkori and Teddlie, 2003; Descombe, 2008). Campbell and Fiske (1959) were one of the first researchers to study the mixed methods paradigm. Following Campbell and Fiske's (1959) study of the mixed methods approach, Webb, Campbell, Schwartz and Sechrest (1966), Denzin (1970), Cook and Reichardt (1979) and Greene et al. (1989) also made monumental contributions.

In the current social research practice, the mixed methods approach is known to present distinctive features (Creswell, 2003). Researchers Tashakkori and Teddlie

(1998; 2003) and Creswell and Plano Clark (2007) explain that the defining characteristics of the mixed methods approach involves the use of,

    i.   Quantitative and qualitative methods within the same research project

    ii.   A research design that establishes the sequencing and priority that is given to the quantitative and qualitative elements of data collection and analysis

    iii.   An explicit account of the manner in which quantitative and qualitative aspects of the research are interlinked with each other, with emphasis on the manner in which triangulation is used and,

    iv.   Pragmatism as the philosophical underpinning for the research.

4.3.2 How the mixed methods approach works

Quantitative research is dependent on the collection of numerical data while qualitative research relies on qualitative non-numerical data (Howell, 2013). Mixed methods research combines the quantitative and qualitative research methods, approaches and their paradigm characteristics. The combination of quantitative and qualitative that is used in the mixed methods research is dependent on the research objectives and individual researcher's interpretation of how the objectives can be resolved (Johnson and Christensen, 2010; Howell, 2013).

The primary focus of quantitative research is scientific in nature, as this type of research involves hypothesis or theory testing (Johnson and Christensen, 2010). On the contrary, qualitative researchers follow an exploratory scientific approach, which allows researchers to sometimes generate new hypotheses and theories (Johnson and Christensen, 2010). This approach is used when little information is known about a

topic or phenomenon. In addition to their variance in nature, qualitative and quantitative studies differ in their views on human behavior (Johnson and Christensen, 2010; Howell, 2013). Quantitative research assumes human behavior to be highly predictable while qualitative research assumes it to be fluid, dynamic and something that might change over time (Tashakkori and Teddlie, 2003; Teddlie and Tashakkori, 2009; Johnson and Christensen, 2010). However, mixed method research assumes human behavior to be partly unpredictable and partly fluid (Tashakkori and Teddlie, 2003).

According to Venkatesh et al (2013), mixed methods research has seven purposes. These purposes are described as follows,

i. Complementary: to allow the researcher to obtain multiple viewpoints about the same experience

ii. Completeness: to assist the researcher in delivering a total representation of the experiences

iii. Developmental: to help the researcher in building questions from a previous method that can be tested using the consequent method

iv. Expansion: to allow the researcher to clarify or elaborate on the information generated from a previous method

v. Corroboration/Confirmation: to assist in evaluating the trustworthiness of inferences that are presented through one method

vi. Compensation: to help the researcher in arguing and countering the weaknesses of one method through the introduction of another method.

vii. Diversity: to enable the researcher in obtaining opposing viewpoints regarding the same experience

As expressed by Venkatesh et al. (2013), the mixed methods approach has multiple beneficial purposes. Within this research, the mixed methods approach is used to complement, expand and corroborate/confirm data findings, as well as produce a complete picture that assesses the persuasiveness of the online experience from both, the user as well as the system provider's context. Johnson and Christensen (2010), Creswell (2012) and Venkatesh et al. (2013) explain that the mixed methods design is usually classified into six types. The design types are,

i.   Convergent parallel, where in data is simultaneously collected and merged using both qualitative and quantitative tools

ii.   Explanatory sequential, which involves gathering quantitative data and then moving onto to gathering qualitative data to enhance upon the findings

iii.   Exploratory sequential, which is the opposite of explanatory sequential, where in qualitative data is collected first to investigate a phenomenon, followed by quantitative data collection

iv.   Embedded, where in quantitative and qualitative data is gathered simultaneously

v.   Transformative, which involves using either the convergent, explanatory, exploratory or embedded design while including the design types within an evolving context

vi.   Multiphase, where in a subject is examined through different studies

The mixed methods design used in this research relates closely with the multiphase design mentioned by Johnson and Christensen (2010), Creswell (2012) and Venkatesh et al. (2013). Johnson and Christensen's (2010) emphases of the multiphase mixed methods research design has been adopted in Table 4.2 to present *why and how*

the mixed methods approach assists in building a research methodology that best

addresses the research aims and objectives,

Scientific method	Exploratory and Explanatory
Ontology	Pluralism; appreciation of objective, subjective and intersubjective reality and their interrelations
Epistemology	Dialectical pragmatism, pragmatic justification; mixture of universal and community-specific needs-based standards
View of human thought and behavior	Dynamic, complex and partially predictable. Multiple influences include environment/nurture, biology/nature, freewill/agency and chance/fortuity
Most common research objectives	Multiple objectives; provide complex and fuller explanation and understanding, understand multiple perspectives
Interest	Connect theory and practice, understand multiple causation.
Focus	Multi-lens focus
Nature of observation	Study multiple contexts, perspectives, or conditions; study multiple factors as they operate together
Form of data collected	Multiple kinds of data
Nature of data	Mixture of variables, words, categories and images
Data analysis	Quantitative and qualitative analysis used separately and its combination
Results	Provision of subjective insider and objective outsider viewpoints, presentation and integration of multiple dimensions and perspectives
Form of final report	Mixture of numbers and narratives

Table 4.2: Mixed methods approach to research design adapted from Johnson and Christensen (2010) Source: Author

As established in Section 4.1, this research is exploratory as well as explanatory. Table 4.2 shows that the ontology of such a research is plural, as it incorporates appreciation of multiple views. The epistemology suggests using pragmatic justification to explore the multiple views. The pragmatic paradigm supports the idea that multiple influences affect human behaviour and thought processes, therefore the researcher must keep an open mind. Table 4.2 further shows that this pathway often involves addressing multiple objectives that aim to connect theory and practice. In such a scenario, the focus is drawn from different perspectives and involves the study of multiple contexts. This research aims to evaluate the persuasiveness of tourism online experiences from the tourists' as well as the SMEs' points of views, leading to the acknowledgement of multiple objectives. The multiple contexts generate multiple data, which often delivers a number of variables. To get the most useful insights, these different variables are then studied using a quantitative and qualitative data analysis approach. This has been adopted within the research study, as all three-research methods provide a mix of quantitative as well as qualitative data. The mixed data then provides and confirms information from the multiple perspectives. The final outcomes are presented as a mix of numbers and narratives.

4.3.3. Strengths of mixed methods

Creswell (2010) and Venkatesh et al. (2013) have documented some of the strengths of the mixed methods design. These are presented in the following,

    i.   Mixed methods data points out the words, photos and narratives that can be used to deliver meaning to numbers, while numbers can help in adding precision to the words, photos and narratives.

ii. Mixed methods research can generally handle a wider range of queries as the researcher can test multiple designs

iii. The conclusions delivered via mixed methods research are more robust

iv. Triangulation of data enhances the validity of the results

v. Mixed methods research can provide enhanced understanding of viewpoints that might be missed if only one research method is employed

vi. Through a combination of qualitative and quantitative, mixed methods can improve the researcher's capability to generalize the results, compared to using only qualitative research design

4.3.4. Limitations of mixed methods

Although it may seem that mixed methods might deliver more than what quantitative or qualitative methods can offer when used on their own, there remain certain weaknesses that must be addressed. These weaknesses have been documented by Creswell (2010) and Venkatesh et al. (2013) and are presented in the following,

i. Managing multiple methods can be difficult for a researcher and might require assistance from a research team

ii. Mixed methods are generally more time consuming and expensive

iii. Using multiple methods means that the researcher must spend time learning to be proficient at using them

iv. Often the mixed methods approach can lead to disagreements amongst scholars, as methodological purists suggest that one should choose either a quantitative or a qualitative method, and never mix the two.

Managing the multiple methods was not a difficult task for the researcher as the PhD study offered a time-period of 3 years. Furthermore, the availability of the research budget allowed the researcher to make the most of the necessary research methods. Although, one may argue that the researcher should have focused on either a quantitative or qualitative approach, the benefits of triangulation of the data and the availability of multiple contexts, makes a strong case for the utlisation of mixed methods.

Section 4.3.2 has explained how the research design was formulated. The next section will present the research design.

4.4. Research design

The research design is a blueprint for the collection, measurement and analysis of the data (Guba and Lincoln, 1994; Tashakkori and Teddlie, 2003; Cresswell and Plano Clark, 2007). Figure 4.1 presents an overview of the three methods employed in this research. The research methods have been separated into three different phases. Phase 1 of the research evaluates the persuasiveness of online experiences offered by the day attraction tourism SMEs. This satisfies Aim 1 of the research. Phase 2 and its extension Phase 3, offer insights into the persuasiveness of tourism online experiences from the tourist user's point of view. These two phases satisfy Aims 2 and 3. The findings and conclusions of all three phases are combined to address Aims 4 and 5.

Phase 1

Instrument: Website content analysis
Sample: 102 UK tourism SME websites
Analysis: Quantitative
Aim 1:
To explore the architecture of online experiences offered by tourism SMEs
Objectives:
1. To determine the variety of online experiences offered by tourism SMEs
2. To ascertain the nature of online experiences offered by tourism SMEs

Data findings and discussion presented in Chapter: 5

Phase 2

Instrument: Questionnaires (semi-structured)
Sample: 530 Pennywell Farm visitors/online users
Analysis: Primarily quantitative, followed by some qualitative
Aim 2: To examine tourist online user motivations and experience provided by the selected tourism SME
Objectives:
1. To determine the nature of tourist online usage
2. To establish the nature of tourist online usage provided by the selected SME
3. To identify tourist motivations for engaging with online experiences provided by the tourism SME
4. To ascertain tourists' perceptions and opinions of online experiences provided by the tourism SME

Aim 3: To evaluate the persuasive power of online platforms provided by the selected tourism SME on tourist buying behavior
Objectives:
1. To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most encourage buying behavior
2. To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most discourage buying behavior
3. To elucidate reasons which explain why tourists abandon an online experience prior to a potential purchase

Findings and discussions presented in Chapters: 6 and 7

Phase 3

Instrument: Eye-tracking study is an extension to the questionnaires in phase 2
Sample: 10 potential Pennywell Farm visitors
Analysis: Quantitative/Qualitative
Aims and objectives: Same as phase 2
Data findings and discussion presented in Chapter: 8

Aim 4: To test the applicability of Persuasive Systems Design model as a tool for designing persuasive tourism online UX
Aim 5: To contribute to the enhanced knowledge of persuasive technology and it's implication on tourist buying behavior
Presented in Chapter 9

Figure 4.1: Research Design   Source: Author

The next section of this chapter will present information about the three phases of the research.

4.4.1 First Phase: Website Content Analysis

The research begins by exploring the architecture of the online experiences offered by the day attraction tourism SMEs. This is done to determine the variety and nature of the online experiences offered. In addition to presenting a picture of the current online experience practices, this data set combined with other methods, assists in satisfying Aim 4 (see Figure 4.1).

4.4.1.1 Justification for using website content analysis

Website content analysis is a relatively new research instrument. The roots of website content analysis can be found in the methodology of content analysis, a method that often finds application in social sciences (Bates and Lu, 1997; Mitra and Cohen, 1999). In the context of UX design and analysis, content analysis was one of the first methodologies to be adopted (Bates and Lu, 1997).

Generally, the role of content analysis is to identify and describe patterns in the online content in relation to a user behaviour theoretical framework (Bates and Lu, 1997; Mitra and Cohen, 1999; Wakeford, 2000; Herring, 2012). This often involves the audience's perception of the online content (Wakeford, 2000; Herring, 2012). In addition, website content analysis can also be used to evaluate the intentions of the content creator and implications of the same on the user (Mitra and Cohen, 1999; Wakeford, 2000). Website content analysis offers a unique, unstructured and context

sensitive process to gather large quantity of data (McMillan, 2000). Furthermore, content analysis is straight forward as it is based on a simple checklist template (Koehler, 1999; McMillan, 2000; Hardwood and Garry, 2003; Bryman and Bell, 2007**).**

As a data collection instrument, website content analysis enables researchers in investigating phenomenon, trace current trends, without allowing their investigation to produce biases (Hardwood and Garry, 2003). The purpose of Aim 1 (figure 4.1) is to explore the online architecture of the tourism SMEs' websites. This involves an assessment of the tourism online experiences phenomenon and the trends.

4.4.1.2 Advantages of content analysis

Some advantages of the content analysis method are documented below,

  i.   Unobtrusive (Koehler, 1999; McMillan, 2000; Hardwood and Garry, 2003; Bryman and Bell, 2007)

  ii.   Unstructured (Koehler, 1999; McMillan, 2000; Hardwood and Garry, 2003; Bryman and Bell, 2007)

  iii. Context sensitive and can cope with large quantity of data (Hardwood and Garry, 2003)

  iv.   Examines artifacts such as text and images of the communication message and not the individual directly (Bryman and Bell, 2007)

  v.   Economical (Hardwood and Garry, 2003)

  vi.   No need to engage with any party

  vii. Content analysis can enable researchers in investigating phenomenon, without allowing their investigation to influence the procedure in any way (Hardwood and Garry, 2003)

4.4.1.3 Limitations of content analysis

According to Holsti (1969), Koehler (1999) and McMillan (2000), the researcher must overcome the following limitations of content analysis,

i. Content analysis as a sole research strategy cannot be effective because it cannot provide all the answers. Many answers remain speculative. When combined with other methods such as experiments or surveys, its potential increases (Holsti, 1969).

ii. Websites are updated quite often and this can really affect research (Koehler, 1999; McMillan, 2000)

4.4.1.4 Designing the website content analysis

The PSD model provides the framework for the design of the website content analysis. The analysis checklist has been developed using a customised version of the four design principles and the 28 strategies of the PSD model (Appendix 1). The model has been customised to fit the day attractions tourism SME context based on the model developers' (Oinas-Kukkonen and Harjumaa, 2009) suggestion. The only strategy that has not been tested is that of *Reminders* (dialogue support), as this requires the researcher to register with each website and become a part of the research, there by introducing bias. Using the main page and booking page elements that correspond with the remaining 27 strategies, a content analysis checklist has been developed. This checklist can be accessed in Appendix 3.

In order to ensure that the content analysis is not affected by website updates, content analysis has been performed in such a manner that each website underwent

content analysis from start to finish on the same day. Carrying forward the content analysis of any individual website from one day to the next could have resulted in inconsistencies had the website undergone updates overnight.

4.4.1.5 Sampling for the content analysis

The research is based on a study of the day attraction tourism SMEs located within UK. A list of the SMEs has been accessed via the free database on DayVisits.co.uk, a popular day attractions listing. DayVisits.co.uk had 186 UK day attractions listed on their website at the time when the content analysis was conducted. The random sampling method has been employed to select the 102 day attraction websites, starting with the first functional website on the list. Upon discussion with the supervisory team, it was concluded that 100+ websites would be able to provide significant data for analysis. A total of 101 websites were selected as part of the sample, along with Pennywell Farm's website, rounding the number to 102.

Random sampling is a part of probability-based sampling. According to Teddlie and Fu (2007), a simple random sample is the one in which each unit, within an accessible population has an equal chance of being selected. In addition to this, no single unit can appear twice in the simple random sample (Moser and Kalton, 1971). Random samples are most commonly used in social sciences as they work toward eliminating researcher bias (Moser and Kalton, 1971). Bias can easily arise in sampling, if a non-random sampling method is employed (Moser and Kalton, 1971; Teddlie and Fu, 2007)

Utilising the simple random sampling approach, the first 102 websites on DayVisits.co.uk list have been chosen. In order to get to the number of 102 random websites, 19 websites have been rejected. This decision has been made on the basis that these websites (at the time of the website content analysis) did not offer the e-commerce functionalities required to conduct online purchases.

4.4.1.6 Analysing the findings of the website content analysis

The data collection and analysis of the 102-day attraction websites has been conducted with Qualtrics and SPSS.

The aim that is addressed through the selection of the website content analysis methodology, involves exploring the architecture of tourism SMEs websites. The statistical tests that can best assist in this exploration are descriptive. Descriptive statistics describe what the data represents (Moser and Kalton, 1971). Due to the simplicity of descriptive statistics in presenting information via frequencies and cross tabulations, they are often used in social sciences.

The DayVisits.co.uk listing has let the researcher access day attractions across various regions in the UK. Regional location is an important independent variable that has been used to describe the data. The other crucial variable is the type of day attraction. Both these independent variables have been used in the analysis to determine the variety and ascertain the nature of tourism SME online UX.

4.4.1.7 Summary of website content analysis method

To the researcher's best knowledge, there do not appear to have been any empirical studies that explore the architecture of online UX offered by tourism SMEs or specifically day attraction tourism SMEs, using the PSD model. Research using the model, within the multidisciplinary field of persuasive technology is also limited. The website content analysis offers a facet that adds to the persuasive technology knowledge database. The website content analysis deconstructs the PSD model in a manner that a checklist, with application across day attraction tourism SMEs can be created. The data analysis of the findings help in testing the application of the PSD model, to further elaborate on the persuasive architecture of online UX, within the day attraction tourism SMEs[5] segment.

By extension, the same research methodology used for analysing day attractions could be applied to any other segment within the tourism SME sector. Furthermore, the data analysis also contributes to the enhanced knowledge of persuasive technology within tourism SMEs and implication of the same on the tourist buying behaviour.

4.4.2 Second Phase: Questionnaire Analysis

Aim 1 (Figure 4.1, p.152), explores the persuasive architecture of the online UX offered by day attraction tourism SMEs. This aim helps in using the PSD model to study the persuasiveness of tourism online experiences but it does not provide any

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[5] SMEs selection: The websites have been selected by the researcher using personal judgment based on the information about the provider, available on the websites. Although the researcher has made an attempt to ensure efficacy in selection, there may be websites that belong to providers outside the SME category. Currently, there does not appear to be any practical way to confirm whether or not the website belongs to an SME.

insights into the tourist user behaviour. Aim 2 and Aim 3 examine the tourist user

behaviour using the PSD model.

Aim 2 studies the tourist user's motivations to engage with the online UX

presented by the selected day attraction tourism SME. The objectives of this aim are- to

determine the nature of tourist online usage, to establish the nature of tourist online

usage of the selected SME, to identify the tourist users' motivations to engage in the

online UX provided by the selected SME, and to ascertain the tourists' perceptions and

opinions of online UX provided by the selected SME.

Aim 3 evaluates the persuasive power of the online UX provided by the selected

tourism SME and its effect on the tourist buying behaviour. This is done through the

identification of those elements of the online UX architecture provided by the selected

tourism SME that most encourage and most discourage buying behaviour. In addition to

this, Aim 3 also attempts to elucidate the reasons why tourist users would abandon the

online experience prior to a potential purchase. Finally, this second phase of the

research ties in with the first and the third to contribute toward Aim 4. The

questionnaire data analysis relies on the selected tourism SME case study. Further

information on the case study selection is presented in the next section.

4.4.2.1 Justification for using the case-study approach

A case study is an empirical inquiry, which investigates a contemporary

phenomenon within its real-life context (Oates, 2006). Case study as a research

instrument is especially potent when the boundaries between the phenomenon and the

context are not clearly defined (Oates, 2006; Yin, 2009; Widdowson, 2011). The case

study method has gained popularity within social sciences (Levy, 2008) but there appears to be no consensus on what should be the proper definition for a case or a case study (Gerring, 2007). It is generally believed that a case study is an attempt to interpret and comprehend a spatially and temporally bound set of events (Levy, 2008). Amongst the varied views on what a case study entails, George and Bennett (2005) provide explanations by separating the term. A case is an instance occurring in a class of events. A case study is the in-depth examination of an aspect of a historical episode to develop or test explanations (George and Bennett, 2005). A case study allows generalization of the explanations so they can be applied to other events (George and Bennett, 2005).

Maoz (2012) further defines case studies, as a free form of research where in researchers can do everything that suits the research. Gerring (2007) defines a case study as an intensive study of one particular case where the purpose is to study or shed light on larger cases. This definition excludes those studies that are meant to simply interpret one single case, instead of focusing on generalisations. Levy (2008) argues that even though many conventionalists will suggest that cases resonate with a narrative approach, such a thought can be restrictive. There can exist detailed individual cases, which incorporate substantial statistical analysis, with the aim to generalise other cases. Gerring (2007, p. 33) too believes that the association of a case study analysis with a qualitative research approach is simply a "methodological affinity", and not "definitional entailments".

4.4.2.2 Advantages of using the case study approach

The case study methodology has multiple advantages for any research that aims to focus on the in-depth rather than focus on the breadth (Elliot, 2001; Oates, 2006).

One advantage of using the case study methodology is that it allows readers a clear sense of the subject being studied (Elliot, 2001; Oates, 2006). Furthermore, cases allow researchers to perform study within the natural setting (Oates, 2006). Another implication of using the case study methodology is the ability to incorporate diverse research methods to collect data (Elliot, 2001; Oates, 2006; Widdowson, 2011).

4.4.2.3 Limitations of the case study approach

Case studies offer researchers the opportunity to perform exhaustive empirical studies, but the methodology also incurs a few limitations. Pizam (1994) believes that cases are generally singular, the outcomes of which cannot be applied to a broader field. This leads to the belief that case studies cannot help in deriving meaningful generalisations in the case of hypotheses testing or theory building (Widdowson, 2011; Willis, 2014). However, McLeod (2010) has a contradictory view suggesting that case studies can provide researchers opportunities to develop explanatory hypotheses or test an existing or new theory. Another implication of case studies is that they tend to reflect the researcher's bias (Hoaglink et al., 1982). However, Yin (1994) argues that there is a possibility of bias across any research method that has been selected. This bias can be overcome by using a 'triangulation' method, which involves combining a range of methodologies (quantitative and qualitative) (Willis, 2014). Application of a variety of techniques helps in eliminating the researcher bias (Creswell, 1994).

4.4.2.4 Designing the case study methodology

Case studies are used extensively within tourism research (Hall and Jenkins, 1995; Jenkins, 2001). According to Beeton (2005), the cause for this popularity is that

the case study methodology is very pervasive and by default does not require any more justification. Case studies are suitable to both quantitative and qualitative research paradigms, demonstrating a flexibility that is crucial to social sciences (Hall, 1995; Jenkins, 2001). In addition to this, case studies offer tourism researchers the ability to employ multiple research methods. According to Hall (1995) and Jenkins (2001), tourism research is made rich with the incorporation of multiple research methods.

Given the lack of empirical studies within the broader field of persuasive technology and its application within the day attraction and overall tourism SME context, the case study methodology has been deemed most appropriate. The case study selected is that of Pennywell Farm, a day attraction in South Devon, UK.

4.4.2.5 Selection of Pennywell Farm case

Pennywell Farm is a day tourist/visitor attraction based outside the town of Buckfastleigh in South Devon, England. Christopher and Nicola Murray opened Pennywell Farm in 1989, to provide visitors hands-on interaction with various animals, against the farm's backdrop. The farm provides a number of animal and amusement activities catered toward children. Every year Pennywell receives over 70,000 visitors. Pennywell Farm has a vast online presence. The farm revamped their website in 2014 to integrate the e-commerce function so their visitors could purchase tickets online. The Pennywell Farm website was designed by Drive Creative Studio based on Pennywell Farm's requirements.

Figure 4.2 is a screenshot captured in 2014, displaying the version of the website that has been used in the research. The website offers users the opportunity to purchase

their tickets through secure online transactions. Utilising to-the-point navigation, Pennywell Farm's website provides users a variety of information that they might require before or after making the purchase. The farm has presence on social networking platforms- Facebook, Twitter, YouTube, Instagram and Pinterest, maintained by the owner's family. Being a day attraction geared toward young families, the website incorporates attractive, bright visuals and informal font for icons and call-to-actions.
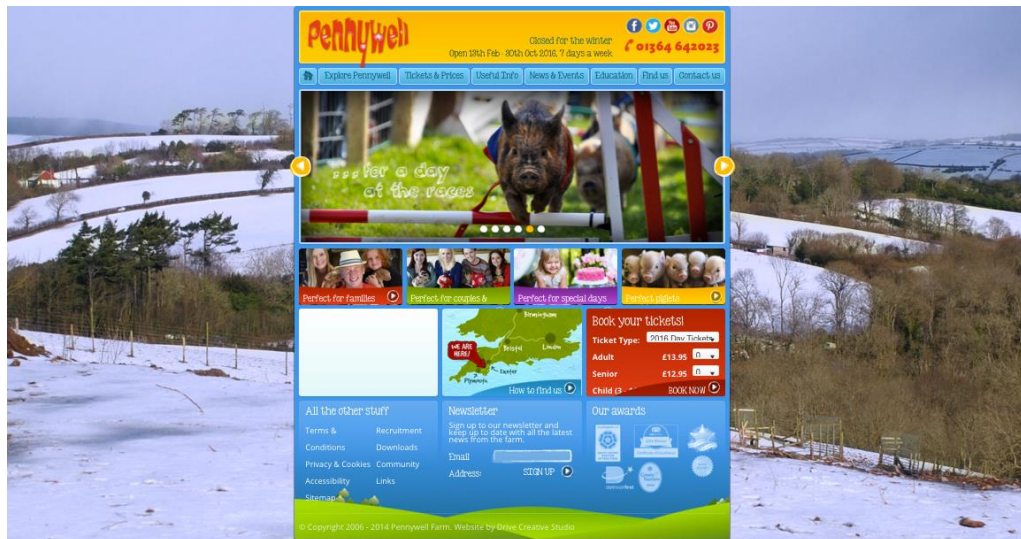
Figure 4.2: Pennywell Farm's website (December, 2014)

Source:Pennywellfarm.co.uk

The main requirement for any case study to be an appropriate fit for testing the PSD model is that it should offer users the opportunity to make a behaviour change. Incorporating direct or indirect persuasion strategies through the online experience can target these behaviour changes. Pennywell Farm offers their online users a number of opportunities to interact and engage with the online experience. Each hot spot for interaction is used to persuade users toward making an online booking and visiting the farm attraction.

The idea of using Pennywell Farm as a case study developed during a supervisory group meeting. Supervisor, Dr. Sheela Agarwal has known Chris Murray professionally for a number of years and was aware that the farm had made a considerable investment to revamp the website. An initial meeting was set up with Chris Murray and Pennywell Farm's Marketing Head, Valerie Bickes, in late June 2014. During the meeting, Valerie made it very clear that Pennywell Farm is hoping for an increase in online purchases as this has been the intention behind re-designing the website. In Chris and Valerie's view, an online booking translates into a confirmed visitor. Some users who show interest by visiting the website might not visit the actual farm because they have not made any commitment. Back in June 2014, the latest and current version of PennywellFarm.co.uk had only been online for a few months. Upon hearing about the long-term application of the research's findings to their online marketing strategy, Valerie noted that Pennywell was also keen on reviewing their customers' online behaviours. Overall, Pennywell Farm has been quite enthusiastic about participating in this PhD research, as they are keen on supporting the development of knowledge. Pennywell Farm also hopes to gain some applicable solutions from this mutually beneficial relationship.

The case used is a combination of exploratory and explanatory studies. As an exploratory study, the Pennywell Farm case has assisted the researcher in defining questions that can assist in the comprehension of the research problem (Yin, 1994). Exploratory case studies find application in situations where the research topic is fairly new, or suffers from shortage of information (Yin, 1994; Oates, 2006). As an explanatory case study, the Pennywell case adds to the research by helping in building an explanation that can explain why events happened as they did or why particular

outcomes occurred (Oates, 2006). The Pennywell Farm case study has assisted the researcher in defining questions that can be used to evaluate the PSD model, within the day attraction and overall tourism SME context by being exploratory. Additionally, the case also takes on an explanatory form that has assisted the researcher in using the PSD model to define the tourist user behaviour online.

Researcher bias in case study methodology (Hoaglink et al., 1982) is a limitation that has been considered. As per Willis' (2014) suggestion, the usage of multiple methods can eliminate this bias. The phase 2 of this research finds extension via phase 3, which utilises a different research method (Figure 4.1, p. 152). Furthermore, Yin (1994) has mentioned that every research method is prone to some level of researcher bias as doing so is inevitable. Pizam (1994) has argued that case studies are singular and that their findings cannot be generalised across the broader field. McLeon (2010) disagrees and believes this to not be the case. This particular limitation is addressed in phase 1 of the research. The content analysis of 102-day attraction tourism SMEs websites also included Pennywell Farm in the sample. The online experiences offered by all 102 SMEs have been measured using the same checklist. The fact that the PSD model could also be applied to the other 101 websites suggests that the findings of phase 2 could also be generalised across day attraction SMEs and the overall tourism SME context.

4.4.2.6 Justification for using questionnaires for the case study

Surveys are the most commonly used research instrument due their varied characteristics of being reliable, valid and providing non-disputed generalization (Howell, 2013). The origins of the survey methodology can be traced back to the 2nd

World War, when the US government began using questionnaires to measure soldiers' experiences (Howell, 2013). Since then surveys have been the most dominant research method used (Moser and Kalton, 1971; Howell, 2013). Surveys can be divided into two categories- *the questionnaire and the interview* (Social Research Methods, 2014). Questionnaires are filled in by respondents either on a paper (Moser and Kalton, 1971) or online. Interviews can be carried out in person, over phone (Moser and Kalton, 1971) or via the web. As this research only uses user questionnaires and not interviews with the users, further discussion will be limited to the justification of using questionnaires.

Within any research endeavor, questionnaires are the primary source for data collection (Zohrabi, 2013). A simple questionnaire generally includes close-ended (structured) questions (Moser and Kalton, 1971; Laugwitz, Held and Schrepp, 2008; Howell, 2013) that generate quantitative data. Questionnaires can also be designed using unstructured open-ended questions (Moser and Kalton, 1971; Zohrabi, 2013). Each type of questionnaire has its own advantages and limitations. Close-ended questionnaires are more effective due to the straightforward analysis techniques that can be applied to quantitative data (Seliger and Shohamy, 1989). Open-ended qualitative questionnaires offer opportunities for exploration, but the analysis is not very straightforward (Alderson and Scott, 1996). According to Moser and Kalton (1971), the efficacy of the questionnaire relies on the types of questions asked. Blaxter et al. (2006) has divided questionnaires into seven question types to assist researchers in designing questionnaires. These question types are- *quantitative, category, list/multiple choice, scale, ranking, complex grid/table and open-ended text boxes* (Blaxter et al., 2006). Generally, most questionnaires employ a mix of more than one type of a question, leading to the construction of a mixed questionnaire (Blaxter et al., 2006). Mixed questionnaires can provide a mix of both quantitative and qualitative data and are best

suited for the pragmatic philosophy based mixed methods research approach (Johnson and Christensen, 2010).

4.4.2.7 Advantages of questionnaires

Regardless of whether the questionnaire is closed, open or mixed, it is deemed extremely resourceful in social sciences research (Moser and Kalton, 1971). Questionnaires can prove beneficial in the following ways,

i. Allowing the researcher the opportunity to collect data on a large scale (Moser and Kalton, 1971; Seliger and Shohamy, 1989; Alderson and Scott, 1996)

ii. Questionnaires can be sent to a large number of people at the same time (Moser and Kalton, 1971; Seliger and Shohamy, 1989; Blaxter et al., 2006)

iii. Questionnaires often offer respondents anonymity, which nudges them toward sharing more information freely (Moser and Kalton, 1971)

iv. Time and cost efficient (Moser and Kalton, 1971)

v. Questionnaires have simplified analysis even further. Data does not have to be typed and coded into the statistical software as online questionnaire platforms allow data files to be exported into a software like SPSS. Furthermore, online questionnaire platform like Qualtrics can offer instant analysis, while data is still being collected.

4.4.2.8 Limitations of questionnaires

Although questionnaires have multiple benefits, there are a few limitations that can affect the quality of the data collected.

i.   Anonymity can make some respondents not want to fill out the questionnaires accurately as there would be no way to contact them (Moser and Kalton, 1971; Mather, Fox and Hunn, 2013)

ii.   The return rate of questionnaires is low when compared to interviews or focus groups (Mather, Fox and Hunn, 2013)

iii. If questions are not simple, they can confuse the respondents. This has implications on the accuracy of the respondents (Moser and Kalton, 1971; Mather, Fox and Hunn, 2013)

iv.   Text responses to open-ended questions can be subjective. The intention of the respondent might not translate clearly to the researcher (Mather, Fox and Hunn, 2013)

v.   Surveys might not be very effective at explaining why people think or act the way they do. Other means of user research such as think out loud or focus groups might provide data that is more certain (Mather, Fox and Hunn, 2013)

Despite their shortcomings, questionnaires are reliable and let researchers collect substantial empirical data (Moser and Kalton, 1971; Seliger and Shohamy, 1989; Alderson and Scott; 1996; Blaxter et al., 2006). Furthermore, questionnaires are often used in UX studies, when the researchers want to assess the quality and usability of systems (Laugwitz, Held and Schrepp, 2008). Quantitative techniques can provide a good representation of the efficacy of UX system features (Laugwitz, Held and Schrepp, 2008). This same logic applies to the current research, as the aim is to evaluate the persuasive features of Pennywell Farm's online UX and its implications on tourist user behaviour, using the PSD model.

There are wide ranges of theoretical and empirical research studies surrounding the PSD model (Harjumaa, Segerståhl, and Oinas-Kukkonen, 2009, Mintz and Aagaard, 2010, Oinas-Kukkonen, 2010, Ploug, Hasle and Oinas-Kukkonen, 2010, Midden et al., 2012, Wiafe et al, 2012, Alhammad and Gulliver, 2013, Basamh et al., 2013, Lehto, 2013, Alhammad and Gulliver, 2014 and Lin, 2015). However, these studies seem to focus on the persuasiveness of the system, rather than the user's perceptions of the persuasion strategies and implications of the same on user behaviour change. In addition to this, to the researcher's best knowledge, there are no PSD model based studies that have been applied to the tourism and tourist user context. These gaps have provided opportunities to evaluate the efficacy of the PSD model from two different perspectives.

The first perspective is presented in phase 1 through the assessment of service providers' experiences (Figure 4.1, p.152). The second perspective is presented in phase 2 that addresses the tourist user's context. The primary requirement of phase 2 has been to gather information from actual tourist users; hence the questionnaire appears to be the most appropriate research instrument.

4.4.2.9 Designing the questionnaire

According to Moser and Kalton (1971), the content of the questionnaire determines whether the research instrument will deliver successful results. It is unsafe to assume that respondents will voluntary admit ignorance. Even if the respondents are not aware of what the question means, they will attempt to give an answer (Moser and Kalton, 1971). This is why the PSD model has had to be broken down into questions that could be understood by all English speakers. Along with the questionnaire content,

the question order is another key element to a successful questionnaire (Moser and Kalton, 1971). If the questionnaire lacks a flow, the respondents could lose interest, skip pages to look ahead, all of which can have a cumulative impact on the answers (Moser and Kalton, 1971; Mathers, Fox and Hunn, 2013). The PSD model is comprehensive and incorporates 28 strategies, which meant that the users would have to answer a decent number of queries. From the outset, the researcher was aware that the length of the questionnaire could deter the respondents. This issue was dealt with by using different scaling methods, as per Moser and Kalton's (1971) advice. The questionnaire incorporates single choice, multiple choice, Likert scale, Thurston scale and open-ended questions. This provides the questionnaire with a good flow, so the respondents can stay motivated to fill in all the responses. At the same time, inclusion of various scales assists in gaining a variety of data (Moser and Kalton, 1971; Mathers, Fox and Hunn, 2013).

Finally, the research instructions have played an important role in the design of the questionnaire. The questions have been divided in a manner that respondents are able to only answer queries that are most appropriate for their use context (i.e., first time visitors, return visitors, users who have visited the website, users who have not visited the website). A copy of the questionnaire used in phase 2 has been presented in Appendix 11.

4.4.2.10 Sampling for the questionnaire

The Pennywell Farm case study has simplified the process of finding the most appropriate sample for phase 2. The sample consists of Pennywell Farm's own visitors (on field and online). The pilot test has involved collection of 200 responses from Pennywell Farm's visitors, on field at the farm. Upon successful completion of the pilot study, the questionnaire has been shared with Pennywell Farm's online users via a Qualtrics link.

4.4.2.11 Pilot test

Prior to the questionnaire being rolled out to all Pennywell Farm visitors, it has been crucial to conduct a test run. The pilot test has ensured that the questions have been worded in a language that the respondents can understand. Furthermore, it has also been important to test whether the questions offer a good flow and appropriate directions.

The data for the pilot study has been gathered during Christmas 2014, over a period of seven days. Using the probability based random sampling method; the first 200 visitors have been approached at the farm. Teddlie and Fu (2007) suggest that the simple random sampling technique is used commonly in social sciences research as it helps in reducing the researcher's bias (Moser and Kalton, 1971). Barring a couple visitors, all other visitors have been enthusiastic about participating in the research. This enthusiasm could possibly be traced to the temptation of winning a reward for filling

out the survey. All respondents have been given the opportunity to participate in a lucky draw to win five, £50 Amazon vouchers and a Gold DATA (Devon Association of Tourist Attractions) card sponsored by Pennywell Farm.

The researcher has ensured that the questionnaires were filled in front of her. This has been done to observe the respondents' behaviours and ensure that they did not face any difficulties. Upon the successful completion of the pilot study[6], the online questionnaire has been rolled out through Pennywell's online channels.

4.4.2.12 The online questionnaire

Pennywell Farm shared an online Qualtrics link to the questionnaire with their users via their monthly newsletter and their social networking channels. By Easter 2015, 530 responses were collected, which seems to be a high number given the scope of the research. A high number of responses are likely to be representative of the larger context of day attractions and overall tourism SMEs users (Moser and Kalton, 1971).

4.4.2.13 Analysing the questionnaire data

Data from the pilot study and the Qualtrics questionnaire has been exported into IBM SPSS 21 to be analysed. Referring back to figure 4.1, p.152, it can be noted that phase 2 examines the tourist users' motivations and their experience of using Pennywell Farm's online UX. Phase 2 also evaluates the persuasive power of Pennywell Farm's online UX on the user's buying behaviour. Based on Moser and Kalton's (1971)

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[6] Pilot study data is also included in this thesis, combined with data from online questionnaires.

guidelines, both these aims require the usage of descriptive as well as inferential statistics.

i. **Descriptive statistics:** Descriptive statistics are used to describe and present data in a meaningful manner (Moser and Kalton, 1971; Evans, 2014; Laerd Statistics, 2015). According to Evans (2014), descriptive statistics summarise the characteristics of the entire population. Moser and Kalton (1971) and Laerd Statistics (2015) suggest that raw data can be hard to visualise. Moreover, it is hard to explain how the researcher reached to their conclusions, using plain raw data (Laerd Statistics, 2015). Other than distribution frequencies and cross tabulations, the descriptive statistics used in this research offer measures of central tendency. Central tendencies describe the central point using mean, median and mode (Moser and Kalton, 1971; Evans, 2014; Laerd Statstics, 2015).

ii. **Inferential statistics:** Inferential statistics follow descriptive statistics. The role of inferential statistics is to establish and assess relationships between dependent and independent variables (Moser and Kalton, 1971). Inferential statistics are used to make inferences about the larger population. A research sample is only a small subset of a larger population, to which the researcher aims to apply their findings (University of Florida, 2015). Inferential statistics cannot provide 100% confidence in the conclusions, but they can provide some degree of certainty (University of Florida, 2015). Generally, inferential statistics can provide bivariate or multivariate analysis (Moser and Kalton, 1971; Evans, 2014). Although there are a variety of inferential statistics based on the type of variable (nominal, ordinal or interval/ratio), this research only uses the chi-square tests.

174

Chi-square tests are most commonly used within the field of social sciences. As the research data offers the opportunity to test out multiple sets of one independent and one dependent variable each, the chi-square tests are most apt (Brunt, 2015). Chi-square tests are applied when the level of significance between answers given to one question (containing independent variable) and answers given to another question (containing dependent variable) are to be studied (Brunt, 2015).

iii. **Content analysis of open-ended questions:** For the most part, the questionnaire asked for quantitatively measurable inputs. Certain questions had to be included which could provide more information on individual experiences, opinions and perceptions. For example, asking respondents whether they had any feedback to give on Pennywell Farm's UX or why they decided to purchase online from Pennywell Farm's website. In order to analyse data from the open-ended questions, a method similar to that employed in phase 1 has been implemented. None of the open-ended questions have generated data that applies to more than a few themes. Different respondents have used different words to explain the same themes. This simplifies the analysis of open-ended questions.

The questionnaire respondents appear to vary across age groups, levels of Internet proficiency and gender. These variables provide insights into how different types of tourist users might behave. The variables have been used to describe the data via descriptive statistics and to study associations via inferential statistics. These relationships help in understanding different tourist users' motivations for engaging with, and their opinions and perceptions toward Pennywell Farm's online UX.

4.4.2.14 Summary of questionnaire research method

Questionnaires can be used as standalone instruments (Laugwitz, Held and Schrepp, 2008). However, in the case of this research, they are used in conjunction with two other research instruments to provide comprehensive findings. Figure 4.1, p.152 shows that the phase 2 of this research focuses on the tourist user perspective and for this purpose the questionnaires have been considered to be the most appropriate method. The Pennywell Farm questionnaire has advantages in terms of generating data on a larger scale, which has been a prerequisite for phase 2. In addition to this, the questionnaire saves on resources that would have otherwise been expended on using other research methods such as focus groups or interviews. In addition to this, collecting questionnaires on site and online has offered the researcher an opportunity to gain information from different demographics. This presents the data with a variety of independent variables to establish relationships via inferential statistics. Phase 2 is purely an investigation of tourist user behaviour and having multiple independent variables adds to the learning process by allowing the researcher to contribute to Aim 2 and 3. Moreover, when combined with the findings of the other two research methods, the questionnaire findings also contribute toward Aim 4 (figure 4.1, p.152).

The questionnaires have helped in generating rich and valuable data but the research method has also resulted in a couple biases. Even though a random sampling method has been used to approach visitors on site, there has been a certain level of researcher bias in who has been approached. The respondents, who seemed friendly and not occupied with their children or eating, have been approached first. In addition to this, as the respondents have been motivated by the temptation to participate in the lucky draw, some respondents might have submitted the online questionnaires more

than once, using multiple email accounts. There has been no way to monitor this through Qualtrics. However, had there been no motivation to participate, it might have taken much longer to collect the required number of completed questionnaires.

4.4.3 Third Phase: Eye-Tracking Study

Given that the research is built upon the pragmatic paradigm, the researcher has the freedom to use any research instruments that might assist in addressing the objectives. Figure 4.1, p.152 shows that Aims 2 and 3 investigate tourist user behaviour using questionnaires. The questionnaire provides all the required findings, however certain user behaviour patterns have also emerged that have offered opportunities for further investigation. For example, respondents have found Pennywell Farm's website to be complex and filled with UX elements that are distracting. This has encouraged the researcher to explore the implications of the website UX elements on users in real-time using a different method. As both time and monetary resources have been available, the researcher has been able to use the eye tracking method to supplement findings from the investigations in phase 2.

4.4.3.1 Justification for using the eye-tracking methodology

According to Poole and Ball (2005); Ehmke and Wilson (2007) and Pernice and Nielsen (2015), the eye-tracking research methodology is one of the most effective UX research instruments that can be combined with other methods, to increase the potential of any UX study. Generally, the eye tracking method is used to supplement usability

tests in both commercial and academic practice (Ehmke and Wilson, 2007). Eye movement tracking can help HCI researchers in understanding visual and display-based information processing. In addition to this, eye tracking also helps in understanding the factors that have implications on the usability of the system interface (Ehmke and Wilson, 2007).

Nielsen (2006; 2010) has highlighted the role of eye tracking methodology in determining user website reading patterns. Through a number of eye-tracking experiments, Nielsen (2006) was able to confirm that users absorb website content within a matter of seconds. This led Nielsen (2006) to suggest that absorption of any website content (*for text reading left to right*) occurs in an F-pattern. Nielsen (2010) further expanded on this finding by suggesting that up-to 69% of user browsing time is spent paying attention to content on the left side of the page. In addition to the reading patterns, Faraday (2000), Granka et al. (2006) and Owen and Shrestha (2010) have explained the significance of using eye tracking methodology to determine the effect of UX element location and colour on user behaviour.

Before the inclusion of the eye tracking methodology in UX research, most studies involved the thinking-out-loud method, where the users would speak out their opinions as they browsed the website (Ehmke and Wilson, 2007). The introduction of the eye tracking technology has changed the manner in which UX research is now carried out (Ehmke and Wilson, 2007; Owen and Shrestha, 2010; Nielsen, 2010). Regardless of eye tracking's unique contribution to UX research (Ehmke and Wilson, 2007), it does not appear to be a commonly used research methodology in social sciences.

Just and Carpenter's (1992) eye-mind hypothesis suggests that decision-making processes and eye tracking patterns are linked and occur simultaneously. Although, eye tracking patterns and decision-making processes are closely linked, there are very few studies (Duchowski, 2003; Poole and Ball, 2005; Nielsen, 2006 and Nielsen, 2010) that look at how the two correlate (Ehmke and Wilson, 2007). As per the researcher's best knowledge, there have been no studies based on the PSD model, which have incorporated the eye tracking methodology to investigate the persuasive power of UX on user decision-making and behaviour change. Furthermore, to the researcher's best knowledge, there do not appear to be any tourism studies that assess persuasiveness of online UX, with the assistance of the eye tracking technology.

The eye tracking technology is only an extension to the questionnaire findings. However, its inclusion helps this research in contributing something new, theoretically and methodologically to the persuasive technology and tourism research.

4.4.3.2 Pupil Labs eye-tracker as a research instrument

The eye tracker used for the purpose of this research is made by Pupil Labs. Pupil is an eye tracking software and hardware framework, developed by students at Massachusetts Institute of Technology (MIT). Pupil is an open source eye-tracking platform that uses an eye tracker set up on a head mounted device. The device and software, allow researchers to look at the pupil movements of someone staring at the screen, record their gaze positions, visualize and analyse the data for results. Human eyes never rest on one position of the website for too long, they move several times per second with micro-movements spanning across only a few pixels at a time (Ehmke and

Wilson, 2007). The recorded eye movements are able to provide a unique look at how interface designs can be improved (Poole and Ball, 2005). The Pupil eye tracker, paired with the Pupil Capture software provides real-time insights into how users gaze (read) the website and how they fixate on different elements.

The Pupil 3D printed headset uses Finite Element Analysis (FEA) simulation to compute the exact geometry of the headset (Pupil Labs, 2015). When the headset is put on the user's head, the cameras come into alignment and the headset calibrates with the pupil. The Pupil headset has an eye camera and a world camera. The eye camera has an infrared filter to track the user's pupil movements. It records movements at 30 frames per second (fps), within a maximum resolution of 640X480 (Pupil Labs, 2015). This camera is also adjustable. The world camera operates on a maximum resolution of 1920X1080 @30fps and offers a 90-degree view angle (Pupil Labs, 2015).

4.4.3.3 Advantages of using the eye tracking methodology

Some of the advantages of eye tracking have been presented in the following,

i. Eye trackers record actual eye-movements in real-time (Khachatryan and Rihn, 2014).

ii. Eye tracker cameras are precise and of a high quality. They can record a large amount of data at 30fps (Ehmke and Wilson, 2007; Pupil Labs, 2015)

iii. When clear instructions are delivered, the researcher bias is minimised. The user is free to use the website without any interruptions. Moreover, unlike the think-out-loud method, the eye tracking method allows users to devote their complete concentration to the task (Pernice and Nielsen, 2015)

4.4.3.4 Disadvantages of using the eye-tracking methodology

Eye tracking technology is fairly new and therefore, it is common to encounter functional issues. Some of the disadvantages of using the eye tracking methodology are presented in the following,

i.   Eye trackers do not work on everyone's eyes (Khachatryan and Rihn, 2014). Specifically, the Pupil eye tracker does not work on users who wear glasses.

ii. The eye tracking test results have to be paired up with a follow up questionnaires or interviews to draw conclusions (Khachatryan and Rihn, 2014). In addition to this, the method does not offer insights that one could derive from the think-out-loud method because asking participants to do so while having the headset on might disrupt their attention (Ehmke and Wilson, 2007).

iii. The eye tracking equipment can be expensive (Pernice and Nielsen, 2015).

4.4.3.5 Designing the eye tracking study

The questionnaire findings suggest that the questionnaire respondents have not been able to locate the bookings link/button on Pennywell Farm's main page because the website is filled with many UX elements. The eye tracking methodology has been employed to find meaningful patterns in tourist users' actual usage of the website, as they browse the UX in real time. Based on the aim of the eye tracking study, the experiment has been divided into two parts. The first part has involved the eye tracking test. Following the test, participants have filled out a small questionnaire. According to Kachatryan and Rihn (2014), eye tracking tests must be combined with either questionnaires or interviews to draw conclusive patterns.

4.4.3.6 The eye tracking test

The eye tracking experiment has focused on one single task. The participants have been asked to browse the Pennywell Farm website as if they are looking to make a hypothetical booking online. Upon gathering all the information they deem necessary to make the purchase, the participants have notified the researcher to stop the experiment. The instructions for the task have been straightforward. Based on Pernice and Nielsen's (2015) advice, the researcher has avoided over-explanation. Often times, over-explaining the task can introduce the researcher's own bias, into the participant's mind.

4.4.3.7 The follow up questionnaire

The eye tracking test provides insights into tourists' usage of the website but does not explain their opinions or perceptions of the UX. As the eye tracking study is an extension to the questionnaire (phase 2), the follow up questionnaire too, has been constructed based on the PSD model.

A total of five questions are presented in the follow up questionnaire. These questions have been designed based on the PSD model design principles. The questionnaire has also been used to investigate whether or not the UX has had any implications on the participants' decision to purchase online from Pennywell Farm's website.

4.4.3.8 Sampling for the eye tracking test

Given that no similar studies have been carried out in the context of persuasive technology within tourism online UX, inspiration has had to be drawn from Pernice and Nielsen's (2009; 2015) eye tracking methodology guide. Pernice and Nielsen (2009; 2015) have recommended using at-least 39 participants to develop strong patterns. Given that this study is only an extension, the number of participants is limited to 10.

In order to derive patterns that might support the role of the eye tracking methodology as an extension, it has been crucial to collect data from participants who are prospective visitors of Pennywell Farm. Moreover, it has been ensured that at the time of the eye tracking experiment, none of the participants had visited Pennywell. An assumption has been made that had the participants visited the farm in the past, it might have had implications on the results.

Pennywell Farm is a visitor attraction that largely caters to young children, specifically ages' toddler to 8 years old (based on owner Chris and Marketing Manager Valerie's insights). This factor meant that parents or grandparents of children within the specific age range are likely to be potential tourists who would want to visit Pennywell Farm. People within this particular demographic are likely to pay close attention to various important details such as suggestions, maps and directions, activities for the day etc., when making an online booking. Being intently focused on the website also means that the data generated from the eye-tracking study is likely to be more accurate and a better determinant of Pennywell Farm's actual users in relation to some other demographic such as students with no children. The easiest method of reaching out to a sample that fits this description is the University's Post-Graduate Society network. The

society connects mature students who are likely to parents or grandparents of children ages's toddler to 8 years old. To thank the participants for the time spent in the experiment, they each received £10.

In order to eliminate the researcher's bias, a simple random sampling method has been employed. According to Teddlie and Fu (2007), the probability-based random sampling method helps in eliminating researcher's bias by introducing randomness. The first 5 female and 5 male respondents who have been in touch have been offered the opportunity to participate. Gender is an important independent variable that can be used to derive patterns in tourist users' usage (Pernice and Nielsen, 2009). As the experiment only involves 10 participants, it is difficult to include variance via other independent variables such as age or level of Internet proficiency.

All participants have been screened using an information sheet and consent form (Appendix 12.3).

4.4.3.9 Analysing the eye tracking test

The analysis of the eye tracking data can be a difficult process as each eye tracker generates different types of findings. Given that the technology is fairly new, there do not exist any specific practices that can be replicated (Pernice and Nielsen, 2009). The analysis of the eye tracking experiment's findings is based on inspiration drawn from Ehmke and Wilson (2007) and Pernice and Niesen (2009). The findings of

the eye tracking study offer the opportunities for both qualitative and quantitative analysis. The Pupil Labs eye tracker primarily generates two types of findings; gaze plots via video analysis and heatmaps. These are followed by a quantitative analysis of the follow up questionnaire.

i. **Video playback:** Gaze plots show an individual user's succession of fixations and saccades (Ehmke and Wilson, 2007). The Pupil Labs software offers filters that allow the researcher to interpret the gaze plots from gaze lines. In addition to a qualitative interpretation, other factors such as duration of time spent on the main page, number of pages visited and how each participant finds the bookings "buy now" link (navigation menu or button) are measured. These factors have been observed against the independent variable of gender.

ii. **Heatmaps:** The heatmaps are visual representations that show the areas of the website that have been viewed for the longest durations (Ehmke and Wilson, 2007; Pernice and Nielsen, 2009). The heatmaps are used to study whether or not the participants have viewed the website in an F-shape pattern that has been suggested by Nielsen (2006; 2010). The heatmaps derived from the experiment are observed against the independent variable of gender.

iii. **Questionnaire:** The findings of the follow up questionnaire have been used for descriptive analysis, using the independent variable of gender.

4.4.3.10 Summary of the eye tracking experiment

The purpose of employing the eye tracking methodology has been to supplement the findings of phase 2 and study them further, in real-time. To the researcher's best knowledge, the eye tracking methodology has not been used to empirically test the PSD model, or to study persuasive technology within the tourism SMEs online UX. Some inspiration for the eye tracking research guidelines could be drawn from Ehmke and Wilson (2007) and Pernice and Niesen (2009; 2015), but for the most part, the experiment has had to be pragmatic.

There have been a few limitations that have had to be overcome. The Pupil Labs eye tracker is an expensive device. The knowledge of having accessibility to this device has played an important role in whether the eye tracking methodology could be pursued or not. The consistency of the device has also been a key issue as the researcher was learning to use the system, while preparing for the experiments. Given the fact that eye trackers cannot track everyone's eyes (Khachatryan and Rihn, 2014), it is surprising to not have encountered any difficulties with the 10 research participants. In addition, the final limitation of not being able to derive conclusive data from the eye tracking findings alone (Khachatryan and Rihn, 2014) has had to be overcome through a follow up mini-questionnaire.

The eye tracking methodology offers this research the opportunity to make a unique contribution to both, the empirical study of the PSD model, and research into the application of persuasive technology within the tourism SME context. Furthermore, the research design and analysis can provide inspiration for future eye tracking studies.

4.5 Research Ethics

Two of the three data collection instruments have required direct/indirect interaction with the public, hence a variety of ethical guidelines have been followed. Although, there has never been a need to contact vulnerable people or minors, the research has adhered to the University's Research Ethics Policy, Code of Practice of Research and procedures, set forth by the University of Plymouth. The research also adheres to the Economic and Social Research Council's (ESRC) principles of good scientific practice and Research Ethics Framework along with the Marketing Research Society's fundamental principles. In addition to this, inspired by Pernice and Nielsen (2015), the researcher developed her own guidelines for the eye tracking experiment. These can be accessed in the information sheet and consent form in Appendix 12.2-12.3.

4.6 Limitations of the research design

The pragmatism driven mixed methods approach used to develop the research design has helped the researcher in building upon the findings, confirming outcomes across questionnaires, deriving patterns and establishing gaps via triangulation of questionnaires, eye tracking analysis and website content analysis and most importantly, investigating multiple contexts (system designer and user). However, the research design has flaws that are addressed in the following,

     i.   The mixed methods approach itself is able to deliver variety but methodology purists may argue that a purely quantitative or qualitative

approach could have provided insights that the mixed methods approach fails to deliver.

ii. Focusing on one research method instead of three would have allowed the researcher to include a larger sample. This could have possibly provided a more diverse respondent group.

iii. Although eye tracking methodology acts as an extension to the questionnaire analysis, focus groups too could have been included, had time allowed.

iv. Conducting website content analysis on more than one segment (day attractions) might have helped the researcher in exploring patterns.

v. The eye tracking analysis could have included a larger sample.

4.6 Summary

This chapter has introduced a mixed set of research methods, which have not been applied to evaluate the theoretical framework of persuasive technology within the tourism SME context previously. In Section 4.2, the chapter has presented arguments to support the selected research philosophy of pragmatism. It has further provided an explanation on the ontology, epistemology and consequent methodology applicable under the pragmatic philosophy, which has helped in shaping the research design.

An overview of the research design has been presented in Section 4.3. The research employs a mixed methods approach, which has been developed using the pragmatic philosophy introduced in Section 4.2. Using Johnson and Christensen's (2010) approach to designing research methodology, a skeletal structure explaining the decision behind the selection of the mixed methods has been presented in Section 4.3. The mixed methods approach, which is built upon the pragmatic philosophy, focuses

upon exploration by enabling the researcher in triangulating the findings and making significant contributions to the body of knowledge. As the PSD model has never been applied to the context of online tourism SME experiences, the mixed methods approach offers the study the opportunity to be exploratory and explanatory. Section 4.3 also presents insights into the three different research methods that have been used within the study, followed by their individual advantages, limitations and justifications for application. Furthermore, this section also documents the design approach taken toward constructing the three research instruments, the sampling methods employed and a brief overview of the data analysis techniques most suitable for this study. Employing three research methods, of which two involve direct interaction with respondents/participants, meant that the research study has had to follow strict guidelines set forth by the University, the ESRC and the Marketing Research Society. In addition, the researcher also has had to design ethical guidelines for the eye tracking study, as there appear to be no governing bodies responsible for maintaining eye tracking research ethics. These issues have been addressed in Section 4.4.

The research methodology presented in this chapter has its drawbacks, which have been presented in Section 4.5. Following the blueprint of the research design documented within this chapter, the next three chapters (Chapters 6, 7 and 8) will focus on the findings, analysis and discussions from the three research methods- website content analysis, questionnaires and eye tracking study.

Chapter 5: Persuasive architecture of tourism online experiences (visitor attraction SMEs)

5.1 Introduction

This chapter is the first in the series of four data analyses chapters that contribute toward satisfying the aims and objectives of this research study (Please refer to Chapter 1, Section 1.4, p.27). The purpose of this chapter is to present and discuss the findings of the website content analysis, which helps in answering Aim 1- to explore the architecture of online experiences offered by tourism SMEs. This is done through two objectives,

i. To determine the variety of online experiences offered by tourism SMEs

ii. To ascertain the nature of online experiences offered by tourism SMEs

The website content analysis explores the tourism online experiences offered by visitor attraction tourism SMEs, using Oinas-Kukkonen and Harjumaa's (2009) PSD model (Please refer to Appendix 1). The content analysis checklist has been designed based upon this model and can be accessed in the Appendix 3.

Sections 5.2-5.4 present information regarding the visitor attraction tourism SMEs in the UK, provides further insights into the sub-categorisation of the SMEs websites used for the purpose of this research and outlines the persuasive architecture of visitor attraction SMEs websites based on the PSD model. Sections 5.5-5.6 focus on the aim of the website content analysis, which is to explore the architecture of online experiences offered by visitor attraction SMEs. Section 5.7 presents the strategies that

occur most frequently within the tourism context. Section 5.8 draws comparison between the findings of the research and the theoretical and empirical findings of other research studies involving Oinas-Kukkonen and Harjumaa's (2009) PSD model. Section 5.9 provides a conclusion by addressing the purpose of the website content analysis in Aim 1, its findings, the efficacy of the research method within the context of the PSD model and a summary of how the findings compare to other similar research studies.

5.2 Visitor attraction SMEs

The UK's tourism industry is one of the fastest growing sectors, which contributes greatly to the economy (Visit England, 2015). Statistics show that the UK's third largest industry employed over 3.1 million people in 2013 (Tourism Alliance, 2015). A strong incubator for start-ups, the UK's tourism industry continues to show significant growth (Tourism Alliance, 2015). The uniqueness of the industry is reflected through the fact that despite this growth, almost 80% of all tourism businesses within the UK are Small to Medium-sized Enterprises (SMEs) (Tourism Alliance, 2015; Visit Britain, 2015). These SMEs often run on low human and financial resources (Visit England, 2015).

According to Visit England (2014, p.1), visitor attractions are "*a permanently established excursion destination*" that aims to offer visitors access to entertainment, education and cater to their interests. The primary purpose of a visitor attraction is to attract visitors to the destination (Hu and Wall, 2005; Laesk, 2009). Laesk (2009) and Laesk, Fyall and Baron (2011) have explained that it is impossible to agree upon the

correct definition for a visitor attraction. Given, this challenge in defining visitor attractions, Laesk (2009) and Laesk, Fyall and Baron (2011) recommend incorporating the key features of visitor attractions (human made or natural feature that attracts visitors), to describe their meaning. Gunn (1972) suggests that visitor attractions are the primary drivers of visitors to a local destination. Without visitor attractions there would be no purpose for any other tourism services to exist (Gunn, 1972; Laesk, 2009). However, regardless of the role played by visitor attractions in the development and proliferation of other adjoining tourism services, it receives little or no attention within tourism research (Laesk, 2009; Laesk, Fyall and Baron, 2011). Furthermore, the researcher has found that there do not seem to exist any empirical studies on the persuasive effect of online UX within the visitor attractions segment. Laesk, Fyall and Baron (2011) recommend studying visitor attractions in relation to the new Generation Y users who rely on ICTs. The scarcity of information surrounding the application of ICTs within this segment provides this research with the opportunity to develop some building blocks. Pursuing Aim 1 of the study has also allowed the researcher to expand the focus by studying 102 visitor attraction SMEs. Instead of putting the focus on a single tourism SME, conducting an analysis of many, helps in drawing similarities and establish differences between various smaller visitor attractions.

As addressed in the research methodology in Chapter 4, Section 4.4.1.5 (p. 156) the 102 websites have been selected using a non-probability based random sampling via a listing on the DayAttractions.co.uk website. These tourism SME websites belong to five sub-categories (entertainment, wildlife, heritage, parks and gardens and tours) within the tourism sector. The researcher has devised these sub-categories, as no definite sub-categorisation exists within the reviewed literature. Because the websites have been selected using a non-probability based random sampling method, the

percentage belonging to each sub-category varies (For more insights into the sub-categorisation, please refer to Appendix 6).

5.4 Persuasive architecture of visitor attraction SMEs websites based on the PSD framework

This website content checklist is based on Oinas-Kukkonen and Harjumaa's (2009) PSD model (Please refer to the website content checklist in Appendix 3). The PSD model is a comprehensive framework that assists the system designer in addressing the different contexts at play, including the persuasion strategies. Insights into the persuasion contexts are presented in the following sub-sections.

5.4.1 Persuasion context

Within the PSD model, the persuasion context includes the intent, the event and the strategy (Oinas-Kukkonen and Harjumaa, 2009) (Please refer to the model in Chapter 3, Figure 3.7, p. 113). The context consists of the entire situation that is relevant and can be characterised to the application and the application's users (Dey, 2001; Lehto, 2013). The *intent*, *event* and *strategy* presented in this chapter are based on an analysis of the websites.

5.4.1.1 The Intent

The intent of the web developers who have designed the 102 tourism SMEs websites appears to have been to provide their clients with an effective website, possibly based on the individual SME's requirements. However, this is only an assumption as getting in touch with individual web developer/service provider to know their actual intent is outside of the scope of this research. The intent of the tourism SMEs is not mentioned explicitly on the websites. Although one can assume that if they are selling a service, their ultimate goal for developing a website must be to attract, engage and convert users into customers.

5.4.1.2 The Event

The event consists of the use, the user and the technology contexts (Lehto, 2013). The use context consists of the problem domain dependent features (Oinas-Kukkonen and Harjumaa, 2009). The user context consists of the users' characteristics that include their goals, abilities and cultural factors (Oinas-Kukkonen and Harjumaa, 2009). The technology context consists of the features of the technological platform or the application system (Lehto, 2013).

The use context in the case of the SMEs is to enable users to make an online purchase. This is quite evident upon first impressions of all the websites studied. All of the 102 websites make it very clear that the users can utilise the websites to make online purchases. The tourism SMEs clearly appear to incorporate user context into their online experiences. Tourism as an experience can attract almost all types of user groups. The websites appear to be aware of this. Although each individual user group has not been catered to, all the websites analysed appear to cater to what could be considered an average family. This assumption has been drawn based on the images and information

194

features on the websites. Exploring whom the websites providers' aim to target specifically is outside the scope of this research. This would require getting in touch with the SMEs and conducting further research through another method such as interviews. Finally, the technological contexts that could be studied under the event are, web 2.0 functionality, mobile functionality, videos, graphics and the presence of social networking and third party review websites.

5.4.1.3 The Strategy

All the 102 websites seem to present an online experience that can cater to both beginner and advanced level users. Links to online booking pages are often placed above the website page fold[7] where users would be able to spot them, without scrolling. Booking online does appear to be a very straightforward task on all of the tourism SME websites. The indirect and direct cues to nudge users towards purchasing, show up in the form of text and images on the website. Largely websites appear to use a mix of both. The individual PSD model strategies are studied further in-depth in Section 5.6.

5.4.1.4 System features

The websites incorporate a vast number of UX elements. These elements have been categorised based on the 28 strategies mentioned in the PSD framework. These strategies have been customised in order to apply them to the tourism SME context. Appendix 3 displays the website elements or items corresponding to the PSD design

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[7] Above the fold- User does not have to scroll-down on the page to locate the element.

principles that have been used to assess whether or not the design principles were supported by the websites.

5.5 Determining the variety of online experiences offered

The first step toward exploring the persuasive architecture of tourism online experiences is to determine the variety of online experiences, which is also the first objective of Aim 1 of this research (Please refer to Aims and Objectives in Chapter 1, Section 1.4 on p. 27). Using a non-probability based random sampling method, the first 102 websites on the DayAttractions.co.uk website were selected. Reaching the goal of 102 transaction ready websites has required sifting through a total of 121 sites. 19 of these do not offer users the ability to conduct transactions online and come across as stand-alone online information brochures.

The 102 tourism SMEs also provide online experiences across social networking websites, Facebook and Twitter. Overall, the variety of online experiences is similar across all of the five tourism SME subcategories.

5.6 Ascertaining the nature of online experiences offered by tourism SMEs: All four task supports

The second objective of Aim 1 looks at the nature of online experiences offered by tourism SMEs. This is based on the design principles selected from the PSD model

(Please refer to Appendix 1 for Oinas-Kukkonen and Harjumaa's PSD model and its 28 strategies). Using the design principles, a list of corresponding items is constructed (Appendix 3). The findings are presented in four sections corresponding with the PSD model's four design principles of primary task, dialogue, credibility and social support.

5.6.1 Primary Task Support

According to Oinas-Kukkonen and Harjumaa's (2009) description of the primary task support, the role of these design strategies is to enable users to reflect upon their own behaviour. The users are expected to do so as they move through the system (Lehto, 2013). In the context of tourism SMEs, the primary task support relates to the users' goal setting. In addition to goal setting, primary task support also helps users to smoothly progress toward making an online purchase.

The primary task support design strategies extend persuasiveness to the main task or activity that the website is designed to support (Letho, 2013; Alhammad and Gulliver, 2014). The seven design strategies of primary task support have been customised and combined in order to adapt to the tourism SMEs websites (Please refer to Appendix 1 for the strategies). In the context of the tourism SMEs, there do not appear to be any distinctions between features that represent the strategy of *tailoring* and those that represent the strategy of *personalisation*. The same also applies to the strategies of *simulation* and *rehearsal*. The customised version of the primary task support strategies used to evaluate the tourism SMEs online UX persuasiveness are,

    i.   Reduction

    ii.   Tunneling

    iii.   Tailoring + Personalisation

iv.   Self-monitoring

v.   Simulation + Rehearsal

5.6.1.1 Primary task support: Reduction

The first strategy mentioned under the primary task support is that of *reduction*. Oinas-Kukkonen and Harjumaa (2009) state that a system that reduces the amount of effort a user has to expend toward completing a task can be considered persuasive as it gets the user closer toward completion. Table 5.1 shows that a total of 94 (92.2%) websites have the link leading to the booking or online purchase page on the front page. The remaining eight websites have a link, which is not on the front page, and therefore hard to locate. The sub-categorical division of the 94 websites that incorporate this feature shows- 39 of the 40 (41.4% of the total 94) are entertainment visitor attraction websites, followed by 27 of the 31 (28.7%) wildlife visitor attractions websites, 14 of the 16 (14.8%) heritage visitor attractions websites, 10 of the 11 (10.6%) tour based attraction websites and 4 of the 4 (4.2%) parks/gardens visitor attractions websites have the link on their front page.

Reduction	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total[8]
Link is on the front page	28.7	14.8	4.2	10.6	41.4	92.2
Link is on the top left	29.4	11.7	0	5.8	52.9	16.7
Link is on the top right	23.2	20.9	6.9	16.2	32.5	42.2
Link is on the bottom left	50	25	0	25	0	3.9
Link is on the bottom right	27.3	18.1	0	18.1	36.3	10.8
Link is embedded on every page via navigation menu	31.7	14.6	3.6	9.7	40.2	80.4
Link is hard to locate	37.5	12.5	0	0	50	7.8
Link is in the top centre	38.8	5.5	5.5	11.1	38.8	17.6
Link is in the bottom centre	0	50	0	0	50	5.9
Link is in middle right	45.5	18.1	0	4.5	31.8	21.6
Link is in middle left	28.5	14.2	0	7.1	50	13.7
Link is in middle centre	30.7	15.3	0	7.6	46.1	12.7

Table 5.1: Primary Task Support- Reduction (Figures in %)

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[8] Total- Total percentage for the 102 SMEs, five sub-categories combined.

In Table 5.1, values between- 0%-33.3% represent low usage, 33.3%-66.6% represent medium usage and 66.6%-100% represent high usage of the persuasive features by the tourism SMEs. The usage levels relate to how often the UX elements are used by the SMEs. These categories and distinctions are based on a division of the total usage percentage by 3 to correspond with low, medium or high. The categories have been developed by the researcher to present the data findings in a manner that is easily understandable. **Note:** The persuasive features' usage categories are repeated throughout this chapter.

A total of 82 (80.4%) websites have the link to the booking or online purchase page embedded on every page via the navigation menu. The sub-categorical division of the 82 websites that incorporate this feature shows- 33 of the 40 (40.2% of the 82 websites) entertainment visitor attractions, 26 of the 31 (31.7%) wildlife visitor attractions, 12 of 16 (14.6%) heritage visitor attractions, 8 of 11 (9.7%) tour based attractions and 3 of the 4 (3.6%) parks/gardens attractions, have the link to the booking or online purchase page embedded on every page via the navigation menu.

The strategy that is least commonly used by tourism SMEs is the placement of the link to the booking or online purchase page on the bottom left of the page. Total of 4 tourism SME websites incorporate this strategy. Sub-categorical division of the 4 websites shows- none of the entertainment and parks/gardens visitor attractions use this strategy. Only 2 of the 31 (50%) wildlife visitor attractions, 1 of the 16 (25%) heritage visitor attractions and 1 of the 11 (25%) tour based attractions have the booking link on the bottom left of the page.

Reduction is widely used by tourism SME websites across all sub-categories. The content analysis for evaluation of the *reduction* strategy has presented a very interesting picture. Figure 5.1 shows that different websites do choose different locations to place their bookings or online purchases links. However, a good majority (43), place their links on the top right corner, followed by (22) that use the middle right section and (18) that use the top centre location to place the links.

Top Left Corner 17	Top Centre 18	Top Right Corner 43
Middle Left 14	Middle Centre 13	Middle Right 22
Bottom Left Corner 4	Bottom Centre 6	Bottom Right Corner 11
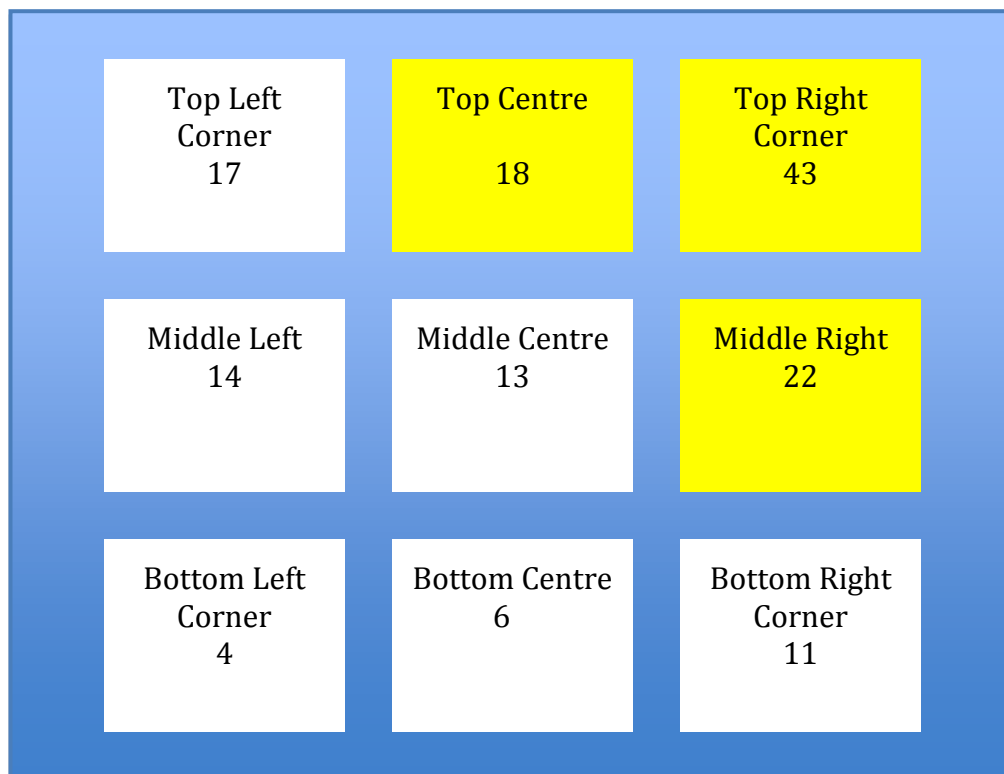
Figure 5.1 Booking/online purchases links based on 6 locations on a website interface

Source: Author

5.6.1.2 Primary Task Support- Tunneling

According to Oinas-Kukkonen and Harjumaa (2009), *tunneling* brings people closer toward completing the main task. The system providers can set up persuasive messages along the way that guide users to take actions. Table 5.2 shows that the tunneling related UX element that has most commonly been used by the tourism SMEs is the navigation menu. 98 of the 102 (96.1%) websites have a navigation menu that is functional and can guide users toward completing tasks. Further sub-categorical division of the 98 websites shows that 38 of the 40 (38.7% of the 98) entertainment visitor attractions, 31 of the 31 (31.6%) wildlife visitor attractions, 14 of the 16 (14.2%) heritage visitor attractions, 11 of the 11 (11.2%) tours based attractions and 4 of the 4 (4%) parks/gardens visitor attractions, have navigation menus.

Tunneling	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Navigation menu	31.6	14.2	4	11.2	38.7	96.1
Text information on how to book	32.5	12.5	2.5	12.5	40	78.4
Booking information/button above the fold	32.5	13.4	4.4	12.3	37.07	87.3
Booking information/button below the fold	39.3	18.1	0	15.1	27.2	32.4
Keyword based search feature available	37.5	17.5	7.5	5	32.5	39.2
Sitemap to simplify navigation	25	12.5	6.25	9.3	46.8	31.4

Table 5.2: Primary Task Support (Tunneling) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100

In addition to the presence of navigation menus, Table 5.2 shows that 87.3%, that is 89 of the 102 websites have their booking information/button above the page fold. Further sub-categorical division of the 89 websites shows, 33 of the 40 (37.07%) entertainment websites, 29 of the 31 (32.5%) wildlife websites, 12 of the 16 (13.4%) heritage websites, 11 of the 11 (12.3%) tours websites and 4 of the 4 (4.4%) parks/gardens websites, have their booking information/button placed above the fold.

Furthermore, only 32.4% tourism SME websites have their booking information/button placed below the page fold. There have been instances when the websites has one link above the fold and one below the fold. Such anomalies tick both boxes and therefore have been included in both. Regardless, the low number of websites with booking information/button below the page fold shows that tourism SMEs do not appear to use the tunneling strategy.

The third most commonly found *tunneling* based feature is- text information on how to book. 80 of the 102 (78.4%) tourism SMEs websites offer further information on how the users can complete their booking. Further sub-categorical division of the 80 websites shows, 32 of the 40 (40%) entertainment websites, 26 of the 31 (32.5%) wildlife websites, 10 of the 16 (12.5%) heritage websites, 10 of the 11 (12.5%) tours websites and 2 of the 4 (2.5%) parks/gardens websites, have their booking information/button placed above the fold.

The least commonly used *tunneling* based strategy is that of presenting site-maps. 32 of the total 102 (31.4%) tourism SMEs websites have sitemaps. Sitemaps can greatly reduce the effort exerted by users in finding the information they require by

providing a quick map to all the pages of the website. Sub-categorical division of the 32

websites shows, 15 of the 40 (46.8%) entertainment visitor attractions, 8 of the 31

(25%) wildlife visitor attractions, 4 of the 16 (12.5%) heritage visitor attractions, 3 of

the 11 (9.3%) tour based attractions and 2 of the 4 (6.25%) parks/gardens visitor

attractions have site-maps.

Based on Oinas-Kukkonen and Harjumaa's (2009) presentation of the *tunneling*

strategy, which suggests giving users an easy pathway to reach task completion, the

researcher makes the recommendation that visitor attraction SMEs might benefit from

incorporating a keyword based website search feature. The search feature might be able

to improve usability by allowing users to instantly visit the information they are keen on

gaining. Only 39.2% of the 102 tourism SMEs websites have a search tool that allows

users to find the information they need, thus, giving them the specific information

required to complete the task.

Three of the six *tunneling* based UX elements reviewed appear to fall under the

high usage category (Table 5.2).

5.6.1.3 Primary Task Support- Tailoring and Personalisation

Tailoring involves providing tailored information directed toward the potential needs, interests, personalities, usage context and other factors relevant to the user group (Oinas-Kukkonen and Harjumaa, 2009; Lehto, 2013). *Personalisation* allows a system to offer personalized content or services to the user group, which in turn improves the persuasiveness of the system (Oinas-Kukkonen and Harjumaa, 2009). *Tailoring* and *personalisation* have been combined because the tourism SME online UX elements, which apply to one, also apply to another. Moreover, registering and making a purchase on each individual website is out of the scope of this research, therefore limiting the ability to test *personalisation* as a separate feature.

Table 5.3 shows that the most commonly used *tailoring+personalisation* strategy is that of business proposition mentioned clearly on the front page. The business proposition in the case of the SMEs appears to generally display some statement about what type of services the business offers. 95.1%, that is 97 of the 102 websites, have incorporated this strategy. Sub-categorical division of the 97 websites shows that- 39 of the 40 (40.2%) entertainment websites, 30 of the 31 (30.9%) wildlife websites, 14 of the 16 (14.4%) heritage websites, 10 of the 11 (10.3%) tours websites and all 4 (4.1%) of the parks/gardens websites have incorporated this strategy.

Tailoring+ Personalisation	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Twitter/FB hashtags used to invite people to the website	31.8	13.04	4.3	10.1	40.5	67.6
Have a newsletter	31.1	16.3	1.6	11.4	39.3	59.8
Responsive web design	32.8	16.4	5.4	8.2	39.7	71.6
Business proposition is clearly mentioned on the front page	30.9	14.4	4.1	10.3	40.2	95.1
System asks users if they are visiting for a special occasion	25	16.6	8.3	16.6	33.3	11.8
Do users get to create an account?	20	20	13.3	6.6	40	14.7
Purchase can be made without registering	31.6	15.1	2.5	12.6	37.9	77.5
Offers both options: Create online account Checkout without registering	50	0	0	0	50	3.9

Table 5.3: Primary Task Support (Tailoring + Personalisation) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

The second most commonly implemented *tailoring+personalisation* strategy allows users to purchase without registering an account. 79 of the 102 websites offer this feature. Sub-categorical division of the 79 websites shows that this feature is used by, 30 of the 40 (37.9%) entertainment websites, 25 of the 31 (31.6%) wildlife websites, 12 of the 16 (15.1%) heritage websites, 10 of the 11 (12.6%) tours websites and 2 of the 4 (2.5%) parks/gardens websites.

Table 5.3, further shows that the third most commonly implemented *tailoring+personalisation* strategy is that of responsive website design. Responsive website design means that the website design has been customised to display mobile/tablet versions, when accessed on these devices. Responsive designs provide improved usability so that mobile/tablet users can read and browse the websites clearly and comfortably. 71.6%, that is 73 of the 102 tourism SMEs websites offer responsive website designs. Sub-categorical division of the 73 websites shows that, 29 of the 40 (39.7%) entertainment websites, 22 of the 31 (32.8%) wildlife websites, 12 of the 16 (16.4%) heritage websites, 6 of the 11 (8.2%) tours websites and all 4 (5.4%) of the parks/gardens websites offer this functionality.

The fourth most highly used *tailoring+personalisation* strategy is that of using Twitter/Facebook hash tags to invite people to the website. 69 of the 102 (67.6%) tourism SMEs use hash tags on their social networking pages to attract followers to their websites. Further sub-categorical division shows, 28 of the 40 (40.5%) entertainment websites, 22 of the 31 (31.8%) wildlife websites, 9 of the 16 (13.04%) heritage websites, 7 of the 11 (10.1%) tours websites and 3 of the 4 (4.3%) parks/gardens websites use this strategy.

Table 5.3 shows that only 14.7% of the tourism SMEs require the users to register before checking out. However, 77.5% of the tourism SMEs give their users the opportunity to check out without registering. Further, only 3.9% of the tourism SMEs offer users both options. This appears to be the least commonly used strategy. Further sub-categorical division of the 4 websites that do offer this functionality shows that, 2 of the 40 (50%) entertainment websites and 2 of the 31 (40%) wildlife websites offer this functionality. The other three sub-categories do not appear to incorporate this option.

It appears that majority of the websites offer users a quick check out process, instead of getting users to register an account. This is contrary to what Oinas-Kukkonen and Harjumaa's (2009) state as the purpose of *tailoring+personalisation*. The role of *tailoring+personalisation* is to identify the users and provide them an individual, unique experience based on the information the website is able to collect from the users. The researcher believes that by offering both options (quick checkout/registering an account) the tourism SMEs can allow those users who wish to be identified for future purchases, the ability to do so.

5.6.1.4 Primary Task Support- Self-monitoring

Self-monitoring design principle allows the system users the opportunity to track their progress (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.4 shows that amongst the six UX elements that are used to assess the *self-monitoring* design strategy, the most commonly utilised across tourism SMEs websites is the horizontal navigation bar. 94.1%, that is 96 of the 102 websites have this feature. Further sub-categorisation of the 96 websites shows that, 38 of the 40 (39.5%) entertainment websites, 28 of the 31 (29.1%) wildlife websites, 15 of the 16 (15.6%) heritage websites, all of the 11 (11.4%) tours and 4 (4.1%) parks/gardens websites, incorporate the horizontal menu bar.

Self-monitoring	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Breadcrumb navigation[9]	33.3	11.1	11.1	0	44.4	8.8
Drop down menu	41.5	9.4	5.6	3.7	39.6	52
Horizontal navigation bar	29.1	15.6	4.1	11.4	39.5	94.1
Vertical navigation bar	33.3	11.1	0	0	55.5	8.8
Icons/graphics instead of text navigation	34.1	12.1	2.4	9.7	41.4	40.2
Drop down sub menu	100	0	0	0	0	1

Table 5.4: Primary Task Support (Self-monitoring) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

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[9] Breadcrumb navigation- this type of navigation is a secondary-level navigation that allows users to keep a track of their location while browsing the website. This allows the users to track their way back to the main page.

The least commonly used UX element is the drop-down sub menu. Table 5.4 shows that only 1% of the total 102 tourism SMEs websites have this feature. The 1 website belongs to the wildlife sub-category. The sub-menu can help users in navigating through a complex website with many pages. Interestingly, all of the 102 websites have limited number of web pages; therefore obliterating the requirement to incorporate sub-menus.

5.6.1.5 Primary Task Support- Simulation and Rehearsal

Simulation as a design strategy shows users what the real experience of using the product/service would be like (Oinas-Kukkonen and Harjumaa, 2009). *Rehearsal* as a design principle aims to provide means for a user to rehearse their behaviour, which in turn could change their attitudes or behaviour in the real world (Oinas-Kukkonen and Harjumaa, 2009). Within the context of tourism SMEs websites, UX elements that apply to *simulation*, can also be applied to *rehearsal*. This is the reason both strategies have been combined.

Table 5.5 shows that none of the *simulation+rehearsal* related UX elements have been widely incorporated across tourism SMEs websites. *Simulation* can work as an effective method for allowing systems to show users what the real experience would be like. *Simulation* can further be a beneficial technique in the tourism sector where the real experience itself is intangible. Through the use of innovative web technology, tourism SMEs can offer virtual tours, live camera feeds or employ similar gimmicks to show users what the real experience entails. Table 6 shows that only 2 of the 102 websites offer a 360-degree view of the destination, while only 1 SME offers a virtual

tour. Furthermore, 7 websites incorporate some form of dynamic elements that act as *simulation* gimmicks, such as a live-feed, 360-video and animated games.

Simulation+ Rehearsal	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
360 degree view	50	0	0	0	50	2.0
Virtual tour	100	0	0	0	0	1.0
Other gimmicks	14.2	0	0	14.2	71.5	6.9

Table 5.5: Primary Task Support (Simulation+Rehearsal) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.2 Dialogue support

People respond to IT systems as if they are social actors (Fogg and Nass, 1997; Nass and Moon, 2000; Lehto, 2013), which means that their interactions with the artifacts within the IT systems are interpersonal. People react to IT systems as if they are interacting in social situations (Lehto, 2013). In order to provide a system that is persuasive, it is important to take the dialogue into consideration and integrate dialogue support features into the system design. According to Oinas-Kukkonen and Harjumaa (2009), any interactive system must provide some degree of system feedback to the

users. The seven design strategies under the dialogue support design principle have been customised to fit the tourism SME context. The revised strategies are,

    i. Praise

    ii. Rewards

    iii. Suggestions

    iv. Similarities + liking

    v. Social role

Similarities and *liking* design principles have been combined, as the design features for both these principles appear to overlap within the tourism SME context. The design principle missing from this list is *reminders*. *Reminders* cannot be tested as this will require registering or purchasing from each individual website, which is out of the scope of this research.

5.6.2.1 Dialogue Support: Praise

Praise is a design principle used by a persuasive system to motivate users to complete the task.

Table 5.6 shows that the first dialogue support design strategy presented by Oinas-Kukkonen and Harjumaa (2009) is- *praise*. A sentence along the lines of "Congratulations! You have made the right choice" upon selecting a package to purchase, could act as *praise*. *Praise* as a persuasive system design feature is not used by the tourism SMEs. Only 2 of the 102 websites incorporate *praise*, of which 1 is a heritage website and another is a parks/gardens website. It is an interesting fact that none of the websites from the entertainment or wildlife segment use *praise* as a persuasive feature, given that a large portion of the sample belongs to these two sub-categories.

Praise	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Praise words show up when users click on the buy link, assuring that they have made the right decision to make the purchase	0	50	50	0	0	2.0

<p align="center">**Table 5.6: Dialogue Support (Praise) Figures in %**</p>

<p align="center">Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)</p>

5.6.2.2 Tourism SMEs and Dialogue Support: Rewards

Rewards as a dialogue support design strategy offers users the ability to win *rewards* for completing certain tasks (Oinas-Kukkonen and Harjumaa, 2009). The motivation for winning *rewards* can have a persuasive effect on nudging users toward completing a task and making a behaviour change (Lehto, 2013).

Table 5.7 shows that one of the most interesting observations from the content analysis is the lack of *rewards* offered by the websites. Only 20 of the 102 websites offer discounts for making an online booking. The sub-categorical division of the 20 websites shows that 8 of the 40 (40%) entertainment websites, 7 of the 31 (35%) wildlife websites, 3 of the 16 (15%) heritage websites and 2 of the 4 (10%) parks/gardens websites offer discounts for booking online. Furthermore, none of the

websites offer *rewards* for sharing content online or discounts for creating an account on the website. It appears that as a persuasive design strategy, *rewards* appear to be something that the tourism SMEs might not consider as important. On the contrary, an argument could also be made that they probably might not recognise the benefits of employing the *rewards* strategy.

Rewards	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Discounts for booking online	35	15	10	0	40	19.06
Rewards for those who share something	0	0	0	0	0	0
Rewards for creating an online account	0	0	0	0	0	0

Table 5.7: Dialogue Support (Rewards) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.2.3 Dialogue Support: Suggestions

Suggestions as a design principle acts toward persuading users by offering them suggestions that provide them more useful information (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.8 shows that unlike *praise* and *rewards*, *suggestions* is a design principle that is used across all the tourism SME segments reviewed in the website

content analysis. The most commonly implemented *suggestions* related UX feature is-suggestion on which package to book. 78.4%, that is 80 of the 102 websites offer suggestions on which package to book. Further sub-categorisation shows that, 33 of the 40 (41.2%) entertainment websites, 20 of the 31 (25%) wildlife websites, 13 of the 16 (16.2%) heritage websites, 10 of the 11 (12.5%) tours websites and all 4 (5%) of the parks/gardens websites, incorporate this feature.

Suggestions	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Suggestion on which package to book	25	16.2	5	12.5	41.2	78.4
Suggestion on where to eat	33.3	18.05	4.1	5.5	38.8	70.6
Suggestion on places to visit	31.6	16.4	5.06	10.1	36.7	77.5
Suggestion to follow on social networking sites for more information	33.3	13.3	6.6	3.3	43.3	29.4
Suggestions on how to access discounts	14.2	21.4	14.2	0	50	13.7
Suggestions on event related services on offer	29.4	23.5	17.6	5.8	23.5	16.7

Table 5.8: Dialogue Support (Suggestions) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

The second most commonly implemented *suggestions* related UX feature is-suggestion on places to visit. 77.5%, that is 72 of the 102 tourism SMEs websites, offer this feature. Sub-categorical division of the 72 websites shows that 29 of the 40 (36.7%) entertainment websites, 25 of the 31 (31.6%) wildlife websites, 13 of the 16 (16.4%) heritage websites, 8 of the 11 (10.1%) tours websites and all 4 (5.06%) of the parks/gardens websites offer this feature.

The third most commonly implemented *suggestions* related UX feature is-suggestion on where to eat. 70.6% that is 72 of the 102 websites offer this feature. Further sub-categorical division of the 72 websites shows that 28 of the 40 (38.8%) entertainment websites, 24 of the 31 (33.3%) wildlife websites, 13 of the 16 (18.05%) heritage websites, 4 of the 11 (5.5%) tours websites and 3 of the 4 (4.1%) parks/gardens websites offer users the *suggestion* on where to eat, when they visit.

The least commonly employed *suggestions* related UX feature is providing suggestions on how to access discounts. 13.7%, that is 14 of the 102 websites offer their users this feature. Further sub-categorical division of the 14 websites shows that 7 of the 40 (50%) entertainment websites, 3 of the 16 (21.4%) heritage websites and 2 (14.2%) each of the 31 wildlife and 4 parks/gardens websites offer this UX feature. None of the 11 tours websites incorporate this feature. The lack of adoption of this *suggestion* falls in line with the lack of incorporation of the strategies-*praise* and *rewards*.

5.6.2.4 Dialogue Support: Similarities and Liking

Similarity as a design principle suggests that a system is more likely to be persuasive if it reminds users of their own selves in some meaningful manner (Oinas-Kukkonen and Harjumaa, 2009). *Liking* as a design principle in persuasive system

design aims toward developing a system that the users find appealing (Oinas-Kukkonen and Harjumaa, 2009). As the tourism SME websites' UX elements corresponding to both overlap, the two strategies have been combined.

Table 5.9 shows that the *liking+similarities* related UX elements are used extensively by tourism SMEs. The most commonly used *liking+similarities* related UX element is- no error pages. 102 (99%) of the tourism SMEs websites have no error pages. Only 1 website from the entertainment sub-category has an error page.

Similarities+Liking	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
No error pages	30.6	15.8	3.9	10.8	38.6	99
Business value proposition is communicated through images	29.2	15.1	4	11.1	40.4	97.1
Website loads quickly (max. 5 seconds)	31	16	4	11	38	98
Colour scheme is consistent across all pages	31.3	15.1	4.04	11.1	38.3	97.1
Font is clear and bold	31.3	16.1	4.04	10.1	38.3	97.1
Pages on the website are consistent	31.3	15.1	4.04	11.1	38.3	97.1
Error pages are functional (404 pages lead users back to main page)	32.8	16.4	5.9	10.4	34.3	65.7
Fewer affiliate ads on the pages	31.1	17.2	4.3	10.7	36.5	91.2
Pictures of people enjoying the service experience	29.2	7.3	9.7	12.1	41.4	40.2
Top 5 keywords searched by users match the top 5 keywords on the page	30.5	15.7	3.1	11.5	38.9	93.1

Table 5.9: Dialogue Support (Similarities+Liking) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100%
(for more information on usage percentages, see Section 5.6.1.1 on p.199)

The second most commonly encountered *liking+similarities* feature is that 100 (98%) of the tourism SMEs websites load within 5 seconds. Website loading delays can push frustrated users away from the website. Only 2 websites from the entertainment sub-category appear to fail to load within 5 seconds.

The third most commonly used strategies are- business value proposition is communicated through images, colour scheme is consistent across all pages, font is clear and bold and pages on the website are consistent. All four of these features have been used by 97.1% of the tourism SMEs websites.

The least commonly used *similarities+liking* based feature is- pictures of people enjoying the experience. This feature is incorporated by 41 of the 102 websites. The sub-categorical division of the 41 websites shows that all 4 (9.7%) of the parks/gardens websites incorporate this feature. But only 17 of the 40 (41.4%) entertainment websites, 12 of the 31 (29.2%) wildlife websites, 3 of the 16 (7.3%)heritage websites and 5 of the 11 (12.1%) tours websites display pictures of people enjoying the tourist experience.

The implementation of *liking* based features is consistent across all visitor attraction SME segments equally, as most of the features are incorporated by the websites, intentionally or unintentionally.

5.6.2.5 Dialogue Support: Social Role

Social role as a design principle within the persuasive systems design model aims toward providing users an opportunity to interact with the system provider (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.10 presents all the *social role* related UX elements, the most commonly used by tourism SMEs websites is that 90.2% of the SMEs interact with their users on social networking sites. The sub-categorical division of the 92 tourism SMEs shows that, 37 of the 40 (40.2%) entertainment websites, 29 of the 31 (31.5%) wildlife websites, 14 of the 16 (15.2%) heritage websites, 9 of the 11 (9.7%) tours websites and 3 of the 4 (3.2%) parks/gardens websites interact with their users on social networking sites.

Social Role	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Interact on TripAdvisor	32.07	13.2	3.7	15.09	35.8	52
Interact on social networking sites	31.5	15.2	3.2	9.7	40.2	90.2
Invite users to get in touch	56.2	12.5	6.2	0	25	15.7
Content showing company's relationships with 3rd parties	45.4	9.02	18.1	0	27.2	10.8

Table 5.10: Dialogue Support (Social Role) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

Only 52% of the visitor attraction SMEs' interact with users on TripAdvisor.com. This finding is surprising given that in Chapter 2 (Section 2.9.4, p.78)

it has been established that tourist users rely on review sites for information and inspiration. PhoCusWright (2009), the World Travel Market (2010) and the Northern Ireland Tourism Board (2013) have all found that review websites are very important as they can persuade users to either make the decision to purchase or not.

The least commonly used *social role* related UX features is- content showing company's relationship with 3rd parties. Displaying such content can improve the sociability of the tourism SME, which in turn can have implications on the user's perception of the company. Table 5.10 shows that only 11(10.8%) of the 102 websites display content showing company's relationship with 3rd parties. The sub-categorical division of the 11 websites shows that, 3 of the 40 (27.2%) entertainment websites, 5 of the 31 (45.4%) wildlife, 2 of the 4 (18.1%) parks/gardens and 1 of the 16 (9.02%) heritage websites, display such content. None of the 11 tours websites incorporate this content.

5.6.3 Credibility support

Fogg (2003) describes credibility as believability. Credibility is known to have significant influence on persuasion and website persuasiveness (Fogg, 2003; Cugelman et al., 2009; Lehto, 2013). Trust is a manifestation of credibility, which can be considered as trustworthiness (Everard and Galletta, 2005; Alhammad and Gulliver, 2014). Credibility and trust are important and related constructs (Alhammad and Gulliver, 2014). Within the PSD model, the credibility support parameter includes seven design principles (Oinas-Kukkonen and Harjumaa, 2009). These strategies have been revised to best fit the tourism SME context.

    i.   Trustworthiness

    ii.   Expertise + surface credibility

    iii.   Real-world feel

    iv.   Authority

    v.   3rd party endorsement

    vi.   Verifiability

The UX features corresponding to expertise and surface credibility appear to overlap and have been combined for the purpose of this website content analysis.

5.6.3.1 System Credibility: Trustworthiness

Trustworthiness as a design principle asserts the need to provide users with information that is truthful, fair and unbiased (Oinas-Kukkonen and Harjumaa, 2009). A system that appears trustworthy can show higher efficacy in persuading users to change their behaviour and/or attitudes.

Table 5.11 shows that amongst the *trustworthiness* based UX features, the most commonly used is-terms and conditions can be accessed via a link on the booking page. 87 (85.3%) tourism SMEs offer this UX feature. The sub-categorical division of the 87 websites shows that 35 of the 40 (40.2%) entertainment websites, 26 o the 31 wildlife websites, 12 of the 16 (29.8%) heritage websites, 3 of the 4 (3.4%) parks/gardens websites and all of the 11 (12.6%) tours websites, present a link that allow users to access the terms and conditions.

Trustworthiness	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Displaying 3rd party reviews	33.3	22.2	11.1	22.2	11.1	8.8
Terms and conditions are prominent placed on the booking page	25	37.5	0	0	37.5	7.8
Terms and conditions can be accessed via a link on the booking page	29.8	13.7	3.4	12.6	40.2	85.3
Displays logos of associations they are a member of	40	8	8	16	28	24.5

Table 5.11: Credibility Support (Trustworthiness) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

It is interesting to note that only 8.8% of the total websites appeared to embed

and display 3rd party reviews on their website. Overall it appears that *trustworthiness*

has not been adopted widely by tourism SMEs.

5.6.3.2 System Credibility Support: Expertise + Surface Credibility

Expertise as a credibility support strategy portrays the system as an expert. A

system that is able to present itself as an expert provider of knowledge and experience

will have increased powers of persuasion (Oinas-Kukkonen and Harjumaa, 2009).

Surface credibility as a system credibility strategy suggests that people make an initial

assessment of the system based on the competency and feel of the system (Oinas-

Kukkonen and Harjumaa, 2009). Within the context of tourism SMEs websites, the UX

elements that correspond with *expertise*, also do so with *surface credibility.* Hence, both

these strategies have been combined in this website content analysis.

Table 5.12 shows five different UX elements that correspond with the credibility

support strategies, *expertise+surface credibility*. The most commonly used UX feature

is- no grammatical errors. 100 (98%) of the tourism SMEs display proofread content.

Sub-categorical division of the 100 websites shows that the 2 (38%) websites that

contain grammatical errors belong to the entertainment websites category.

Expertise+Surface Credibility	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Length of time the website has been in operation (5 years +)	31.5	15.2	3.2	10.8	39.1	90.2
Content updated regularly (every month)[10]	33	16.09	4.5	11.4	34.4	85.3
No grammatical errors	31	16	4	11	38	98
FAQs page	31.8	15.1	3.03	10.6	39.3	64.7
Displays awards won	29.4	17.6	11.7	11.7	29.4	16.7

Table 5.12: Credibility Support (Expertise+Surface Credibility) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

The second most commonly adopted *expertise+surface* credibility feature is-length of time the website has been in operation (5 years +). The length of time a website has been around suggests to the user that the company must be an expert or at the very least, good at what they do (Fogg, 2003; Oinas-Kukkonen and Harjumaa, 2009; Lehto, 2013). 92 (90.2%) of the 102 tourism SMEs have this feature. The sub-categorical division of the 92 websites shows that, 36 of the 40 (39.1%) entertainment websites, 29 of the 31 (31.5%) wildlife websites, 14 of the 16 (15.2%) heritage websites, 10 of the 11 (10.8%) tours websites and 3 of the 4 (3.2%) parks/gardens websites, have been around on the web for 5 years or more.

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[10] Content updated regularly (every month) was studied using website blogs and news pages.

The third most commonly implemented *expertise+surface credibility* feature is-content updated regularly (every month). Frequency in terms of publishing information suggests to the user that the tourism SME is actively involved. This active involvement further suggests the tourism SME's expertise and at the same time improves their surface credibility (Fogg, 2003; Oinas-Kukkonen and Harjumaa, 2009). 87 (85.3%) of the 102 tourism SME websites displayed content that has been uploaded within a month or less, leading up to the date of the website content analysis. The sub-categorical division of the 87 websites shows that, 30 of the 40 (34.4%) entertainment websites, 29 of the 31 (33.3%) wildlife websites, 14 of the 16 (16.09%) heritage websites, 10 of the 11 (11.4%) tours websites and all 4 (4.5%) of the parks/gardens websites, have uploaded latest content within 1 month or less of the website content analysis.

It is quite evident that tourism SMEs have largely adopted the *expertise+surface credibility* related UX features. The only feature that is least frequently incorporated is-displaying awards won. Only 17 (16.7%) of the total 102 tourism SMEs displayed the awards they have won.

5.6.3.3 System Credibility Support: Real-world feel

Real-world feel as a design principle helps the system in highlighting the people or the organisation working behind the content or services that are being provided. This information creates a real-world sort of feel that users can relate to (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.13 shows that of the 4 real-world feel related UX elements, only 1 is used commonly by tourism SMEs. 83 (81.4%) tourism SMEs websites display a link to the About Us page. Sub-categorical division of the 83 websites shows that, 32 (38.5%) of the 40 entertainment websites, 26 (31.3%) of the 31 wildlife websites, 12 (14.4%) of the 16 heritage websites, 9 (10.8%) of the tours websites and all 4 (4.8%) of the parks/gardens websites, possess this feature.

Real-world feel	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Link to about us	31.3	14.4	4.8	10.8	38.5	81.4
Blog about organisation	38.4	23.07	15.38	7.6	15.38	12.7
Organisational hierarchy	55	11.1	0	0	33.3	8.8
Staff profiles	53.8	15.3	0	7.6	23.07	12.7

Table 5.13: Credibility Support (Real-world feel) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

Table 5.13 shows that besides- Link to about us, the other UX elements are not used often by tourism SMEs. Only 9 (8.8%) of the 102 tourism SMEs displayed their organisational hierarchy on the websites. According to Oinas-Kukkonen and Harjumaa (2009), a system's presentation of the *real-world feel* can have implications on user behaviour. *Real-world feel* related elements support transparency, which can boost the system's credibility.

5.6.3.4 Tourism SMEs and System Credibility Support: Authority

According to Oinas-Kukkonen and Harjumaa (2009), a system that displays its authority, is likely to be highly persuasive. Authority can in-turn raise the system's credibility (Oinas-Kukkonen and Harjumaa, 2009; Lehto, 2013).

Table 5.14 shows that the authority related UX feature has been used by only 15 (14.07%) of the total 102 websites. The SMEs might not be able to recognise the value of showcasing authority in order to persuade users via credibility.

Authority	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Articles/blogs from someone in the position of authority	40	6.6	13.3	6.6	33.3	14.07

Table 5.14: Credibility Support (Authority) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.3.5 System Credibility Support: Third party endorsements

Third party endorsements, especially from well-respected sources can boost the credibility perceptions of the system (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.15 shows an interesting picture. Of the two UX elements that correspond with *third-party endorsements*, the tourism SMEs appear to largely adopt one and ignore the other. 90 (88.2%) of the 102 tourism SMEs display certifications

from 3rd parties, such as SSL[11] secure transaction certification or other privacy

certificates. Sub-categorical division shows that 36 (40%) of the 40 entertainment

websites, 27 (30%) of the 31 wildlife websites, 13 (14.4%) of the 16 (heritage websites,

all 11 (12.2%) tours websites and 3 (3.3%) of the 4 parks/gardens websites, display this

UX element.

Third-party endorsement	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Endorsements	100	0	0	0	0	1
Certifications by 3rd parties (SSL, other privacy certificates)	30	14.4	3.33	12.2	40	88.2

Table 5.15: Credibility Support (Third party endorsements) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

However, only 1 website displays *third-party endorsements* of the brand, on the

main page. This website belongs to the wildlife sub-category.

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[11] The SSL certificate is a small data file that digitally binds a cryptographic key to an organisation's details. When these small data files are installed online, they activate the padlock and the https protocol, allowing safe and secure connections between the web server and the browser (GlobalSign, 2015)

5.6.3.6 Credibility Support: Verifiability

Verifiability design principle works on the assumption that if a system can verify its accuracy via outside sources, it might be perceived as more credible (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.16 shows that neither of the two strategies corresponding with *verifiability* have been used extensively by the tourism SMEs. This closely relates with the findings of *social role* (Table 5.10) from dialogue support design principle on p.220 in this chapter. It has also been established in Chapter 2, Section 2.9.4 (p.78) that tourist users rely on review sites in order to make decisions. Links to review sites or other similar sites that can verify the experience offered by the visitor attractions can persuade users to make the decision to purchase online, by showcasing credibility.

Verifiability	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Links to affiliate sites	46.1	0	7.6	15.3	30.7	12.7
Links to review sites	18.7	18.7	12.5	25	25	15.7

Table 5.16: Credibility Support (Verifiability) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.4 Social support

Oinas-Kukkonen and Oinas-Kukkonen (2013) equate technology-mediated communications with interpersonal social relationships. Technology mediated communications can help in maintaining online relationships, which in turn can facilitate social support (Lehto, 2013). Social support is influential in terms of persuasiveness of a website because when users see that others are also using the website, they begin to compare their behaviour with the outcomes of others (Alhammad and Gulliver, 2014). Their attitude is then influenced positively or negatively based on this perception of social support. Oinas-Kukkonen and Harjumaa (2009) have devised seven design principles for social support. These have been customised into five, to fit the tourism SMEs context.

i. Social learning + social comparison

ii. Normative influence

iii. Social facilitation + cooperation

iv. Competition

v. Recognition.

Social learning+social comparison based UX elements appear to overlap, and so do *social facilitation+cooperation*, leading to them being merged.

5.6.4.1 Social Support: Social learning + Social comparison

Social-learning design strategy suggests that a system should provide the means for users to observe other users who are performing the same task. This will motivate

the users toward performing the target behaviour (Oinas-Kukkonen and Harjumaa, 2009). *Social comparison* works on the principle that users will have a greater motivation to perform target behaviour if the system lets them compare their performance with that of others (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.17 shows that only 1 UX feature appeared most relatable to the social support strategies of *social learning+social comparison*. 5 (4.9%) of the total 102 tourism SMEs appear to adopt this strategy.

Social Learning+ Social Comparison	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Displays reviews by other users	40	20	0	20	20	4.9

Tabl e 5.17: Social Support (Social Learning+Social Comparison) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.4.2 Social Support: Normative influence

Normative influence aims to provide means for users with similar goals to gather together so they can experience the social norms. Leveraging normative influence or peer pressure ensures that the person's likelihood of adopting the target behaviour will also increase (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.18 shows that neither of the 2 *normative influence* based UX elements are implemented extensively by the tourism SMEs. *Normative influence* could be beneficial to tourism SMEs because noticing that other users have purchased the service or followed the brand on social networks can be a motivating factor for the observers. Furthermore, *normative influence* can nudge users toward copying other users behaviours.

Normative influence	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Offers suggestions based on what other buyers generally do upon their visit	40	40	20	0	0	4.9
Displays the number of followers on the main page	100	0	0	0	0	1

Table 5.18: Social Support (Normative Influence) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.4.3 Social Support: Social facilitation + Cooperation

Social facilitation works along the assumption that if a system provides means for discerning other users who are performing the behaviour, then the system is more likely to be persuasive (Oinas-Kukkonen and Harjumaa, 2009). *Cooperation* as a design principle suggests that if the system can provide means for co-operation, then the users will be motivated to adopt the target behaviour. The users will do so by leveraging the human drive to co-operate (Oinas-Kukkonen and Harjumaa, 2009). In context to the

tourism SMEs, the UX elements corresponding with both strategies appear to overlap, hence leading to the merger of both.

Table 5.19 shows a polarizing effect in terms of adoption of the two strategies. 94 (92.2%) of the total 102 websites enable users to cooperate with one another through social networking sites. The sub-categorical division of the 94 websites shows that 38 (40.4%) of the 40 entertainment websites, 29 (30.8%) of the 31 wildlife websites, 14 (14.8%) of the 16 heritage websites, 9 (9.5%) of the 11 tours websites and all 4 (4.2%) of the parks/gardens websites, offers their users this functionality.

Social facilitation+Cooperation	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Enable users to co-operate with one another through online forums	0	0	0	0	0	0
Enable users to co-operate with one another through social networking sites	30.8	14.8	4.2	9.5	40.4	92.2

Table 5.19: Social Support (Social Facilitation+Cooperation) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

However, none of the visitor attraction offer online forums that can provide tourist users the opportunity to cooperate with one another. The lack of this functionality suggests that the SMEs might prefer social networking interactions to forums, as installation of forums can be more time-consuming. Furthermore, the tourism SMEs might not expect their users to interact on forums. This might make forums irrelevant to the tourism SME context.

5.6.4.4 Social Support: Competition

Competition as a social-support design strategy, works on the simple assumption that offering system users the opportunity to participate in contests will motivate users to perform the target behaviour (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.20 shows that only 23 (22.5%) of the 102 tourism SMEs hold contests for their users. *Competition* as a design principle appears to be an almost unexplored area within the tourism SMEs context. These findings are similar to the findings of the *rewards* strategy from dialogue support (Table 5.7) design principle on p. 214

Competition	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Do they hold contests?	39.13	4.3	4.3	0	52	22.5

Table 5.20: Social Support (Competition) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

5.6.4.5 Social Support: Recognition

Recognition as a design principle within the PSD model works on the understanding that if users are offered public recognition, they are more likely to adopt the target behaviour (Oinas-Kukkonen and Harjumaa, 2009).

Table 5.21 shows that, out of 3 recognition related UX elements, tourism SMEs extensively use 2 of the elements. The recognition based UX element that is most commonly used by tourism SMEs is- replying to individual users on social networks. 91 (89.2%) of the total 102 SMEs reply to their followers on Facebook and Twitter. The sub-categorical contribution to the 91 websites comes from 36 (39.5%) of the 40 entertainment websites, 29 (31.8%) of the 31 wildlife websites, 14 (15.3%) of the 16 heritage websites, 9 (9.8%) of the 11 tours websites and 3 (3.2%) of the 4 parks/gardens websites.

Recognition	Wildlife	Heritage	Parks/Gardens	Tours	Entertainment	Total
Retweeting users	32.9	15.2	2.3	8.2	41.1	83.3
Replying to individual users on social networks	31.8	15.3	3.2	9.8	39.5	89.2
Showcasing contest winners	60	20	0	0	20	4.9

Table 5.21: Social Support (Recognition) Figures in %

Low usage- 0%-33.3% Medium usage- 33.3%-66.6% High usage- 66.6%-100% (for more information on usage percentages, see Section 5.6.1.1 on p.199)

The second most widely used *recognition* related UX element is-retweeting users. This is similar to replying to users, yet only 85 (83.3%) of the tourism SMEs perform this behaviour. The website content analysis has previously shown that the tourism SMEs are not exploring the strategies of *rewards* or *competitions*. This explains why only 5 (4.9%) of the 102 tourism SMEs appear to showcase contest winners.

5.7 Application of the PSD model strategies within the visitor attraction SME context

The website content analysis presents data on 27 of the 28 PSD model strategies. The studied websites belong to five sub-categories of tourism SMEs, but the samples are not equally distributed[12].

The findings of the website content analysis show that the various strategies and their corresponding UX features are spread out variedly across the visitor attraction SMEs analysed. Table 5.22 highlights only those strategies and their corresponding features that have been used frequently by the SMEs. The levels of usage received by each feature have been differentiated on a scale of low (0%-33.3%), moderate (33.3%-66.6%) and high (66.6%-100%). According to Table 5.22, four strategies each from the primary task and credibility support, three strategies from dialogue support and two strategies from the social support design principles received highest (66.6%-100%) support from the tourism SMEs for their corresponding UX features.

The strategies of *reduction*, *tunneling*, *tailoring+personalisation* and *self-monitoring* under the primary task support design principles; are employed by majority of the visitor attractions. Under credibility support *design principle*, *trustworthiness*, *expertise+surface credibility*, *real-world feel* and *third party endorsements*, are used extensively. From the second most commonly adopted design principle of dialogue support, the strategies *suggestions, similarities+liking* and *social role* are used

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12 The results of the website content analysis do show that all of the strategies were most frequently and least frequently utilised by the entertainment and the parks/gardens sub-categories respectively. However, this result is most likely down to the fact that majority of the sample belongs to the entertainment category, and the least number of sampled websites belong to the parks/gardens category.

frequently by the visitor attractions. Finally, from the least commonly adopted design principle, social support, only the strategies of *social facilitation+cooperation* and *recognition* receive highest support from visitor attractions.

Table 5.22 does not include the UX features with low or moderate level usage. (For further information on how the usage levels have been devised, refer to Section 5.6.1.1 on p.199). The corresponding strategies to these low or moderately supported UX features are, *social learning +social comparison*, *normative influence* and *competition*, under social support design principle; *praise* and *rewards* under dialogue support; *verifiability* and *authority* under credibility support and *simulation+rehearsal* under primary task support design principle.

Primary Task Support	Dialogue Support	Credibility Support	Social Support
Reduction: Link is on the front page, Link is embedded on every page via navigation menu	Praise	**Trustworthiness:** Terms and conditions can be accessed via a link on the booking page	Social learning+Social comparison
Tunneling: Navigation menu, Booking information/Button above the fold, Text information on how to book	Rewards	**Expertise+Surface Credibility:** Length of time the website has been in operation (5 years +), No grammatical errors, Content updated regularly (Every month)	Normative influence
Tailoring+Personalisation Business proposition is clearly mentioned on the front page, Purchase can be made without registering, Responsive web design, Twitter/FB hashtags used to invite people to the website	**Suggestions:** Suggestion on which package to book, Suggestion on places to visit, Suggestions on where to eat	**Real-world feel:** Link to about us	**Social facilitation+Cooperation:** Enable users to cooperate with one another through social networking sites
Self-monitoring Horizontal navigation bar	**Similarities+Liking:** No error pages, Website loads quickly (max. 5 secs), Business value proposition is communicated through images, Colour scheme is consistent across all pages, Font is clear and bold, Pages on the website are consistent, Fewer affiliate ads on the pages, Top 5 keywords searched by users match the top 5 keywords on the page, Error pages are functional (404 pages lead users back to main page)	Authority	Competition
Simulation+Rehearsal	**Social Role:** Interact on social networking sites	**Third-party endorsements:** Certifications by 3rd parties (SSL, other privacy certificates)	**Recognition:** Replying to individual users on social networks, Retweeting users
		Verifiability	

Table 5.22: Most commonly implemented PSD strategies (Source: Author)

* Only those persuasive UX elements, which have been used the most (above 66.6%) are included in the table.

To the researcher's best knowledge, this website content analysis, based on the PSD model and used within the context of visitor attractions tourism SMEs is the first of its kind. Given this background, the data findings can only be compared against the theoretical and empirical research involving the application of the PSD model within other contexts. The following comparisons have been divided into two sections.

5.8 Comparison between the website content analysis findings and the BCSS literature

5.8.1 Primary task support

Within the BCSS literature (health applications), the primary task support components are reported by Lehto (2013), to have been used most frequently. On the contrary, Alhammad and Gulliver (2014) did not find the primary task support strategies to have been used frequently. Within Alhammad and Gulliver's (2014) research, the primary task support strategies ranked 3rd in terms of popularity of usage but this difference could be down to the fact that the research context involved e-commerce websites and not health BCSSs. The findings of this research are similar to Lehto's (2013) findings. The website content analysis shows that the primary task support design strategies are highly implemented across the tourism SMEs websites.

5.8.2 Credibility support

Lehto (2013) found that credibility support strategies have followed the occurrence of dialogue support strategies, within the literature, making them the 3rd most incorporated PSD model strategies. Furthermore, Alhammad and Gulliver (2014)

upon their assessment of the persuasive features of 10 e-commerce websites have also found that the dialogue support strategies have been used more frequently, followed by credibility support. However, the findings of this research are different as the credibility support strategies are implemented by the SMEs as often as they appear to implement primary task support strategies.

5.8.3 Dialogue support

Both Lehto (2013) and Alhammad and Gulliver (2014) have found that the dialogue support design principles are the second most commonly occurring in the reviewed literature. The findings of this website content analysis are slightly different as the dialogue support design strategies are the second most commonly occurring strategies, however the primary task and credibility support strategies are both employed equally by the SMEs.

5.8.4 Social support

In terms of the social support design principle, Lehto (2013) found that the strategies occur sparsely within BCSSs literature. This finding has also been established by Alhammad and Gulliver (2014) and the same pattern has been observed through this website content analysis. The social support strategies are the least commonly employed strategies within the tourism SMEs context.

5.8.5 Individual strategies

Tørning and Oinas-Kukkonen (2008) found that *tailoring, tunneling, reduction* (primary task support) and *social comparison* (social support) have often been considered as the key drivers of persuasion for behaviour change. Lehto (2013) suggests that tailoring does emerge as a popular strategy in context to BCSS. This website content analysis shares insights with Tørning and Oinas-Kukkonen (2008). The study has established that the UX features corresponding to *tailoring, tunneling* and *reduction* (primary task support) are indeed frequently used by the visitor attraction tourism SMEs. However, the *social comparison* (social support) strategy is one of the least frequently used. Furthermore, Tørning and Oinas-Kukkonen (2008) also state that *normative influence* (social support) has received a lot of attention within BCSS literature. *Normative influence* is one of the least frequently used strategies within the tourism SMEs context.

Tørning and Oinas-Kukkonen (2008) and Lehto (2013) found that *suggestions* are frequently considered as the strongest dialogue support strategy. This website content analysis (Table 5.8) shows that the *suggestions* strategy (dialogue support) is also implemented quite frequently by the visitor attraction tourism SMEs. In addition to *suggestions* (dialogue support), Lehto (2013) found that *praise* and *reminders* appeared to be a frequently implemented strategy. However, the findings of this research are in contradiction as the *praise* strategy was the least frequently occurring strategy. The *reminders* strategy has not been reviewed in this website content analysis (Please refer to Section 5.6.2 on p.211 for further information).

The credibility support strategy that is often considered as the strongest driver for persuasion is *surface credibility* (credibility support) (Tørning and Oinas-Kukkonen,

2008). The findings of the website content analysis also suggest the same pattern, as *surface credibility* is found to be one of the most commonly used strategies by visitor attraction tourism SMEs. Lehto (2013) has establishes that the least implemented credibility support strategies within BCSS literature are those of *real-world feel* and *third-party endorsements*. The findings of this research are in contradiction to Lehto (2013) as *real-world feel* and *third-party endorsements* have emerged to be the most frequently employed persuasion strategies by visitor attraction tourism SMEs. In addition to *real-world feel* and *third-party endorsements*, Lehto (2013) also found that verifiability appeared to be almost non-existent. The findings of this research depict a similar pattern.

A comparison with the BCSS literature suggests that the findings of this research suggest similarities in terms of the incorporation of primary task support strategies, which are used frequently within non-tourism as well as tourism contexts. However, the occurrence of credibility support strategies is also high (equivalent to primary task) within the tourism context, as opposed to non-tourism BCSS, where credibility support strategies are not employed as often. In terms of dialogue support strategies, it appears that both tourism and non-tourism BCSS employ them frequently. Within non-tourism contexts, dialogue support strategies closely follow primary task support and in the case of tourism BCSS, they closely follow second, behind primary and credibility support. The final similarity occurs in relation to social support. It appears that tourism and non-tourism BCSS contexts do not incorporate social support strategies frequently. The researcher believes this could be a result of the vagueness of the social support strategies mentioned in the PSD model. It is difficult to establish where one strategy within the PSD model's social support design principle ends and another begins (Lehto, 2013). Furthermore, system designers might not recognise the

benefits of social support for varied reasons that can be explored further in future research studies. Overall, it appears that the tourism SMEs appear to focus their efforts on providing usable (primary task), credible (credibility) and interactive and aesthetically pleasing (dialogue) experiences to their users. In order to derive more conclusive similarities and differences between specific strategies, it is crucial to expand research incorporating the theoretical framework of Oinas-Kukkonen and Harjumaa's (2009) PSD model.

5.9 Summary

This chapter has established the findings of the website content analysis and compared them with the existing findings from other empirical studies that have used the PSD model to study persuasion and behaviour change. Through the presentation of the findings and consequent comparison with the existing studies, this chapter has addressed Aim 1 and its two objectives (Please refer to the aims and objectives of the research in Chapter 1, Section 1.4, p.27).

Sections 5.2- 5.4 present information regarding the visitor attraction tourism SMEs selected for the research. All of the reviewed visitor attraction tourism SMEs have presence on the three popular social networking websites- *Facebook, Twitter* and *Instagram*, along with fully functional online transaction ready websites (Section 5.5). In order to get to the sampling goal of 102 only 19 websites had to be rejected. These websites have been rejected, as they did no offer opportunities for online transactions. This suggests that most visitor attraction tourism SMEs might have online presence and a large proportion are likely to be transaction ready websites.

Section 5.6 has focused on the findings surrounding the nature of online experiences offered by the visitor attraction tourism SMEs by determining the variety of online experiences and by ascertaining the nature of online experiences offered by the tourism SMEs. To do so, the PSD model and its 28 strategies are used as the theoretical framework. 27 of the 28 strategies could be studied in this website content analysis. The strategy of *reminders* under dialogue support has had to be excluded. 12 other strategies are grouped into 6 pairs of 2 strategies each, as the UX features corresponding to them could be shared by either of the 2 strategies. This has resulted in a website checklist of 21 customised and re-grouped PSD model strategies (Appendix 3). 13 out of the 21 (re-grouped) strategies have emerged to be the most frequently used strategies across the 102-visitor attraction tourism SMEs websites. 8 of the 13 highly supported strategies belong to primary task and credibility support design principles. A further 3 re-grouped strategies belong to the dialogue support design principle. However, only 2 re-grouped strategies from social support design principle are used most frequently by the tourism SMEs. These findings are largely in synchronicity with Tørning and Oinas-Kukkonen (2008), Lehto (2013), Alhammad and Gulliver (2014). The lack of presence of social support design strategies appears to also be consistent across other contexts (health behaviour change; e-commerce) that have been studied by Tørning and Oinas-Kukkonen (2008), Lehto (2013), Alhammad and Gulliver (2014).

Section 5.7 suggests that the high occurrence of primary-task strategies across the visitor attraction tourism SMEs might be a deliberate or non-deliberate effort to focus on usability. Furthermore, the high occurrence of credibility support strategies suggests that the visitor attraction tourism SMEs might be aware of how to portray a credible image of the brand, to nudge the users toward purchasing online. The presence of dialogue support design strategies suggests that the SMEs most likely understand the

purpose of the website, which is to communicate and mediate with the users. Social support is the only area where the SMEs appear to be lagging behind. This suggests that the SMEs might not be aware of how to strategise their social networking presence or they might be unaware of the user's social motivations. The lack of presence of strategies such as *competition* (social support) and *rewards* and *praise* (dialogue support) further stresses the need to explore user motivations.

Overall, it does appear that the visitor attraction tourism SMEs websites largely incorporate atleast three of the four PSD model design principles, quite robustly. However, there remain some strategies that the visitor attraction tourism SMEs could explore further. The website content analysis of the 102 websites suggests that there might be a need for the tourism SMEs to research their user's use context, specifically user motivation. Although the research sample has been further sub-divided into five categories, no conclusive findings could be derived from this perspective. As the website content analysis incorporates random sampling methodology, there is a lack of uniformity across the five sub-categories. For example, 40 websites are classified as entertainment attractions, while only 4 are grouped as parks/gardens.

Section 5.8 draws comparisons between findings of this research and other research studies that have used the PSD model as a theoretical framework. There do not appear to be many differences. Within the context of tourism and non-tourism BCSS, usability, visual appeal through aesthetics and dialogue and credibility support features appear quite frequently. The social support features are found less frequently across most studies that have evaluated persuasive systems using the PSD model.

The next two chapters (6 and 7) are interlinked and provide insights into the strategies of the PSD model from the tourist users' perspective, as opposed to the service providers, as presented in this chapter.

Chapter 6: Tourist users and the Pennywell Farm online UX

6. 1 Introduction

Chapter 5 addressed the first aim of the research, where the focus was placed on the persuasive strategies employed by the tourism SMEs. This chapter moves attention away from the service providers and lays it onto the tourist users. The intention behind the chapter is to present the findings and analysis pertaining to Aim 2, which is- To examine tourist online user motivations and experience provided by the selected tourism SME. This aim is achieved via four objectives,

    i.   To determine the nature of tourist online usage

    ii.   To establish the nature of tourist online usage provided by the selected SME

    iii.   To identify tourist motivations for engaging with online experiences provided by the tourism SME

    iv.   To ascertain tourists' perceptions and opinions of online experiences provided by the tourism SME

The data corresponding with Aim 2 has been collected using questionnaires. As a research instrument, the questionnaire provides insights into the tourist users' behaviour in relation to the online experiences provided by Pennywell Farm, followed by their perceptions and opinions toward the strategies mentioned in Oinas-Kukkonen and Harjumaa's (2009) PSD model. The chapter presents the findings and analysis, and provides a discussion of the tourist users' behaviour within the context of the case of

Pennywell Farm's online experiences. The chapter begins with Section 6.2, which delivers a general overview of the respondents' background. The key variables of gender, age and level of Internet proficiency are addressed within this section. Section 6.3 provides insights into tourist user types.

Using the data presented in Sections 6.2 and 6.3, Section 6.4 explores further the nature of tourism online usage. Section 6.4 also focuses on the respondents' online shopping behaviour, their usage of social networking platforms, review writing behaviour and behaviour of first-time and repeat users who have visited Pennywell Farm. Section 6.5 addresses tourist user motivations in the form of tourist motivations to write reviews and to follow Pennywell Farm online on social networking websites. Section 6.6 aims to ascertain tourist users' perceptions and opinions of the experiences offered by Pennywell Farm. This is addressed through the first impressions of those users who have visited the website and purchased online, followed by first impressions of those users who have not visited the website. The chapter delivers a conclusion in Section 6.7, before developing a pathway onto the findings and analysis of tourist users and the strategies mentioned in Oinas-Kukkonen and Harjumaa's (2009) PSD model that follows in Chapter 7.

6.2 General overview of the respondents' background

530 respondents have participated in the questionnaire survey. Due to partial completion, only 481 questionnaires have been usable. From the outset, it has been very clear that the gender divide is quite significant. 340 (70.7%) of the 481 respondents are female and only 141 (29.3%) are male (Figure 6.1).
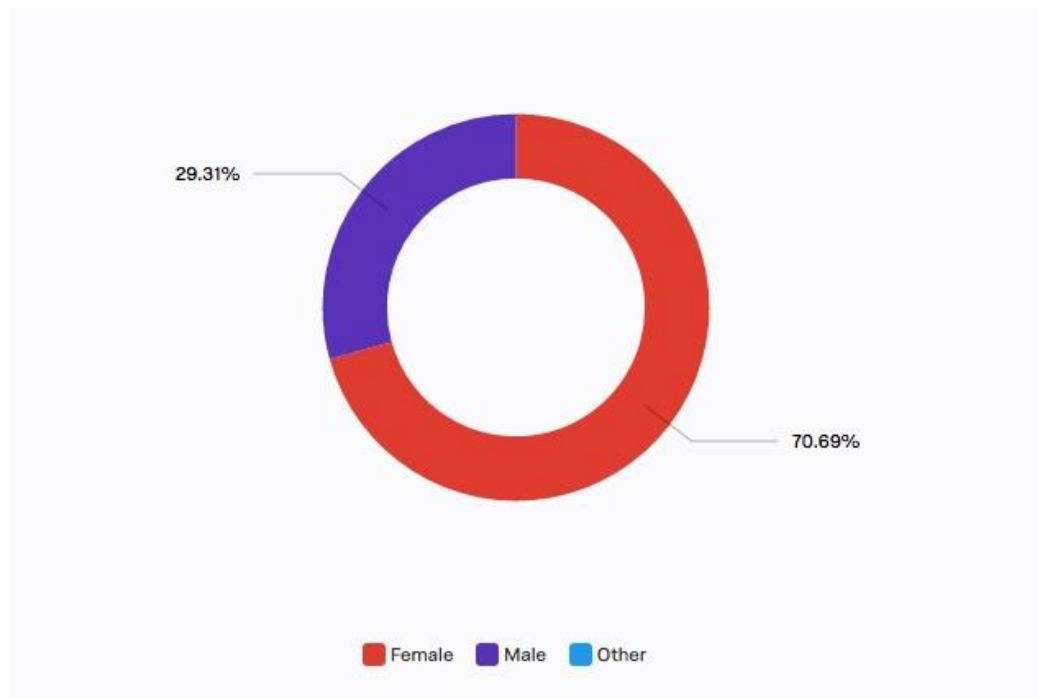
Figure 6.1: Respondents gender divide

Along with the gender divide, the age divide is quite significant too. Majority of the questionnaire respondents belong to two prominent age groups. Figure 6.2 shows that of the total, 164 (34.10%) belong to the 35-44 age group, followed by 130 (27.03%) from the 25-34 age group. The third most number of respondents, 71 (14.76%) belong to the 45-54 age group. This is followed by 58 (12.06%) respondents from the 55-64 age group, and 34 (7.06%) from the 65 and above age group. A total of 24 (4.99%), the smallest fraction of respondents belong to the 18-24 age group.
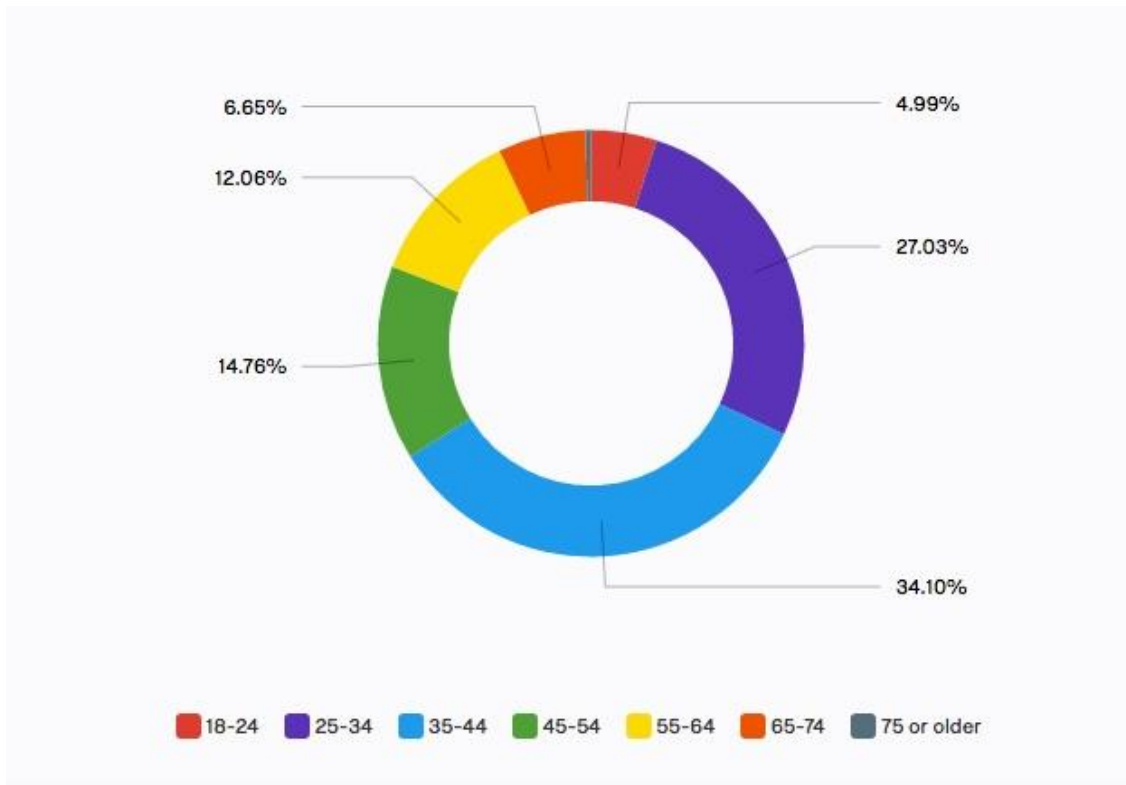
Figure 6.2: Respondents age divide

In terms of the respondents' location of residence, there is no significant

variance. 464 (96.5%) respondents are from England. 5 (1.03%) respondents are from

the United States. 4 respondents are from Northern Ireland and 3 respondents each

come from Scotland and Wales, making up for 0.8%, 0.6% and another 0.6% of the

total 481, respectively. The remaining two respondents are from France and Germany.

In order to explore the respondents' Internet proficiency, the questionnaire

requires the respondents to identify their level of proficiency with the Internet. The

researcher has not defined the level of Internet proficiency. The participants self-

reported their level of Internet proficiency, which means that some participants could

have over estimated or under estimated this measure. Figure 6.3 shows that 267 (55.5%)

respondents have identified themselves as advanced level Internet users. 154 (32%)

respondents are intermediate level Internet users and the remaining 43 (8.9%)

respondents have identified themselves as beginner level Internet users.
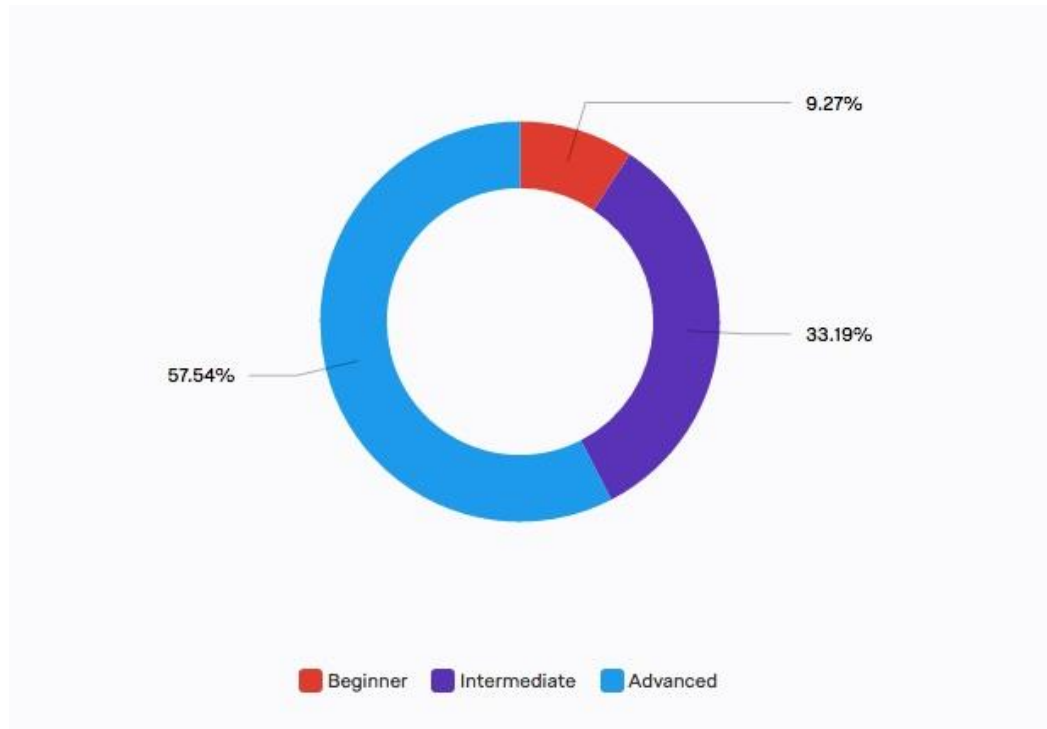
Figure 6.3: Respondents level of Internet proficiency divide

Further insights into the respondents' backgrounds have been elicited by questioning them about how they booked the ticket. 177 (36.8%) respondents have purchased the ticket directly from Pennywell Farm's website, 111 (23.1%) respondents have mentioned that someone else such as their significant other, parents or friends booked the ticket. A further 81 (16.8%) respondents have visited the website to look for information but have purchased the ticket in person, followed by 73 (15.2%) respondents who have mentioned that they found the information offline and purchased the ticket in person. A further 21 (4.4%), have explained that they found the information offline and completed the purchase over the phone, whilst 11 (2.3%) respondents have found the information on Pennywell's website but purchased the ticket over phone.

The final piece of information that provides insights into the respondents' backgrounds is the number of times they have visited Pennywell Farm. 216 (44.9%)

respondents have visited the farm attraction three times or more. 115 (23.9%) have visited only once, followed by 86 (17.9%) respondents who visited twice and, 64 (13.3%) who have never visited the farm.

6.3 Insights into the respondent user types

The questionnaire has been designed in a manner that allows the respondents to only answer those queries that are most applicable to their use context. This differentiation has resulted in five tourist user types that have been identified. These user types are:

i.   Respondents who visited the website

ii.   Respondents who visited the website and found that the website persuaded them to purchase online

iii. Respondents who visited the website but did not feel that the website persuaded them to purchase online, yet continued on with the purchase

iv.   Respondents who have not purchased online

v.   Respondents who have not visited the website

For further descriptive statistics on the respondent types, please refer to Appendix 9.

Section 6.3 takes the consolidated survey respondents and differentiates them into five user types. It is evident (Appendix 9) that the highest numbers of survey respondents have visited the Pennywell Farm website. Furthermore, amongst the survey

respondents who have not visited the Pennywell Farm website, the majority have found that the website has persuaded them to purchase online. As this section only distinguishes the various user types, further data must be presented on the users' online behaviour. Section 6.4 delivers these insights.

6.4 Nature of Tourist online usage

Investigation of the nature of tourist online usage is the first aim of the questionnaire research method. Please refer to Chapter 4, Section 4.4.2 (p.159) for more information on the purpose of the questionnaire research method and the manner in which it assists in satisfying the research queries. The investigation of tourist online usage is based on *the event* section of the PSD model (Appendix 1). *The event* provides a means for the persuasive technology systems designers to test key issues that determine the user's lifestyle, motivation and goals. In this research, *the event* has been used to study the user behaviour of Pennywell Farm's visitors. As *the event* is responsible for *the user context*, the questionnaire's primary focus is on investigating queries about users' behaviours in different online contexts such as, shopping, social networking and review writing. To the researcher's best knowledge, to date there does not appear to be any research conducted within this area of Oinas-Kukkonen and Harjumaa's (2009) PSD model.

6.4.1 Online shopping behaviour

Studying tourist online shopping behaviour is the key to understanding the key component of the online experience (Mills and Law, 2013; Peng, Xu and Chen, 2013). In order to understand the tourist users' online shopping behaviours, the questionnaire has asked respondents to mention the frequency of their physical (goods) and experiential (services) purchases. A total of 474 respondents (336 female and 138 male) have answered the questions pertaining to the frequency of online purchases. In terms of physical purchases, the most number of female (184) and male (82) respondents admit to purchasing physical products every three to six months. It is interesting to note that only 39 (27 female; 12 male) respondents mention that they never shop online. In relation to experiences purchased, 304 (217 female and 87 male) respondents admit to purchasing experiences every six months to one year. From the frequencies, it is evident that users are likely to purchase physical products more often than experiences. For more insights into the frequencies regarding tourist online usage, please refer to Appendix 4.

Table 6.1 displays the three variables that help in determining Pennywell Farm's users' online shopping behaviours. These variables are- *frequency of physical products purchases, service experience purchases* and *the method chosen by the respondent to make the Pennywell purchase*. The independent variables used within this section are- *gender, age, level of Internet proficiency, whether respondents had visited Pennywell's website, whether respondents found that the website had a persuasive effect on their decision to make a purchase from Pennywell Farm, whether they follow Pennywell on Facebook and/or Twitter, whether the respondents have written any reviews for Pennywell and whether the respondents have written reviews for any other brands*.

Appendix 4 shows that there are more female respondents than male, thereby skewing the data toward responses from female users. The age groups that have largely responded to the questionnaire are between 25-34 and 35-44. A large proportion of the respondents also consider themselves to be Intermediate or Advanced level Internet users. Following the data distribution in Appendix 4, Table 6.1 presents chi-square associations between the dependent variables of tourist online usage (*frequency of physical purchases, frequency of experience purchases, method of purchase of Pennywell Farm's ticket*) and the key independent variables (*gender, age, level of Internet proficiency, whether respondent visit Pennywell's website, whether respondent found the Pennywell website persuaded them to purchase online, whether respondent follows Pennywell on Facebook and/or Twitter, whether respondent wrote reviews for Pennywell and whether respondent wrote reviews for any other brand*). The chi-square tests are performed to investigate whether any associations exist between the selected independent and dependent variables.

	Gender	Age	Level of Internet proficiency	Visited website	Website persuaded to purchase	Follow on FB	Follow on Twitter	Written reviews for Pennywell	Written reviews for others
	Asymp. Sig. 2-sided (CV)								
Freq. of physical purchases	.742 (.051)	-	.000 (.214)	.057 (.126)	.801 (.067)	.094 (.137)	.012 (.178)	-	-
Method of Purchase	.745 (.051)	-	.523 (.086)	.883 (.043)	.393 (.096)	.000(.229)	.443 (.089)	-	-

Table 6.1:Chi-square tests between variables of tourist online usage and key independent variables

258

*All chi-square tests between frequency of experiences purchased and the selected independent variables are invalid; therefore these have not been included.

Table 6.1 displays a chi-square test performed between frequency of physical products purchased online and the method of purchase used to book Pennywell Farm's ticket.

As per the p-values, the most significant associations presented in Table 6.1 might exist between,

i. The level of Internet proficiency and the frequency of physical products purchased online, with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

ii. The frequency of physical products purchased online and whether respondents had visited Pennywell Farm's website, with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

iii. The frequency of physical products purchased online and whether the respondents follow Pennywell on Twitter, with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

iv. The respondent's chosen method for making the Pennywell purchase and whether respondents follow Pennywell on Facebook, with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

The lack of a larger sample has rendered the relationship tests between the various age groups and the dependent online usage variables, inconclusive. However, the overall results suggest that there is an association between how often the tourists purchase physical products online and an overall increase in activity in other internet-related realms such as following Pennywell on Twitter or visiting their website. The association between method of purchase and whether or not the respondent follows Pennywell on Facebook is interesting. Pennywell has over 13,500 followers on Facebook (checked on 27th December, 2015), most of who appear to have visited Pennywell Farm. Oinas-Kukkonen and Harjumaa (2009) explain that social networking is the key to improving the overall credibility of the persuasive system. In addition to this, Oinas-Kukkonen and Harjumaa (2009) also stress the importance of having a supportive environment that acts as a catalyst for nurturing social interactions amongst users. Pennywell Farm has links to the social networking pages placed on every page of the website. It can be assumed that some of the users who go on to follow Pennywell Farm on Facebook, might have come across the Facebook page while booking their tickets on the website. Tracking these analytics is out of the scope of this research.

Mills and Law (2013) have suggested that online information search and user behaviour is closely related to demographic characteristics. Specifically, in terms of age groups, older adults are likely to book tickets through a travel agent, instead of booking online (Mills and Law, 2013; Peng, Xu and Chen, 2013). This behaviour amongst older adults could be a result of the hesitancy experienced by many users due to their perception of the lack of a secure payment service or their lack of confidence in technology due to the missing aspect of direct human interaction (Peng, Xu and Chen, 2013). As Pennywell Farm is only a visitor attraction and does not fall under the category of holidays or hotels, the option for the tourist users to book the tickets via a travel agent is not available. Appendix 4 shows that 13.2% of the total Pennywell Farm online purchases have been made by respondents between ages 55-64 and 7.9% by respondents who are 65 years old and over. This seems like a relatively low spend but further investigation can be carried out to investigate whether or not the age of the user has any implications on their chosen method to make a tourism purchase. Lian and Yen (2014) also recommend more research to be carried out in the area of online shopping behaviours amongst older adults, as their shopping habits might be evolving.

Hernández et al. (2011) explain that the gender differences have long been presumed to play a primary role in online shopping decision-making. Mills and Law (2013) and Peng, Xu and Chen (2013) suggest that gender differences play an integral role in how users experience information channels and usability. These differences in perceptions might be responsible for the different behaviours between genders in the context of online shopping. Venkatesh and Morris (2000) explain that gender can lead to differences in technology acceptance. However, Hernández et al. (2011) found that it is the level of Internet proficiency, as a result of experience, which influences online shopping decision-making. It is very likely that the initial perceptions toward the online

UX might be dependent on gender preferences, but once users reach a certain level of Internet expertise, their behaviours appears to be similar. Such a contention is supported by this study, evidenced by the p-values in Table 6.1, which shows a relationship between the level of Internet proficiency and frequency of purchasing physical products online but no association between gender and the frequency of purchasing physical products online.

The key findings from the p-values within Table 6.1 suggest that gender and age might not be effective determinants of tourist online usage but level of Internet proficiency could be. Moreover, it appears to be one's experience with using the Internet, the familiarity with Internet shopping that dictates online usage in other realms such as social networking with the brand. A person who shops online frequently is also more likely to follow the brand on social networking websites. Finally, the lack of associations between significant demographic characteristics such as gender and age, and tourist online shopping habits suggest that online shopping behaviours might have evolved to the point where gender and age might be relevant to system perception but irrelevant to the system experience (Hernández et al. 2011). Mills and Law (2013) have suggested that other variables such as income, education and occupation might have implications for online shopping habits.

Along with shopping habits, the user's social media use can also provide insights into user's Internet usage. According to Oinas-Kukkonen and Harjumaa (2009), persuasive technology should provide an environment where social relationships with the users and between the users are nurtured. The various social networking channels available instantly offer persuaders the opportunities to incorporate strategies that nudge

users toward interacting socially (Xiang and Gretzel, 2010; Kim, Fesenmaier and Johnson, 2013).

6.4.2 Social networking usage

Tourist online usage is no longer limited to online shopping platforms. Tourist users engage with the online experience across various domains (Xiang and Gretzel, 2010; Kim, Fesenmaier and Johnson 2013; Ráthonyi, 2013). Social networking sites provide a supplementary platform for service providers to engage with and persuade their users (World Travel Market, 2010; Lo et al., 2011; World Travel Market Industry Report, 2011 and Ráthonyi, 2013). Xiang and Gretzel (2010) and Peng, Xu and Chen (2013) suggest that social media channels are not only a source for information search, but they also play the dual role of acting as a platform for online booking. The questionnaire asked respondents to tick the social networking sites where they follow Pennywell Farm. A total of 342 respondents answered this question, of whom, 249 are female and 93 are male. Most number of respondents follow Pennywell Farm on Facebook (124) and Twitter (36).

The following sets of chi-square association tests in Table 6.2 only consider respondents who follow Pennywell Farm on Facebook and Twitter. This is because the number of respondents who follow Pennywell Farm on Instagram, Youtube and Pinterest is extremely low.

	Gender	Age	Level of Internet proficiency	Visited website	Visited Pennywell Farm
	Asymp. Sig. 2-sided (CV)				
Social networks followed by Pennywell Farm users					
Facebook	.066(.100)	.658(.098)	.040 (.140)	.009 (.142)	.082 (.140)
Twitter	.095 (.090)	-	.077 (.125)	.676 (.023)	.164 (.122)

Table 6.2: Nature of tourist online usage-social media usage association analysis

Table 6.2 suggests that the two strongest associations exist between,

i.   the level of Internet proficiency and whether respondents follow Pennywell Farm on their Facebook account

ii.   whether respondents had visited Pennywell's website and whether they follow Pennywell Farm on their Facebook account

The p-values of most sets in Table 6.2 are > 0.05, suggesting a lack of statistically significant associations. Anderson (2015) and BI Intelligence (2015) state that there is no association between gender and users' social media usage. This is in line with the findings of the tests in Table 6.2. The Pew Research Centre (2015) found that social media usage has changed amongst the older adults as more seniors have started using social networking sites. The relationship tests above show that there does not appear to be any association between respondents' ages and whether they follow Pennywell Farm on Facebook or not, thereby also confirming Pew Research Centre's (2015) findings.

Tourists' online usage expands further beyond shopping habits and social media usage. Section 6.4.3 takes the investigation forward by exploring users' participation in review writing. Reviews are known to have strong implications on other tourists' desire to visit (Sigala, 2010). Therefore, it is important to investigate the review writing behaviour of tourists, given their power to attract or repel other future visitors. Furthermore, Oinas-Kukkonen and Harjumaa (2009) suggest that for a system to appear persuasive, it must nurture social relationships. In a way, review writing too can be visualized as a form of social networking as it allows the review writer to contribute and become a part of a larger community (Gretzel et al., 2007; Milano, 2010; Sigala, 2010).

6.4.3 Review writing

Compared to the other platforms within the tourism online domain that are at the tourist user's disposal such as websites and social networking platforms, review-writing platforms play a unique and significant role too. According to PhoCusWright (2009), on average, 9 out of 10 travelers who use the Internet to book travel, rely on online reviews to make decisions. Most tourism studies that use social media environments as the study context for online usage tend to focus on the role played by social media as a source of information (Inversini and Buhalis, 2009; Xiang and Gretzel, 2010) or as a catalyst to improve and extend brand reach (Sigala, 2010). Very few studies focus on review writing.

According to Gretzel et al. (2007), user generated content that is found on travel review sites, is known to influence travelers' decisions quite frequently. The Northern Ireland Tourism Board (2013) has suggested that reviews create a sense of shared experience that most tourists use to feel inspired. Milano (2010) has explained that

reviews are deduced and consumed by travelers during the pre-experience phase, only to add and share with the review community during and post-experience.

In order to study the nature of tourist review writing, the questionnaire asks the respondents if they have written any reviews for Pennywell Farm and/or for other products and/or services. Of the 342 respondents who answered the question only 22 (14 female and 8 male) have written reviews for Pennywell but 114 (83 female and 31 male) respondents have also written reviews for other products and/or services.

No conclusive associations or disassociations could be established between the two dependent variables of *whether or not the respondents had written reviews for Pennywell Farm* and *whether or not they had written reviews for other products and/or services* and key independent variables (*gender, age, level of Internet proficiency, whether respondent had visited Pennywell Farm's website, whether Pennywell Farm's website persuaded user to purchase online*) as the chi-square assumptions could not be satisfied. Regardless, the descriptive statistics show that 50 advanced, 46 intermediate and 15 beginner level Internet users have engaged in review writing for other products and/or services. Moreover, respondents from all age groups have participated in review writing. One of the most interesting finding shows that 83 female and only 31 male respondents have engaged in review writing. This data suggests that future investigations are necessary to assess the relationships between gender and review writing behaviour, possibly using more input from tourists who write reviews.

Along with shopping habits, social media usage and review writing behaviour, the questionnaire has been able to collect data on the Internet usage of Pennywell

Farm's first time and repeat users. This provides more insights into the tourists' online behaviour in the context of Pennywell Farm's online experience.

6.4.4 First-time and repeat users

In order to investigate tourist online usage, it is essential to establish the patterns between first-time users, return users and how the Pennywell Farm entrance fee purchase has been made. Table 6.3 shows that the largest percentage of first-time as well as return users have made their Pennywell Farm purchase online. On one hand it can be noted that 25% (second largest) of the first time users having found their information offline and made the purchase online. On the other hand, 29.9% (second largest) respondents who have visited three times or more found the required information online but booked offline. A total of 20.8% (second largest percentage of respondents who had visited twice) have found the information online but purchased offline. This is closely followed by 19.4% of second time visitors, who found information offline and made an offline purchase too.

The p value for the data set is .182 with Cramers V of .108. The Cramer's V is higher than 0, but it not closer to 1. This shows that there might or might not be association between the number of times the respondent has visited the actual farm and the method they employed to make the Pennywell Farm purchase.

	Found information online and purchase online	Found information online and purchased offline	Found information offline and purchased offline	Other
Once	55.6	18.1	25	1.1
Twice	49.2	20.8	19.4	10.4
Three times or more	45.8	29.9	17.8	6.3
Never	45	29.4	19.6	5.8

Table 6.3: Nature of tourist online usage-first impressions associations' analysis

Section 6.4 has presented various findings regarding the nature of tourists'
online usage. This information presents how Pennywell Farm users use the Internet but
does not explain the motivations behind the Internet usage. These motivations are
addressed in Section 6.5

6.5 Tourist motivations

The questionnaire (Appendix 11) has asked the respondents various questions
that could assist in exploring the motivations experienced by tourists that nudge them
toward participating in the online experience.

According to Bieger and Laesser (2002), traditionally motivation has been
studied quite extensively in relation to marketing decisions involving segmentation,
product development and advertising, but it is only recently that the focus has moved
toward user expectations. According to Yoon and Uysal (2005) motivations are
dependent on expectations. This stresses the need to understand user expectations in the

context of their desires, wants or what they believe the service provider should offer (Cohen, Prayag and Moital, 2014).

Assessing and acknowledging user motivations to participate in the persuasive UX is integral to the design of persuasive technology (Oinas-Kukkonen and Harjumaa, 2009). Within the *user context* under *the event* (For more information about the PSD model please refer to Figure 3.7 in Chapter 3 on p.113), Oinas-Kukkonen and Harjumaa (2009) ask the persuasive systems designer to derive a conclusive understanding of user motivations.

In the questionnaire (Appendix 11), three questions have been designed to act as follow-ups to tourist online usage. The three questions investigate tourists' motivations to purchase online, to write reviews and to follow Pennywell Farm on social networking sites. The question enquiring the respondents' motivations to write reviews includes 7 generic statements of motivations experienced by users who write reviews. A similar process has involved the design of 6 generic statements of motivations experienced by users who follow a product and/or service on social networking sites. A total of 121 (91 female, 30 male) respondents have answered the question regarding motivations to write reviews and a total of 139 (102 female and 37 male) respondents have answered the question regarding motivations to follow Pennywell Farm on social networking sites.

6.5.1 Tourist user's motivations to write reviews and to follow Pennywell Farm on social networking sites

To test associations using chi-square tests between *tourist users' motivations to write reviews* and to *follow Pennywell Farm on social networking sites*, the three independent variables of *gender, age and level of Internet proficiency* have been used.

Table 6.4 presents the most significant association that exists between gender and the motivation to write reviews because -*the user believes that writing more reviews will qualify them as a top reviewer*. The Cramer's value (.225) suggests that the association might carry a positive strength as it is above 0, however the value is not closer to 1. There is no association between gender and the remaining 6 motivations to write reviews. In addition to this, no conclusive test results could be derived using age group and the level of Internet proficiency as independent variables.

	Gender	Age	Level of Internet Proficiency	Median	Mode	Valid%
	Asymp. Sig. 2-sided (CV)					
Why do tourists write reviews? (or why do tourists write reviews for Pennywell Farm)						
I thought it would help someone else	.700 (.055)	-	-	3.0000	3.00	90.9
Writing more reviews will qualify me as a top reviewer	.048 (.225)	-	-	2.0000	1.00	43.3
I wanted to express my satisfaction	.570 (.097)	-	-	3.0000	3.00	95.0
When I post reviews, they can be viewed by those within my social networks	.758 (.068)	-	-	2.0000	3.00	43.7
I love to write	.986 (.016)	-	-	2.0000	3.00	40.2
I wanted to express disappointment about the purchase	.353 (.132)	-	-	3.0000	3.00	65.0
I wrote a review as part of a review contest for best reviews	.415 (.121)	-	-	1.0000	1.00	58.3

	Gender	Age	Level of Internet Proficiency	Mean	Median	Mode	Valid%
Why do tourists follow Pennywell Farm on social networking sites?							
Information about deals	.251 (.097)	-	.132 (.173)	.77	1.00	1	77.0
Contests	.213 (.106)	.579 (.165)	-	.45	.00	0	54.7
More information about Pennywell	.588 (.046)	.650 (.155)	.547 (.095)	.61	1.00	1	61.2
Recommendations about other related activities	.922 (.008)	-	.206 (.153)	.24	.00	0	76.3
Attractive photos to share	.929 (.008)	.928 (.099)	.680 (.076)	.45	.00	0	54.7
Quick point of contact	.818 (.020)	-	.287 (.136)	.31	.00	0	69.1

Table 6.4: Tourist motivations associations' analysis

*1.00- Disgaree, 2.00- Neither agree nor disagree, 3.00- Agree

In the context of tourist motivations for following Pennywell Farm on social networking sites (Table 6.4), it can be noted that there appears to be no association between the independent variables and the motivations to follow. These findings are in line with those of Anderson (2015), BI Intelligence (2015) and Pew Research Centre (2015), who found that there do not appear to be any statistically significant associations between gender, age and social media usage. Given the association between level of Internet proficiency and tourists usage of the social networking website Facebook (Please refer to Table 6.2), it is interesting to see that there does not appear to be any association between level of Internet proficiency and motivations to

follow on Facebook. These tests might suggest that the majority of the Internet users,

regardless of age, gender or level of Internet proficiency might experience a similar set

of motivations when it comes to social media usage.

6.5.2 Tourist user's motivations to book online from Pennywell's website

A total of 155 respondents have provided their motivations for booking online from Pennywell Farm's website. The most common responses fall under the theme of *ease*. Amongst other themes, the respondents have explained that booking online offers them the flexibility of getting the date and time they want. In addition to this, respondents also mention that the attractive and straightforward bookings page and discounts for booking online have motivated them to book online. Table 6.5 displays the various themes that have been established amongst the responses.

Easy to use	Limited online discount/free toy	Limited availability of tickets for Christmas event	Trust Pennywell	Other
99	16	25	4	11

Table 6.5: Motivations to purchase the ticket from Pennywell Farm's website

A total of 99 of the 155 respondents who have provided information about their motivation to purchase tickets online from Pennywell Farm's website, have explained that the ease of booking online has been their key motivation.

Section 6.5 follows up on the initial findings of Section 6.4 as it presents the findings regarding the motivations of respondents to write reviews, follow Pennywell Farm on social networking sites and buy their entrance ticket(s) from Pennywell Farm's website. Both Section 6.4 and Section 6.5 have provided information about how and why tourists use the Pennywell Farm online experience. The next section, Section 6.6 presents enquiries into the respondents' opinions and

274

perceptions of Pennywell Farm's online experience. The user's input is crucial to the persuasive system. According to Oinas-Kukkonen and Harjumaa (2009), it is important that the persuasive systems designer researches what the users think about the system and how they perceive the system.

6.6 Ascertaining tourist perceptions and opinions of online experiences provided by Pennywell Farm

Cohen, Prayag, Moital (2014) acknowledge the intriguing nature of perceptions within marketing and the abundant literature on perceptions within tourism. Regardless of the attention received by perception, Cohen, Prayag and Moital (2014) explain that it is very rarely that perception in the context of tourism studies is discussed and defined. Instead perception is simply introduced without any supporting literature that can provide information on how users perceive and apply the stimuli provided to them. Stimuli available within the online environment can affect the senses through auditory and visual elements. This information generated via the stimuli is selected and organised into perceptions that form meaningful relations (Moutinho, 1993; Cohen, Prayag and Moital, 2014). The differences in perceptions are responsible for the variations in behavioral intent (Hansen, 2005; Cohen, Prayag and Moital, 2014), which in turn affect tourist attitudes. The tourist users' first impressions are derived from how the various online experience stimuli are perceived. The data collected on how users perceive the Pennywell Farm experience within the first instance of having viewed the website is essential toward building an understanding of tourist users' eventual behaviour and/or attitude.

To ascertain tourist perceptions and opinions of the online experience provided by Pennywell Farm, 8 first impression options have been offered to the respondents. These options are loosely based on the four design principles of the PSD model, instead of the 28 individual strategies (Please refer to the questionnaire in Appendix 11). The respondents have been divided into two sets of respondents- those who had visited

276

Pennywell Farm's website and those who had not. The respondents who have

mentioned that they had visited the Pennywell Farm website have been shown a

screenshot of the main page in order to refresh their memory. This is followed by a list

of options about their first impressions of the main page. The respondents who never

visited Pennywell Farm's website have also been shown a screenshot of Pennywell

Farm's main page and asked to select from 5 first impression options. These 5 options

too are loosely based on the four design principles of the PSD model.

6.6.1 First impressions of those who have visited the website

The first impressions of the group that visited the website highlights the

impressions of *'easy to browse', 'well designed', 'had all the information I required',*

'colours reflected the experience offered by Pennywell Farm' and *'images showed me*

what to expect on my visit to Pennywell Farm'. These same strategies have also been

chosen by respondents who found Pennywell Farm's website to be persuasive, and

those who have visited the Pennywell Farm website three times or more. These options

correspond with Oinas-Kukkonen and Harjumaa's (2009) PSD model strategies of

reduction, tunneling, liking, tailoring, expertise and *simulation* (Please refer to the PSD

Model in Chapter 3, Figure 3.7 on p. 113). A total of 137 respondents (100 female, 37

male) from the group that visited Pennywell Farm previously, have answered the

question regarding their first impressions of Pennywell Farm's website.

In order to establish associations using the chi-square tests, between first

impressions of those respondents who visited the website, 7 independent variables have

been selected (Table 6.6). The independent variables used within this section are *gender, age and level of Internet proficiency, respondents method of purchase, how persuasive the website was on the persuasion scale, whether respondents had visited the actual farm and whether the respondents felt that the Pennywell website persuaded them to make the purchase online*. The goal of using these additional variables along with the primary independent variables is to assess whether or not first impressions have any impact on buying behaviour and the perception of persuasiveness. In addition to this, it is also crucial to find out, whether having had visited the farm before has any sub-conscious effect on the respondents' first impressions of Pennywell Farm's website.

	Gender	Age	Level of internet proficiency	Method of Purchase	Visited Pennywell Farm	Found website to be persuasive	Mean	Median	Mode	Valid %
				Asymp. Sig. 2-sided (CV)						
First impressions										
Easy to browse	.322 (.054)	.680 (.096)	.370 (.078)	.421 (.091)	.802 (.054)	.217 (.095)	.76	1.00	1	75.8
Well designed	.577 (.027)	.064 (.152)	.237 (.084)	.200 (.115)	.094 (.124)	.200 (.098)	.64	1.00	1	64.4
Entertaining	.119 (.084)	.767 (.086)	.700 (.046)	.052 (.150)	.094 (.124)	.182 (.100)	.25	.00	0	74.6
Colours reflected the experience offered by Pennywell Farm	.220 (.066)	.349 (.128)	.499 (.065)	.038 (.157)	.889 (.043)	.384 (.075)	.55	1.00	1	54.8
Had all the information I required	.907 (.006)	.473 (.115)	.134 (.110)	.012 (.178)	.204 (.116)	.378 (.076)	.68	1.00	1	68.2
Easy to make an online purchase	.063 (.102)	.598 (.103)	.045 (.137)	.161 (.123)	.286 (.105)	.488 (.065)	.47	.00	0	53.1
Pennywell has social networking pages	.191 (.071)	.199 (.146)	.598 (.056)	.199 (.116)	.207 (.115)	.818 (.035)	.27	.00	0	72.9
Images showed me what to expect on my visit to Pennywell Farm	.369 (.049)	.206 (.145)	.272 (.089)	.076 (.141)	.952 (.032)	.991 (.007)	.56	1.00	1	56.3

Table 6.6: First impression associations' analysis

The most commonly selected first impressions are- *'easy to browse', 'well designed', 'colours reflected the experience offered by Pennywell Farm'* and *'had all the information I required'*. The least commonly selected first impressions are, *'entertaining', 'easy to make an online purchase'* and *'Pennywell has social networking*

pages'. Further inferences can be drawn from the chi-square p-values. The following associations might exist,

i.   the first impression (had all the information I required) and method of purchase with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

ii.   the first impression (colours reflected the experience offered by Pennywell Farm) and method of purchase with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

iii.   the first impression (entertaining) and method of purchase with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

iv.   the first impression (easy to make an online purchase) and level of Internet proficiency with the nature of association Cramer's V higher than 0, however, the value is not closer to 1, therefore association might or might not exist.

These association sets mentioned above show that the PSD model's dialogue support and primary task support strategies; *tailoring, liking, reduction* and *tunneling* create favourable first impressions.

6.6.2 First impressions of those who have NOT visited the website

Respondents who have not visited the website have been asked to select from 5 first impression options. Along-side the three primary independent variables used across this chapter; an additional variable that enquired *how often the respondents had visited the actual farm* has also been included to test relationships (Table 6.7). This is done to investigate whether or not having had visited the actual farm has had any sub-conscious effect on the respondents' first impressions.

	Gender	Age	Level of Internet Proficiency	Visited Pennywell Farm	Mean	Median	Mode	Valid%
Asymp. Sig. 2-sided (CV)								
First impressions of those respondents who had not visited the Pennywell Farm website								
Website seems easy to follow	.311 (.087)	.512 (.176)	-	.158 (.195)	.50	.00	0	50.4
Eye catching colours	.478 (.061)	-	.389 (.119)	-	.85	1.00	1	84.7
Attractive images	.799 (.022)	.169 (.238)	.062 (.205)	.847 (.077)	.69	1.00	1	68.6
Easy to read text	.568 (.049)	.315 (.208)	.687 (.075)	.554 (.123)	.55	1.00	1	55.5
Website looks trustworthy	.625 (.042)	.508 (.177)	.913 (.037)	.776 (.090)	.37	0.00	0	62.8

Table 6.7: First impressions of those respondents who had not visited the website and associations analysis

Table 6.7 shows that there do not appear to be any statistically significant associations between *first impressions of those respondents who have not visited the Pennywell website* and the independent variables of *gender, age, level of Internet proficiency* and *how often the respondents had visited the actual farm*.

The relationship between the number of times the respondent has visited Pennywell Farm and their first impressions of the farm, specifically investigates whether some sort of a Halo effect exists. According to the Halo effect, snap judgments are made based on previous experience that might have led to favourable reactions (Cardello and Nielsen, 2013). Based upon this understanding someone who has had a bad experience with Pennywell Farm, either online or offline, is less likely to use the Pennywell Farm website to make an online purchase. Lingaard and Dudek (2002) confirm that even if users are shown a website with high visual appeal but low usability, they are likely to rate higher satisfaction, due to the Halo effect. In addition to this Dodd (1998) and Chen and Gursoy (2000) state that there exists a difference between how first-time users perceive an experience versus how return users would perceive that same experience. This relationship cannot be established through the set of relationship tests performed in Table 6.7. Although no conclusive associations can be drawn, the descriptive analysis shows that the three most selected first impression options are- *'eye-catching colours', 'attractive images'* and *'easy to read text'*. All three options suggest the importance of visual elements through colours, imagery and typography. The sets in Table 6.7 have included data from only 137 respondents; a larger sample might deliver more conclusive associations.

MacKenzie and Lutz (1989) have suggested that attention is the primary predictor of consumer's attitude toward the product, but very few studies have empirically tested the role of attention in persuasion or persuasive technology (Eagly and Chaiken, 1993; Kim, 2010). The role of colour psychology comes into play when one investigates attention within the context of online experiences. According to Schaie and Heiss (1964), full colours tend to hold the perceiver's attention for a longer period, than black and white. In addition to this, warmer colours like red tend to generate higher arousal and eventual attention, than cooler colours like blue (Kim, 2010). In contrast, cooler colours are responsible for eliciting relaxation and pleasure (Jacobs and Seuss, 1975). Kim (2010) states that although extensive research has been carried out in the context of attention and colour psychology, very little research has focused on the study of colours in the hospitality and tourism industry. One would assume that colour psychology would be an important field of research, given the fact that hospitality and tourism are image oriented service sectors that rely on visuals to act as stimuli (Kim, 2010).

Colours and visuals appear to play a significant role in how respondents who have visited the website and who have not visited the website, experience their first impressions. Tables 6.6 and 6.7 show that overall, tourist users who have not visited the website, primarily notice the visual elements within the first instance of looking at the screenshot of the website. In contrast, tourist users who have visited and used the Pennywell Farm website have selected the options about the website's usability as their top first impressions. This is then followed by a pattern of selection of first impressions resonating with the colours and images on the website. The differences suggest that to a first time user the website can appear visually aesthetic, persuading them to browse. In addition to this, the website also appears usable and fulfils the required usability

functions, thereby persuading the user of its ability to be resourceful and purposeful. It is interesting to note that these two functions appear to have been seamlessly merged in Pennywell Farm's case.

According to Tractinsky, Katz and Ikar (2000) and Shuttleworth (2013), most people perceive anything that they consider beautiful, to be usable, thereby stressing the importance of understanding tourists' first impressions of Pennywell Farm's website. Colour is the most important element of visual design (Shuttleworth, 2013). The colour palettes used on the web interface, provide a supportive structure to the interaction and at the same time bring out the brand's personality, to create an impression (Shuttleworth, 2013). A good contrast between text and background, improves legibility and accessibility of information (Tractinsky, Katz and Ikar, 2000; Shuttleworth, 2013).

Within the tourism context, attractive websites are considered persuasive (Pourabedin and Nourizadeh, 2013). Pourabedin and Nourizadeh (2013) further state that the perceived visual aesthetic of destination websites has a strong influence on the measured effect of the persuasiveness of the online experience. Faraday (2000) explains that it is the website elements' colours, which play an important role in how long the users will stay fixated and how many web pages they will view. Owen and Shrestha (2010) have found contradictory results to Faraday's (2000) explanation, suggesting that it is the location of the element that determines the user's fixation order. According to Owen and Shrestha (2010) colour is a secondary determinant, while location of the UX is the primary.

Visual stimulus is often reviewed as an important aspect of tourism online experience (Pourabedin and Nourizadeh, 2013). The persuasiveness of visual stimulus

has exponential power to convert a tourist website user into a customer (Kim and Fesenmaier, 2000). According to Ibrahim, Shiratuddin and Wong (2013) it is the visual stimuli on the tourism service provider's website that is often seen as an indicator of credibility. Fogg (2003) and Lee and Gretzel (2012) have confirmed the positive role of visual imagery in improving perceived credibility and consequently persuasion. According to Fogg (2003), visual stimuli, even within the very first impressions of it can nudge users toward making a behaviour and/or attitude change.

Marsden (2011) and Morin (2014) explain that the experience of perceiving colours is an inbuilt process, as they directly affect emotions and feelings. The prominent colours on Pennywell Farm's website are yellow, blue, red and green (Figure 6.4).
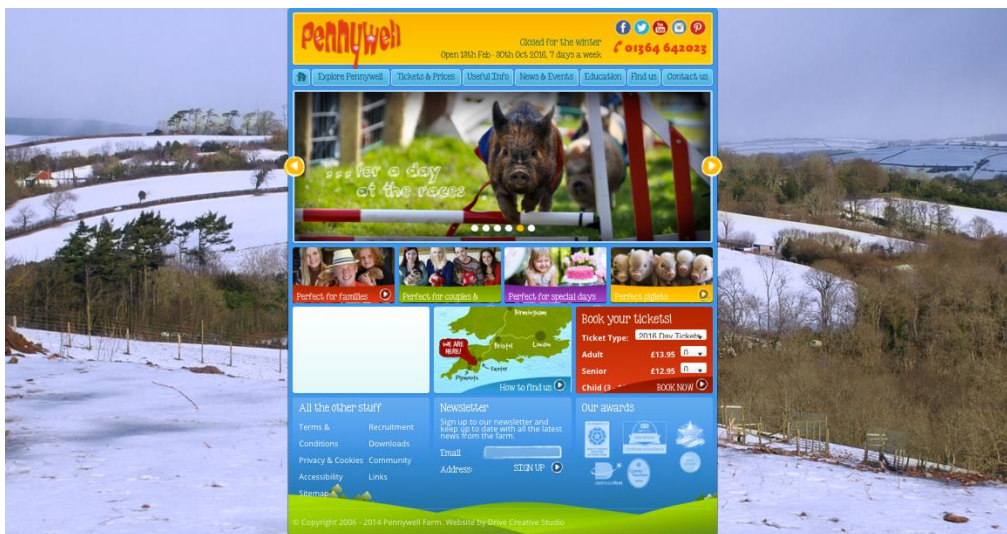
Figure 6.4: Pennywell Farm's website
Image source: Pennywell Farm (2014)

According to Goethe's (1810) colour wheel, yellow implies purity and carries with it a sense of brightness, happiness and slight excitement. Goethe (1810) and Popova (2012) consider blue to be the type of colour that can lead to negative and positive emotions. If used appropriately, it can lead to excitement. In Goethe's (1810)

colour wheel, red has been considered to be the colour that conveys attractiveness and grace, while green conveys serenity and gratefulness. The choice of colours used on Pennywell Farm's website appear to play a significant role in how the website is perceived. Colours are crucial to the overall aesthetic experience. Desmet and Hekkert (2007) and Sonderegger and Sauer (2010) state that a product's aesthetic experience and the emotional experience conveyed through the aesthetic experience, combine together to form the UX. The emotional responses to the aesthetic experience are often influenced by individual characteristics such as age, gender, personality and cultural background (Crilly et al., 2004). However, Sonderegger and Sauer (2010) and Radzliyana and Khor (2015) state that whether gender has any role to play in how aesthetics are perceived can be debated. Lingaard et al. (2006) stresses the importance of first impressions because the user's attitudes toward something are formed within approximately 50 microseconds. Sonderegger and Sauer (2010) suggest that the perceived usability of something is higher if it is also perceived as an appealing product, than when it is considered to be an unappealing one. Nakarada-Kordich and Lobb (2005), Ben-Bassat et al. (2006) and De Angeli et al. (2006) have confirmed through their findings, that aesthetics positively influence the perceived usability of the product/service.

Overall, Pennywell Farm's website is seen to have favourable first impressions amongst those respondents who have used the website and those who have not. The associations established amongst the group that have visited Pennywell Farm's website, stresses the role played by the PSD strategies of- *reduction, tunneling, liking* and *expertise,* in online persuasion. Although no such associations could be established amongst the group that has not visited the website, Table 6.7 highlights the role of

liking and *tunneling* via the first impression options of- "eye catching colours" (*liking*), "attractive images" (*liking*) and "easy to read text" (*tunneling*).

6.7 Summary

The aim of Chapter 6 is to provide insights into the findings of the questionnaire, present an analysis and discuss the findings in relation to the literature available on the theoretical inclusion of the PSD model. Sections 6.2 and 6.3 have delivered the key information about the questionnaire respondents as tourist users. This information is crucial as it helps in acknowledging the key patterns and variables (*gender, age* and *level of Internet proficiency*) that are used across Chapters 6 and 7. Section 6.4 delved further into the research by exploring the nature of tourist online usage through a study of tourist users online shopping behaviour in terms of how frequently they purchase physical goods and/or experiential purchases online, tourist users' usage of social networking websites, tourist users' review writing behaviour and behaviour of first time users versus repeat users. Although the investigation cannot provide many statistically significant relationships, certain interesting facts have emerged through the analysis. It appears that most tourists prefer to purchase day attraction tickets online. Moreover, there appears to have been a significant evolution in online user behaviour. Respondents across varied demographics appear to be heading toward similar online usage patterns. More beginner level Internet users are shopping online and the same pattern has been noted amongst older adults. The second interesting observation regarding online usage has been that most tourist users do not consider social networking with Pennywell Farm to be their top priority. This finding is in

contrast to the social support design principle mentioned in the PSD model (Please refer to Appendix 1 for the PSD model strategies).

Section 6.5 has addressed the motivations that tourist users have toward writing reviews and following Pennywell Farm on social networking websites. The most common motivation for tourist users to get involved with the online experience is to participate in contests and win rewards. These strategies have been highlighted under the PSD model's dialogue and credibility support principles. Section 6.6 has ascertained the tourist users' perceptions and opinions of Pennywell Farm's online UX. The information delivered in this section explains how tourist users perceive the online experience offered by Pennywell. Most users who have used Pennywell Farm's website are concerned with usability, with the main focus on ease and convenience of shopping on Pennywell's website. On one hand it appears that visual elements play a significant yet secondary role in the case of those respondents who have previously used the website. On the other hand, the data from those respondents who have not visited the website shows that the first things users appear to notice about Pennywell Farm's online experience, are the visual elements. These findings suggest that for the first time users, the aesthetic experience is crucial in order to hold their attention long enough for them to engage with the experience. Following this, usability appears to play an equally significant role in persuading users and possibly improving the service provider's credibility.

Along with the collection of data about tourist users' nature of online usage and their motivations to use Pennywell's online UX, the questionnaire has collected data to study the tourist users' perceptions and opinions in relation with the PSD model's 28

strategies. This is explored further in part 2 of the questionnaire data analysis presented

in Chapter 7.

Chapter 7: Tourism website users and the PSD model

7.1 Introduction

Chapter 6 established the nature of tourist online usage, tourist motivations and tourist users' perceptions and opinions of Pennywell Farm's online experience. These points correlate with Aim 2- to examine tourist online user motivations and experience provided by the selected tourism SME. The purpose of this chapter is to satisfy Aim 3- to evaluate the persuasive power of online platforms provided by the selected tourism SME on tourist buying behaviour. The three objectives that assist in satisfying Aim 3 are-

    i.   To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most encourage buying behavior

    ii.   To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most discourage buying behavior

    iii.   To elucidate reasons which explain why tourists abandon an online experience prior to a potential purchase

This chapter will explain the interaction of the tourist respondents' with the four design principles and the 28 design strategies of Oinas-Kukkonen and Harjumaa's (2009) PSD model (Please refer to the PSD model in Appendix 1). The PSD model's principles and strategies have been used to formulate statements that have been rated by the respondents. Understanding these findings can assist in evaluating the persuasive power of Pennywell Farm's online experience from a PSD model perspective. Section 7.2 presents information about the overall implications of the PSD model's four design categories on tourists' decision making. This is done to provide a broad overview of how the four different design principle categories have had an effect on nudging the users toward making their online purchase decision. Section 7.3, investigates the PSD model design strategies that most encourage and most discourage tourists buying behaviour, followed by an analysis of the contribution of each strategy to the four design principles. Section 7.4 presents the reasoning behind why tourist users might have abandoned the online purchase on Pennywell Farm's websites. Section 7.5 delivers additional insights from the questionnaire. The chapter concludes with Section 7.6.

7.2 Tourist users and PSD model's four design principles

Oinas-Kukkonen and Harjumaa's (2009) PSD model is made up of four design principles; the primary task support, dialogue support, credibility support and social support. These four design principles, each represent seven persuasive systems design strategies (See Appendix 1).

Before going in-depth and presenting the implications of the individual design strategies on tourists' buying behaviour, it is important to establish a holistic theme surrounding the four design principles. A total of 11 statements have been designed and presented in Q 13 of the questionnaire (Please refer to Appendix 11 for the questionnaire). These statements are based upon the PSD model's primary task, dialogue, credibility and social support design principles. The respondents who have found that the website has persuaded them to purchase online have been requested to rank the 11 statements about the PSD model's four design principles, using a 5-point Likert scale. The Likert scale options have been collapsed from a scale of Strongly Agree, Agree, Neither Agree nor Disagree, Disagree and Strongly Disagree, to a 3-point scale of Agree, Neither Agree nor Disagree and Disagree, in order to perform more effective chi-square tests and derive associations.

Table 7.1 presents the 11 statements and their corresponding design principles from primary task, dialogue, credibility and social support.

PSD principles	Questionnaire statements
Primary Task Support	Easy to browse pages Well designed website Easy to make a purchase
Dialogue Support	Website has an entertaining theme Colours used on the website Pennywell's presence on social networking websites (e.g. Facebook, Instagram) Images showed me what to expect when I visit Pennywell
Credibility Support	Information available on the website Website appeared safe and secure for online transaction There were no error pages Contact information is easily accessible Pennywell's presence on social networking websites (e.g. Facebook, Instagram)
Social Support	Contact information is easily accessible Pennywell's presence on social networking websites (e.g. Facebook, Instagram)

Table 7.1: PSD model's four design principle categories and corresponding questionnaire statements

Source: Author

The data collected from Q 13 has been presented in this section, in the form of frequencies, association tests and central tendencies. Table 7.2 presents frequencies of the responses to the individual statements. It can be observed that primarily most respondents seem to agree with all statements except one- '*Pennywell's presence on social networking websites (E.g. Facebook, Twitter)*'.

294

Statements	Disgaree	Neither Agree nor Disgaree	Agree
Easy to browse pages	6	5	127
Well-designed website	4	8	127
Website has an entertaining theme	4	22	112
Colours used on the website	7	13	119
Information available on the website	3	3	134
Easy to make a purchase	4	1	135
Website appeared safe and secure for online transactions	2	5	130
There were no error pages	3	2	132
Contact information is easily accessible	5	4	129
Pennywell's presence on social networking websites (E.g. Facebook, Twitter)	24	46	68
Images showed me what to expect when I visit Pennywell	4	9	126

Table 7.2 Frequencies of responses to Q 13

Table 7.2 shows that a total of 135 respondents attempted to answer Q 13 (103 female and 37 male). There were a few missing responses for some options, which have been adjusted. Primarily, majority of both female and male respondents have agreed with statements- *'Easy to browse pages', 'Well designed website', 'Website has an entertaining theme', 'Colours used on the website', 'Information available on the website', 'Easy to make a purchase', 'Website appeared safe and secure for online transactions', 'Contact information is easily accessible'* and *'Images showed me what*

to expect when I visit Pennywell'. However, a pattern between both genders is observed in relation to the statement-'*Pennywell's presence on social networking websites (E.g. Facebook, Twitter)*'. Although, majority of the female (49) and male (19) respondents agree with the statement, 37 female and 9 male respondents can neither agree nor disagree and a further 15 female and 9 male respondents disagree with the statement. The researcher believes that either the statement may have confused the respondents or regardless of gender it is simply an individual's preferences toward socializing online that affect their decision to purchase online. For more insights into the descriptive statistics, please refer to Appendix 9.

Following the frequencies, Table 7.2.1 presents chi-square association tests conducted. Of all the statements, association tests for 10 of the 11 are invalid and have not been reported in Table 7.2.1 (Please refer to the statements in Table 7.1, p.293). The only statement that does not have invalid results when the association tests are performed with the independent variables is- '*Pennywell's presence on social networking websites (E.g., Facebook, Twitter)*'. However, the test does not show any statistically significant relationship between the statement- '*Pennywell's presence on social networking websites (E.g., Facebook, Twitter)*' and the independent variable of *gender*.

	Gender	Age	Level
Pennywell's presence on social networking websites (E.g. Facebook, Twitter)	.263 (.139)	-	-

Table 7.2.1: Four PSD model categories and their associations with tourist user characteristics (independent variables)

Because the p-values have not provided any insights, Table 7.2.2 presents the central tendencies, in order to summarise the data. In Table 7.2.2, the mode values of 3.00 show that the single most selected Likert scale option for each of the statements is –Agree. The three statements that most respondents agree with are- '*Information available on the website*', '*Easy to make a purchase*' and '*There were no error pages*'. These three statements relate to the primary task and dialogue support design principle categories. The statement least agreed with is- '*Pennywell's presence on social networking websites*'. This correlates with the findings of the previous chapter (Chapter 6 Section 6.5, p. 270), which highlights that social networking with Pennywell Farm does not appear to be the tourist user's top priority. Overall, the central tendencies data in Table 7.2.2 suggests that the primary task, dialogue and credibility support related statements appear to have a significant persuasive impact on the tourist users' decision to purchase online.

	Median	Mode	Valid percent
Easy to browse pages	3.0000	3.00	92.0
Well designed website	3.0000	3.00	91.4
Website has an entertaining theme	3.0000	3.00	81.2
Colours used on the website	3.0000	3.00	85.6
Information available on the website	3.0000	3.00	95.7
Easy to make a purchase	3.0000	3.00	96.4
Website appeared safe and secure for online transactions	3.0000	3.00	94.9
There were no error pages	3.0000	3.00	96.4
Contact information is easily accessible	3.0000	3.00	93.5
Pennywell's presence on social networking websites (E.g. Facebook, Twitter)	2.0000	3.00	49.3
Images showed me what to expect when I visit Pennywell	3.0000	3.00	90.6

Table 7.2.3: Central tendencies of the responses from Q 13

*1.00- Disagree; 2.00- Neither agree nor disagree, 3.00- Agree

Section 7.2 has presented insights into tourist users and their overall interactions with the elements that represent the four PSD model design principles as motivators to purchase online. Section 7.3 takes this research further by investigating tourist users' interactions with the 28 individual strategies that belong to the four PSD model design principles. The aim of Section 7.3 is to derive the most encouraging and most discouraging of the 28 strategies.

7.3 Tourist user and the PSD strategies that most encourage and discourage buying behaviour

Aim 3's first objective (Please refer to Chapter 1, Section 1.4, p. 27) investigates the encouraging and discouraging effects of the 28 PSD model strategies. In order to study these effects, 17 statements corresponding to the 28 PSD model strategies have been presented in the questionnaire. The 17 statements are divided into two parts to provide the respondents a break from the monotonous task of filling in similar questions. Q 16 in the questionnaire (Appendix 11) presents statements that are a combination of primary task, dialogue and social support strategies. The question following that (Q 17) focuses solely on the credibility support design strategies. The respondents have ranked the options on a 5-point Likert scale of Strongly Agree to Strongly Disagree. This scale has been transformed to a 3-point Agree to Disagree scale to improve the probability of achieving statistically significant relationships using chi-square tests. Appendix 10 presents the various PSD model strategies and their corresponding statements in the context of the Pennywell Farm online experience.

7.3.1 Primary task, dialogue and social support design principles that most encourage and discourage tourist buying behaviour

Q 16 and Q 17 in the questionnaire (Appendix 11) presents 17 (Q 16 = 11 + Q 17 = 6) statements that have been designed using the strategies mentioned by Oinas-Kukkonen and Harjumaa (2009) in the PSD model's primary task, dialogue, credibility and social support design principles. The questionnaire respondents have ranked the 17 statements using the Likert scale. This section provides the findings acquired from these statements in the form of frequencies, association tests and central tendencies. Table 7.3 presents the overall frequencies of responses to Q 16's 11 statements.

Statements	Disgaree	Neither Agree nor Disagree	Agree
Website made me want to purchase online	31	44	115
Online purchase process is simple	4	10	176
Website did a good job of guiding me through the ticket booking process	11	18	160
Images and videos on the website were very attractive	5	15	168
Website made me feel important	61	68	59
I was offered helpful suggestions regarding the day-trip to Pennywell Farm	33	39	117
Language used on the website was relatable	4	20	165
Website colours made me want to spend more time browsing	22	37	130
Website fonts were clear and bold	3	14	172
Pennywell's social networking page(s) made me want to be a part of their online community	66	64	58
Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again	61	56	70

Table 7.3: Frequencies of responses to Q 16

Table 7.3 shows that majority of the respondents have agreed with most of the statements except for the statements- '*Website made me feel important*', ' *Pennywell's social networking page(s) made me want to be a part of their online community*' and '*Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again*'. In terms of gender, a total of 144 female and 46 male respondents have responded to Q 16. For more insights into the descriptives in relation to the variables of gender, age and level of Internet proficiency, please refer to Appendix 9.

The chi-square association tests (Table 7.3.1) between the selected independent variables and the statements –'*Online purchase process is simple', 'Website did a good job of guiding me through the ticket booking process', 'Images and videos on the website were very attractive', 'Language used on the website was relatable'* and '*Website fonts were clear and bold'* are invalid, and have not been presented. Furthermore, Table 7.3.1 shows that no statistically significant relationships exist between the independent variables and the statements presented to the respondents.

	Gender	Age	Level of Internet proficiency
Asymp. Sig. 2-sided (CV)			
Primary Task Support + Dialogue Support + Social Support statements ranking			
Website made me want to purchase online	.220 (.126)	-	-
Website made me feel important	.538(.081)	.268 (.181)	.512(.095
I was offered helpful suggestions regarding the day-trip to Pennywell Farm	.153 (.141)	-	-
Website colours made me want to spend more time browsing	.880 (.037)	-	-
Pennywell's social networking page(s) made me want to be a part of their online community	.877 (.037)	.742 (.135)	.486 (.097)
Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again	.737(.057)	.764 (.133)	.526 (.094)

Table 7.3.1: Primary, dialogue and social support principles and their associations with tourist user characteristics

However, the central tendencies in Table 7.3.2 are able to provide insights into the choices made by the respondents. The statement that the respondents have most

commonly agreed with is – '*The online purchase process is simple'*. This is followed by the statements- '*Website fonts were clear and bold'* and *'Images and videos on the website were very attractive'*. The three statements most agreed with correspond with the PSD model's primary task and dialogue support strategies of *reduction, tunneling and liking* (For the statements and their corresponding strategies, please refer to Appendix 10)

Table 7.3.2 shows that the statement most commonly disagreed with is that- *'Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again'.* This is followed by- '*Website made me feel important'* and *'Pennywell's social networking page(s) made me want to be a part of their online community'*. These three statements correspond with the social support strategies of *social learning* and *social comparison* and the dialogue support strategies of *tailoring* and *personalisation* (For the statements and their corresponding strategies, please refer to Appendix 10)

	Median	Mode	Valid percent
Website made me want to purchase online	3.0000	3.00	60.5
Online purchase process is simple	3.0000	3.00	92.6
Website did a good job of guiding me through the ticket booking process	3.0000	3.00	84.7
Images and videos on the website were very attractive	3.0000	3.00	89.4
Website made me feel important	2.0000	2.00	36.2
I was offered helpful suggestions regarding the day-trip to Pennywell Farm	3.0000	3.00	61.9
Language used on the website was relatable	3.0000	3.00	87.3
Website colours made me want to spend more time browsing	3.0000	3.00	68.8
Website fonts were clear and bold	3.0000	3.00	91.0
Pennywell's social networking page(s) made me want to be a part of their online community	2.0000	1.00	35.1
Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again	2.0000	3.00	37.4

Table 7.3.2: Central tendencies of design principles under the primary, dialogue and social support categories

To the researcher's best knowledge, no empirical studies seem to exist where the PSD model's strategies have been assessed from the system user's point of view, hence it is impossible to draw any specific similarities or differences in terms of implications on user motivation to perform. The encouraging effects of *reduction*, *tunneling* and *liking* displays the prominent role played by the Pennywell Farm's website's usability (primary task) and ability to be aesthetically pleasing (dialogue) on improving users' motivations to purchase online. Similar findings have been established by Lingaard (2007) and Sonderegger and Sauer (2010), who have used different theoretical constructs. Lingaar (2007) and Sonderegger and Sauer (2010) explain that the aesthetics of a system and its usability play a key role in motivating users to improve their system usage performance. The respondents lack of interest in

the social support strategies of *social learning* and *social comparison*, along with the dialogue support strategies of *tailoring* and *personalisation,* as key motivators for performance suggests that tourist users might not be keen on building social relationships with one another, where the service provider plays a catalyst for conversations. Furthermore, the users do not appear keen on experiencing a personalized experience. There seems to be a pattern that might exist between what the non-tourism/tourism BCSS offer and what the users require to stay motivated to perform behaviour. Both, tourism and non-tourism (Lehto, 2013; Alhammad and Gulliver, 2014) BCSS seem to integrate primary task and dialogue support strategies but appear to lag behind on social support strategies. It is interesting to note that the tourist users do not appear to be very keen on forming social relationships either. This might suggest that tourists are focused on quick transactions, instead of spending time on building an online relationship with the provider. However, this is only a speculation and further research must be carried out on the role of various behaviour change contexts.

7.3.2 Credibility support design principles that most encourage and discourage tourist buying behaviour

A total of six statements have been devised based on the strategies mentioned in the PSD model's credibility support principle (Please refer to Appendix 10 for statements from Q17 and the corresponding strategies). The four independent variables of *gender, age, level of Internet proficiency* and *number of times the respondents have visited the Pennywell Farm destination* have been used to study associations with the

credibility support design principles. The frequencies of responses have been presented

in Table 7.4.

Statements	Disagree	Neither Agree nor Disagree	Agree
Pennywell's website displayed a Trustmark that made me feel I could trust them	5	20	169
Pennywell's website has expert information, which made me want to trust them	6	28	160
Pennywell's website loads without any errors, which made me want to trust them	10	20	164
Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them	5	18	170
I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online	91	45	57
I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online	93	45	54

Table 7.4: Frequencies of responses to Q 17

Table 7.4 shows that majority of the respondents have agreed to the credibility

support statements, barring two statements where a variance in responses is noted.

These statements are- '*I visited a review website like (TripAdvisor, Google Reviews) to*

see what others thought about Pennywell efore booking the tickets' and '*I visited*

Pennywell's social networking pages to see what others were saying about Pennywell,

before booking the tickets online'. In terms of the *gender* variable, a total of 148 female

and 46 male respondents answered Q 17. For more insights into the descriptives, please

refer to Appendix 9. Table 7.4.1 presents the association tests. Only two statements

have produced valid results however, it can be observed that no statistically significant

relationships could be established.

	Gender	Age	Level of Internet proficiency
Asymp. Sig. 2-sided (CV)			
Credibility Support Statement rankings			
I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online	.973(.017)	.693 (.138)	.884(.056)
I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online	.303 (.112)	.907 (.111)	-

Table 7.4.1: Credibility support principles and association with tourist user characteristics

The central tendencies table (Table 7.4.2) shows that the statements, which the respondents have most commonly agreed with are- '*Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them*', '*Pennywell's website displayed a Trustmark that made me feel I could trust them*', '*Pennywell's website loads without any errors, which made me want to trust them*' and '*Pennywell's website has expert information, which made me want to trust them*'. These statements correspond with the credibility support design strategies of *real-world feel*, *third-party endorsements*, *surface credibility* and *trustworthiness*.

The most common statements that the respondents seem to disagree with are- '*I visited a review website like (TripAdvisor, Google Reviews) to see what others thought*

about Pennywell before booking the tickets online', and 'I visited Pennywell's social

networking pages to see what others were saying about Pennywell, before booking the

tickets online'. These two statements correspond with the credibility support design

strategies of *verifiability*.

	Median	Mode	Valid %
Pennywell's website displayed a Trustmark that made me feel I could trust them	3.0000	3.00	87.1
Pennywell's website has expert information, which made me want to trust them	3.0000	3.00	82.5
Pennywell's website loads without any errors, which made me want to trust them	3.0000	3.00	84.5
Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them	3.0000	3.00	88.1
I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online	2.0000	1.00	47.2
I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online	2.0000	1.00	48.4

Table 7.4.2: Central tendencies of credibility support design principles

Based on the findings illustrated in Tables (7.3), (7.3.1), (7.3.2), (7.4), (7.4.1)

and (7.4.2), it can be understood that the statements corresponding with the strategies of

primary task, dialogue and credibility support appear to be perceived as more

encouraging than the social support design strategies. Based on the commonly chosen

statements in the central tendencies in Tables (7.3.2) and (7.4.2), the corresponding

strategies of *reduction, tunneling, similarity, suggestion, liking, expertise, surface

credibility, third party endorsement, trustworthiness, authority* and *real world feel* can

be viewed as encouraging tourist users to purchase tickets online from Pennywell

Farm's website. The statements least often selected by the questionnaire respondents

(Tables 7.3.2 and 7.4.2) show that the corresponding PSD model strategies of

verifiability, social role, social learning, social comparison, normative influence, social facilitation and *cooperation* do not appear to encourage the questionnaire respondents to purchase online.

The encouraging effects of the strategies- *reduction, tunneling, similarity, suggestion, liking, expertise, surface credibility, third party endorsement, trustworthiness, authority* and *real world feel* suggest that the users of Pennywell Farm's website appear to value website usability, along with the aesthetic experience. Pennywell Farm's website enables users in easily navigating through to completion by offering support via *reduction* and *tunneling*. In addition to this, the Pennywell Farm website incorporates the dialogue support strategy of *suggestions*, by offering users multiple suggestions on where to eat and what to do upon their visit to the farm. In addition to *suggestion*s, the dialogue support strategies of *liking* and *similarity* seem to suggest that the aesthetic experience of the website can be persuasive. According to Nielsen (2000), the usability and the aesthetic experience are important components of credibility, which is seen to have strong implications on persuasion.

The encouraging effect of *expertise, surface credibility, third party endorsements, trustworthiness, authority* and *real world* feel strategies suggests that credibility of the website has implications on the user's perception. According to Nielsen (2000) and Leiva, Hernández-Méndez and Sánchez-Fernández (2012), technical credibility often triggers within the user the perception of the system's high usability and vice-versa. Nielsen (2000) and Spyridakis et al. (2007) suggest that a user's ability to interpret and comprehend text, symbols or commands as a usability function has the power to improve the perception of the website's technical credibility. In addition to this, the visual appeal of the experience improves the quality of the overall user

experience (Lingaard, 2007). Improved quality results in creating a sense of expertise, trustworthiness and surface credibility, which makes the tourist users trust the website for online transactions.

7.3.3 Primary task, dialogue and social support design principles that most encourage and discourage tourist buying behaviour amongst users who have NOT visited the Pennywell Farm website

The previous two sections have addressed the encouraging and discouraging implications of the PSD model's strategies on those tourists who had visited and purchased tickets online from Pennywell Farm's website. This section highlights the encouraging and discouraging implications of the PSD model's strategies on those tourists who have NOT visited the Pennywell Farm website.

The questionnaire has been able to collect the relevant data by offering the users who have not visited the Pennywell Farm website, the opportunity to answer Q 22, after viewing a screen shot of the website's main page (Please refer to the questionnaire in Appendix 11). A total of five statements loosely based on the frequently repeating persuasion strategies have been presented to the respondents. The respondents have ticked the statements that resonate the most with their thoughts, based on a screenshot of Pennywell's main page. Table 7.5 presents the frequencies of the responses to Q 22

.

Statements	Yes	No
Website seems easy to follow	68	69
Eye catching colours	116	21
Attractive images	94	43
Easy to read text	76	61
Website looks trustworthy	51	86

Table 7.5: Frequencies of responses to Q 22

It can be observed from Table 7.5 that most respondents who had not visited the website seem to agree with the first impression statements- '*Eye catching colours', 'Attractive images'* and '*Easy to read text'*. However, the statement- '*Website seems easy to follow'* appears to have divided the respondents opinions. Finally, in response to the statement- '*Website looks trustworthy'*, more people seem to have disagreed than agreed. For further insights into the descriptives pertaining to Q 22 and the variables of gender, age and level of Internet proficiency, please refer to Appendix 11.

Table 7.5.1 presents results of the association tests between the five first impressions of those respondents who had not visited the website and the variable of whether or not the respondents would purchase from the website (after having had a look at the screenshot). A total of 106 of the 138 respondents who answered Q 23 have mentioned that they will purchase from the Pennywell Farm website in the future.

	Would you purchase?
	Asymp. Sig. 2-sided (CV)
Website seems easy to follow	.128 (.132)
Eye catching colours	- (.230)*
Attractive images	.262 (.097)
Easy to read text	.036 (.181)
Website looks trustworthy	.110 (.138)

Table 7.5.1: PSD design principles and associations with tourist characteristics of those respondents who had not visited the website

*Resulting p value is from Fisher's exact test as both variable tables were 2 X 2.

Based on the p-values, Table 7.5.1 shows that the most significant association might exist between *'Easy to read text'* and '*Would you purchase in the future?'*. However, the Cramer's V for this association is close to 0, showing that there might not be any association between the variables. A larger sample might produce different results. The option *'Easy to read text'* highlights the importance of selecting the appropriate typography. Typography is the form, layout and spacing of words (MacInnis, Moorman and Jaworski, 1991). According to Highsmith (2012), typography's goal is to provide the detailed presentation of a story. MacInnis, Moorman and Jaworski (1991) consider typography essential for executing experiences that can attract and keep consumer's attention through an artistic form of communication of the story. Labarre (2010) believes that certain fonts have an invisible upper hand, when they

are used in conjunction with information that appears to be closely related to their artistic form. The font face used on Pennywell's website belongs to the sans serif Arial Helvetica family. The sans serif fonts are used to maximize readability and create a strong sense of character for the words (Walker, 2014; Manjoo, 2015). In addition to this, Walker (2014) states that users are capable of holding longer attention spans when they have an intrinsic motivation to read. Given this logic, if the correct presentation style is incorporated, a website is able to sustain the user's attention for longer periods.

7.3.4 Assessment of the efficacy of the persuasiveness of Pennywell's UX from tourist user perspective

The respondents who answered Yes or No to whether Pennywell's website played a role in persuading them to make the purchase online, have been able to rate the level of persuasiveness of Pennywell's website on a 5-point Likert scale, later transformed into a 3-point Likert scale. A total of 184 respondents have answered the question. Of the 184, 178 have found the online experience offered by Pennywell Farm to be *persuasive*. 3 respondents have thought that the experience has *had no effect on them* at all and 3 more respondents have felt that the website is *not persuasive*. Overall, the majority of the respondents who have found that the website has persuaded them toward making an online purchase, have also rated Pennywell Farm's website to be *persuasive*. The following Section 7.3.5 provides a summation of the varied levels of persuasion of the different PSD design principles, as perceived and rated by the respondents.

7.3.5 PSD strategies that contribute the most to the four design principles

Further investigation is necessary to determine which of the strategies most contribute individually to the primary task, dialogue, credibility and social support design principles. Q 16 and Q17 in the questionnaire (Please refer to Appendix 10 for the questions and corresponding statements) presents the respondents with 11 statements, which each corresponded with the PSD model strategies. The respondents have ranked these statements from a 5-point Likert scale, later transformed into a 3-point Likert scale. The statements have all received different rankings as some strategies appear to be perceived as more persuasive than others. Insights into these statements have been already been presented in Sections 7.3.1 and 7.3.2. In order to figure out which of the strategies most contribute to each of the four design principles, a factor loadings test has been carried out. The research analysis has only included the factor loadings and not an Exploratory Factor Analysis (EFA). Oinas-Kukkonen and Harjumaa (2009) have already defined the factor components (primary task, dialogue, social and credibility support) in their model. The EFA could have been implemented had there been no factors that had been defined within the PSD model or had there been any oppositional views mentioned within the literature, in relation to Oinas-Kukkonen and Harjumaa's factors. Such circumstances would have given the researcher a reason to use EFA. However, the research aim (Please refer to section 1.4.3 on pages 30 and 31) is to establish strategies (variables) that most and least contribute to the components (in order to determine the strategies that most and least discourage buying behaviour), the factor loadings method seems most appropriate.

The factor loadings in Table 7.6 indicate the relative importance or differential importance of variable to each relating component. Table 7.6 presents the assessment of the influence of the variable according to each component. It is highly likely that they might exist in the real world, but they also might not. The highlighted variables contribute the most, while the values that have not been highlighted, contribute to the components but not significantly. Furthermore, the negative values show that the variable does not contribute to that particular factor and might contribute to the opposite factor, however the opposite is unknown. Therefore, negative values are viewed as non-contributors.

Variables	Component			
	Primary task support	Dialogue support	Credibility support	Social support
Website made me want to purchase online (Represents all strategies)	.676	.166		-.012
Online purchase process is simple (Reduction)	.528			
Website did a good job of guiding me through the ticket booking process (Tunneling)	.488			
Website made me feel important (Tailoring, Personalisation)	.225			
Language used on the website was relatable (Similarity)		.751		
Website fonts were clear and bold (Reduction)		.641		
Website colours made me want to spend more time browsing (Liking)		.545		
Images and videos on the website were very attractive (Liking)		.489		
I was offered helpful suggestions regarding the day-trip to Pennywell (Suggestion)		.108		
Pennywell's social networking page(s) made me want to be a part of their online community (Social Role)		-.042		
Pennywell's website has expert information, which made me want to trust them with my credit/debit card information (Expertise)			.677	
Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them with my credit/debit card information (Real-world feel, authority, trustworthiness)			.617	
Pennywell's website loads without any errors, which made me want to trust them with my credit/debit card information (surface credibility)			.493	
Pennywell's website displayed a Trustmark that made me feel I could trust them with my credit/debit card information (Third-party endorsements)			.360	
I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online (Verifiability)			-.153	
I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online (Verifiability)			-.084	

316

				.766
Pennywell's social networking page (s) made me want to be a part of their online community (Social learning/normative influence/social facilitation and cooperation)				
Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again (Social learning/social comparison)				.764

Table 7.6: Factor loadings

The statement- '*Website made me want to purchase online'* was designed to correspond with all design strategies of primary task, dialogue and social support. Table 7.6 shows that this statement acts as a contributing factor to all three design principles of primary task, dialogue and social support.

7.3.5.1 Strategies that contribute the most to primary task support

Table 7.6 presents the statements of '*Online purchase process is simple (reduction)', 'Website made me feel important (tailoring, personalisation*)' and '*Website did a good job of guiding me through the ticket booking process* (*tunneling*)' as the factors that contribute most to primary task support design principle.

i. Reduction: Oinas-Kukkonen and Harjumaa's (2009) seven primary task support design strategies are based on Fogg's (2003) work. *Reduction* in Oinas-Kukkonen and Harjumaa's (2009) PSD model is seen as breaking down or reducing complex behaviour into simple tasks. It is suggested that doing so will increase the user's cost/benefit ratio of behaviour. Fogg (2003; 2009) explains *reduction* as a part of achieving simplicity through persuasive technology. Fogg (2009) suggests that simplicity is the user's scarcest resource when faced with persuasion triggers. Optimisation of simplicity can enable users to jump the barrier and perform the target behaviour. According to Fogg's (2009) explanation, simplicity includes six resources that are crucial to creating a similarity profile. These are time, money, physical efforts, brain cycles, social deviance and non-routine. These specific factors have not been addressed in the *reduction* strategy mentioned in the PSD model. Instead *reduction* is compiled under the principle of primary task support (usability).

Factor loadings in Table 7.6 shows that *reduction* as a strategy contributes to the primary task support. Pennywell Farm's website offers an online shopping experience that makes the users want to purchase online, there by suggesting persuasiveness. Pennywell Farm's booking process is a two-page check out that does not require the user to register an account before completing the process. This leads to the assumption that Pennywell Farm could be aware that the tourist users might not be interested in committing long-term by creating yet another online account. In addition to this, tourist users visiting day attractions might not be looking for the detailed information one might look for if they were booking a hotel stay. Pennywell Farm's minimalist approach that simplifies the users browsing experiences and checkout processes, suggests the importance of *reduction* in nudging users toward conversion.

ii. Tunneling: According to Oinas-Kukkonen and Harjumaa's (2009) *tunneling* strategy, the system should be able to effectively guide users through the process by providing various persuasion triggers along the way. *Tunneling* is also one of the seven persuasion strategies mentioned by Fogg (2003) and is explained as the process of "leading users through predetermined sequence of events, step by step" (Fogg, 2003, p.41). *Tunneling* plays an important role in reducing uncertainty by asking users to give up autonomy and rely on the technology (Khaled, Noble and Biddle, 2005).

Table 7.6 shows that the statement 'Website did a good job of guiding me through the ticket booking process' is a contributing variable to primary task support. Pennywell Farm's website incorporates the strategy of *tunneling* by guiding users through the check out process by providing statements such as – *add as many different ticket types as you like* or the advice telling users to *remember that they can always place their order over phone* (incase they are unsure about purchasing online).

319

iii. Tailoring/Personalisation: Oinas-Kukkonen and Harjumaa's (2009) primary task support strategy of *tailoring* is based on Fogg's (2009) foundation of the behaviour wizard. According to Fogg (2009) and Oinas-Kukkonen and Harjumaa (2009), *tailoring* involves providing customised information to the users. Pennywell Farm's website provides users with information tailored toward their needs. The strategy of *personalisation* is unique to Oinas-Kukkonen and Harjumaa's (2009) PSD model and can be found under the dialogue support design principle. *Personalisation* as a strategy involves providing an experience that allows the users to personalise their experience of using the system. The statement '*Website made me feel important'* has been used to describe both *tailoring* and *personalisation*. An assumption has been made that in order to make the user feel important, the website must deliver an experience that is personal to the user. Table 7.6 shows that the component corresponding to *tailoring* and *personalisation* contributes to primary task support but not significantly.

7.3.5.2 Strategies that contribute the most to dialogue support

The variables that contribute most to the dialogue support design principles are the statements of '*Language used on the website was relatable (similarity)', 'Website fonts were clear and bold (reduction)', 'Website colours made me want to spend more time browsing (liking)', 'Images and videos on the website were very attractive (liking)', 'Pennywell's social networking page(s) made me want to be a part of their online community (social role)'* and '*I was offered helpful suggestions regarding the day-trip to Pennywell (suggestion)'*.

i. Similarity: Oinas-Kukkonen and Harjumaa (2009) have included *similarity* under the dialogue support design principles. The role of *similarity* is to persuade users

by meaningfully reminding them of themselves in some way. A system that can imitate its target audience is fit at persuading the audience. Pennywell Farm has done this through their textual content. Table 7.6 shows that the statement '*Language used on the website was relatable'* contributes significantly to dialogue support.

ii. Reduction: Oinas-Kukkonen and Harjumaa's (2009) primary task support strategy of *reduction* also appears to contribute significantly to dialogue support. The statement '*Website fonts were clear and bold'* corresponds with the *reduction* strategy, as it highlights the role played by the fonts in enabling the readers to grasp the information and find their way around the website.

iii. Liking: Oinas-Kukkonen and Harjumaa's (2009) dialogue support principles employ the *liking* strategy, right after *similarity*. This has led to some issues in designing the questionnaire, as the two design principles appear to over-lap. The statements corresponding to both are not very distinct. Pennywell Farm's website uses a number of images showcasing children or parents enjoying their experience. These images might remind users of something meaningful and similar to them. Additionally, attractive images can also fall under the category of being liked. The two statements that contribute significantly to dialogue support, as part of the *liking* variable are '*Website colours made me want to spend more time browsing'* and '*Images and videos on the website are very attractive'.* Cialdini (1984) explains that 'liking' contributes toward persuasive influence. When people see something similar to them (for example, images of other visitors enjoying Pennywell), they find it attractive.

iv. Suggestion: Oinas-Kukkonen and Harjumaa (2009) suggest that a system that offers the users good *suggestions* has enhanced persuasion powers. Pennywell

Farm's website offers users various *suggestions* regarding where to eat, how to find the farm, what to do upon visit etc. The statement *'I was offered helpful suggestions regarding the day-trip to Pennywell'* corresponding with the component of *suggestion* is a contributing factor to dialogue support, but it is not significant.

7.3.5.3 Strategies that contribute the most to social support

The components that contribute most to the social support design principles are the statements of *'Pennywell's social networking page(s) made me want to be a part of their online community (social learning, normative influence, social facilitation and cooperation)'* and '*Looking at posts published by Pennywell on their social networking page (s) makes me want to plan a visit again (social learning, social comparison)*'.

i. Social learning/normative influence/social facilitation and cooperation: The statement '*Pennywell's social networking page(s) made me want to be a part of their online community'* corresponds with all four social support strategies of *social learning, normative influence, social facilitation* and *cooperation*. All four of these social support strategies are closely related and it is difficult to establish where one ends and another begins.

ii. Social learning/social comparison: The statement '*Looking at posts published by Pennywell on their social networking page(s) made me want to plan a visit again'* corresponds with Oinas-Kukkonen and Harjumaa's (2009) PSD model social support design strategies of *social learning* and *social comparison*. Once again, it has been difficult to establish where one social support strategy ends and another begins but

322

it appears that *social learning* and *social comparison* might both be contributing factors toward social support.

7.3.5.4 Strategies that contribute the most to credibility support

Table 7.6 presents the factors that contribute the most to credibility support. These statements are, *'Pennywell's website has expert information, which made me want to trust them with my credit/debit card information (expertise)', 'Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them with my credit/debit card information (real-world feel, authority, trustworthiness)', 'Pennywell's website loads without any errors, which made me want to trust them with my credit/debit card information (surface credibility)' , 'Pennywell's website displayed a Trustmark that made me feel I could trust them with my credit/debit card information (third-party endorsements)' , 'I visited a review website like TripAdvisor, Google Reviews to see what others thought about Pennywell before booking the tickets online (verifiability)'* and *'I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online (verifiability)'*.

i. Expertise: The statement '*Pennywell's website has expert information, which made me want to trust them with my credit/debit card information*' corresponds with *expertise*, which contributes significantly to credibility support (Table 7.6). Oinas-Kukkonen and Harjumaa (2009) suggest that a system, which appears to incorporate *expertise* through knowledge, experience and competence, is capable of persuasion. Pennywell Farm's website provides necessary and expert information that one might require before traveling. This is done via a navigation menu embedded on all pages.

ii. Trustworthiness/Real-world feel/Authority: Oinas-Kukkonen and Harjumaa's (2009) credibility support strategies of *real world feel, authority* and *trustworthiness* appear to be interlinked, in a manner similar to the strategies of social support. It is difficult to establish a clear difference between them in relation to Pennywell Farm's website. The statement *'Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them with my credit/debit card information'* corresponds with all three credibility support strategies of *real-world feel, authority* and *trustworthiness*. Table 7.6 shows that these strategies appear to contribute significantly to credibility support.

iii. Surface credibility: According to Oinas-Kukkonen and Harjumaa (2009), users perform an initial assessment of the system's credibility based on the elements present on the surface. If the system looks competent, it is likely to persuade users. Wang, Beatty and Foxx (2004) and Diaz and Koutra (2013) have put forth the proposition that trust is both, experience and cue based. Cue based trust is similar to Fogg and Tseng's (1999) and Oinas-Kukkonen and Harjumaa's (2009) *surface credibility*. The level of trustworthiness of the website is inferred within the first glimpses of the cue-based *surface credibility* (Diaz and Koutra, 2013). The statement *'Pennywell's website loads without any errors, which made me want to trust them with my credit/debit card information'* corresponds with *surface credibility*, which contributes significant toward credibility support.

iv. Third-party endorsement: The statement that *'Pennywell's website displayed a Trustmark that made me feel I could trust them with my credit/debit card information'* corresponds with *third-party endorsements*. It contributes to credibility

support but not significantly. Oinas-Kukkonen and Harjumaa (2009) consider endorsements from a well-known third party to be key indicators of a persuasive system. Pennywell Farm's website clearly and boldly states that the purchase process is secured via Sage Pay. Users can access more information about Pennywell's relationship with Sage Pay via a link on the website. Sage Pay is Europe's leading payment security and fraud prevention business. Although many tourist users might not be aware about what Sage Pay is, they can infer Pennywell's credibility as an online exchange portal from the information available. Security cues are essential cues to trust (Yang et al., 2009). Along with the Sage Pay mark, Pennywell's website also provides a Hyper Text Transfer Protocol (HTTP) over Secure Socket Layer (SSL) transactions. This can also be a viewed as a Trustmark by the Internet savvy tourist users. In order to avoid inundating respondents with complex queries, the question assigned to *third-party endorsements* only enquired if the users had spotted the necessary Trustmark.

7.3.6 PSD strategies that contribute the least to the four PSD model design principles

Table 7.6 presents a list of strategies in the form of components that are the most contributing factors toward the four PSD model design principles. The statements corresponding to the strategies that do not appear to contribute to the PSD model's four design principles are listed below (Please refer to statements and corresponding strategies in Appendix 10).

7.3.6.1 Strategies that contribute the least to primary task support

i. Simulation/Rehearsal: The statement *'Looking at posts published by Pennywell on their social networking page(s) made me want to plan a visit again'* corresponds with the primary task support support strategy of *simulation*. A system that can provide users with the opportunity to observe the cause and effect of performing the behaviour is viewed as persuasive (Oinas-Kukkonen and Harjumaa, 2009). Pennywell Farm's social networking pages share images of visitors experiencing the visitor attraction. *Rehearsal* is closely related to *simulation*. According to Oinas-Kukkonen and Harjumaa (2009) a system that allows users to rehearse their behaviour is persuasive. The same statement that has been used to assess the efficacy of *simulation*, has also been used to study the efficacy of the *rehearsal* design principle. It appears that neither of these strategies contributes to primary task support.

ii. Self-monitoring: Fogg (2009) and Oinas-Kukkonen and Harjumaa (2009) state that *self-monitoring* is an effective persuasion strategy as it helps users in achieving predetermined outcomes. This strategy cannot be tested as Pennywell Farm's website does not offer any experiences that correspond with *self-monitoring*.

7.3.6.2 Strategies that contribute the least to dialogue support

i. Social role: If a system adopts a *social role*, the system is likely to be persuasive (Oinas-Kukkonen and Harjumaa, 2009). According to Bansal and Voyer (2000); Buhalis (2002); Rodriguez (2009); Safko and Brake (2009) and Ráthonyi (2013), social networking plays a very important role in tourism as it offers accessible and free knowledge, equivalent to the traditional Word of Mouth (WOM). Table 7.6 shows that the statement *'Pennywell's social networking page(s) made me want to be a*

part of their community' carries a negative value; therefore it does not contribute to the factor and might contribute to the opposite but the opposite factor is unknown.

ii. Rewards: According to Oinas-Kukkonen and Harjumaa (2009), a system that *rewards* users for their behaviour, has high persuasion powers. Pennywell Farm offers *rewards* via their social networking pages, instead of the website. This strategy has been addressed in Chapter 6. It is quite evident from the data findings (Chapter 6, Table 6.4, p. 271) that the tourist users hope to receive some *rewards* in return for performing the desired behaviour. Given that this strategy is not included in Q 16 or Q 17, it is impossible to conclude whether or not *rewards* might contribute to dialogue support.

iii. Praise/Reminders: As Pennywell Farm's website does not offer any experiences that correspond with either *praise* or *reminders*, it is impossible to conclude whether or not these strategies would contribute to dialogue support.

7.3.6.3 Strategies that contribute the least to social support

i. Competition: The design principle of *competition* falls under the social support category. According to Oinas-Kukkonen and Harjumaa (2009), a system that offers users the opportunity to compete with one another is likely to be persuasive. Pennywell Farm's website does not offer any competitions but the role of *competition* has been studied previously in Chapter 6, in context to writing reviews (Chapter 6, Table 6.4, p.270).

ii. Recognition: The strategy of *recognition* could not be tested as Pennywell Farm does not appear to provide any experiences that correspond with this strategy.

7.3.6.4 Strategies that contribute the least to credibility support

i. Verifiability: Oinas-Kukkonen and Harjumaa (2009) suggest that if a system is able to verify content via outside sources, then its powers of persuasion are enhanced. The statements '*I visited a review website like TripAdvisor, Google Reviews to see what others though about Pennywell before booking the tickets online*' and '*I visited Pennywell's social networking pages to see what others were saying about Pennywell before booking the tickets online*', both correspond with the strategy of *verifiability*. Table 7.6 shows that both these statements carry a negative value, hence they do not contribute to credibility support.

The aim of the Section 7.3 has been to provide insights into the strategies that might contribute the most and least to the four PSD model design principles. This section concludes to delve further into understanding why tourist users might abandon their online purchase, an issue addressed in Section 7.4.

7.4 Why tourists abandon online purchase?

Tracking every anonymous user who decided to purchase online but abandoned the shopping basked at the last moment is out of the scope of this research. Instead the respondents, who have been present at the farm during the pilot research period or those who subscribe to Pennywell Farm's newsletter and/or follow them on social networking sites have been asked if they abandoned the online purchase at any point. Of the 195

respondents who have answered this question, only 2 respondents have admitted to abandoning the basket online. The two reasons provided by the respondents for abandoning the purchase are,

    i.   Encountered an error page

   ii.   Had to change dates but did not have them to hand

The lack of abandoned purchases suggests that Pennywell Farm's website is effective and usable. However, the inability to track users who might have abandoned and never visited the farm or do not follow Pennywell Farm on social networking websites or subscribe to their newsletter leaves a gap within this research.

7.5 Other insights

The questionnaire respondents have been offered the opportunity to write their suggestions about the website in an open box. 96 respondents have provided feedback, of which the most common responses are categorized in Table 7.7.

Feedback	Female	Male
Design too busy/complex	21	0
Unable to locate 'book now' button	19	3

Table 7.7: Additional insights from the questionnaire respondents

Table 7.7 shows that the most common feedback is in relation to the website design being too busy/complex and users being unable to locate the *book now* button/link on the main page. These issues seem to highlight the PSD model strategies of *reduction* and *tunneling* from primary task support (Please refer to Appendix 1 for the PSD model and its 28 strategies). This feedback does appear contradictory to the findings in Section 7.2, where it has been established that majority of the respondents believe that the Pennywell Farm website makes it '*Easy to make a purchase*', which in turn has an implication on the user's decision to make the purchase online. Furthermore, it has also been established in Section 7.3 that Pennywell Farm's '*Online purchase process is simple*' and has been noted as an encouraging factor with implications on users' buying behaviour. Both findings from Sections 7.2 and 7.3 suggest that the respondents view Pennywell Farm's website to be usable. It is interesting to see that a total of 22 respondents have not been able to locate the '*book now*' link and 21 respondents have felt that the website desig is too busy/complex. In addition to this, majority of the responses have come from female respondents, suggesting that there might be gender differences in how the UX elements are perceived. However, it can be argued that this could be a result of the fact that 340 of the 481 questionnaire respondents are female. Regardless, this highlights an area that is explored further in Chapter 8. The eye tracking research method employed in Chapter 8 offers the researcher an opportunity to study users' eye movements as they interact with the Pennywell Farm UX in real-time. Given that there might exist gender differences in how the UX is perceived, the eye tracking method can assist in further establishing or rejecting the pattern that has emerged through the open question- Q 23.

Q 22 has also generated a variety of other responses that vary from –'*too colourful', 'would like discounts', create a section for the kids', 'provide more*

330

information', 'interactive maps' to '*online games', 'information about events'* etc. However, due to the low frequencies of their occurrences, they cannot be explored further.

7.6 Summary

Continuing forward with the data collected on the nature of tourist usage and their motivations, the goal of this chapter has been to acknowledge the efficacy of the persuasion strategies from the tourist users' points of views. Till date there has been no documentation of the application of the PSD model within the visitor attraction tourism SME context. Section 7.2 of this chapter has studied the overall effects of the four design categories on tourists' decision to make the purchase. Section 7.3 has researched the persuasive powers of the individual PSD design principles by establishing the most encouraging and most discouraging strategies. Section 7.4 has investigated why tourists abandoned their purchase on Pennywell Farm's website. Additional insights from the users' are presented in Section 7.5.

The previous chapter (Chapter 6) has established that the tourists' opinions and perceptions of the online experience offered by Pennywell Farm suggest a significant role played by aesthetics and usability in improving perceived credibility. This chapter confirms that the aesthetic and usability based PSD design principles are rated highly by the tourist user. The pattern suggesting the importance of visuals and usability, and their consequent impact on credibility and online transaction is clear. This opinion is shared across those tourist users who have visited the website and those who have not. The chi-

square tests have not been unable to provide any statistically significant associations with the independent variables but the central tendencies' findings present strong insights. These suggest that certain design principles have greater potential for persuasion within the tourism SME context. Furthermore, the findings also suggest the need to merge some design principles and reduce expectations from design principles that might not be as effective as others. This information is significant and contributes toward satisfying Aim 4 of the research (Please refer to Chapter 1, Section 1.4, p. 27 for the research aims and objectives).

The unique characteristics of different respondents, as a result of their gender, age and level of Internet proficiency might suggest that most users will have their own unique reactions to the online experience and the PSD design principles. However, the comprehensive nature of the PSD principles shows their applicability, flexibility and acceptance across multiple contexts and demographics. Aesthetic experiences and usability put users at ease (Lingaard, 2007), leading to increased motivation and performance (Sonderegger and Sauer, 2010). Based on the findings and analysis of the Pennywell Farm respondents, it appears that aesthetic experience and good usability also lead to an increase in perceived credibility.

The questionnaire also collected additional insights from users, which have been presented in Section 7.5. These findings suggest that mostly female respondents consider Pennywell Farm's website design to be 'busy'. Furthermore, the female respondents have also struggled to locate the '*book now*' call-to-action button. Although, Section 7.3 has been able to establish the encouraging effect of Pennywell's primary task (usability) and dialogue support (visuals, aesthetics) strategies, the contradictory insights have suggested issues that require further investigation. These

findings have nudged the researcher toward incorporating the eye tracking methodology to study tourist users' live interactions with Pennywell Farm's UX. The eye tracking experiment will provide the researcher an opportunity to understand why the users might be unable to locate the call-to-action button, which is essentially a crucial element of any transactional UX as its purpose is to nudge users toward making a behaviour change. Furthermore, the eye tracking study will also assist the researcher in understanding the implications of Pennywell's UX on the users as they browse the website. The findings and analysis of the eye tracking experiment has been presented in the following Chapter 8.

Chapter 8: Tourist users live interaction with Pennywell Farm's online experience

8.1 Introduction

This chapter presents the eye tracking study, and an analysis of its findings. The eye tracking experiment has been used to add onto the findings of the questionnaire analysis presented in Chapter 7. The purpose of the study is to research the manner in which potential Pennywell Farm visitors browse the website, and the persuasive impact of the online experience on their decision to purchase the ticket online. Section 8.2 begins by presenting the background and the purpose of the eye tracking study. As this is a supplementary study, it is crucial to establish the reasoning behind the selection of the eye tracking methodology and the support that the study offers to the findings of the questionnaire analysis. Section 8.3 introduces the first aim of the eye tracking research, which is- to explore the tourist users' usage of Pennywell Farm website. The objectives that assist in satisfying this aim are,

i. To establish the tourist user's website reading pattern and,

ii. To study the tourist user's process of task completion (completing online purchase).

The data to explore the first aim and its two objectives has been collected through the eye tracking experiments conducted with the Pupil Labs eye-tracker. Section 8.4 presents the second aim of the eye tracking experiment, which is *-to the persuasive impact of Pennywell Farm's online experience on the user's decision to*

purchase the ticket online. The data used to support the second aim has been collected

through a short post-experiment questionnaire. Section 8.5 proceeds to deliver a

discussion on the findings of the eye tracking study and reviews its relationship with the

other findings of this PhD research. In addition, Section 8.5 also presents the

implications of the eye tracking experiment for Pennywell Farm. This chapter ends with

Section 8.6 that delivers a summary on the overall findings of the eye-tracking chapter.

8.2 Background

The findings of the questionnaire analysis suggest that Pennywell Farm's

website design is complex and filled with many UX elements. The questionnaire

respondents have explained that this is distracting. In addition to the website being

perceived as cluttered (busy), respondents have also explained that the colours on the

website are too bright. Furthermore, respondents have suggested that the high number

of UX elements work as a barrier toward locating the *book now* call-to-action button.

Call-to-action is an instruction to the user that can provoke an immediate response and

nudge the user toward performing some type of an action such as 'finding out more' or

'making a purchase' (Lilyquist, 2016). These findings have been presented in Chapter

7, Section 7.5.

Although none of the users from the sample appear to be put off from

purchasing the Pennywell Farm tickets online, not being able to locate the *book now*

button is a critical issue. If a website user is unable to locate the link that they require to

complete the online purchase task, it might agitate them, which could lead to them

abandoning the purchase process. The questionnaire has been unable to collect data from users who might have abandoned the online purchase hence it is impossible to know the criticality of being unable to locate the *book now* button. However, Kim and Fesenmaier (2008), Nusair and Kandampully (2008), Loda (2011), Diaz and Koutra (2013) and Oinas-Kukkonen and Harjumaa (2009) suggest that it is essential for a website to be usable, in order for it to be persuasive and for it to have an impact on the user's decision making. Fogg (2009) mentions that improved usability equates with users having to spend less time completing a task, which in turn makes the UX persuasive (For more information on Fogg's (2009) strategies please refer to Chapter 3, Section 3.7.4, p.107).

The eye tracking study has been carried out using Pupil Labs eye-tracker. A total of 10 participants were invited to participate in the study. The research participants are parents, grandparents or guardians of children from ages's toddler to 8 (For more information on selection of the sample, please refer to section 4.4.3.8 on p. 183-184). This is a prerequisite for the experiment because Pennywell Farm is a day/visitor attraction geared toward families with young children. The task given to the participants has required that them to browse the Pennywell Farm website as if they were looking to make a (hypothetical) booking. The task had no time restriction. The researcher asked the participants to browse the website for as long as they want in order to collection all the information they deem necessary, had they actually been planning the day visit for their children/grandchildren. It has been ascertained that the participants had not visited Pennywell Farm previously as having browsed the website previously might have affected their use of the webiste during the experiment.

The purpose of the eye tracking study is to present the manner in which potential Pennywell Farm visitors browse the website and how that experience has implications on their decision-making. The experiment also provides assessments that are different from those derived through the questionnaire research method in Chapters 6 and 7, as this questionnaire has been presented to the participants right after they browsed the website. While filling out the questionnaire used in Chapters 6 and 7, the participants had to recall their experience of browsing the Pennywell Farm website. Although the questionnaire participants have been able to refer to screenshots of Pennywell Farm's main page and bookings page, such recollections are different from assessing participants' online usage in real-time. The eye tracking study has allowed the research to progress into a different territory by offering insights into users' real time usage. In addition, the eye tracking software has also been able to generate valuable data in terms of the areas of the website that the respondents' eyes most concentrated upon.

Respondents who participated in the questionnaire mentioned that it is difficult to locate the *book now* call-to-action button on the Pennywell Farm website. Furthermore, some respondents also mentioned that the website appears to be loaded with too many website elements, which makes it difficult to locate the desired objects. Based on these findings, the purpose of this eye tracking study has been separated into two aims.

The first aim of the eye tracking study is to establish the tourist users' website reading patterns. This aim will help in addressing why the tourist users have not been able to locate the *book now'* call-to-action button. The reading patterns are studied

through the heatmaps[13] that are generated by the eye tracking software. The second aim of this research is to study the persuasive impact of the Pennywell Farm website. This is done through a short questionnaire, following the eye tracking experiment. The persuasiveness perceptions and opinions of the eye tracking experiment participants have been studied using this questionnaire.

8.3 Tourist user's usage of Pennywell Farm's website

Chapter 4, Section 4.4.3.8 (p. 178) has explained the method for the selection of the eye tracking experiment sample. In order to get the required insights, a standard task has been assigned to the eye tracking experiment participants. The task has involved getting the participants to browse the Pennywell Farm website as potential visitors who are looking to visit with their children. The task is considered complete when the participants make a hypothetical booking (only after having taken in all the information they deem necessary for making an online purchase with Pennywell Farm). The data collected from this task provides the required information to support Aim 1 of this chapter, which is to explore the tourist user's usage of Pennywell Farm's website. The section has been divided into two parts based upon the two objectives of Aim 1, which are to establish the tourist users' website reading patterns and to understand their implications on tourist users' process of task completion (*completing online purchase*).

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[13] Heatmaps are maps that highlight the areas of the website that each individual user is most fixated upon during their browsing experience (Nielsen, 2006)

8.3.1 Tourist website reading pattern

Objective 1 of Aim 1 presents the findings to establish the tourist users' website reading pattern(s). Website viewing behaviours of users indicate parts of the website that are paid the most attention (Djamasbi et al., 2011). When users view a website, they generally tend to follow a pattern whereby the eyes trail evenly distributed, homogenous information (Lidwell, Holden and Burler, 2007). The pattern in which users look at a website, plays an important role in how successful the website has been in communicating to the user and encouraging them toward taking actions. According to Djamasbi et al. (2011), the website reading patterns can be changed by guiding users through visual hierarchy, or cues suggesting as to which information they must access first. This can be achieved by moving the location of the crucial call-to-action website UX elements, in order to build the strongest influence (Granka et al., 2006; Owen and Shrestha, 2010 and Djamasbi et al., 2011).

The Pennywell Farm website is laden with images. Figure 8.1 shows that besides a prominent slide show on the top left, right and centre of the page, the website also has images embedded below the slide show. In addition to this, there are more graphics further down the page, in the form of the bookings button and the location map. The widespread placement of the various UX elements across the website's resolution suggests that there might be varied regions of interest (ROI) that different users might focus upon.
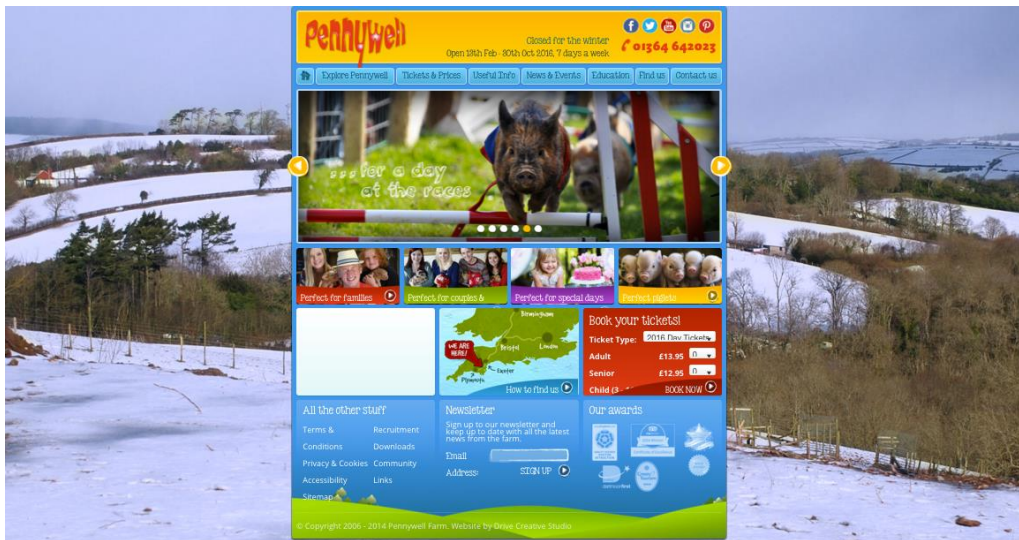
Figure 8.1: Screenshot of Pennywell Farm's website

Image source: PennywellFarm.co.uk (January, 2015)

Table 8.1 displays the data collected regarding the participants' website navigation patterns. The data provides insights into the participants' gender, the total duration of time spent on the entire website (all pages), the duration of time spent on the main page before the user clicks onto other links, the sequence in which the pages are visited and the location of the UX call-to-action that was used by the user to book Pennywell Farm's ticket. The farm's website offers users multiple UX elements to open the bookings page. One option is available via the navigation menu (Figure 8.2) and the second option is in the form of a red call-to-action button titled *book now* (Figure 8.3).

340

Gender	Total duration on website	Duration on main page	Sequence of pages visited	Location of the UX call-to-action used to book
Female	1.54	7	Explore Pennywell Useful information	Top menu
Female	1.41	6	Explore Pennywell Find us[14]	Top menu
Female	1.02	12	Tickets and prices Explore Pennywell	Top menu
Female	1.31	12	Find us Useful information Tickets and prices>Birthday parties	Bottom right
Female	4.18	10	Useful information Tickets and prices Explore Pennywell News and events Find us Tickets and prices>Birthday parties	Top menu
Male	1.16	15	Find us Education Home button	Bottom right
Male	3.14	7	Tickets and prices>Christmas tickets>Seasons tickets	Bottom right
Male	3.22	8	Explore Pennywell>Animals>Rides>Eating and Shopping Find us Tickets and prices>Christmas tickets Education Useful information Ticket and prices>Christmas tickets	Bottom right
Male	3.36	37	Useful information Explore Pennywell>Animals> Farm map News and events	Bottom right
Male	4.16	7	Explore Pennywell>Farm map>Activities Home button Find us (from bottom centre link) Tickets and prices Useful information Education Explore Pennywell>Eating and shopping>Animals>Gallery	Bottom right

[14] *Find us* page can be accessed from the top menu or via a Pennywell Farm location map on the front page, placed at the bottom centre of the page.

Table 8.1: Tourist users' website navigation patterns as they read the website content.

Figure 8.2: Bookings option 1 via the navigation menu

Image source: PennywellFarm.co.uk (January, 2015)

Figure 8.3: Bookings option 2 via the call-to-action button placed on bottom right corner of the screen

Image source: PennywellFarm.co.uk (January, 2015)

8.3.2 Duration behaviour

Table 8.1 shows that regardless of the participants' genders, all users have visited the top navigation menu in the first instance. The average mean time spent by the respondents on the main page of Pennywell Farm's website is 12.1 seconds. The

average mean time spent by female participants on the main page is 9.4 seconds and

14.8 seconds by male participants. Furthermore, the average mean time spent by

respondents on the entire website is 2 minutes 45 seconds. The average mean time spent

by female participants on the website is 1 minute 8 seconds and 3 minutes by male

participants. There is a clear difference between the time spent on the main page, and

the entire website by both genders. This suggests that Pennywell Farm's website must

cater to both types of users, the ones who might spend longer on the main page and on

the overall website and those users who might be keen on completing the task quickly.

Pennywell Farm's website does this by providing extensive information for the users

that prefer to browse for longer durations. The main page of the website is filled with

essential information that can guide users toward more information or alternatively

guide them directly to the bookings page. The navigation menu is embedded on all

pages, which appears to ease the process of checking out, if one wishes to do so

quickly.

8.3.3 Pages visited behaviour

It should be noted that the male participants appear to visit more pages on

Pennywell Farm's website. On average, the male participants also spend more time

browsing the website. Gustafson (2015) suggests that men appear to spend more time

browsing websites as they are focused on gaining all the necessary information about

the product. Gustafson (2015) also suggests that women tend to stay focused on the

experience of shopping as an end unto itself. This could be related to the argument that

men are systemisers and like to follow a systematic pattern while women are

empathisers, therefore they are sensation seeking (Boyle, 2009; Margalit, 2014).

Moreover, Boyle (2009) and Gustafson (2015) suggest that men tend to read more than

women, when they are shopping. However, one could argue that the male participants in the eye tracking experiments might have also read the websites more slowly than the female participants.

The eye tracking software from Pupil Labs generates videos, the image captures from which are presented in this chapter for the reader to follow. A total of six image captures from the experiments' (three female and three male) participants are presented below. The eye tracking videos can only be accessed using the Pupil Labs software, which is why they cannot be presented with this PhD document. The researcher has selected the best of the ten captured videos, ensuring that the video/image clarity is not lost. The captures show the participants mid-experiment, browsing the Pennywell Farm website. The **red lines** on screen are the saccades, i.e., lines between two or more fixations (marked by the black arrow). These lines suggest the path taken by the user as they browse the website. The numbers in **blue** (marked by the black circle) are the fixation points, showing where the user's eyes most recently paused.
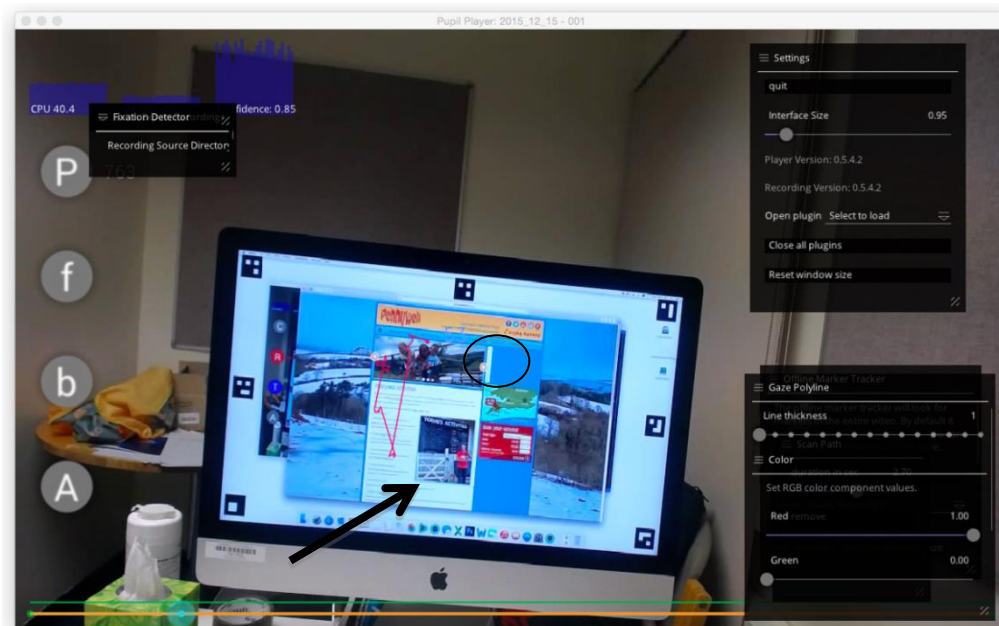
Figure 8.4: Image of Female 1 browsing the website

344

Figure 8.4 shows the most recent fixation (53) in the image capture, which is near the navigation menu. The red saccades marked by the black arrow show that the Female 1 appears to have glanced through the textual content before moving her eyes onto the images underneath the navigation menu.
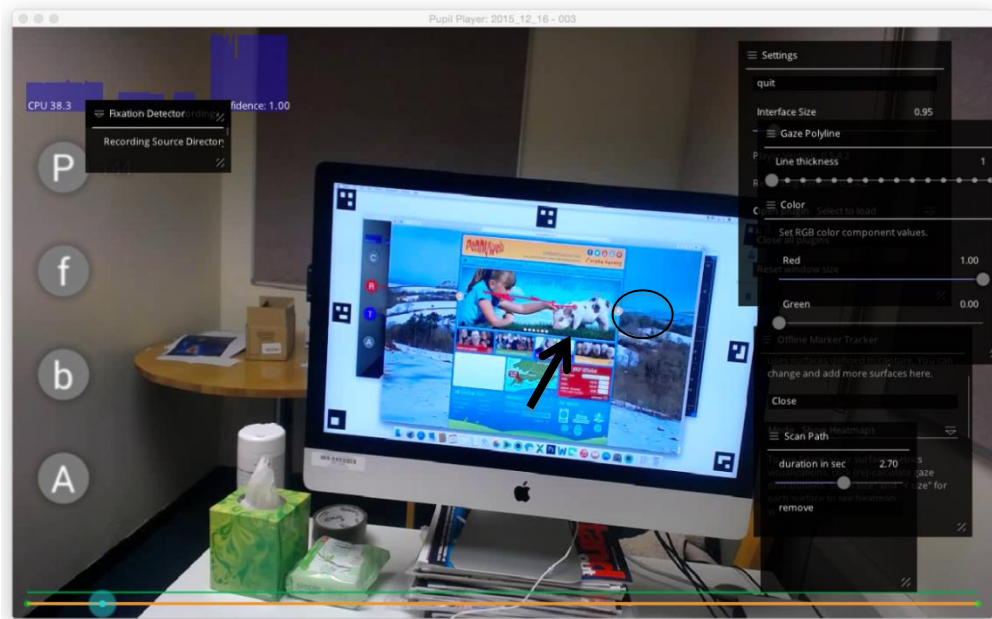
Figure 8.5: Image of Female 2 browsing the website

Figure 8.5 shows the most recent fixation (7), which lies on the slideshow as the user's eyes browse this section. The red saccades marked by the black arrow show that Female 2's eyes appear to be gazing across the images on the slideshow.
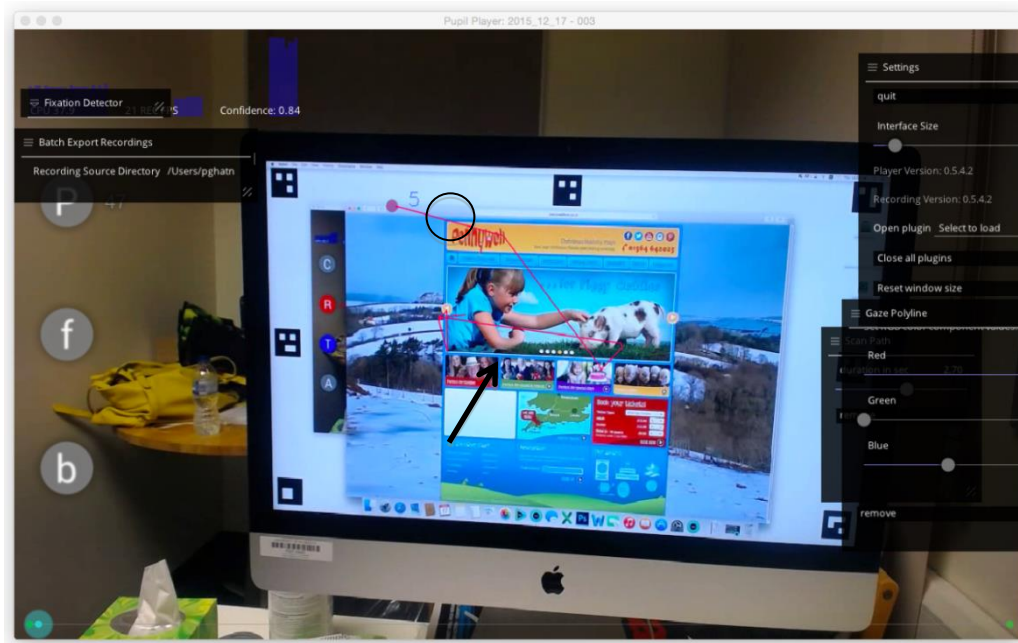
Figure 8.6: Image of Female 3 browsing the website

Figure 8.6 shows the most recent fixation (5), which lies on the outlines of the main page window. The red saccade lines marked by the black arrow show that Female 3's eyes appear to be focused on the logo, the slideshow and images underneath the slideshow.
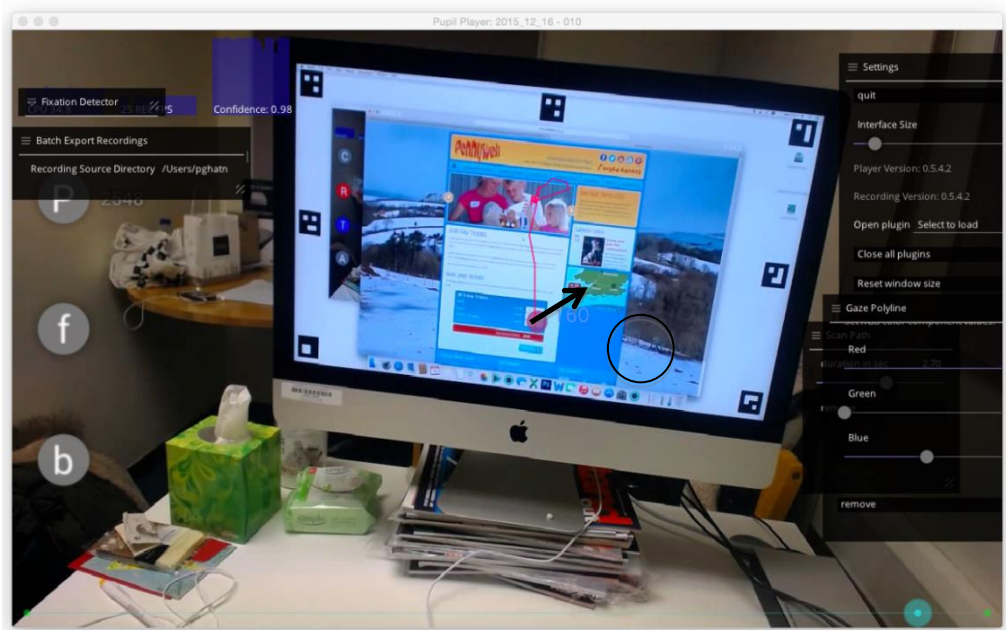
Figure 8.7: Image of Male 1 browsing the website

Figure 8.7 shows the most recent fixation (160), lies near the bookings completion button. The red saccade lines marked by the black arrow show that Male 1's eyes appear to be browsing the images on top of the bookings page before gaxing upon the bookings form.
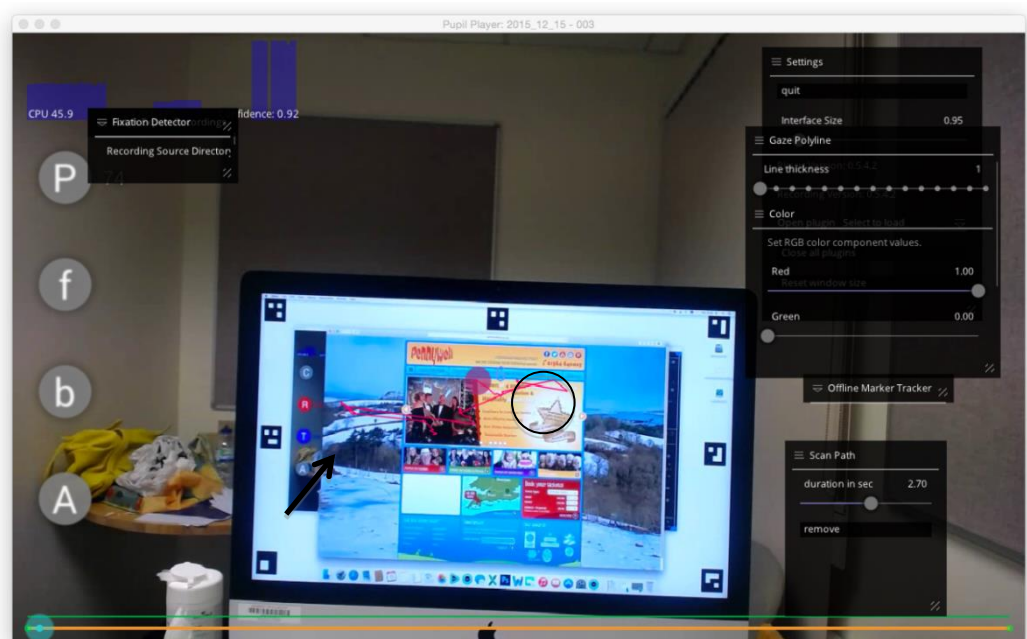
Figure 8.8: Image of Male 2 browsing the website

Figure 8.8 shows the most recent fixation (6), which lies near the navigation menu. The red saccades lines marked by the black arrow show that Male 2 appears to be gazing at the background image and the slideshow before moving onto the navigation menu.
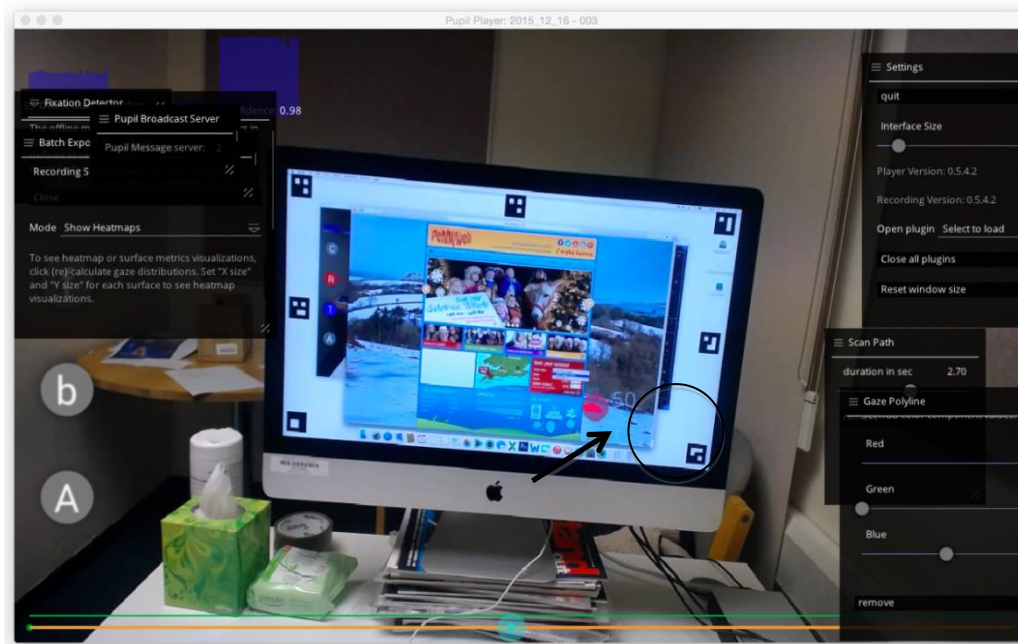
Figure 8.9 shows the most recent fixation (50) lies near the red bookings call-to-action. The red cluster formed by the saccades lines shows that Male 3 appears to be focused on the red button while they continue to select options available on the button.

8.3.4 Call-to-action book now link behaviour

The call-to-action button used in the eye tracking experiment is the red bookings button on Pennywell Farm's website (Figure 8.3, p. 342). This button is placed on the main page and consequently embedded across all pages on the website. The tickets for

Pennywell Farm can be purchased by accessing the red button or by accessing the bookings page via the top navigation menu (Figure 8.2, p.342), which is also embedded on every page of the website. It is interesting to note that all men in the experiment, access the bookings link via the red button, placed on the bottom right portion of the website. On the contrary, 4 of the 5 female participants access the bookings page via the top navigation bar.

The call-to-action behaviour of male participants might suggest the role played by the colour red. The *book now* call-to-action is a red button (Figure 8.3, p.342). Colours are known to create associations. Jacobs (1981), Mollon (1989) and Elliot et al. (2007) suggest that colour associations might have evolved from evolutionary predispositions to colour stimuli. Colour associations might have enabled humans to adapt and survive (Byrne and Hilbert, 2003). For example, blue might generate a sense of calm as it is associated with the blue sky, which signals good weather (Byrne and Hilbert, 2003). According to Elliot et al. (2007), if humans respond to colour stimuli, then some colour association might represent a cognitive reinforcement, or molding of biological responses. When contexts from our modern life are added to the associations, they have different implications on our thoughts and behaviours (Byrne and Hilber, 2003; Elliot et al., 2007). Based upon context, the red colour could either signal good health or danger.

Shibasaki and Masataka (2014) explain that the colour red is often associated with excitement and arousal. In addition to this, Shibasaki and Masataka (2014) suggest that sexual selection might have influenced the evolution of the human response to red. Males of most species are biologically programmed to compete with other males. As such the sensitivity to the meaning of red might be helpful in deriving judgments about

potential physical conflicts with opponents (Shibasaki and Masataka, 2014). In contrast to this, primitive females would have been inherently less competitive, a phenomenon that is a result of different reproductive costs for men and women, there by reducing the importance of the colour red (Shibasaki and Masataka, 2014).

This argument regarding how men and women perceive the colour red might support the difference in how both genders have accessed the bookings link. However, 1 out of the 5 female participants has also clicked on the bookings link via the red bookings button. Given the size of the sample and the lack of studies focusing on the implications of the colours of call-to-action UX elements and gender, the research findings suggest a gap that cannot be addressed through an eye tracking experiment of this size.

8.3.5 Tourist's Region of Interest (ROI)

The variance in how different participants navigate across the website and click on the bookings link suggests that different users might focus on different regions of interest (ROI) on the website.

The heatmaps generated by the eye tracker establish website reading patterns by displaying the areas that have been gazed upon the most by the users. The implication of this finding is that if a standard website reading pattern could be established, then the website designers could place the most important information or call-to-actions within the ROI, in order to ensure that more users notice it.

Although ROI heatmaps are straight forward, the theories supporting their interpretation are lacking. A review of the eye tracking literature suggests that there are

generally two types of website reading patterns that could provide adequate structure to the ROI heatmap interpretations. Most eye tracking studies (Nielsen, 2006; Lidwell, Holden and Burler, 2007; Shrestha and Lenz, 2007; Andrade, 2013), generally refer to two types of website reading patterns. One is the Guttenberg Z-shape and the other is the F-shape pattern. The Gutenberg Z-shape diagram and the F-shape, both help in creating harmony, in terms of reading gravity and developing rhythm and comprehension (Shrestha and Lenz, 2007; Andrade, 2013). The F-shape is more commonly experienced when users read web pages (Nielsen, 2006) as opposed to Z-shape that is experienced when users read hard copies such as brochures (Nielsen, 2006; Lidwell, Holden and Butler, 2007). In addition to this, Lidwell, Holden and Butler (2007) state that the Guttenberg Z-shape diagram might only be predictive of eye movements, when the surface being read is text-heavy and contains homogenous information. When other visual elements are added to the mix, this pattern changes, often leading to the development of the F-shape (Nielsen, 2006). Furthermore, Andrade (2013) suggests that the Guttenberg diagram is applied when users are genuinely interested in reading content, rather than just browsing the website for quick information.

Pennywell Farm's website is unlike a news provider's website, where in the primary goal of the user would be to read text heavy content. The main purpose of Pennywell Farm's website is to attract users, provide them the necessary information and assist them in converting into a customer by purchasing online. This process is not as text heavy as the experience of browsing a news provider's website. Given this scenario, the F-shape pattern provides the required structure, within which the ROIs can be assessed. If the users have browsed the website in an F-shape, the heatmaps

showcasing the ROIs will lie within the boundaries of a rough F-shape, made on the

main page (Figure 8.10).
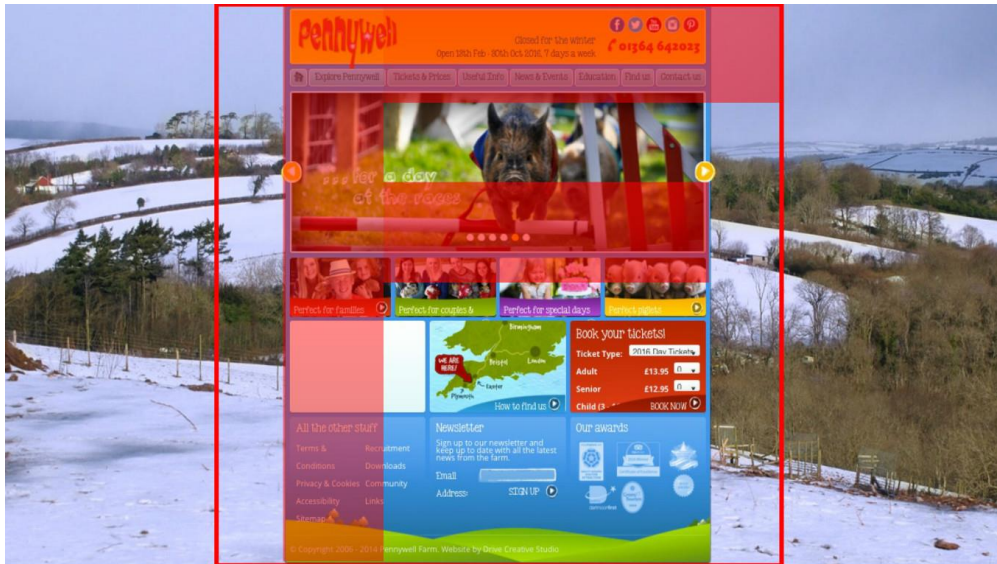
Figure 8.10: Rough F-shape pattern inside the primary region of interest, highlighted by the red rectangle[15]

Table 8.2 presents the findings on the ROIs and whether or not these are found

within the F-shape website reading pattern.

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[15] The experiment was carried out on a 27 inch iMac with 2560 X 1440 px resolution. User behaviour
results might vary on other resolution sizes that require scrolling below the fold. The F-shape pattern
would remain in the same area as in Image 1.

352

Participants	F-shape	ROI max.	ROI min.
F1	✓	Image slideshow- Top menu navigation- Contact information	Image of map
F2	✓	Images beneath the slide show	Top menu navigation
F3	✓	Image slideshow- Images beneath the slide show	Image of map- Newsletter
F4	✗	Red bookings box- Awards won- Image of map	Image slideshow- Images beneath the slide show
F5	✓	Image slideshow- Top menu navigation- Contact information	Image of map
M1	✗	Red bookings box- Awards won- Image of map	Image slideshow- Images beneath the slide show
M2	✓	Image slideshow-Red bookings box-Newsletter	-
M3	✓	Image slideshow- Top menu navigation- Contact information	Image of map
M4	✓	Image slideshow- Top menu navigation- Contact information	Image of map
M5	✓	Image slideshow- Top menu navigation- Contact information	Image of map

Table 8.2: Tourist users' website reading patterns

Table 8.2 provides insights that have been interpreted from the ROI heatmaps generated by the eye tracker. These ROIs range from UX elements that receive the maximum focus from the users to UX elements that received minimum focus. A total of six heatmaps, (three female and three male) are included in this chapter, for the reader to follow along with the experiment. Only six heatmpas have been presented as the researcher has selected the best of the ten captured videos, ensuring that the video/image clarity is not lost.
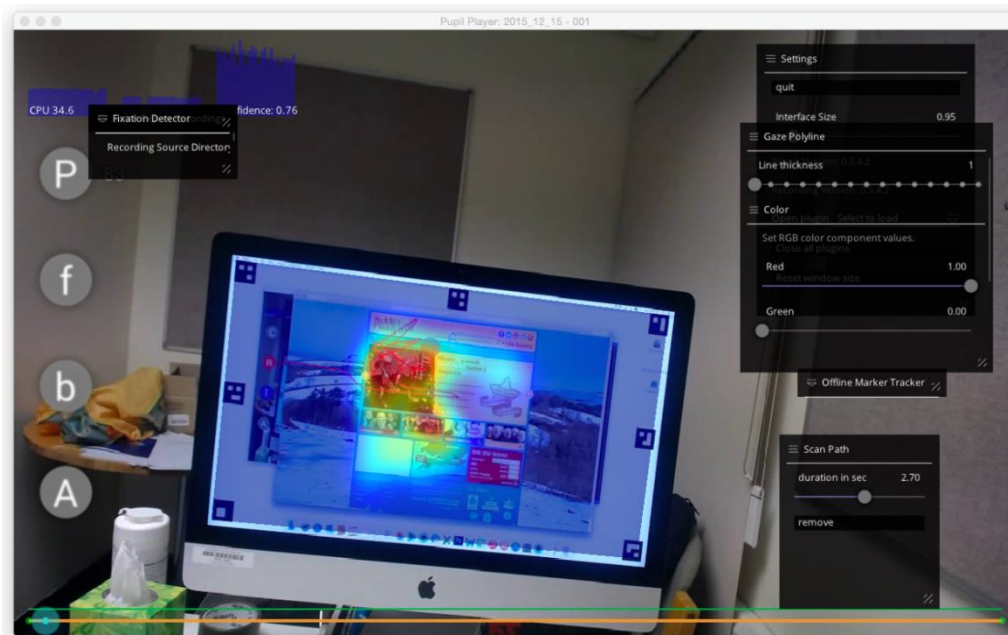
Figure 8.11: Heatmap generated from experiment with Female 1

The heatmap capture from the experiment with Female 1 shows that the ROI is concentrated within the hypothetical F-shape region
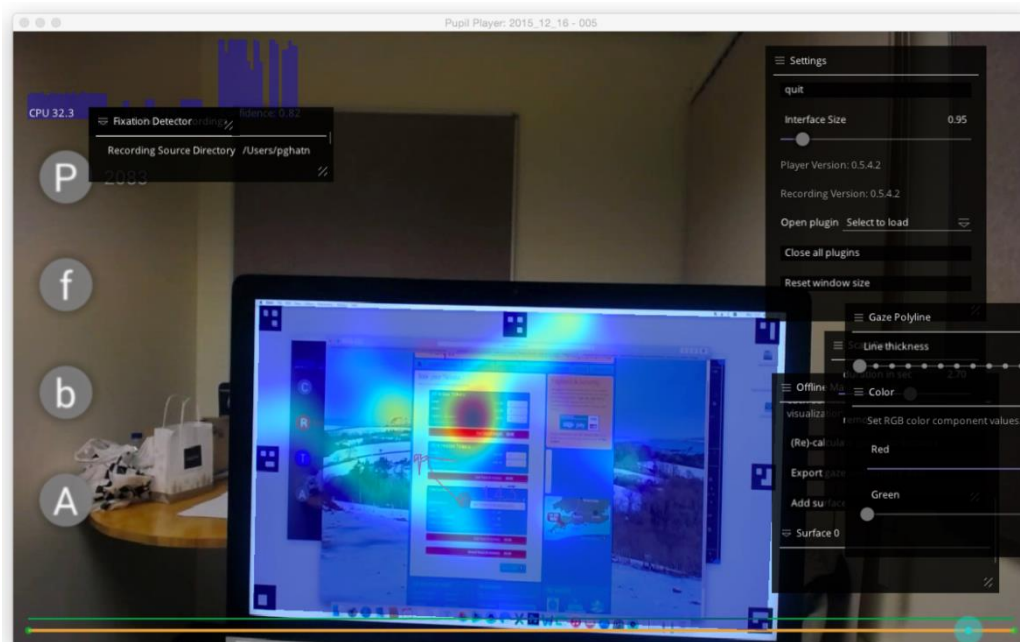
Figure 8.12: Heatmap generated from experiment with Female 2

The heatmap capture from the experiment with Female 2 shows that the ROI is concentrated within the hypothetical F-shape region
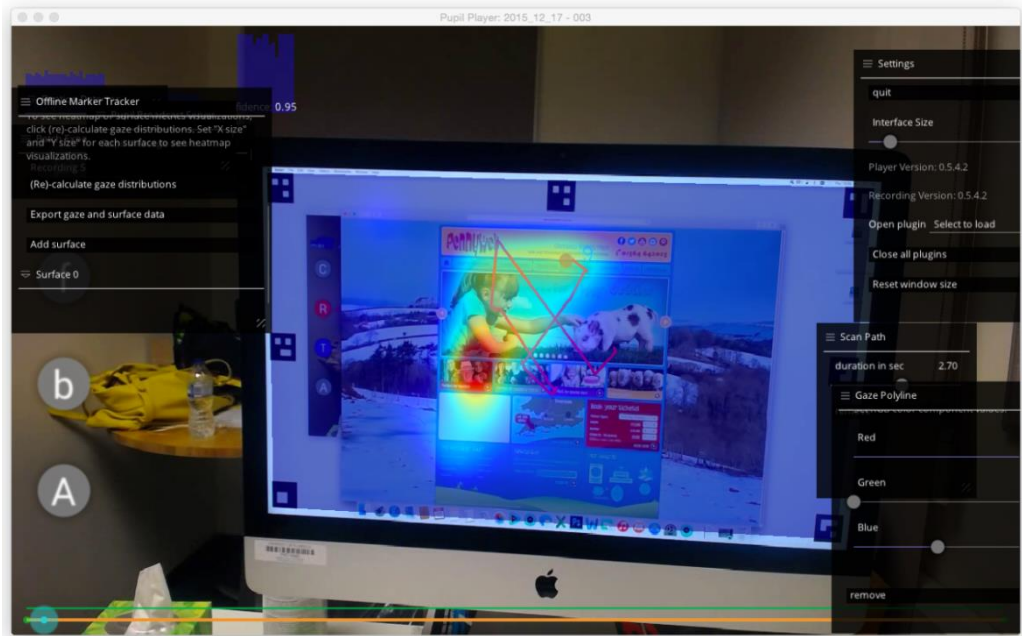
Figure 8.13: Heatmap generated from experiment with Female 3

The heatmap capture from the experiment with Female 3 shows that the ROI is

concentrated within the hypothetical F-shape region
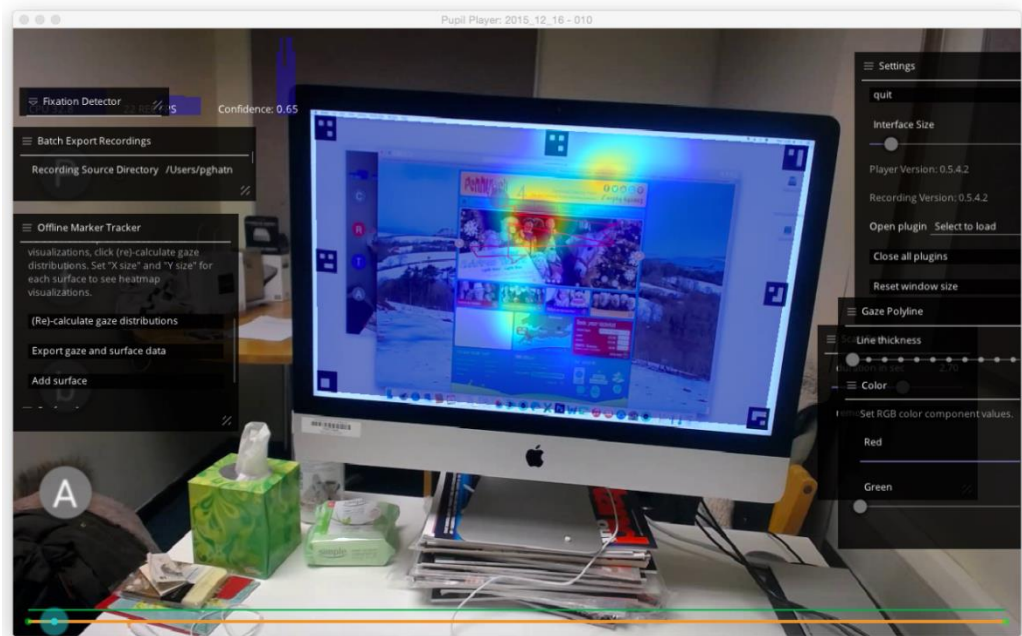
Figure 8.14: Heatmap generated from experiment with Male 1

The heatmap capture from the experiment with Male 1 shows that the ROI is concentrated within the hypothetical F-shape region
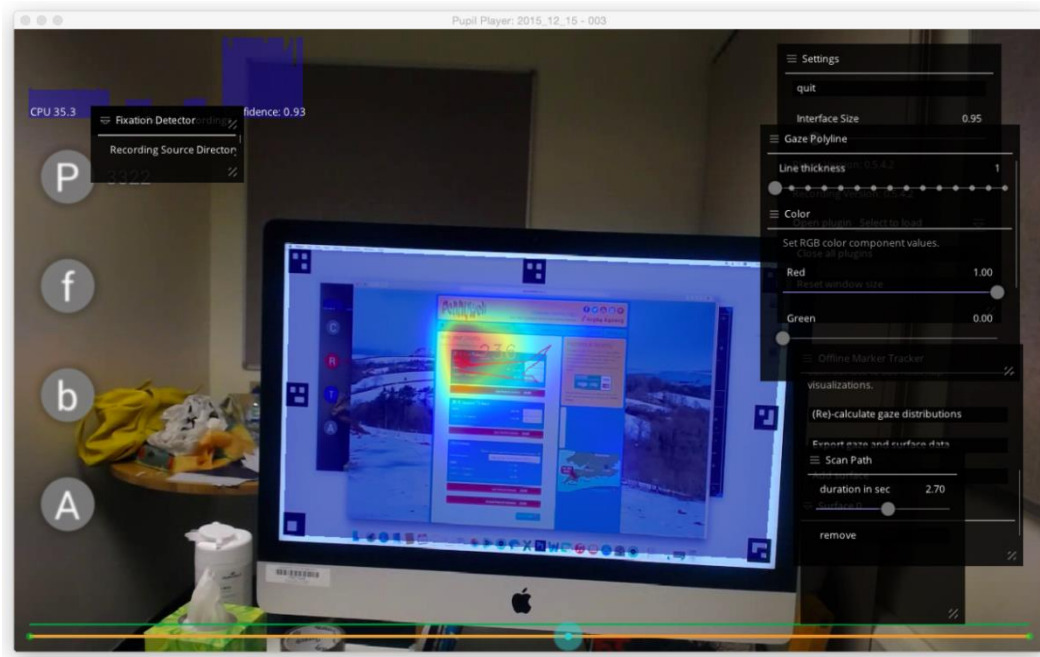
Figure 8.15: Heatmap generated from experiment with Male 2

The heatmap capture from the experiment with Male 2 shows that the ROI is concentrated within the hypothetical F-shape region
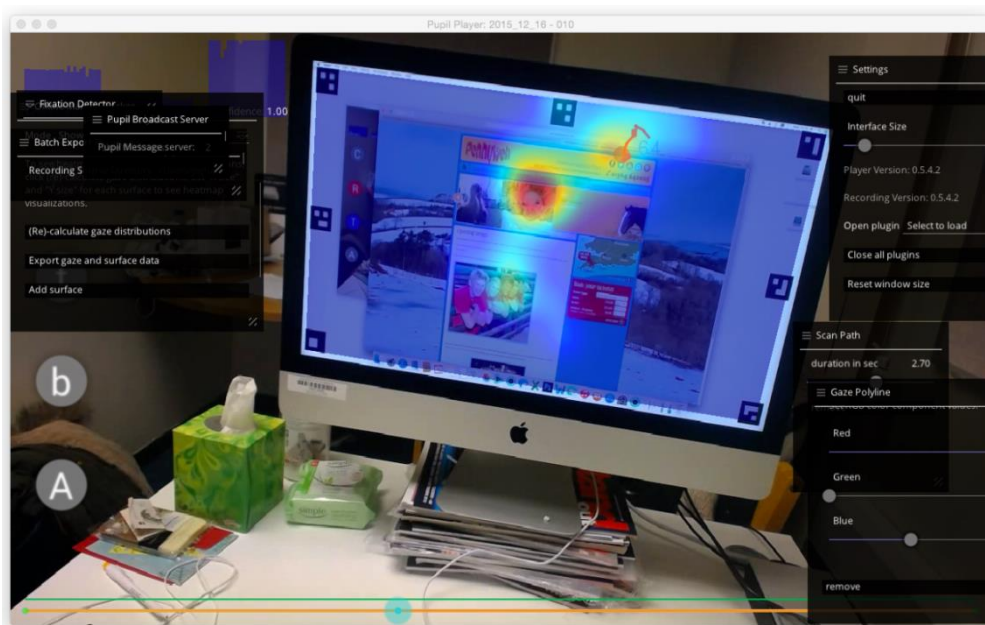
Figure 8.16: Heatmap generated from experiment Male 3

The heatmap capture from the experiment with Female 2 shows that the ROI is concentrated within the hypothetical F shape region

In the heatmaps above (Figures 8.11-8.16), the elements covered by the colour bright red appear to receive the most user attention. The areas covered by shades of orange and yellow, seem to receive considerable attention too but compared to the red areas, this is minimum. Based on the heatmaps, the areas that receive the most focus are those that showcase the slideshow, the top navigation menu and the contact information. These three areas are found within the F-shape pattern presented in Figure 8.10. p. 353. It should be noted that 8 of the 10 participants have focused their gazes on the website's UX elements that lie within the F-shape region. In terms of ROIs, the primary focus of the 10 participants has been on the visual imagery, followed by the navigation menu and contact information. On Pennywell Farm's website (Figure 8.1, p. 337), the navigation menu and contact information are placed at the top of the page. According to Djamasbi (2011), users perceive the elements placed at the top of the page as important. Surprisingly, the heatmaps show that the minor ROIs (areas covered in orange and yellow) are also made up of visual imagery. Table 8.2 (p. 354) shows that the 2 participants who seem to have gazed at the red bookings button appear to have strayed from the general F-shape pattern. In addition to all the findings, there is a clear theme, which is repeated across the reading patterns of all 8 users, regardless of their gender. Unlike the differences witnessed in website usage durations and perception of the call-to-action bookings button, gender does not appear to affect the F-shape pattern. Moreover, the 2 participants who seem to gaze at the website elements outside the F-shape are 1 female and 1 male participant each.

8.4 Persuasive impact of Pennywell Farm's online UX on eye tracking participants

Aim 1 and its accompanying objectives are addressed in the previous Section 8.3. Section 8.4 moves further toward the assessment of the Pennywell Farm online UX using the PSD model. The data for this section has been collected using a follow up questionnaire, which assists in triangulating the findings from the eye-tracker.

The follow up questionnaire includes six questions that are based on Oinas-Kukkonen and Harjumaa's (2009) PSD model, specifically the three design principles of primary task, dialogue and credibility support. The social support design principle has not been included as the questionnaire used in Chapter 6 and 7 suggested that the social support strategy did not appear to contribute greatly to the tourists' decision-making process. As the experiment itself is a supplement, the follow up questions are limited to the most significant queries about the aesthetic experience, usability, credibility and overall persuasiveness of the website. The unique perspective offered by this assessment comes in the form of the real-time nature of this experiment. The questions have been asked as soon as the participants have completed the experiment, leaving the UX still fresh in their memories.

The following Table 8.3 summarises the findings of the eye-tracking questionnaire.

	Female		Male	
	Yes	No	Yes	No
Did the purchase process seem easy?	4	1	5	
Was the language on the website easy to understand?	4	1	5	
Did the colours on the website appeal to you?	1	4	5	
Did the website seem trustworthy?	5		5	
Was the bookings button easy to locate?	5		5	
Do you think the website would have persuaded you, had you been thinking of making a real purchase?	4	1	5	

Table 8.3: Tourist users' perception of the online experience

Table 8.3 suggests that overall, the website appears to be perceived as aesthetically pleasing and usable by the respondents. The only anomaly shows in the form of the appeal of the website colours. 4 of the 5 female participants have not found the colours of the website appealing. All 4 participants share the common belief that the website colours are not appealing and that it is the adult who makes the purchase, not the children, hence the website colours should cater to the adults. The 4 participants further suggest that had the website toned down the brightness of the colours, they might find the colours relatable. The participants did not clarify further on their preferred colour themes.

According to Djamasbi et al. (2011), the aesthetic reactions toward the online website stimuli are formed within the first 50 milliseconds. First impressions influence the subsequent experiences of the stimulus (Djamasbi et al., 2011; Diaz and Koutra, 2013; Bastida and Huan, 2014). The user's aesthetic reaction to the website UX influences the evaluation and enjoyment of the website (Sonderegger and Sauer, 2010;

Djamasbi et al., 2011). Aesthetic reactions are contributing factors that help in determining the quality of a website, there by acting as a predictor of whether the users will make a purchase or not (Sonderegger and Sauer, 2010; Djamasbi et al., 2011; Diaz and Joutra, 2013; Bastida and Huan, 2014). In addition to this, if a website is aesthetically pleasing, users are likely to ignore any usability issues (Sonderegger and Sauer, 2010; Djamasabi et al., 2011; Diaz and Koutra, 2013)

8.5 Implications for Pennywell Farm's website

The purpose of this eye tracking study is to conduct further investigations on the findings of the questionnaire research method. As mentioned in Chapter 7, Section 7.5, (p. 329), respondents have felt that Pennywell Farm's website appears to be too '*busy*' and that the design makes it difficult to locate the *book now* link (Figure 8.3, p.342).

Oinas-Kukkonen and Harjumaa's (2009) PSD model suggests that for a system to be persuasive, it must deliver on 28 strategies described under four design principles (primary task, dialogue, credibility and social support) (Please refer to Appendix 1 for information on the principles and strategies). Based on this understanding of the ideas conveyed by the model, Pennywell Farm's website should ideally provide the optimum environment that persuades users to perform the task of making the online purchase. The complaint stressed by Pennywell Farm's questionnaire respondents suggests that the website might be lacking in the areas of primary task-support, specifically the strategies of *reduction* and *tunneling*. *Reduction* involves reducing the amount of effort that the user has to exert in order to complete the task and *tunneling* involves guiding

the user toward completing the task. However, it is only an assumption and the respondents' inability to locate the link might be down to individual browsing experiences instead of a failure in the *reduction* and *tunneling* strategies on Pennywell Farm's part.

Being a supplementary study, the eye tracking research works as a tool to explore how potential users browse the website as a whole, instead of focusing on how they interact with each of the 28 strategies mentioned in Oinas-Kukkonen and Harjumaa's (2009) PSD model. Investigating individual strategies would require the study to include a larger sample, extended experiment durations and specialized follow up questionnaire addressing all 28 strategies.

Th eye tracking research method has provided interesting insights through the exploration of tourist users' usage of Pennywell Farm's website. Some of the implications of these findings are mentioned below,

8.5.1 Navigation menu

The top-navigation menu on Pennywell Farm's website is effective in navigating users across the website. The menu bar is static and embedded across all pages on the website; therefore the user is never lost (Figure 8.2, p.342).

8.5.2 Main page

It is observed that male participants spend longer durations on the main page, while female participants spend shorter durations. Pennywell Farm's main page is full of important information supported with visual imagery. One can choose to read this

information or quickly glance through it and move on. Pennywell's website caters to both types of users.

8.5.3 Book now call-to-action

Pennywell Farm's website presents a link to the bookings page through the top navigation menu or a red *book now* button placed at the bottom right corner of the page (Figure 8.2 and 8.3, p.342). 4 of the 10 participants accessed the bookings page from the top menu while remaining 6 accessed the page via the call-to-action button placed at the bottom right. None of the participants struggled with locating the call-to-action button. This finding is contradictory to the findings of the questionnaire. One could assume that the participants who used the top navigation menu to book the tickets might not have been able to spot the call-to-action button, however all participants successfully found their way to the bookings page. As the website offers two UX elements that guide users toward the same task, it ensures that if the users fail to spot one method, they might be able to locate the other.

8.5.4 F-shape pattern

In order to provide further insights on the findings of the questionnaire users website reading patterns are investigated. Users browsing a website with a good mix of text and images appear to browse websites in a F-shape pattern (Nielsen, 2006; Lidwell, Holden and Burler, 2007; Shrestha and Lenz, 2007; Andrade, 2013). The heatmaps captured from all 10 participants show that users indeed tend to fixate their gaze upon UX elements within an F-shaped region on the website (Figure 8.11-8.16). This suggests that the reason the questionnaire respondents might have complained about not being able to locate the *book now* link could be due to the fact that the link is placed outside the F-shaped region.

The eye tracking study suggests that Pennywell Farm could change the placement of the call-to-action *book now* button and place it within the F-shape region. Furthermore, insights from the website content analysis in Chapter 5, Section 5.6.1, Table 5.2 on (p.199) show that 42.2% of the reviewed day attraction SMEs websites have the call-to-action placed on the top right corner of the page, followed by 21.6% of the websites that display the link on the middle right of the page and16.7% place it on the top left corner of the page. Only 10.8% place the link on the bottom right corner of the page and outside the F-shape region. It is evident that a large proportion of the visitor attraction SMEs place their call-to-action on the top right corner of the page, possibly making this a better alternative for Pennywell Farm.

8.5.5 Persuasiveness of the Pennywell Farm website

The follow up questionnaire is designed to gain insights into users perceptions of the persuasiveness of Pennywell Farm's website based on primary task, dialogue and credibility support design principles. The social support design principle is not included as the questionnaire research method shows that the tourist users do not appear to be keen on interacting with Pennywell Farm on social networks.

Table 8.3 shows that the eye tracking participants found the website to be easy to use and supportive in terms of navigation. It is very interesting to note that all the participants agreed that they have been able to locate the call-to-action or booking page quiet easily. Furthermore, all participants perceive Pennywell Farm's website as credible and found it to be persuasive.

In addition to this, another point has been found in opposition with the questionnaire findings in Chapter 7. As opposed to the questionnaire findings presented in Tables 7.5 and 7.5.1 (p. 307; 308), where it has been established that the respondents who had not visited the website previously found the website to be visually attractive and therefore likeable, the eye tracking participants perceptions show variance. 4 of the 5 female participants do not appear to have found the website colours to be aesthetically pleasing. However, given the size of the sample, it could be a result of personal preferences.

8.6 Summary

The PSD model is made up of the *intent, the event and the strategy (*see Figure 3.7, p. 113). The questionnaire analysis in Chapters 6 and 7 addressed *the event* within the PSD model. The main focus of the questionnaire analysis has been to study the use and user context. This is followed by a study of the inter-relationships between use and user context, and the PSD strategies. This eye tracking chapter acts a supplement to the questionnaire analysis method, by providing further insights into the inter-relationships between use and user context, and the persuasive UX elements on Pennywell's website.

Section 8.2 of this chapter has presented a case for conducting the eye tracking experiments, followed by Section 8.3, which introduces the first aim of this research, which is- to explore the tourist users' usage of Pennywell's website. The first objective of the aim is to investigate the website usage, Regions of Interest (ROIs) and reading patterns of Pennywell Farm's users. This objective helps in exploring the possible role

played by gender in how the red *book now* call-to-action button is perceived. A total of 43 questionnaire respondents (of whom 40 are female), have raised the issue of being unable to locate the call-to action. It has been observed that 4 out of the 5 female eye tracking experiment participants accessed the bookings page via the top navigation menu instead of the red *book now* call-to-action button. This finding could be a result of women not noticing the button because it is red in colour. Faraday (2000) found that website element's colour has significant implications on determining how the users perceive the website and make a decision. However, there could also be another reason why some participants seem to be unable to locate the red call-to-action. According to Owen and Shrestha (2010), it is the location of a website element that has greater implications on user's perception of the website and decision making, than the colour of that UX element.

The heatmaps from the eye tracking experiments (Section 8.3.4, Figure 8.11-8.16, p. 353-356) show that participants appear to fixate their gaze mostly within an F-shape region on the website. The red *book now* call-to-action is outside this F-shape. One can make an assumption that some users might not notice the UX element because of its placement. However, as data cannot be collected from respondents who have abandoned the online purchase and never visited Pennywell Farm, one can only assume that most users find their way around the website, successfully. Alternatively, this chapter makes a suggestion for Pennywell Farm to change the location of the red *book now* call-to-action and place it within the F-shape region. This suggestion is supported by the findings of the website content analysis in Chapter 5, Section 5.6.1, Table 5.1 (p. 195) which show that only 10.6% of the 102 day attraction tourism SME websites have their call-to-actions placed in the bottom right corner of the page. Placing call-to-actions within the F-shape region appears to be a popular design strategy.

Section 8.4 has focused on the second aim of the eye tracking research, which is to study the eye tracking participants' perceptions and opinions of the three design principles of primary task, dialogue and credibility support. The social support principle has not been included due to the findings of Chapter 6 and 7, which have suggested that the social support principles are least likely to motivate users toward making behaviour change. The follow-up questionnaire (Table 8.3, p. 359) shows that none of the users complain about the location of the red *book now* call to action, which is contradictory to the additional insights that emerged through Chapter 7.

The eye tracking experiment provides a new way to explore and explain tourist user behaviour and implications of website persuasiveness using Oinas-Kukkonen and Harjumaa's (2009) PSD model. The heatmaps are the most significant finding of this research method, specifically the F-shape pattern that is often followed by website users when they browse websites. This delivers an additional insight into the PSD model's technology context that future research could benefit from. Furthermore, the eye tracking study has displayed its efficacy for the purposes of triangulation of data from the questionnaire analysis in Chapter 6 and 7.

Chapter 9: Conclusion

9.1 Introduction

This chapter takes the findings of the research and summarises them to address the primary research query, which has been to evaluate the efficacy of tourism online experiences as a persuasive technology. The purpose of the chapter is to triangulate the findings, assess the suitability of Oinas-Kukkonen and Harjumaa's (2009) PSD model for application within the tourism SME context and to make contributions to the overall knowledge on persuasive technology and tourism online experiences.

To refresh the reader's memory, Figure 9.1 presents a map explaining the role played by each chapter. Chapter 1 presents an introduction to the research background, context, the research problem and the framework to address this problem. Chapter 2 and 3 are interlinked and focus on a literature review of the research background (UX), research context (tourism online experiences) and the theoretical framework (persuasive technology). Using the information available within the tourism and persuasive technology literature, the inspired research design is presented in Chapter 4. Building upon the available theoretical knowledge, the conceptual framework is addressed through the five aims and objectives. Aim 1 is presented in Chapter 5, Aim 2 in Chapter 6, Aim 3 in Chapter 7 and 8 and, Aim 4 and Aim 5, which amalgamate the research findings, are presented in this chapter.

Chapter 1

Identification of research problem and approach toward finding a solution

Determination of the research aims and objectives

Step 1

Chapter 2

Literature review on the background and research context: User Experience (UX) and tourism online experiences helps in establishing the implications of online UX on tourist buying behaviour. Chapter 2 also identifies the theoretical and empirical gaps in tourism online UX literature.

Chapter 4

Explanation of research design and methodologies

Step 2

Chapter 3

Presentation of the theoretical framework: Literature review of Oinas-Kukkonen and Harjumaa's (2009) Persuasive System Design (PSD) model as a behaviour change support system and its application across literature.

Step 4

Step 3

Chapter 5

Website content analysis
Aim 1: To explore the architecture of online experiences offered by tourism SMEs

Step 5

Chapter 6

Questionnaire analysis (part 1)
Aim 2: To examine tourist user motivations and experience provided by the selected tourism SME

Step 6

Chapter 7

Questionnaire analysis (part 2)
Aim 3: To ascertain tourists' perceptions and opinions of online experiences provided by the selected tourism SME using the PSD model

Step 7

Chapter 8

Eye tracking analysis
To supplement Aim 2 and Aim 3

Step 8

Chapter 9

Conclusion
Aim 4: To test the applicability of Persuasive Systems Design model as a tool for designing persuasive tourism online UX
Aim 5: To contribute to the enhanced knowledge of persuasive technology and it's implication on tourist buying behaviour

Figure 9.1: Mapping the chapters

Sections 9.1.1- 9.1.3 present the research background, context and the theoretical framework. Section 9.2-9.6 provide a summation of the findings of the five research aims and their objectives, the suitability of the PSD model for application within the tourism context, implications of the research findings for UK's day attraction tourism SMEs and Pennywell Farm. Section 9.6 also provides insights into the theoretical and methodological contributions, limitations and recommendations for future research.

9.1.1 Research background

Marketing has undergone transformation, as a result of advancements made by Information Communication Technologies (ICTs). The gap between service providers and service users has diminished with the introduction of multiple Internet based platforms (e.g. websites, social networking sites, forums, and chatrooms) that support interactive engagement. The efficacy of the interactions is dependent on the content delivered by the platform, along with the platform's usability, aesthetics and credibility (Oinas-Kukkonen and Harjumaa, 2009; Keinan and Kivetz, 2011; Hassenzahl, 2013; Nielsen and Norman, 2015). According to Nielsen and Norman (2015), this holistic integration of the various factors that act as catalysts for interactions with the end user, make up the user experience (UX).

UX is the driving force that nudges and sustains user interaction and engagement with the service provider (Keinan and Kivetz, 2011; Nielsen and Norman, 2015). Given that UX plays a crucial role in marketing, it is essential to develop a coherent scholarly understanding of UX. According to Keinan and Kivetz (2011), Benyon, O'Keefe and Mival (2013) and Hassenzahl (2013), constructive and consistent research that explores the implications of UX for SME service providers is lacking. As

pervasive ICT technologies continue to seamlessly integrate into our daily lives, it also leads to competition amongst service providers. Companies are constantly pushed to compete with one another in an attempt to capture customers in an era when all online transactions are a simple mobile click away (Benyon, O'Keefe and Mival, 2013; Hassenzahl, 2013).

To leave a lasting impression on the customer and eventually gain sustainable competitive advantage, the online UX delivered by service providers must be able to persuade online users (Dodds et al., 2010; Hassenzahl, 2013). However, a persuasion-based approach that offers designers the required support to design UX interventions, is lacking (Gretzel, 2011; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012; Ho, Lin and Chen, 2012; Hassenzahl, 2013; Bastida and Huan, 2014).

9.1.2 Research context

Tourism is one of the fastest growing industries in the UK (Buhalis, 2002; Rodriguez, 2009; Leiva, Hernández-Méndez and Sánchez-Fernández, 2012). At present the UK's tourism industry generates 9% of UK's GDP and is expected to rise to 10% by the year 2025 (Tourism Alliance, 2014). The future of UK's tourism industry is full of promising potential (Visit Britain, 2015).

The tourism industry in the UK is made up of almost 80% Small to Medium Enterprises (SMEs) (Tourism Alliance, 2014; World Travel and Tourism Council, 2015), operating across a variety of segments such as accommodation, food and beverages, travel, sports and recreation, culture and heritage. These segments are all interlinked (Visit Britain, 2015). Moreover, the tourism sector is also a hot bed for

startups (Tourism Alliance, 2015), with the years 2012 to 2014 experiencing a 24% rise in the number of new tourism SME startups (Tourism Alliance, 2015).

According to Visit England (2015), visitor attractions have generated £2,947 million of the overall £10.7 billion grossed by the UK tourism sector in 2014. Despite being a profitable segment, the information regarding visitor attractions is sparse. There do not appear to be any research studies that address this lack of interest in visitor attractions research. Furthermore, the researcher has been unable to establish the percentage of SMEs that make up this segment, however given the fact that 80% of tourism businesses are SMEs, it is highly likely that a major proportion of visitor attractions might be SMEs as well.

As a result of ICTs tourism practices, all tourism segments, including day attractions have undergone transformation (Law, Qi and Buhalis, 2010). Innovation in ICTs has enabled tourism e-commerce to become more than a mere exchange of service for money. Today, tourism online domains act as marketing and sales agents that deliver a virtual experience resembling real-life shopping (Loda, 2011; Lee and Gretzel, 2012). Dynamic web technologies have augmented the traditional marketing function and converted it into a holistic experience for the user. In a race to win the user's attention, tourism service providers continue to generate an extensive amount of content over the WWW (Ibrahim, Shiratuddin and Wong, 2013). The high competitiveness amongst UK's tourism SMES puts the focus on harnessing tourism's online UX via persuasive interventions (Pan and Fesenmaier, 2000; Loda, 2011; Lee and Gretzel, 2012). Specifically, UX for persuasive behavior change has previously not been studied within the context of visitor attractions.

9.1.3 Theoretical framework

Persuasion within online UX has been at the core of numerous social science studies (Kim and Fesenmaier, 2008; Parkes, 2009; Mintz and Aagaard, 2010; Alhammad and Gulliver, 2013; Ibrahim, Shiratuddin and Wong, 2013; Kim and Fesenmaier, 2013). The popularity of persuasion via ICTs has been the subject of interest in fields such as psychology, human-computer interaction and marketing (Parkes, 2009; Mintz and Aagaard, 2010; Alhammad and Gulliver, 2013; Kim and Fesenmaier, 2013). This trend of ICT led persuasion has added toward the development of the field of study known as persuasive technology or captology (Fogg, 2003).

According to Fogg (2003), persuasive technology works on the concept of computers as persuaders or persuasion mediums. Within the context of persuasive technology, Fogg's (2002) behavior change model is often used for evaluation but it does not offer the comprehensiveness of Oinas-Kukkonen and Harjumaa's Persuasive System Design (PSD) model (Ploug, Hasle and Oinas-Kukkonen, 2010; Wiafe et al., 2012; Lehto, 2013; Alhammad and Gulliver, 2014). The PSD model is built upon a mixture of foundations, borrowing from Cialdini's (1984) six principles of influence and Fogg's (2002) behaviour change model.

The PSD model comprises of 28 straightforward strategies compiled under four design principles (Please refer to the model in Chapter 3, Figure 3.7, p. 113). Oinas-Kukkonen and Harjumaa (2009) state that these strategies can be applied to any system that aims to persuade users toward behaviour change. The PSD model has found extensive usage in the field of health behaviour change websites and virtual applications (Segerståhl and Oinas-Kukkonen, 2007; Ploug, Hasle and Oinas-Kukkonen , 2010; Huang, 2012; Wiafe et al., 2012; Lehto, 2013; Orji, 2014). However, as per the

researcher's best knowledge, the PSD model has not been tested empirically within the context of tourism.

The significance of persuasion within tourism online UX and the lack of empirical research surrounding the PSD model, enables this research to adopt a fresh perspective. The PSD model provides the theoretical framework to evaluate the persuasiveness of online experiences within tourism and their implications on tourist buying behaviour. The model also provides the foundation necessary for the development of the conceptual framework that is guided by the study's five aims and related objectives (Please refer to Chapter 1, Section 1.4, p. 27).

9.2 Aim 1: To explore the architecture of online experiences offered by tourism SMEs (The Intent)

The first aim of the research is to explore the architecture of online experiences offered by day attraction tourism SMEs. According to Oinas-Kukkonen and Harjumaa (2009), it is important to address the system UX designer's intent, before designing the persuasive technology. The system UX designer's intent will differ based upon individual contexts. To satisfy Aim 1 a website content analysis of 102 tourism SME websites has been conducted. The two objectives of Aim 1 that have assisted in systematically addressing the aim are,

Objectives:
1. To determine the variety of online experiences offered by tourism SMEs

373

2. To ascertain the nature of online experiences offered by tourism SMEs

Aim 1's first objective involves an assessment of the variety of online experiences offered by the tourism SMEs. 121 tourism SMEs are investigated as part of the website content analysis, of which, only 19 tourism SMEs have been deemed unfit. The reason for this is that the websites are standalone and non-transactional. Given that only 15.7% of the tourism SMEs' websites fail to offer online transactions, it can be assumed that the average tourism SME is most likely aware of the role played by the Internet in securing customers. This finding is similar to Werthner and Klein (1999), AL-Allak (2010), Loda (2011) and Ibrahim, Shiratuddin and Wong (2013), who have also acknowledged the adoption of ICTs by tourism SMEs to gain competitive advantage.

Addressing Aim 1's second objective involves the incorporation of a checklist that can ascertain the nature of online experiences offered by the tourism SMEs. This checklist has been devised using Oinas-Kukkonen and Harjumaa's (2009) PSD model, which provides the theoretical foundation for investigation. Oinas-Kukkonen and Harjumaa's (2009) PSD model has found extensive application in the health behaviour change industry (Fogg, 2003; Ploug, Hasle and Oinas-Kukkonen , 2010; Wiafe et al., 2012; Lehto, 2013; Orji, 2014). However, to the researcher's best knowledge, the PSD model has not been used to study persuasion within the tourism SMEs online experiences context. A multiple number of persuasion based tourism research studies have used website coding sheets (Nusair and Kandampully, 2008; Loda, 2011; Lee and Gretzel, 2012; Diaz and Koutra, 2013) but these coding sheets have been formulated using other persuasion measurements. Therefore, Aim 1 carries with it the pivotal

responsibility to generate empirical data that can confirm the unique theoretical and methodological contributions of the PSD model to the tourism research context.

Transaction ready tourism websites aim to nudge users toward making online reservations (Lexhagen, 2008; Scott et al., 2010 and Abdallat and El-Emam, 2013). In order to make a persuasive argument for the purchase, the tourism SMEs' knowingly or unknowingly apply strategies, which have been mentioned in the PSD model. The website content analysis reviews these strategies using the presence or absence of the corresponding UX elements. Each strategy mentioned in the coding sheet corresponds with at least one or multiple online UX elements. The elements and their corresponding persuasion strategies can be found in Appendix 3.

Lehto (2013) has found that within the literature on persuasive technology, the strategies mentioned under primary task support show up as the most popular ones due to their frequent implementation. Tørning and Oinas-Kukkonen (2008) have presented a similar finding, stating that the primary task support strategies are frequently focused upon in persuasion papers. On the contrary, Alhammad and Gulliver (2014) have found that the dialogue support strategies are used most frequently within the e-commerce context. The findings of this research find resemblance with Lehto (2013) and Tørning and Oinas-Kukkonen (2008), as primary task support related UX are used often by the SMEs websites. However, the credibility support related UX strategies are also employed by tourism SMEs, just as frequently as primary task support. Alhammad and Gulliver (2014) and Tørning and Oinas-Kukkonen (2008) have discovered that the credibility support strategies closely follow the presence of primary task support strategies within non-tourism BCSS. This pattern is not very different from the pattern established within this research. On the contrary, Lehto (2013) has found that, within

non-tourism BCSS contexts, the credibility support strategies are used more frequently than primary task support strategies. Regardless, Lehto (2013), Alhammad and Gulliver (2014) and Tørning and Oinas-Kukkonen (2008), have all stressed upon the role of primary task and credibility support as key design principles that influence persuasion.

Following primary task and credibility support design principles, which both appear to receive equal attention within tourism online UX, the second most extensively used strategies belong to the social support support design principle. Both Lehto (2013) and Tørning and Oinas-Kukkonen (2008) have found that social support driven strategies have ranked third in popularity of implementation. However, Alhammad and Gulliver's (2014) research study has established that the social support design principles are sparsely used by e-commerce websites. Tourism purchases are experiential and as such experiential purchases are inherently social in nature (Van Boven and Golivich, 2003). Moreover, tourism itself is perceived as a social experience by the tourists (Vittersø et al., 2000; Sharpley and Stone, 2010). Yet, the persuasion strategies that are pursued extensively by tourism SMEs belong to primary task and credibility support. The focus on social support is lacking. Furthermore, the dialogue support strategies, which show up frequently in Tørning and Oinas-Kukkonen's (2008), Lehto's (2013), Alhammad and Gulliver's (2014) research, come up as the least frequently used strategies within tourism. Dialogue support strategies can be used to engage users and develop a one-on-one relationship (Oinas-Kukkonen and Harjumaa, 2009), making it a crucial area for tourism SMEs to explore further.

The following is a further summation of the individual strategies, in the order that they have been observed.

9.2.1 Primary task support design principle and strategies

The strategies of primary task support are used frequently by tourism SMEs. As a design principle, it incorporates strategies that support the ability to perform the core behaviour (Oinas-Kukkonen and Harjumaa, 2009; 2013). Within Tørning and Oinas-Kukkonen's (2008) review, the primary task support strategies most commonly employed within non-tourism BCSS systems are *tailoring, tunneling, reduction* and *self-monitoring*. The findings of the website content analysis suggest similarities with Tørning and Oinas-Kukkonen's (2008) findings. The primary task support strategies of *tailoring+personalisation, tunneling* and *reduction* are used often by tourism SMEs. However, *self-monitoring* and *simulation+rehearsal* have rarely been used by tourism SMEs. Through *self-monitoring* and *simulation+rehearsal*, the tourism SMEs can improve the persuasiveness of their UXs. *Self-monitoring* can offer users the ability to experience more control, which is a crucial element of persuasion (Oinas-Kukkonen and Harjumaa, 2009). *Simulation+rehearsal* can offer users opportunities to experience the real tourism experience in a virtual form. This can act as preparation for the actual experience (Oinas-Kukkonen and Harjumaa, 2009).

9.2.2 Credibility support design principle and strategies

The strategies of credibility support are employed by tourism SMEs as frequently as primary task support. Credibility support design strategies focus on presenting the features that support trustworthiness of the system (Oinas-Kukkonen and Harjumaa, 2009; 2013). According to Tørning and Oinas-Kukkonen (2008), *surface credibility* is the most popular credibility support strategy. The findings of this research suggest that the strategies of *trustworthiness, expertise+surface credibility* and *real-*

world feel are often used by the tourism SMEs. Alternatively, the strategies that appear to have received the least support are *authority, 3rd party endorsement* and *verifiability*. Incorporating these strategies more frequently can convey to the users an even more credible image of the tourism SME. Tourism SMEs can benefit from leveraging their relationships with 3rd parties and review sites.

9.2.3 Social support design principle and strategies

The strategies of social support are the second most frequently used by tourism SMEs. The social support design principle deals with strategies that focus on creating motivation for the user to make a behaviour change, using social influence (Oinas-Kukkonen and Harjumaa, 2009; 2013). Tørning and Oinas-Kukkonen (2008) found that the social support strategies of *social comparison, normative influence* and *social learning* are implemented often in BCSSs. The findings of this research are in contradiction. The most commonly implemented strategies by tourism SMEs are that of *social facilitation+cooperation*. However, the strategies of *social learning+social comparison* and *normative influence* have been used by tourism SMEs but not as frequently as *social facilitation+cooperation*. An issue that has been observed consistently through this research is that it is hard to separate one social support strategy from another as they are heavily interlinked (Tørning and Oinas-Kukkonen, 2008). Finally, it has been established that the strategies of *competition* and *recognition* are least frequently used by tourism SMEs. This is an area that the tourism SMEs have failed to explore.

9.2.4 Dialogue support design principle and strategies

The dialogue support strategies are used very sparsely by tourism SMEs. Dialogue support design principle strategies are responsible for creating some sort of an interaction with the user (Oinas-Kukkonen and Harjumaa, 2009; 2013). Tørning and Oinas-Kukkonen's (2008) review of the non-tourism based BCSS literature shows that the most frequently used dialogue support strategy is that of *suggestions*. The findings of this research are similar as tourism SMEs often-present users with *suggestions.* The strategies of *praise* and *rewards* are adopted by tourism SMEs but not as frequently as *suggestions*. These two strategies share similarities with the social support strategies of *competition* and *recognition*. As established in the previous paragraph on social support design principles and strategies, *competition* and *recognition* are rarely used as by SMEs. Finally, *similarities+liking* and *social role* have been noted as the least frequently used strategies. It is evident that the tourism SMEs have not explored multiple areas mentioned under the dialogue support strategy, and therefore could benefit from integrating these strategies.

There appears to be a pattern that can be drawn from the variety of online experiences offered by the 102-day attraction tourism SMEs. All of the SMEs have one functional website and presence on at least three social networking platforms (Facebook, Twitter and Instagram). In relation to the overall nature of the design principles, similarities can be drawn with Tørning and Oinas-Kukkonen (2008) and Lehto's (2013) review of non-tourism BCSS applications. However, there is a slight difference between Alhammad and Gulliver's (2014) empirical study on e-commerce websites and the findings of this research. It appears that the application of individual strategies will differ with context, confirming Oinas-Kukkonen and Harjumaa's (2009)

explanation for customisation of the PSD model strategies to suit the system intent. The intent behind the development of tourism SMEs online experiences is bound to differ from the intent to develop a health behaviour change application or an e-commerce website like Asos.com.

Furthermore, the tourism SME context relies on tourism being a social experience (Vitterså et al., 2000; Sharpley and Stone, 2010). None of the reviewed tourism SMEs appear to make optimum usage of social or dialogue support strategies. The websites are unable to deliver aesthetically pleasing simulated virtual experiences that might offer users a glimpse into the actual experience. It is also interesting to note that even though all 102-tourism SMEs are present on social networking sites, they do not appear to be actively involved in engaging users to create a community; neither do they appear to be focused on providing users with rewards.

Aim 1 has established that even though tourism websites appear to be usable and credible, they are unable to create attractive virtual experiences, develop social communities or present users with rewards that might motivate them. Focusing on these shortcomings using Oinas-Kukkonen and Harjumaa's (2009) PSD model can help tourism SMEs in creating online experiences that are more persuasive. However, this is only one side of the picture. This research has also investigated the PSD model and implications of its strategies from the tourist user's perspective, which is addressed in the next section.

9.3 Aim 2: To examine tourist user motivations and experience provided by the selected tourism SME (The Event)

Aim 1 has investigated the intent section of the PSD framework by evaluating the online experiences offered by tourism SMEs. Aim 2 moves the research focus from the service providers to the users, concentrating on the event section of the PSD framework (Please refer to Chapter 3, Figure 3.7, p. 113). The event section of the PSD model offers insights into tourist users' behaviours, opinions and perceptions. Data pertaining to this aim has been collected through questionnaires, which are filled by Pennywell Farm's visitors and online users. The data is analysed using descriptive and inferential statistics (Please refer to Chapter 6, p. 245-286 for more insights).

9.3.1 To determine the nature of tourist online usage

The nature of tourists' online usage helps in determining how tourist users are likely to behave online. The questionnaire respondents are mostly (70.7%) female. This has resulted in the data being skewed toward delivering insights into female tourist user behaviour.

To determine the tourist nature of online usage, the respondents were asked questions regarding their frequency of physical and experiential products/services purchases online. The overall results explain that there is an association between how often tourist users purchase physical products online and an overall increase in Internet based activities surrounding Pennywell Farm (e.g., following Pennywell on Twitter or visiting their website). Another set of key findings from the investigation of this

objective suggests that there might be no relationship between gender and age, and the users' nature of online usage. On the contrary, there might be an association between level of Internet proficiency of the user and their online usage. Mills and Law (2013) explain that, as ones confidence of using the Internet increases, they are more likely to get involved in online activities such as following brands on social networking sites or shopping online.

Tourist users already appear to be Internet savvy. It can be assumed that tourists might be interacting with tourism online experiences via the SMEs' websites and social networking sites. This finding suggests that tourism SMEs might find it useful to focus on keeping users attracted and engaged, in order to persuade them toward making a purchase online.

9.3.2 To establish the nature of tourist online usage provided by the selected SME

The three factors studied to establish the nature of tourist online usage of Pennywell Farm's experience include- users' *social media behaviour*, *users' review writing behaviour* and *purchase behaviour of first time farm users and return users*.

According to Xiang and Gretzel (2010) and Peng, Xu and Chen (2013), social media channels play a dual role of delivering engaging information and nudging users toward making purchases. The findings of the research suggest that there is an association between those respondents who follow Pennywell Farm on Facebook and those who purchased online. This suggests that people who browse a tourism service provider's social networking page, might purchase online from the same tourism service

provider. Alternatively those tourist users, who purchase online from a service provider, might then go on to follow the brand on social networking pages.

Apart from engaging with the online experience through social networking pages, tourist users can also get involved by writing reviews. Gretzel et al. (2007) and Milano (2010) explain that reviews are written post-experience and consumed pre-experience. The findings of Objective 2 show that respondents of all age groups and levels of Internet proficiency have participated in review writing. The most interesting divide appears in relation to gender and tourist review writing behaviour as more female respondents appear to have written reviews. However, it should be noted that 70.7% of the questionnaire respondents are female, therefore one could argue that male tourists might participate in review writing, just as frequently as female tourists.

The final set of information that could be used to explain how tourist users use the Pennywell Farm experience, comes from whether the respondents are first time users or return users. The majority of all respondents, first time and return appear to have found the information and completed their purchase online (For more insights please refer to Chapter 6, Section 6.4.1, p. 252). Overall, there are no associations between the number of times the respondents have visited the actual farm and how they chose to make the purchase.

Apart from the questionnaire, insights into how tourist users use Pennywell Farm's website have also been derived through another research method- the eye tracking study.

The findings from the eye tracking study show that regardless of gender, all participants visited the *top navigation menu* in the first instance. The differences between genders arise when the mean time spent on the website is compared. On average, the male participants appear to spend more time on the website than women (Please refer to more insights in Chapter 8). These findings are similar to the studies published by Boyle (2009), Margalit (2014) and Gustafson (2015), who suggest that men spend more time browsing websites than women. According to Gustafson (2015), men are focused on the product they intend to purchase while women are driven by the experience of shopping. These findings are further related to the argument by Boyle (2009), Margalit (2014) and Gustafson (2015) that men are systemisers and women are empathisers.

In addition to the amount of time participants have spent browsing Pennywell Farm's website, an interesting insight can be drawn regarding colours of the UX elements. Pennywell Farm's website offers two links that both lead to the bookings page. One link involves a red call to action button (Chapter 8, Figure 8.3, p. 337), placed on the bottom right corner of the page. The other link can be found via the navigation menu (Chapter 8, Figure 8.2, p. 337). The red bookings button seems to attract the attention of one female and all male participants. The remaining female participants have performed the complex process of clicking through the navigation menu pages, to find the bookings page. This suggests that the colour and placement of UX elements might have a role to play in persuasion, however, investigating this further post-experiment is beyond the scope of this research.

The heatmaps generated through the eye tracking study also show that majority of the participants seem to focus on UX elements within a particular area that resembles

an F-shape. These findings highlight the role of the F-shape website reading pattern that Nielsen (2006), Shrestha and Lenz (2007) and Andrade (2013) have found to be quite popular. Tourism SMEs could place important information or call-to-actions within the F-shape as it is very likely to be the region of interest that users most focus upon (Please refer to Chapter 8, Section 8.3.5, p. 346).

Objective 2 provides insights into how tourist users use Pennywell Farm's website. Objective 3 presents further information regarding the motivations behind the tourist users online behaviour.

9.3.3 To identify tourist motivations for engaging with online experiences provided by the tourism SME

The event section of the PSD model calls for investigation into users' motivations to engage with online experiences (Oinas-Kukkonen and Harjumaa, 2009). In order to develop a further understanding of how tourist users behave online, it is crucial to address their motivations for performing behaviour (Yoon and Uysal, 2005; Cohen, Prayag and Moital, 2014). To understand specific motivations, the respondents were asked why they engaged with online experiences offered by Pennywell Farm.

In the questionnaire, respondents were asked about their motivations to *purchase online, write reviews and follow Pennywell Farm on social networking sites*. The primary motivation of respondents (regardless of gender, age or level of Internet proficiency) to purchase online from Pennywell Farm's website has been for ease and convenience. An interesting trend is also noted in the manner in which participants of both genders respond to the query regarding motivations to write reviews. Based on the

findings, there appears to be a significant association between gender and the motivation to write reviews (Please refer to Chapter 6, Section 6.5.1, p. 270). Finally, the respondents' motivations to follow Pennywell Farm on social networking sites (e.g. Facebook, Twitter and Instagram) is also not affected by other independent variables. These findings suggest that the ease offered by online transactions motivates users to purchase online. Therefore, tourism SMEs should aim to take that into consideration and focus on delivering experiences that help users reduce the amount of effort exerted in completing the purchase. Furthermore, gender might play a role in whether or not the respondent will write reviews, this point can be explored in future research studies. Finally, gender, age or level of Internet proficiency do not seem to play any role in whether or not the respondent will follow the tourism SME on social networking sites. Hence, tourism SMEs should focus on publishing information on social networking sites that caters to a variety of users.

9.3.4 To ascertain tourists' perceptions and opinions of online experiences provided by the selected tourism SME

Perceptions of tourists are rarely studied in context to tourism online experiences (Cohen, Prayag and Moital, 2014). The manner in which the various visual elements of the online experience are consumed, determines whether the system will successfully persuade users toward behaviour change (Hansen, 2005; Cohen, Prayag and Moital, 2014).

In order to study tourists' perceptions and opinions of online experiences offered by Pennywell Farm, the respondents have been separated into two sets; *those who*

386

visited the website and those who did not. The primary task and dialogue support strategies of *tailoring, liking, reduction* and *tunneling* appear to create favourable first impressions among those respondents who have visited the website. The research findings suggest that there might be a link between primary task and dialogue support strategies, as users find these strategies to make favourable first impressions. This finding is similar to Tractinsky, Katz and Ikar (2000) and Shuttleworth (2013). Tractinsky, Katz and Ikar (2000) and Shuttleworth (2013) suggest that most Internet users perceive beautiful systems to also be usable, making aesthetics and usability key components that drive first impressions. Similarly, respondents who have not visited the website also seem to choose primary task and dialogue support UX elements that correspond with the strategies of *liking* and *tunneling* as their first impressions. This finding stresses the key role played by aesthetics and usability on first time users and repeat users. According to Pourabedin and Nourizadeh (2013), the perceived visual aesthetics and the perceived usability connected with an aesthetic experience, has a strong influence on persuasiveness of the system.

Additional insights on this point are derived through the eye tracking study. The eye tracking study has offered the opportunity to study participants in real-time and ask them questions while the UX is fresh in their minds. The findings of the eye tracking study bring to focus the role of visuals, specifically the colour of UX elements. 4 out of the 5 female participants have not found the colours on Pennywell's website to be appealing enough to persuade them to purchase. However, the male participants and 1 female participant thought that the colours did play a persuasive role through their appeal and likeability. As none of the 10 participants had visited the website before, all the data are categorised under first impressions. According to Djamasbi et al., (2011),

the aesthetic reactions toward the online website stimuli are formed within the first 50 milliseconds. First impressions influence the subsequent experiences of the stimulus (Djamasbi et al., 2011; Diaz and Koutra, 2013; Bastida and Huan, 2014). The data findings of the questionnaire research also suggest the key role played by aesthetic visuals (images and colour) in capturing users' attention in the first instance.

Overall, users appear to view Pennywell Farm's website as visually attractive and usable. In addition, researching Aim 3 via the triangulated data from the questionnaires and the eye tracking method, has helped in establishing that primary task and dialogue support strategies indeed have implications on perceived persuasiveness of the tourism online UX.

Aim 2 addresses the tourist users perceptions and opinions of Pennywell Farm's online UX. Aim 3 drives the investigation further by evaluating the persuasive power of the PSD model strategies by focusing on strategies that most encourage and most discourage users to purchase online.

9.4 Aim 3: To evaluate the persuasive power of online platforms provided by the selected tourism SME on tourist buying behavior using the PSD model strategies

Oinas-Kukkonen and Harjumaa's (2009) PSD model is made up of 28 strategies, which can be customised to fit any persuasive technology context. Aim 3 has been designed to assess the strategies that are perceived as encouraging and those that are perceived as discouraging, by the tourists. In addition to this, it is also important to

establish why tourists would abandon a purchase. Abandoning shows the inefficiency of the persuasion strategies.

9.4.1 To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most encourage buying behavior

Data analysis of the findings explains the strategies, which might contribute the most to primary task, dialogue, social and credibility support, there by playing a more encouraging role toward influencing users to buy online.

According to Oinas-Kukkonen and Harjumaa (2009), the strategies of primary task support work toward improving the usability of the website. As perception of usability increases, users are likely to find the website persuasive (Fogg, 2003). The questionnaire findings (Chapter 7, Section 7.3.5.1, p.316) show that the strategies, which appear to contribute the most to primary task support are- *reduction, tunneling*, *tailoring* and *personalisation*. Pennywell Farm's online experience offers users the support to quickly complete the task by reducing the amount of effort spent. The website guides the users via clear instructions, straightforward navigation and an experience that feels personal and tailored toward their requirements.

The dialogue support design principles of Oinas-Kukkonen and Harjumaa's (2009) PSD model work toward establishing some sort of a relationship with the users through subtle communication and attractiveness. The strategies that seem to contribute

the most to dialogue support (Chapter 7, Section 7.3.5.2, p.318) are- *similarity,*

reduction, liking and *suggestion*. Although, *similarity*, *liking* and *suggestion* are

grouped under the PSD model's dialogue support strategies, *reduction* is a primary task

support strategy. This finding suggests that the UX elements that reduce the effort that

the user has to invest in completing a task, can also work toward making a visual

impression on the user and establishing some form of a relationship. Based on the

findings, an assumption can be made that the UX elements corresponding with

reduction might make the website appear helpful, which might then make the user view

the website in a positive light. However, further research is required to confirm this

finding.

Social support design principles aim to make users feel as though they are part

of a community. The strategies that appear to contribute the most to social support

(Chapter 7, Section 7.3.5.3, p. 320) are - *social learning, normative influence, social*

facilitation, *cooperation* and *social comparison*. The key issue with the social support

design principles is that it is hard to establish where one strategy ends and another

begins (Lehto, 2013). Pennywell Farm's website does not have forums or chats but the

farm has presence across different social networks (*Facebook, Twitter, Instagram and*

YouTube). Pennywell Farm's website offers users the opportunity to connect with them

directly or connect with other users, furthermore, the pages also display information

(textual, images) that attracts users and gives them the required information.

Credibility support design principles work toward developing a credible image

of the system, which in turn has implications on the perceived persuasiveness of the

system (Oinas-Kukkonen and Harjumaa, 2009). The strategies that appear to contribute

the most to credibility support (Chapter 7, Section 7.3.5.4, p. 321) are- *expertise,*

trustworthiness, real-world feel, authority, surface credibility and *third party endorsement*. Pennywell Farm's online experience offers a number of elements (*website Trustmark, loading without errors, easily accessible contact information, links to review and social networking sites*) that display the brand's credibility.

The findings suggest that the design strategies are well grouped under their respective principles in Oinas-Kukkonen and Harjumaa's (2009) PSD model and appear to be persuasive from the users' points of views. However, there might be overlaps between perceived usability of the online experience and the perceived communicativeness and attractiveness of the system. A similar argument has been put forth by Pourabedin and Nourizadeh (2013), where the researchers have established a link between usability and attractiveness of the system.

The purpose of Objective 1 of Aim 4 has been to present the strategies that contribute the most to the four design principles and therefore encourage buying behaviour. Objective 2 presents findings that explain the strategies that most discourage buying behaviour.

9.4.2 To identify specific elements of the architecture of online experiences provided by the selected tourism SME, which most discourage buying behavior

The questionnaire provides data on the strategies that appear to contribute the least to primary task, dialogue, social and credibility support, which in turn might have implications on discouraging users from buying online. This objective also includes strategies that could not be tested and therefore, might or might not contribute to their respective design principles.

The strategies that might contribute the least to primary task support (Chapter 7, Section 7.3.6.1, p. 324) are- *simulation, rehearsal* and *self-monitoring*. Pennywell Farm's website provides users the opportunity to observe the cause and effect of performing the behaviour of purchasing online by showcasing images of other users enjoying the farm experience. However, it appears that *simulation* and *rehearsal* might not contribute greatly to the perceived usability of the website. The strategy of *self-monitoring* has not been tested as Pennywell's website does not offer any experiences that correspond with *self-monitoring*.

The strategies that appear to contribute the least to dialogue support (Chapter 7, Section 7.3.6.2, p. 324) are- *social role, rewards, praise* and *reminders*. Social networking plays an important role within tourism as it promotes e-word of mouth but it appears to not contribute greatly toward the perceived communicativeness and attractiveness of the website. The strategy of *rewards* was not investigated in Q 16 or Q 17, as it had been addressed previously in Aim 2 (Q 8 and Q 11) (Please refer to Appendix 11 for the questionnaire). It is therefore impossible to conclude whether or

not *rewards* might contribute to dialogue support. Furthermore, as Pennywell Farm's website does not offer any experiences that contribute to either *praise* or *reminders*, it is impossible to conclude whether either strategy contributes toward dialogue support.

The social support strategy (Chapter 7, Section 7.3.6.3, p. 325) of *competition* has been studied in Aim 2 (Q 8 and Q 11); however it was not mentioned in the questionnaire. In addition to this, the strategy of *recognition* could not be tested, as Pennywell Farm's online UX does not appear to incorporate it. Therefore, it is impossible to establish whether *competition* and *recognition* might or might not contribute to social support design principles.

The strategy that contributes the least to credibility support (Chapter 7, Section 7.3.6.4, p. 326), which in turn might have discouraging effects on tourists buying behaviour is- *verifiability*. Review sites allow users to verify the credibility of the brand; but it could be that users might trust Pennywell Farm enough to not require verification of their credibility. This might be case study specific, hence, this particular finding might not be applicable to other tourism SMEs.

Overall, it appears that very few strategies might have negative effects on tourist buying behaviour. Nonetheless, the strategies of *self-monitoring, rewards, praise, reminders, competition* and *recognition* could not be studied in a manner that would provide more in-depth results. This drawback calls for future exploration before findings can be replicated robustly across other SMEs.

9.4.3 To elucidate reasons which explain why tourists abandon an online experience prior to a potential purchase

Pursuing users who might have abandoned and never purchased from or visited Pennywell Farm's website or the actual farm, is out of the scope of this research. However, the questionnaire respondents have been asked to provide reasons for abandoning the purchase, had they done so in the past. The two reasons for abandonment are not critical and might be circumstantial. One user encountered an error page and another user had to change the dates at the last moment. It can be assumed that Pennywell Farm's website is effective and usable. On the contrary, if there are means to track and contact users who might have abandoned and never purchased, their feedback will provide more definite insights that could highlight elements of the website that might not be as functional.

9.5 Aim 4: To test the applicability of Persuasive Systems Design model as a tool for designing persuasive tourism online UX

This research presents empirical evidence to suggest that Oinas-Kukkonen and Harjumaa's (2009) PSD model is an appropriate fit for application within the tourism SME context. The researcher has come to this conclusion based on the findings of the questionnaire. Although, the PSD model (as a whole and strategy specific) has been tested from various system provider's perspective by (Segerståhl and Oinas-Kukkonen, 2007; Ploug, Hasle and Oinas-Kukkonen , 2010; Huang, 2012; Wiafe et al., 2012; Lehto, 2013; Alhammad and Gulliver, 2014), to the researcher's best knowledge, none of the studies have included the users' opinions and perceptions of the strategies

mentioned in the PSD model. Table 7.3.2 (p. 305) shows that the strategy corresponding to the holistic design principles of credibility and social support- 'Pennywell's presence on social networking websites (Twitter, Facebook etc)' has had the lowest impact on the tourist users' decision to purchase online from Pennywell Farm. In addition, Table 7.4.2 (p. 309) shows that the options 'Pennywell's social networking page(s) made me want to be a part of their online community' and 'Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit', corresponding with social support strategies of – *social learning, social comparison, normative influence, social facilitation* and *cooperation,* have had the lowest impact on the tourist users' decision to purchase online. Furthermore, Table 7.5 (p. 312) shows that the options 'I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online' and 'I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online', corresponding with the credibility support strategy of – *verifiability* has had the lowest implication on the respondents' decision to purchase from Pennywell online.

Although, the strategies of *rewards* and *competition* were not studied in Q 16 and Q 17, the investigation in Q 8 and Q 11 (Please refer to Appendix 11 for the questionnaire) suggests that users would like to perform an action if there is an opportunity to win rewards or participate in a competition.

Based on the findings in Chapter 6 and Chapter 7, the researcher recommends the following amendments (Figure 9.2) to Oinas-Kukkonen and Harjumaa's (2009) model in order to make it suitable for application within the tourism SME context.

PERSUASION CONTEXT	PERSUASIVE DESIGN FEATURES			
	PRIMARY TASK SUPPORT	**DIALOGUE SUPPORT**	**CREDIBILITY SUPPORT**	**SOCIAL SUPPORT**
The Intent Persuader: Tourism SME *Change type: Getting tourists to purchase online, to write reviews, to interact on social networking sites, build long term relationship **The Event** Use context: Offers users the opportunity to purchase online User context: Online purchases are convenient and easy, confirmed tickets in case tickets are unavailable upon visit, discounts for booking online Technology context: Location, colour and typography of UX elements. Use F-shape pattern to place call-to-actions **The Strategy** Message: Persuasive arguments delivered via written content and visuals Route: Transaction ready websites and social networking pages	Reduction Tunneling Tailoring/ Personalisation (User customisation)	Similarity Liking Suggestion Rewards	Expertise Trustworthiness/Real-world feel/Authority (Transparency) Surface credibility Third-party endorsement	Cooperation Social comparison/ Normative influence/Social facilitation (Social comparison)

Figure 9.2: PSD model customised for tourism SMEs

Source: Author

The highlighted sections in the model are ammendements made by the researcher to the original model (Please refer to Chapter 3, Figure 3.7, p. 113 for Oinas-Kukkonen and Harjumaa's 2009 PSD model).

Based on the findings of Chapter 6 and 7, the strategies that do not appear to fit or contribute greatly toward persuasiveness of tourism online experiences are-

i. Primary task support- *self-monitoring, simulation* and *rehearsal*

ii. Dialogue support- *praise, reminders, similarity and social role*

iii. Credibility support- *expertise, verifiability*

iv. Social support- *social learning, competition, recognition*

Figure 9.2 shows that the strategies, which can be pursued by tourism SMEs are,

i. **Primary task support-** *reduction, tunneling* and a merger between *tailoring* and *personalisation*, renamed as *user customisation*. Tourist users appear to be keen on making the purchase and/or gathering information and checking out quickly; therefore *tailoring* and *personalisation* might not play the critical role that they would play in an alternative context such as a health behaviour change application. *User customisation* reminds the system designer to keep the tourist users in mind and wherever possible, offer customization of UX. For example, Pennywell Farm allows users to check out without registering. Alternatively, they also offer users the opportunity to register an account. This meets the requirements of two different types of users.

ii. **Dialogue support**- *similarity, liking, suggestion* and *rewards.* It appears that the

dialogue support strategy of *rewards* can be linked with the social support

strategy of *competition*. The researcher believes that both these strategies aim to

communicate the same goal, which is to offer users the options to win

something. From Chapter 6, Table 6.4, (p.270) it can be inferred that users are

highly motivated by the opportunity to win rewards.

iii. **Credibility support-** *expertise, surface credibility, third-party endorsements*

and a merger between *trustworthiness/real-world feel/authority* transformed into

the strategy- *transparency*. The issue encountered with credibility support

strategies of *trustworthiness, real-world feel* and *authority* is that the UX

elements corresponding to these are difficult to separate and can create

confusion. Within the tourism SME context, these three strategies can be merged

into one strategy that represents an honest, transparent approach. If the tourism

SMEs can present *transparency* through online content, they are likely to be

perceived as persuasive.

iv. **Social support-** *cooperation* and *social comparison/normative influence/social*

facilitation merged into one strategy of *social comparison.* Lehto (2013) and this

research have both found it difficult to ascertain where one social support

strategy ends and another begins. Based on the findings of Chapter 6 and 7, it

appears that tourist users are not highly keen on connecting with the tourism

SMEs on social networking sites. This reduces the implications of the social

support strategies on persuasion.

v. **Amendments to the technology context-** the findings from Chapter 8, eye

tracking study have highlighted the importance of placing call-to-actions within

an F-shape region on the web-page (Chapter 8, Section 8.3.5, p. 349). Oinas-

Kukkonen and Harjumaa (2009) do not mention placements or features of UX,

within the PSD model. Other insights from Chapter 8 also suggest the possible role played by the colour of call-to-action elements on users' intentions to perform and make a behaviour change. The researcher recommends further investigation into the characteristics and features (location, space, colours, typography, etc.) of UX elements and their role in persuasive technology.

The researcher believes that the amended version of the PSD model illustrated in Figure 9.2 is suitable for application within tourism SMEs' online experiences.

9.6 Aim 5: To contribute to the enhanced knowledge of persuasive technology and its implication on tourist buying behavior

9.6.1 Key findings of the research

i. Ascertaining the nature of day attraction tourism online experiences suggests that primary task support design strategies are most frequently used. This finding is similar to that of Lehto (2013) and Alhammad and Gulliver (2014) who have reviewed multiple non-tourism BCSSs. However, credibility support design principles are implemented just as often by tourism SMEs, as primary task support strategies. This finding varies from that of Lehto (2013) and Alhammad and Gulliver (2014), who found that dialogue support strategies are the most often used

strategies by non-tourism BCSS. Within the tourism online UX architecture, the dialogue support strategies are second most commonly used, behind primary task and credibility support. The final finding pertaining to the nature of day attraction tourism online experiences shows that the social support design strategies are the least commonly employed. This finding shows up in Lehto's (2013) and Alhammad and Gulliver's (2014) research on the nature of non-tourism BCSS. To sum up, tourism online experiences are usable (primary task support) and credible (credibility) but might lag behind on aesthetics, communication (dialogue) and making optimum use of social networking (social support).

ii.   From a persuasion in tourism literature perspective, some findings of this research are in line with those of Kim and Fesenmaier (2008), Nusair and Kandampully (2008), Loda (2011) and Diaz and Koutra (2013). The researchers have found that tourism websites rank high in terms of usability but lack elements of high-quality visuals (aesthetics) and engaging dialogues. The differences between the findings of this research and those of Kim and Fesenmaier (2008), Loda (2011) and Ibrahim, Shiratuddin and Wong (2013) arise in relation to credibility UX elements, which the researchers have found to have been rarely used in the reviewed tourism websites. On the contrary, this research has established that the credibility support UX elements are used by tourism SMEs, as often as primary task support elements.

iii. No relationship can be established between the questionnaire participants' genders, ages, and their online shopping behaviour (physical or experiential purchases). However, there might be a relationship between the level of Internet proficiency and the frequency of online shopping behaviour. This finding can be explored further.

iv. The research findings suggest that users who purchase online from a tourism SMEs website, might be more likely to follow the SME on their social networking sites. Tourism service providers could use this to their benefit and work toward developing a stronger relationship with individual users who have completed a purchase. These users can be offered incentives to write reviews and share photos for other potential visitors.

v. Age and level of Internet proficiency do not appear to have any effect on the users' motivations to write reviews, however, more women appear to have written reviews. This relationship that might or might not exist between gender and motivations to write reviews can be researched further.

vi. The eye tracking study provides some interesting insights regarding the website usage behaviour of men and women. It has been established through the experiment that women have spent less time on the Pennywell Farm website as opposed to men who spent longer. These findings are similar to those of Boyle (2009), Margalit (2014) and Gustafson (2015). However, further research with a larger sample must

be carried out as these differences could be traced down to personal characteristics than gender differences. Another finding of the eye tracking study is that the female participants have used the navigation menu to complete the online purchase whereas the male participants have used the red call-to-action button placed on the bottom right corner of the page. This could be a result of gender differences and perception of colour (Margalit, 2014), but given the small sample, these differences are also likely to be a result of individual preferences, than gender.

vii. Tourist users appear to read websites in an F-shape pattern. The eye tracking study shows that all research participants primarily focus their gaze within a region that resembles an F-shape overlaid on the webpage. This pattern is commonly spotted amongst website users (Nielsen, 2006, Shrestha and Lenz, 2007; Andrade, 2013). The implications of this finding are that tourism SMEs can place important information such as call-to-actions that instigate users toward making a behaviour change, within the F-shape region, where more users are likely to spot these.

viii. The findings of the questionnaire show that tourist users are motivated to complete tasks if there are rewards or competitions on offer. However, tourism SMEs websites do not appear to focus on reward based strategies. Tourism SMEs might gain more customers by motivating online users to make a behavior change by offering them rewards or opportunities to participate in competitions.

ix. There might be a strong link between primary task (usability) and dialogue (visually aesthetic, communicative) support. It appears that within the first instance, the questionnaire respondents have found the Pennywell website to be visually pleasing and usable. According to Tractinsky, Katz and Ikar (2000), Pourabedin and Nourizadeh (2013) and Shuttleworth (2013), most Internet users tend to perceive aesthetically pleasing websites as usable. Aesthetic reactions are contributing factors that help in determining the quality of a website, there by predicting whether the users will make a purchase or not (Sonderegger and Sauer, 2010; Djamasbi et al., 2011; Diaz and Joutra, 2013; Bastida and Huan, 2014). If a website is visually attractive, users are likely to ignore any usability issues (Sonderegger and Sauer, 2010; Djamasabi et al., 2011; Diaz and Koutra, 2013). This link between primary task and dialogue support elements can be explored further. Moreover, the finding also has implications for tourism SMEs. As established in the website content analysis, tourism SMEs have usable (primary task support) websites but lag behind on presenting an aesthetically pleasing (dialogue support) experience. If the SMEs focus on improving UX elements that correspond with the dialogue support design strategies, they might be able to nudge more users toward spending longer on the website and completing the online purchase.

x. The PSD model is straightforward, easy to understand and can be used to evaluate the persuasiveness of any tourism SMEs online UX or to design one. The model is comprehensive as it lets the designer consider the use context, user context, technology context and the strategies, but it does

not offer specific insights into elements such as colour, location or space between UX elements that correspond with the strategies. For example, it appears that most users read websites in a F-shape pattern, therefore placing UX elements corresponding with the PSD model strategies within this region might make the system appear more persuasive. The primary drawback of the PSD model presents itself through the social support strategies, as it is difficult to establish where one strategy ends and another begins. The social support strategy can be revised for future research.

9.6.2 Theoretical and methodological contribution

The role of ICT in developing persuasive tourism online UX has been researched and documented by Kim and Fesenmaier (2008); Nusair and Kandampully (2008); Mintz and Aagaard (2010); Loda (2011), Lee and Gretzel (2012); Diaz and Koutra (2013) and Ibrahim, Shiratuddin and Wong (2013). Although, researchers such as Kim and Fesenmaier (2008), Nusair and Kandampully (2008), Lee and Gretzel (2012) and Diaz and Koutra (2013) have developed their own scales to measure persuasiveness of tourism websites, none have evaluated Oinas-Kukkonen and Harjumaa's (2009) PSD model.

The PSD model is distinct from other persuasion models (Fogg's Behaviour Wizard, TPB, TRA, ELM, Cialdini's six principles of influence) that have been applied within the tourism context, due to its comprehensive and straightforward nature. The model acknowledges the designer's intent, investigates the user's context and provides a

list of customisable strategies. Moreover, the model looks at the potential of any system as a persuasion agent for changing behaviour. The focus of Kim and Fesenmaier's (2008), Nusair and Kandampully's (2008), Loda's (2011) and Lee and Gretzel's (2012) research is solely on persuasion with no references to the anticipated behaviour change. Using Oinas-Kukkonen and Harjumaa's (2009) PSD model, this research evaluates tourism online UX as a persuasive technology capable of behaviour change. The PSD model has not been used as a theoretical construct to study persuasion within the tourism SMEs context, making this study's contribution crucial to the expanding knowledge on persuasive technology.

The UK's tourism sector is unique for multiple reasons. Not only does the sector contribute toward 9% of the GDP, it is also unique in the fact that up to 80% of the service provides are SMEs, operating within various segments that often overlap (Tourism Alliance, 2014; World Travel and Tourism Council, 2015). According to Nusair and Kandampully (2008) and Diaz and Koutra (2013), the few large tourism service providers that exist within the market seem to possess the required resources to deliver persuasive online experiences that give them competitive advantage. Persuasive tourism online experiences can influence users attitude and behaviour, which is important for tourism SMEs as they not only compete with larger providers but also other SMEs who are similar to one another (McMaster, Kato and Khan, 2005; Gretzel and Fesenmaier, 2006; AL-allak, 2010). As more tourists turn to the Internet to make their purchases (Buhalis and Law, 2008; Ho, Lin and Chen, 2013), the role played by online experiences in persuading users to purchase is of paramount importance (Buhalis and Law, 2008; Morgan, Elbe and de Esteban Curiel, 2009; Law, Qi, Buhalis, 2010; Ho, Lin and Chen, 2012; Google Travel Report, 2014). Persuasion research in the context of online tourism experiences does exist but it is fairly limited (Diaz and

Koutra, 2013). Specifically, the day attractions SME market is an area that has been rarely explored within the tourism literature from a persuasion perspective. This research has shown that the day attraction segment can be used as a perfectly suitable context, highlighting the fact that future research studies too could find value in this segment.

From a persuasive technology perspective, this research has made theoretical contributions to the research surrounding Oinas-Kukkonen and Harjumaa's (2009) PSD model. Being a fairly new model, the numbers of empirical studies that incorporate the PSD framework are limited. Supported by the empirical evidence, this research study makes a valuable contribution toward determining the efficacy of the PSD model as a persuasive UX design and evaluation tool. The research findings also suggest further improvements that can be made to the model (Figure 9.2), specifically in terms of the persuasive role played by the location, colours, typography, space etc. of the UX elements corresponding with the PSD model strategies. Furthermore, the researcher has recommended that the social strategies and credibility support strategies be revised (Section 9.5, p. 396) as a few strategies seem interlinked, making them difficult to evaluate. However, further research based upon different contexts might be required, in order to establish whether the ammendments suggested by the researcher are simply tourism context specific or can be applied to other sectors.

Although Nusair and Kandampully (2008), Diaz and Koutra (2013) and Ibrahim, Shiratuddin and Wong (2013) have conducted extensive research studies on persuasion within the context of tourism, their findings are only based upon website content analysis of tourism websites. This research uses the website content analysis to present the persuasive architecture of tourism online experiences but addresses the fact that this

is only one side of the story. The tourist users are crucial to the persuasion process; therefore it is important to understand persuasiveness of online experiences from their point of view. Kim and Fesenmaier (2008), Loda (2011) and Lee and Gretzel (2012) have provided user insights but the sample is limited to students who might not actually be users of the tourism websites analysed. Furthermore, Harjumaa, Segerståhl, and Oinas-Kukkonen (2009), Ploug, Hasle and Oinas-Kukkonen (2010), Lehto (2013) and Alhammed and Gulliver (2014) in their non-tourism empirical studies assessing the efficacy of the PSD model have all conducted a system review and analysis, without the inclusion of the end-user perspective.

Through the tourist user questionnaires, this research is able to introduce a methodology that has not been used within the context of persuasion within tourism or for the assessment of the PSD model. Finally, the third research method of eye tracking analysis brings additional insights that do not appear to have been used within the context of persuasion within tourism or within assessments of the PSD model as a persuasive technology evaluation tool. The three research methods provide data that is complementary and works toward providing comprehensive insights. Future studies that use the PSD model as a theoretical framework could find it beneficial to incorporate more than one research method.

9.6.3 Implications for Pennywell

   i. The findings of the questionnaire analysis and the supplementary eye tracking experiment show that the Pennywell Farm website is perceived

as usable (easy route to checkout), credible (website displays Trustmark for online shopping, contact numbers are displayed on the top of all pages) and visually attractive (high quality images and videos). The respondents also perceive Pennywell Farm as socially savvy, as they offer users opportunities to connect with the brand via social networking pages.

ii. The questionnaire respondents have mentioned that being able to win rewards for participating in competitions is a strong motivator. Pennywell Farm can provide users opportunities to win rewards, avail discounts and gain recognition through competitions, in order to motivate users toward performing various online behaviours such as repeating online purchase, writing reviews or engaging on social networking pages.

iii. Pennywell Farm is a family-run SME and a family member who is not a technical expert manages their social networking account. Pennywell Farm does not appear to retweet or respond to users often. The research findings show that tourist users are not very keen on connecting with Pennywell Farm over social-networking sites unless there is an opportunity to win rewards. Rewards need not always be monetary. Retweets and acknowledgements through responses are rewarding in nature. The farm might benefit from investing in a social media expert as they do not appear to have effectively harnessed the persuasive power of social networking.

iv.   The Pennywell Farm website caters successfully to a variety of users regardless of their gender, age or level of Internet proficiency. In the future, if the farm decides to update the website design, they will benefit from focusing on similar strategies.

v.   The call-to-action button placed in the bottom right of Pennywell Farm's website can be moved to the top right corner of the page or anywhere within the F-shaped region. This will ensure that more users will spot the call-to-action and be motivated to perform the behaviour of purchasing online.

vi.   The questionnaire and supplementary eye tracking findings suggest that many users equate the bright blue and yellow colours on Pennywell Farm's website with an experience for children. However, as adults are the ones who purchase the ticket, the respondents/participants have suggested that the website colours can be changed to cater to adults. This finding does not seem to have any implication on the user's buying behaviour; therefore it can act as a mere consideration in case Pennywell Farm decides to update the website layout.

9.6.4. Lessons for other day-attractions

Based upon the website content analysis of the 102 tourism SMEs websites and the findings of the Pennywell Farm specific questionnaire, the researcher makes the following recommendations for day attraction tourism SMEs.

1.   Tourism websites incorporate a number of usability and credibility based UX features but fail to provide an aesthetically pleasing and engaging experience. Tourist users perceive aesthetically pleasant experiences as usable and credible, which acts as a motivator for making a purchase. Given this finding, other day attraction SMEs might benefit from improving the visual appeal of their website to develop an enhanced dialogue with the users.

2.   Pennywell's users have mentioned that the opportunity to win rewards would have a strong motivation on their decision to engage on social networking sites and make online purchase. Day attraction SMEs do not seem to have used this strategy effectively. The researcher recommends that SMEs incorporate rewards and opportunities to compete within their online UX.

3.   One of the most significant findings from Pennywell's case study has been regarding the placement of call-to-actions within an F-shape region. The website content analysis showed that tourism websites place their call-to-actions within various regions on the website. If the call-to-actions are not within the general gaze area of the user (F-shape region), it might have a negative impact and cause the user to abandon their purchase in frustration. Placing call-to-actions in a region where they can be noticed and accessed easily might have implications on buying behaviour. Although the research was not able to conclude whether gender has any implications on how website colours are perceived, the researcher recommends that this hypothesis be tested by SMEs through user research. If the website colours are able to

persuade one gender but not the other, this could affect the website's persuadibility.

4.   Research into Pennywell Farm's users suggests that many tourists are involved in review writing, however they lack the motivation to write reviews when rewards are not on offer. Furthermore, it appears that more female users might participate in review writing than male users. Tourist SMEs could conduct user research in this area to get more customers to leave reviews.

9.6.5 Limitations

The research is affected by some limitations, which can be avoided. Although random sampling methods ensured that researcher bias would be kept to a minimum, there may have been a selection bias on the researcher's part while conducting questionnaire data collection on site at Pennywell. The researcher has approached those respondents who seemed friendly and who were not preoccupied with other activities, there by losing out on other respondents who could have possibly offered different insights. Furthermore, the questionnaire sample largely constitutes female respondents. This might have skewed the findings.

The PSD model has never been used as a theoretical construct within the context of tourism online experiences. Due to this, there has been no previous research to construct upon or use as inspiration. The conceptual framework introduced in this

research can be replicated for future tourism or persuasive technology studies, however the questions investigating the elements that most encourage and most discourage buying behaviour can be revised. Few strategies such as *rewards* and *competition* could not be studied in relation to Aim 4 as they had already been investigated in relation to Aim 2.

The research was unable to derive conclusive data from users who abandoned the Pennywell Farm purchase. This task might be difficult to accomplish, as the researcher would have to contact a larger set of online users from the general population to enquire whether or not they had tried to make a booking on Pennywell Farm and failed to complete the task. Pennywell Farm could install cookies on the users' computers to check whether the user has previously been on the website and abandoned the purchase (in such an instance, the site could try selling the abandoned package to the user upon their repeat visit). However, the cookies would not be able to help the researcher trace the users to collect information on why they abandoned the purchase. Another option is to look at Google Analytics or similar analytics programs to check if there are any page(s) users visit prior to confirming a page that might be pushing them away from the website. If a significant proportion of users are beginning the purchase process but turning away without confirming, the last visited page might be able to give some insights. Service providers could then use this information to conduct user research.

The website content analysis could have used a larger sample that extended beyond the context of day-attraction SMEs, in order to draw comparisons and establish differences between online experience practices of different tourism SME segments, for example: day-attractions versus independent hotels versus restaurants.

The eye tracking experiment, although an extension to the questionnaire analysis, could have included a larger sample. Given that the technology was new and this experiment was the first to be carried out within such a setting, the sample had to be limited to 10. Alternatively, the researcher could have carried out focus groups or used the think-out-loud method to get more insights from the eye-tracking participants.

Furthermore, the day-attractions segment lacks research in relation to online experiences or persuasion. The researcher has been unable to trace literature on online persuasion within the day-attraction segment that could be used to draw research outcome comparisons and differences.

A final limitation the researcher would like to address based on personal experience is in relation to the literature review. The researcher has recently gained experience working with systematic reviews and thinks that a systematic literature review and meta analysis could have provided further insghts on persuasive online UX practices within tourism.

9.6.6 Recommendations

The research has been able to build a relationship between aesthetics of a system and its implications on perceived usability. However, further research can be carried out to establish a stronger relationship between the two. Furthermore, the relationship between perception of colour and possible gender differences can be analysed further. Gender differences might also have implications on users motivations to write reviews. This point can be explored further. Finally, the role of the F-shape pattern and its possible implications on the persuasiveness of a website can be explored with a larger eye tracking study.

The research design used in this study can be used to explore persuasion patterns within other tourism segments to establish correlations or differences. The researcher recommends further evaluation of Oinas-Kukkonen and Harjumaa's (2009) model in tourism literature. The researcher also recommends using contexts other than health behaviour change to study the efficacy of the PSD model, in order to generate more empirical evidence that can contribute to this topic.

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Appendix 1: The 28 PSD model strategies

Primary Task Support	Dialogue Support	Credibility Support	Social Support
Reduction: System reduces complex behaviour into simple tasks brings users closer toward completing the task.	Praise: System that offers praise to the users can be persuasive	Trustworthiness: System that appears trustworthy is more persuasive	Social learning: Users will be motivated to complete a target behaviour if they are able to witness someone else doing the same
Tunneling: System guides users toward completing the task	Rewards: System that offers some rewards has a great persuasive power	Expertise: System that incorporates expertise has a great persuasion power	Social comparison: Users will be motivated to complete a target behaviour if they are able to compare their progress with others
Tailoring: Information available on the system is tailored to the potential needs, interests and personalities of the users	Reminders: System that reminds users of the target behaviour can be more persuasive	Surface credibility: If the system appears credible and competent upon first impression, it is more likely to be persuasive	Normative influence: System can leverage normative influence or peer pressure to nudge users toward completing the target behaviour
Personalisation: System offers users the ability to personalise their experience	Suggestion: A system is a considered persuasive when it offers users other suggestions	Real-world feel: System that shares information about the organisation and the people behind the organisation appears more real and therefore can be more persuasive	Social facilitation: If users can use the system to discern than others are performing the same target behaviour as them, they are more likely to find the system persuasive
Self-monitoring: System allows users to monitor and track their own performance	Similarity: System that appears similar to the user is more persuasive	Authority: System that leverages the role of those in authority is more persuasive	Cooperation: System that can leverage the human drive to co-operate, will appear more persuasive
Simulation: System provides simulations so users can instantly create a link between cause and effect	Liking: A visually attractive system is more persuasive	Third-party endorsement: System that displays endorsements from other credible third party sources has great persuasion powers	Competition: System that can leverage the human drive to compete, will appear more persuasive
Rehearsal: System allows users to rehearse their behaviour, which might be responsible for changing their attitude and behaviour in the real world	Social sole: System that adopts a social has a great persuasion power	Verifiability: The credibility of any system increases when users are able to verify the accuracy of the system, there by increasing its powers of persuasion	Recognition: Offering users public recognition is more likely to persuade them toward complete the target behaviour

Source: adapted from Oinas-Kukkonen and Harjumaa (2009)

Appendix 2: Compilation of research in persuasive technology

Year	Author	Model	Type of research	Context	Findings
2007	Segerståhl and Oinas-Kukkonen	Fogg's seven persuasion strategies	Empirical	UX for heart rate monitoring system	A study of distributed UX can contribute to the knowledge of efficiency and functionality of persuasive strategies across technology-mediated environments. Using Fogg's persuasion strategies, paper described the challenges related to UX on multiple device systems.
2008	Kim and Fesemaier	Conceptualised six dimensions of persuasion	Empirical	Tourism	Study showed that participants were quick to make judgments on tourism websites and inspiration and usability evoked the most favorable first impression.
2008	Nusair and Kandampully	Conceptualised six measurements as antecedents to customer satisfaction	Empirical	Travel websites	Research provided evidence to suggest that online travel companies do not offer web service quality attributes that can enhance satisfaction.
2009	Consolvo et al.	Goal Setting Theory	Empirical	Fitness wearable UBFit	Research explored individuals' reaction to goal-setting and goal timeframes. Study concludes that using goal setting in persuasive technologies may be an effective way to encourage behaviour change.
2009	Harjumaa, Segerståhl, and Oinas-Kukkonen	PSD model	Empirical	Qualitative field trial of a heart rate monitor	Study provides suggestions for practitioners and designers in the form of goal setting, adopting a social role, tracking performance, providing rewards and feedback, and improving perceived credibility to influence user behaviour.
2010	Mintz and Aagard	Multi-modal programme of evaluation of persuasive technology	Theoretical	Education setting (Students with autism)	Study shows that persuasive technology as a paradigm can be applied to education settings. Persuasive technology can offer

					innovative ideas to the teachers.
2010	Oinas-Kukkonen	PSD Model+ O/C Matrix (to analyse intent)	Theoretical	BCSS software	Study shows lack of information on persuasion contexts and technology contexts. The success and failure of an application can be a result of fluent navigation and smooth interaction, something the O/C Matrix and PSD model may help in achieving.
2010	Ploug, Hasle & Oinas-Kukkonen	PSD (with ELM)	Empirical	Evaluating requirements specifications of a mobile Internet device. Industry not mentioned	Research studied PSD's feasibility for evaluation design specification. Study demonstrated how the PSD principles work together and concluded that certain principles do not work together. Moreover, the researchers also found that certain PSD principles in the social support feature are difficult to distinguish. The most crucial conclusion about PSD's efficacy has been that even beginners can use it.
2010	Waife and Nakata	Semiotic Analysis	Empirical	Conceptual design for persuasive weight management system (ObiMo Pet)	The research aims to have developed a more systematic approach to persuasive technology design and development using semiotic analysis.
2011	Loda	TRA and ELM	Empirical	Tourism websites	The study supports the importance of message credibility to strengthen efficacy of the message but might not affect purchase intention as it is difficult to eradicate years of accumulated prior knowledge, through one time website exposure.
2011	Némery, Brangier, and Kopp	Conceptualised grid of criteria	Theoretical	Not specified. Website usability based.	Measurement of persuasion in HCI is critically important for understanding how persuasive design could influence user goals and expected outcomes.
2012	Lee and Gretzel	Conceptual model for visual effect of design	Empirical	Tourism	Pictures used on websites have a significant effect on the perceived persuasiveness of

		features			destination websites. Study stresses usage of mental imagery to persuade users.
2012	Midden et al.	Adopted ideas from Fogg's seven design principles	Theoretical	Sustainable behaviour	Persuasive systems that adopt social dimensions are effective in persuading sustainable behaviour.
2012	Rutledge	Triune brain model	Theoretical	Augmented Reality (AR) applications	The triune brain model provides a definite framework for evaluating the experiential and social characteristics of AR. Traditional persuasion models are not able to provide a heuristic for relative imbalance of power generated from conscious and unconscious processing of persuasion.
2012	Wiafe et al.	PSD+ 3 Dimensional relationship between Attitude and Behaviour (3D-RAB) for persuasion context	Theoretical	Not specified	Study proposes modification of persuasion context and asserts that technology should be reviewed and evaluated as a part of strategy that can enable designers in choosing the technology that best suits their requirements.
2013	Alhammad and Gulliver	Reviewed theories and models	Theoretical	Technology Systems	Researchers conclude that future research in the field of persuasive technology is required in order to address persuasiveness of e-commerce websites through an identification of those variables that are responsible for most user acceptance.
2013	Basamh et al	Fogg's behaviour wizard	Theoretical	Delivery of professional services over technology	Researchers found that persuasive technology has promising applications within the service industry. More over, persuasive technology can be the key to BCSS involving sustainability.
2013	Diaz and Koutra	Designed six dimensions of persuasiveness	Empirical	Hotel websites	Research makes contributions to the theory, method and practice of hotel chains' websites' persuasiveness dimensions. Researchers found significant difference between the persuasiveness dimensions present in luxury, midscale and economy

					hotel chains.
2013	Edwards et al.	Variety of theories and models	Empirical	Health technology for adolescents	According to the researchers, social support is the key to a persuasive BCSS , along with features such as openness and lack of autonomy. The conclusion of this research also suggests that there is very little evidence about the impact of goal setting on persuasive technology.
2013	Ibrahim, Shiratuddin and Wong	Cialdini's six persuasion techniques	Empirical	Reviewing current state of tourism websites	Research provides a conceptual framework for persuasive visual web design using Cialdini's six persuasion techniques. The researchers emphasise on the trust users put into the visual elements of a websites and conclude that credibility remains a major issue in persuading website users.
2013	Khalil and Abdallah	TRA	Empirical	Mobile app to promote health	Research concludes that social component within a persuasive mobile health app enhances behaviour change in users.
2013	Lehto	PSD Model	Empirical	e-Health BCSS	Lehto's (2013) research is one of the first empirical research conducted on the PSD model. Researcher recommends incorporating not only the categories and the persuasive software features, but to extend beyond the model and also consider the seven postulates as the postulates can provide means to analyse the persuasion context.
2013	Marcus, Cantoni, and Schieder	Maslow's hierarchy and Fogg's design principles	Conceptual	Tourism related game called Travel Machine	Researchers have used persuasive technology theories to develop an app that intensifies the user's travel experiences and stimulates them toward travel behaviour change.
2013	Pourabedin and Nourizadeh	Conceptual model for visual website design	Empirical	Travel websites	Research found that within the context of destination websites and multimedia, colour

449

		features			influences perceived aesthetic. Perceived aesthetic is a determinant of intention to travel. Within the context of destination websites, multimedia and
2014	Alhammad and Gulliver	PSD Model	Empirical	e-Commerce websites	Research is one of the few empirical studies using the PSD model indentify distinct persuasive features on e-commerce websites. Results conclude lack of implementation of social support features amongst e-commerce websites.
2014	Ersoy and Akbulut	Adopted from multiple theories and tools	Empirical	Persuasive power of different web based tools on mathematics instruction	Researchers found that intervention and interaction effects studied using multiple persuasion theories and tools could not show any significant change in attitude or self-efficacy of students.
2014	Fritz et al.	Multiple persuasion strategies	Empirical	Motivate healthy behaviour through wearable tech	Research revealed that despite the changing goals and practices, some users within the population studied continued to derive value and motivation from wearable technologies. This suggests that is worthwhile for designers to focus on long term support for health BCSSs.Our findings
2014	Hsu et al.	Elaborated Intrusion Theory of Desire	Empirical	App to make healthy food choices	Study found that images are very persuasive in reducing app users' overall snacking and unhealthy behaviours.
2015	Lin	Fogg's seven design principles	Empirical	Developed a student centred carbon footprint management system	Researchers found that Fogg's seven design principles can improve students' awareness regarding carbon footprint. Moreover, persuasive technology built on such design principles can be used to stimulate attitude change.

Appendix 3: PSD model based constructs and corresponding UX elements (Checklist for website content analysis)

Construct	UX elements checklist
Primary Task Support	
Reduction- How easy is the task of locating the "booking/purchase" button?	Link is on the front page Link is on the top left Link is on the top right Link is on the bottom left Link is on the bottom right Link is in the top centre of the page Link is in the bottom centre of the page Link is embedded on every page via navigation menu Link is hard to locate Link is in middle left Link is in middle right Link is in middle centre
Tunnelling- How does the system bring the users closer toward completing the purchase?	Navigation Menu Text information on how to book Booking information/button above the fold Booking information/button below the fold Keyword based search feature available Sitemap available (for simplifying navigation to the desired page)
Tailoring: Is the information available on the system targeted toward the user groups? + Personalisation: Does the system provide personalised content?	Responsive web design Business proposition is clearly mentioned on the front page System asks users if they are visiting for a special occasion (birthday, anniversary, honeymoon) Twitter/FB hashtags used to invite people to the website Have a newsletter (allows users to experience a more personalised experience) Do users get to create an account Can the purchase be made without registering

	Offers both options: Create an account or checkout as a guest
Self-monitoring: Can users track their progress?	Bread crumb navigation Drop down menu Horizontal navigation bar Vertical navigation bar Icons/Graphics instead of text Drop down sub-menu
Simulation: Does the system show the users what the real experience would be like? + Rehearsal: Does the system allow users to rehearse the target behaviour?	360 degree view Videos Virtual tour Other gimmicks
Dialogue Support	
Praise: Does the system praise the users?	Praise words show up when you click on the buy link assuring you've made the right decision to buy No praise words/signs
Rewards: Can users win virtual rewards	Discounts for booking online Rewards for those who share something Rewards for creating an online account
Suggestion: Does the system offer any suggestions?	Suggestion on which package to book Suggestion on where to eat Suggestion on places to visit Suggestion to follow on social networking sites for more information Suggestion on how to access discounts Suggestion on event related services on offer
Similarity: Does the system imitate users? + Liking: How appealing is the website?	Business value proposition is communicated through images Website loads quickly (5 seconds max) No error pages Colour scheme is consistent Font is clear and bold Pages on the website are consistent Error pages are functional (404 pages lead users back to main pages) Fewer affiliate ads on the page

	Pictures of people enjoying the service experience Top 5 keywords searched by users match keywords on page
Social role: How social is the system?	Interact on TripAdvisor Interact on social networking sites Invites users to get in touch Content showing company's relationships with 3rd parties (Eg: news)

Credibility Support

Trustworthiness: How trustworthy does the system appear upon first impression?	Displaying 3rd party reviews Not displaying 3rd party reviews Terms and Conditions are prominently placed on booking page Terms and Conditions can be accessed via a link on the booking page Displays logos of associations they are a member of
Expertise: Does the system appear to be an expert? + Surface Credibility: Does the system appear competent?	Length of time the website has been in operation (5 years +) No grammatical errors Content updated regularly (Month) FAQs page Displays awards won
Real world feel: Does the system show who works for the company?	Link to About Us Blog about the organisation Staff profiles Organisational hierarchy
Authority: Does the system show who is in authority?	Articles/Blogs from someone in position of authority
Third party endorsements: Is the system endorsed by third-parties?	Endorsements Certifications (SSL, other privacy certificates)
Verfiability: Does the system link to other stakeholders?	Links to affiliate sites Links to review sites

Social Support	
Social learning: Does the system show the users if other users are also making the same purchase? + Social comparison: Does the system provide means for the users to compare their behaviour with that of others?	Shows live bookings Reviews from other users
Normative Influence: Does the system create norms for people in a social group to follow?	Offers suggestions based on what other buyers generally do upon their visit Displays the number of followers on main page Displays the number of people who subscribe to their newsletter Showcases on people who have visited
Social facilitation: Does system provide means for users to discern other users' behaviour? + Cooperation: Does the system enable users to co-operate with one another?	Online forums Social networks
Competition: Do the SMEs hold contests?	Online contests
Recognition: Does the system recognise the users?	Retweeting people Replying to individual users on social networks Showcasing contest winners

MoP*- Method of purchase used to make Pennywell Farm booking (Table 1 displays <u>online</u> bookings only); Y- Yes; N- No; NoP- Did not purchase online

	Female	Male	18-24	25-34	35-44	45-54	55-64	65+	Beginner	Intermediate	Advanced	Visited website	Website persuaded to purchase	Follow on Facebook	Follow on Twitter	Written review for Pennywell	Written reviews for others
Freq. of physical purchases	70.8	29.1	5.1	26.7	33.9	14.9	12.2	6.9	9.1	33.6	57.1	Y 71.8 N 28.11	Y 41.7 N 15.6 NoP 42.6	Y 36.2 N 63.7	Y 10.5 N 89.4	6.4	33.1
Freq. of experiential purchases	70.8	29.1	5.1	26.7	33.9	14.9	12.2	6.9	9.1	33.6	57.1	Y 71.8 N 28.11	Y 41.7 N 15.6 NoP 42.6	Y 36.2 N 63.7	Y 10.5 N 89.4	6.4	33.1
Method of Purchase*	72.1	27.8	4.9	24.2	34.1	15.4	13.2	7.9	11.4	36	52.5	Y 73.4 N 26.5	Y 41.7 N 15.6 NoP 42.6	Y 36.2 N 63.7	Y 10.5 N 89.4	6.4	33.3

Appendix 5: PSD model's seven postulates

Oinas-Kukkonen and Harjumaa's (2009; 2013) PSD framework is built upon seven postulates (Figure 7) that must be addressed before designing or evaluating persuasive systems. Two of the postulates relate to how designers perceive the users in general, the next two postulates relate to persuasive strategies and the final three address the actual system features (Oinas-Kukkonen and Harjumaa, 2009). The following is a review of the seven postulates.

i.   Information technology is never neutral

At any given moment, technology is always capable of influencing people's attitudes and behavior in one way or another. This suggests that persuasion must be seen as a continuous process instead of a single act (Oinas-Kukkonen & Harjumaa, 2009). The multi-phased and complex factors at play within the persuasion process are the user's motivation and goals (Fogg, 2003; 2011; Oinas-Kukkonen and Harjumaa, 2009). These motivations and goals may change during the process. For example during the early days of using a fitness app, the user might be interested in calculating the number of steps taken but after using the app for a while, they might be interested in the number of calories lost. All persuasive systems should be capable of predicting and adapting to these changes.

ii.   People like their views about the world to be organized and consistent

The second postulate of Oinas-Kukkonen and Harjumaa's (2009) PSD model is drawn from Cialdini et al. (1981). If a system comes across as trustworthy in the sense that it can be trusted to deliver commitment, users are more likely to be persuaded (Oinas-Kukkonen and Harjumaa, 2009). For example, a user might express more confidence in their decision to exercise regularly after buying a gym membership. Regardless of the argument that people like things to be consistent, cognitive consistency becomes important as inconsistency may motivate attitude change (Simons et al, 2001). Based on this view, the inconsistency has to be brought to the user's attention before it is perceived as unpleasant. This idea of cognitive consistence is subject to criticism. Oinas-Kukkonen and Harjumaa (2013) recommend leaving some room for inconsistencies.

iii.   Direct and indirect routes are key persuasion strategies

The third postulate states the notion of applying different strategies for different users. An individual who is careful and evaluates the content may be approached via a direct route. Alternatively, someone who has not been paying the argument much thought will need simple cues in order to be persuaded (Oinas-Kukkonen and Harjumaa, 2009).

In the case of online experiences, both direct and indirect functions can be installed as system features, to work simultaneously. According to McGuire (1973) and Petty and Cacioppo (1986), direct persuasion is seen as the most effective of both but in

today's technological age, the abundance of information has forced a higher usage of indirect cues.

This third postulate is based on the idea that a user's personal background and use context influences her/his ability to process information (Oinas-Kukkonen and Harjumaa, 2009). A user with high motivation and high ability is more likely to be interested in the content of the persuasive message than a user with low motivation and low ability (Fogg, 2003; 2011).

iv.   Persuasion is often incremental

The fourth postulate states that it is easier to initiate people into performing a series of actions through incremental suggestions instead of a one-time consolidated suggestion (Matthew, 2005; Oinas-Kukkonen and Harjumaa, 2009). For example a health app can encourage users to start changing their habits by eating a fruit every-day. Further down the line at another interval, users can be introduced to the idea of replacing rice with quinoa.

v.   Persuasion through persuasive systems should always be open

All designers will have their individual bias; therefore, a persuasive system should appear transparent and include some information about the designer's bias. Showing users content that appears to be untruthful will make users distrust the service provider (Oinas-Kukkonen and Harjumaa, 2009).

vi.   Persuasive systems should aim at unobtrusiveness

Persuasive features should only be applied at opportune moments within the task (Oinas-Kukkonen and Harjumaa, 2009). Unnecessarily adding elements that aren't required can distract users from completing the task.

vii.   Persuasive systems should aim at being both useful and easy to use

The final postulate deals with the responsiveness of the system, its ease of access, lack of errors, convenience and information quality. Along with system features, factors such as attractiveness, positive user experience and user loyalty are important in persuading users to change (Oinas-Kukkonen and Harjumaa, 2009; 2013).

Appendix 6: Sub-categorisation of visitor attraction websites

Figure 6.1 shows that 39.2% (40 websites) of the 102 total websites belong to the sub-category of entertainment, This sub-category includes websites for *theme parks, sports arena museums and tours, plays and musicals*. The second most commonly occurring sub-category within the sample is that of wildlife. This sub-category includes websites for *farm attractions, zoos; aquariums* . 30.4% (31 websites) of the total sites belong to wildlife. Furthermore, 15.7% (16 websites) belong to the sub-category of heritage. The websites in this category belong to *castles, museums and other historic sites.* The fourth sub-category includes websites for *tour providers*, making for 10.8% (11 websites) of the total. The fifth and final subcategory is parks/gardens with 3.9% (4 websites) contributed toward the total.

Type of day attraction

Legend:
- Wildlife (Farms, Zoos, Aquariums)
- Heritage (Castles, Museums, Historic sites)
- Parks/Gardens
- Tours
- Entertainment (Sports, Musicals)
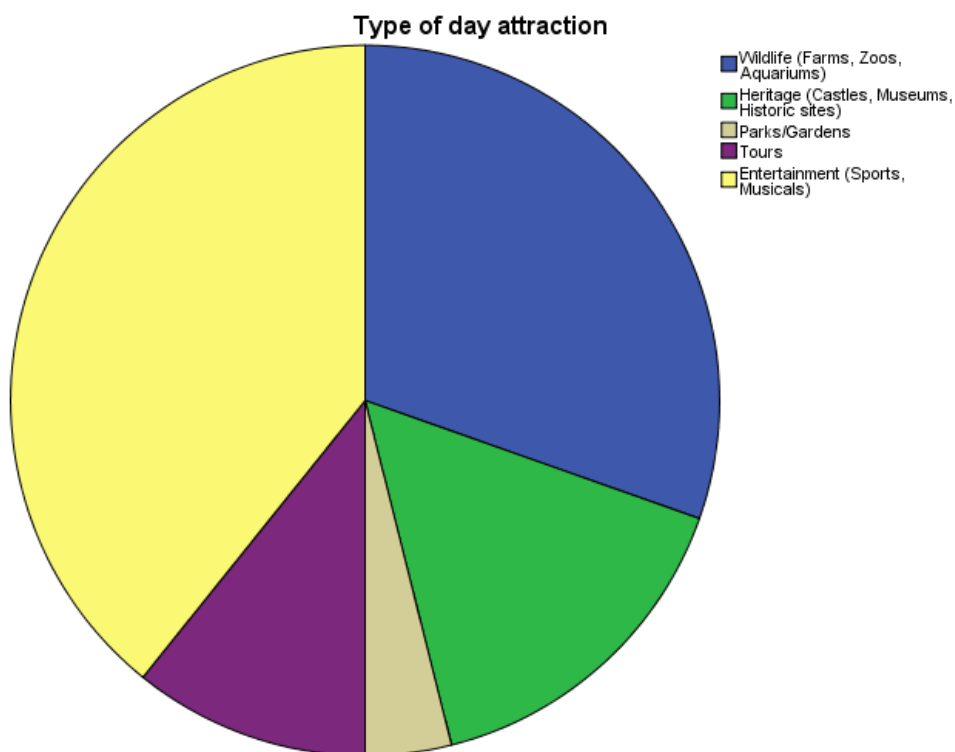
Appendix figure 6.3: Visitor Attraction Subcategories

Apart from a sub-categorical differentiation, the 102 websites reviewed, represent tourism SMEs from seven different regions within the UK (Figure 6.2). 30.4% (31 websites) belong to tourism SMEs from South East England. 29.4% (30 websites) are for tourism SMEs in London. 15.7% (16 websites) belong to tourism SMEs in South West England and 9.8% (10 websites) are from East of England. A further 8.8% (9 websites) belong to tourism SMEs in West Midlands, 3.9% (4 websites) to Yorkshire and North Lincolnshire and a final 2% (2 websites) are for tourism SMEs in North West England.
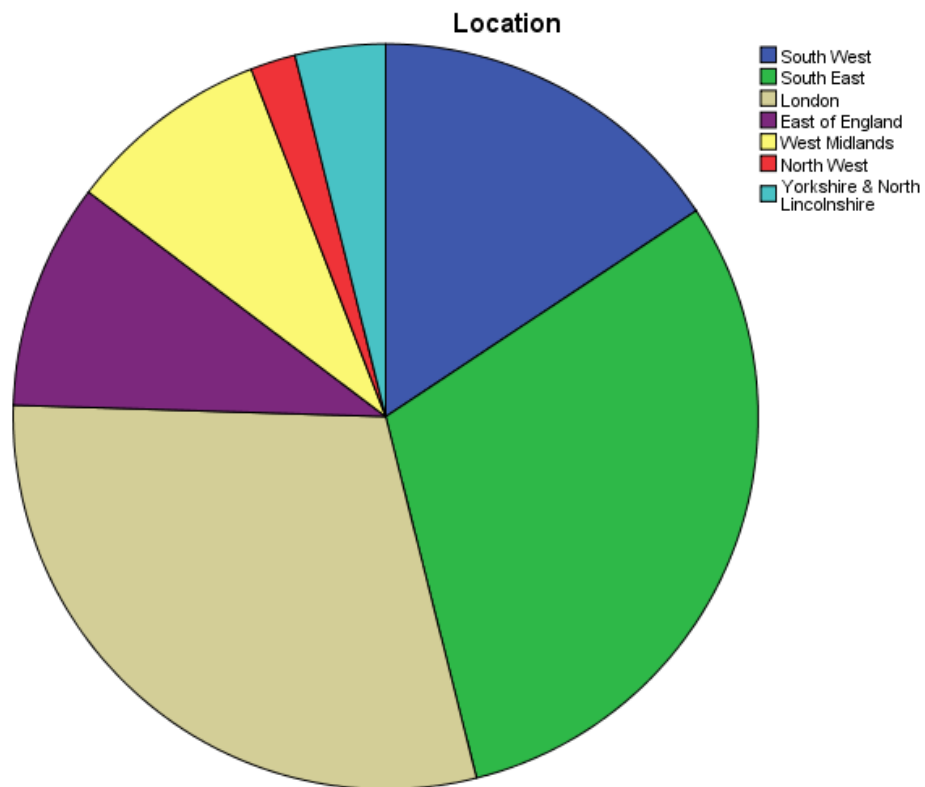
Appendix figure 6.2: Visitor attractions geographical divide

Appendix 7: Materials and procedure for conducting website content analysis

The following is a presentation of the materials used for the data collection and the coding procedure.

Visitor attraction SME listing: The most convenient method to gain access to a random unbiased list of websites has been to find a visitor attraction listing's website. Dayvisits.co.uk is an online visitor attractions search engine used by tourists to plan days out. The website consists of 480 listings for visitor attractions in the UK. The first 101 websites that offered the functionality of online transactions are selected from the listings website. The 102nd website belongs to Pennywell Farm, the case study upon which the other two research methods are based.

Browsers: Chrome on Mac OSX Yosemite to test the website versions. Chrome on Android 5.0 Lollipop to test mobile versions.

Tools: Data are collected using Webconfs.com, SimilarWeb and SEO Quake extension for Chrome Data.

Coding procedure: The coding scheme developed is based on Oinas-Kukkonen and Harjumaa's (2009) PSD model for evaluating system persuasiveness. Some design principles are customised in accordance with the design features available on the tourism SME's websites. For e.g., in the case of reminders (dialogue support), the researcher will have to register with each website and get involved in a way that is out of the scope of this research.

All of the websites coded belong to SME attractions within the UK; therefore all the websites analysed are in English. The goal is to code the first 101 tourism SME websites along with an additional website that of Pennywell Farm. Weare and Lin (2000) have suggested that when coding, researchers must be aware that on-going changes and updates could turn out to be a major challenge in content analysis. To avoid this, each website's content is coded within 30 minutes (start to finish) on the same day. To ensure further uniformity Diaz and Koutra's (2013) suggestion for conducting content analysis is taken into consideration. Diaz and Koutra (2013) have suggested using the same browser setting and same computer for all websites, in order to avoid any inconsistencies.

Appendix 8: Descriptive insights into respondent types

1. Respondents who visited the website

Although 481 respondents participated in the questionnaire, only 342 have admitted to having visited the Pennywell Farm website. A total of 258 (75.4%) respondents are female and 84 (24.5%) male. The highest number of respondents, 125 (36.5%) who have visited the Pennywell Farm website belong to the 35-44 age group. The second highest number of respondents, 99 (29%) come from the 25-34 age group. 52 (15.2%) respondents belong to the 45-54 age group, followed by 38 (11.11%) who belong to the 55-64 age group. The final two groups, 17 (5%) and 11 (3.2%) belong to the 18-24 and 65 and older age group. In terms of Internet proficiency, 187 (54.6%) respondents who have visited the Pennywell Farm website identify themselves as advanced level users, followed by 130 (38.01%) intermediate level users and 13 (3.8%) beginner level Internet users.

2. Respondents who have not visited the website

138 of the 481 respondents have not visited the Pennywell Farm website. 82 (59.4%) respondents who have not visited the website are female and 56 (40.5%) are male. 38 (27.5%) respondents who have not visited the website belong to the 35-44 age group, followed by 31 (22.4%), 25-34 year olds. 23 (16.6%) 65 year olds and above have not visited the Pennywell Farm website. A further 20 (14.4%) respondents are from the age group of 55-64, followed closely by 19 (13.7%) 45-54 year olds. The age groups with the least number of respondents who have not visited the website are 7 (5.07%) 18-24 year old respondents. In relation to the level of Internet proficiency, 79 (57.24%) of the 138 respondents who have not visited the website identify themselves

as advanced level users, followed by 30 (21.7%) beginner level users and 24 (17.3%) intermediate level Internet users.

3. Respondents who have visited the website and feel that the website has persuaded them to purchase online

342 respondents who have visited the Pennywell Farm website have been asked whether they think that the website has persuaded them to purchase online (Please refer to the questionnaire in Appendix X). Only 141 of the 342 respondents, who have answered the question regarding website persuasiveness, agree with the statement that the website has persuaded them toward making the purchase online. This is 42.4% of the total sample that has responded to the query. Of these 141 respondents, 95 (67.3%) are female and 46 (36.6%) are male. The largest number of respondents, 60 (42.5%) belong to the 35-44 age group. This is followed by 39 (27.6%) respondents aged between 25-34, 21 (14.8%) from the 45-54 group, 14 (9.5%) from the 55-64 age group and 4 (2.8%) and 3 (2.1%) from the 18-24 and 65 plus groups, respectively. In terms of Internet proficiency, 95 (67.3%) of the 141 respondents who found the website persuasive identify themselves as advanced level Internet users, followed by 40 (28.3%) intermediate level users, and 2 (1.4%) beginners.

4. Respondents who visited the website but do not feel that the website persuaded them to purchase online, yet they purchased anyway

53 respondents of the 342 who have answered the question about website persuasiveness think that the website has had no effect on their decision to purchase online. Of these, 44 (83%) are female and 9 (17%) male. In terms of respondent age group, the largest number of respondents belongs to both the 25-34 and 35-44 age groups, with 17 (32.07%) in each. The second largest number of respondents, 8 (15.09%) belong to the 45-54 and 55-64 age groups. The remaining 2 (3.7%) and 1

(1.8%) respondents are aged 65 plus and 18-24 respectively. In terms of level of Internet proficiency, 25 (47.2%) advanced level respondents have found that the website did not persuade them to purchase yet completed the online purchase anyway. This is followed by 22 (41.5%) intermediate level and 2 (3.7%) beginner level users who regardless of feeling that the website did not persuade them to purchase online, completed the purchase online.

5. Respondents who have not purchased online

144 respondents have mentioned that they did not purchase the Pennywell Farm tickets online. Those who did not purchase online would not have been able to provide any insights into the persuasiveness of the website and its subsequent influence on the purchase decision. Of the 144 respondents, 114 (79.1%) are female and 30 (20.8%) male. In terms of age, 48 (33.3%), the largest number of respondents who have not purchased online, belong to the 35-44 age group, followed by 42 (29.16%) from the 25-34 group. 22 (15.2%) respondents belong to the 45-54 age group, 15 (10.4%) to the 55-64 age group, 11 (7.6%) to the 18-24 year olds and 6 (4.1%) to the 65 years old and over. In terms of level of Internet proficiency, 67 (46.5%) respondents identify themselves as advanced level Internet users, followed by 65 (45.1%) intermediate level and 9 (6.2%) beginner level users.

Appendix 9: Additional descriptive insights for questionnaire Q 13, Q16, Q 17 and Q 19

Q 13 Descriptive insights

In terms of level of Internet proficiency, 9 beginner, 63 intermediate and 64 advanced level respondents ranked the options in Q 13. The pattern that has been observed in terms of the variable of gender, repeats itself, as users identifying with different levels of Internet proficiency primarily agree with all statements except- '*Pennywell's presence on social networking websites (E.g. Facebook, Twitter)*'. A total of 3 beginner, 31 intermediate and 32 advanced level users agree, 5 beginner, 17 intermediate and 22 advanced level users neither agree nor disagree, and a further 1 beginner, 13 intermediate and 10 advanced level users disagree with the statement. This suggests that as established in the previous paragraph, exploring the variable of gender, the respondents either found the statement confusing or the level of Internet proficiency might not have any implications on the importance users lay on socializing online with Pennywell or its further implications on their buying behaviour.

In relation to the respondents age groups, a total of 12 (18-24), 40 (25-34), 42 (35-44), 16 (45-64), 17 (55-64) and 13 (65 and over) respondents have responded to Q 15.. The pattern that has been observed across the variables of gender and levels of Internet proficiency, also repeats itself in terms of respondents' age ranges. Majority of the respondents from all age ranges agree with all statements except- '*Pennywell's presence on social networking websites (E.g. Facebook, Twitter)*'. A total of 5 (18-24), 24 (25-34), 19 (35-44), 8 (45-54), 6 (55-64) and 6 (65 and over) respondents agree with the statement, while 4 (18-24), 8 (25-34), 15 (35-44), 6 (45-54), 7 (55-64) and 6 (65 and

over) respondents neither agree nor disagree with the statement. Finally, 3 (18-24), 7 (25-34), 7 (35-44), 2 (45-54), 4 (55-64) and 1 (65 and over) respondents disagree with the statement. This suggests that either the statement should be rephrased for future research purposes or the tourist user's age might have no implications on their desire to socialize online with Pennywell and its further implications on their decision to purchase online.

Q 16 Descriptive insights

- 'Website made me want to purchase online', 'Online purchase process is simple', 'Website did a good job of guiding me through the ticket booking process', 'Images and videos on the website were very attractive', 'I was offered helpful suggestions regarding the day-trip to Pennywell Farm', 'I was offered helpful suggestions regarding the day-trip to Pennywell Farm', 'Language used on the website was relatable', 'Website colours made me want to spend more time browsing' and 'Website fonts were clear and bold'. However, there is a variance that has been observed in relation to the following statements-

     i.   'Website made me feel important', where 43 female and 18 male disagree, 53 female and 15 male respondents could neither agree nor disagree, 46 female and 13 male seem to agree

    ii.   'Pennywell's social networking page(s) made me want to be a part of their online community', where 51 female and 15 male disagree, 47 female and 17 male respondents could neither agree nor disagree and 44 female and 14 male respondents agree

iii. 'Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again', where 45 female and 16 male disagree, 41 female and 15 male could neither agree nor disagree and 55 female and 15 male agree with the statement.

The first statement with varied responses –'Website made me feel important' has not been assigned to any one particular category or strategy and thus, related with all four design principles and the 28 strategies. The statement has been developed to simply assess whether the website's ability to make the user feel important has any implications on the perception and opinion regarding its persuasiveness. As no conclusive results have been achieved, this statement does not appear to contribute to the research query and from this point forward will be ignored. The variance in responses to the two other statements (ii) and (iii), suggests that gender might not have any implications on the level of importance users lay upon socializing with Pennywell Farm or other users of the farm online.

In terms of the second variable of *level of Internet proficiency*, the pattern observed through the variable of *gender* seems to repeat. A total of 17 beginner, 89 intermediate and 79 advanced level users have answered this question. Although majority of the beginner, intermediate and advanced level Internet users seem to agree with most statements, no conclusive consensus can be reached in relation to the following three statements using the variable of level of Internet proficiency,

i. 'Pennywell's social networking page(s) made me want to be a part of their online community', where 7 beginner, 32 intermediate and 25 advanced level users disagree, 7 beginner, 28 intermediate and 26 advanced level users neither agree nor disagree and 2 beginner, 28 intermediate and 28 advanced level users agree with the statement

469

ii. 'Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again', where 6 beginner, 24 intermediate and 29 advanced level users disagree, 6 beginner, 25 intermediate and 22 advanced level users neither agree nor disagree, 4 beginner, 38 intermediate and 28 advanced level users agree with the statement

This suggests that variance in levels of Internet proficiency might not have any implications on users' perception of the importance of social networking and its role in decision making.

Finally, in terms of *age ranges*, a total of 14 (18-24), 55 (25-34), 56 (35-44), 25 (45-54), 22 (55-64) and 18 (65 and over) year olds have responded to the question. The same pattern that has been observed across *gender* and *level of Internet proficiency* repeats itself. Although primarily majority of the respondents from all age ranges agree with most of the statements, the statements that have resulted in variance in responses are,

i. 'Pennywell's social networking page(s) made me want to be a part of their online community', where 5 (18-24), 20 (25-34), 13 (35-44), 9 (45-54), 11 (55-64) and 8 (65 and over) respondents disagree, 5 (18-24), 18 (25-34), 23 (35-44), 7 (45-54), 5 (55-64) and 6 (65 and over) respondents neither agree nor disagree and 4 (18-24), 17 (25-34), 19 (35-44), 8 (45-54), 6 (55-64) and 4 (65 and over) respondents agree

ii. 'Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again', where 7 (18-24), 19 (25-34), 13 (35-44), 9 (45-54), 6 (55-64) and 7(65 and over) respondents

disagree, 3 (18-24), 18 (25-34), 20 (35-44), 6 (45-54), 5 (55-64) and 4 (65 and over) respondents neither agree nor disagree and 4 (18-24), 18 (25-34), 22 (35-44), 9 (45-54), 10 (55-64) and 7 (65 and over) respondents agree

Q 17 Descriptive insights

It appears that majority of both, female and male respondents have primarily agreed with four statements, except the last two. These statements that have resulted in variance in responses are,

i. 'I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online', where 70 female and 21 male respondents disagree, 34 female and 11 male neither agree nor disagree and 43 female and 14 male agree

ii. 'I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online', where 74 female and 19 male respondents disagree, 35 female and 10 male respondents neither agree nor disagree and 37 female and 17 male respondents agree with the statement.

iii. This suggests that gender does not seem to have any particular implication on users perception of the role of social networking and its implication on the perceived credibility and therefore the decision to purchase online.

iv.   In terms of level of Internet proficiency, 17 beginner level, 91

intermediate and 81 advanced level respondents have answered the

question.

v.   'I visited a review website like (TripAdvisor, Google Reviews) to see

what others thought about Pennywell before booking the tickets online',

where 7 beginner, 46 intermediate and 36 advanced level respondents

disagree, 4 beginner, 21 intermediate and 18 advanced level users neither

agree nor disagree and 6 beginner, 24 intermediate and 26 advanced

level respondents agree with the statement

vi.   'I visited Pennywell's social networking pages to see what others were

saying about Pennywell, before booking the tickets online', where 6

beginner, 45 intermediate and 39 advanced level respondents disagree, 5

beginner, 20 intermediate and 18 advanced level users neither agree nor

disagree and 6 beginner, 25 intermediate and 23 advanced level

respondents agree with the statement

In relation to age ranges, 14 (18-24), 57 (25-34), 57 (35-44), 26 (45-54), 22
(55-64) and 18 (65 and over) year olds have respondents to the question.

i.   'I visited a review website like (TripAdvisor, Google Reviews) to see

what others thought about Pennywell before booking the tickets online',

where 4 (18-24), 27 (25-34), 27 (35-44), 15 (45-54), 9 (55-64) and 9 (65

and over) respondents disagree, 3 (18-24), 12 (25-34), 16 (35-44), 4 (45-

54), 7 (55-64) and 3 (65 and over) respondents neither agree nor disagree and 7 (18-24), 18 (25-34), 14 (35-44), 6 (45-54), 6 (55-64) and 6 (65 and over) respondents agree with the statement

ii. 'I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online', where 5 (18-24), 27 (25-34), 28 (35-44), 12 (45-54), 13 (55-64) and 8 (65 and over) respondents disagree, 3 (18-24), 13 (25-34), 14 (35-44), 7 (45-54), 5 (55-64) and 3 (65 and over) respondents neither agree nor disagree and 6 (18-24), 17 (25-34), 14 (35-44), 6 (45-54), 4 (55-64) and 7 (65 and over) respondents agree with the statement

Q 22 Descriptive insights

In terms of *gender*, a total of 101 female and 37 male respondents have answered Q 22. Majority of both female and male respondents, who had not visited the Pennywell Farm website before, found their top first impressions to be 'Attractive images'. There seems to be a minor variance in the selection of the other top options. A total of 25 female and 9 male participants believe that the 'Website seems easy to follow'; while 24 female and 10 male participants believe that the website has 'Easy to read text'. The least selected first impression by both female and male respondents is – 'Eye-catching colours'. The findings suggest that gender might have no implications on first impressions of users who had not visited the website before.

In relation to the variable of *level of Internet proficiency*, 9 beginner, 61 intermediate and 64 advanced level users have answered Q 22. Although majority of respondents with varied levels of Internet proficiency have all found their top first impressions of the website to be –'Attractive images', 'Website seems easy to follow', 'Easy to read text' and 'Website looks trustworthy', the first impression 'Eye catching colours' has been selected least often. This could be a result of the fact that the users only got to view a small screen-shot of the website, or the colours might not have been perceived as attractive. However, in terms of visuals, the respondents did find the images on the screenshot to be attractive. Another interesting insight that can be spotted is that even the beginner level users have found Pennywell's website to be 'Easy to follow', based simply upon a screen shot. It is evident from the findings that the *level of Internet proficiency* might have no implications on users' opinions of the first impressions of the website. This finding suggests that Pennywell's design might be straight-forward and easy, there by influencing the website's perceived usability. It appears that in the case of respondents who have not visited the farm's website, their first impressions are focused upon aesthetics 'images' and usability 'easy navigation and legibility of text'. These two factors highlight the role of primary task and dialogue support UX elements in attracting users within the first instance. Unlike in the case of respondents who had visited the website before, who were also focused upon the credibility aspects of the UX, the first time users primarily seem to be taken by the usability and visual aesthetics. The researcher believes that given the small sample size, these factors can be investigated further.

In terms of the respondents *age ranges*, 12 (18-24), 39 (25-34), 41 (35-44), 16 (45-54), 17 (55-64) and 13 (65 and over) year old respondents have answered Q 22. The pattern established in relation to the variables of *gender* and *level of Internet proficiency* presents itself in relation to *age ranges* as well. Respondents from all age groups have selected their top impressions to be –'Attractive images', 'Easy to read text', 'Website seems easy to follow' and 'Website looks trustworthy'. However, only 1 (18-24), 9 (25-34), 2 (35-44), 0 (45-54), 0 (55-64) and 1 (65 and over) respondents found 'Eye catching colours' to be their first impression. It appears that age might not have any implication on users' (who had not visited the website before) opinions of the first impressions of the website.

Appendix 10: PSD model design strategies corresponding with statements used in questionnaire Q 16 and Q 17.

PSD strategies	Corresponding questions/statements
Primary Task Support	
Reduction	Q 16 Online purchase process is simple Q 16 Website fonts were clear and bold
Tunneling	Q 16 Website did a good job of guiding me through the ticket booking process
Tailoring	Q 16 Website made me feel important
Personalisation	Q 16 Website made me feel important
Self-monitoring**	
Simulation	Q 16 Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again
Rehearsal	Q 16 Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again
Dialogue Support	
Praise**	
Rewards**	
Reminders**	
Suggestion	Q 16 I was offered helpful suggestions regarding the day-trip to Pennywell
Similarity	Q 16 Language used on the website was relatable
Liking	Q 16 Images and videos on the website were very attractive Q 16 Website colours made me want to spend more time browsing
Social role	Q 16 Pennywell's social networking page(s) made me want to be a part of their online community
Credibility Support	

Trustworthiness	Q 17 Pennywell's website has expert information, which made me want to trust them Q 17 Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them
Expertise	Q 17 Pennywell's website has expert information, which made me want to trust
Surface credibility	Q 17 Pennywell's website loads without any errors, which made me want to trust
Real-world feel	Q 17 Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them
Authority	Q 17 Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them with my credit/debit card information
Third-party endorsements	Q 17 Pennywell's website displayed a Trustmark that made me feel I could trust them
Verifiability	Q 17 I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online Q 17 I visited Pennywell's social networking page(s) to see what others were saying about Pennywell, before booking the tickets online
Social Support	
Social learning	Q 16 Pennywell's social networking page(s) made me want to be a part of their online community Q 16 Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again
Social comparison	Q 16 Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again
Normative influence	Q 16 Pennywell's social networking page(s) made me want to be a part of their online community

Social facilitation	Q 16 Pennywell's social networking page(s) made me want to be a part of their online community
Cooperation	Q 16 Pennywell's social networking page(s) made me want to be a part of their online community
Competition***	
Recognition***	

*Q 16 (option 1): The statement- *website made me want to purchase online* corresponds to all the 28 design principles and therefore, has not been assigned to any one particular strategy in the table above.

**Self-monitoring/ Praise and Reminders could not be incorporated within the research as Pennywell's website does not offer experiences around these strategies.

***Competition/Recognition/Rewards have already been studied in the previous chapter, in the form of motivations and expectations for writing reviews and following Pennywell Farm on social networking sites. At the time of the design of this questionnaire, Pennywell Farm did not incorporate any competition/recognition based strategies on their website, therefore they were only studied in relation to reviews and social networking

Appendix 11: Questionnaire

Welcome! This is a Plymouth University PhD research questionnaire to study why tourists engage with tourism websites and their social networks. Your responses will remain anonymous and will be combined with many others to learn about overall responses.

You have the right to withdraw from this questionnaire at any moment.

To thank you for your time, all completed responses (with an email address) will be entered in a prize draw to win five £50 Amazon Vouchers and one Devon Association of Tourist Attraction's GOLD card sponsored by Pennywell Farm.

Q 1. Are you 18 or above?

Yes ☐

No ☐

Please do not continue if you are under 18. Your responses will be considered invalid.

Q 2. Which of the following best describes your proficiency with the Internet? Please tick only ONE.

Beginner ☐

Intermediate ☐

Advanced ☐

I have never used the Internet ☐

If you ticked the option 'I have never used the Internet', please do not continue further. Thank you for your time.

Q 3. How many times have you visited the Pennywell Farm attraction?

Once ☐

Twice ☐

Three times or more ☐

Have not visited yet ☐

Q 4. Please select ONE of the options below to describe how you purchased your Pennywell Farm tickets.

I booked directly from Pennywell Farm's website ☐

I found information on Pennywell's website but purchased over phone ☐

I found information on Pennywell's website but purchased in person ☐

I found information offline and purchased over phone ☐

I found information offline and purchased in person ☐
If other (please specify)

……………………………………………………………………………..

Q5. If you are an Internet user, have you visited Pennywell Farm's website?

Yes ☐

No ☐

If you selected 'No', please continue toward the end of the questionnaire and answer questions from Q 22 onward.

Printed below is a screenshot of Pennywell's Home page to help you refresh your memory. Please use this as a reference to answer the following questions.

Q 6. If you have visited Pennywell Farm's website, what were your first impressions of the website. Please tick all that apply.

Easy to browse ☐

Well designed ☐

Entertaining ☐

Colors reflected the experience offered by Pennywell ☐

Had all the information I required ☐

Easy to make an online purchase ☐

Pennywell has social networking pages (Eg. Facebook, Twitter) ☐

Images showed what to expect on my visit to Pennywell ☐

Q 7. Do you follow Pennywell Farm on any of the following social networks?

Facebook ☐

Twitter ☐

Pinterest ☐

Instagram ☐

YouTube ☐

No I do not follow Pennywell on any of the above. ☐

If you answered No, please skip the next question and continue to Question 9.

Q 8. Which of the following do you expect to gain from Pennywell's social networking pages? Please tick ALL that apply.

Information about deals ☐

Contests ☐

More information about Pennywell ☐

Recommendations about other related activities ☐

Attractive photos to share ☐

Quick point of contact for queries ☐

If other, please specify …………………………………….....................

Q 9. Have you written any reviews for Pennywell Farm?

Yes ☐

No ☐

Do not remember ☐

Q10. Have you written any reviews for other products and/or services?

Yes ☐

No ☐

Do not remember ☐

If you have never written reviews for Pennywell or any other product and/or service, skip to Q 13.

Q 11. Listed below are some statements about common motivations people have to write online reviews.

Please select from a scale of 1 to 5.

1=Strongly Agree   2=Agree   3=Neither Agree nor Disagree   4=Disagree   5=Strongly Disagree

	Strongly Agree				Strongly Disagree
I thought it would help someone else	1	2	3	4	5
Writing more reviews will qualify me as a Top Reviewer	1	2	3	4	5
I want to express my satisfaction	1	2	3	4	5
When I post reviews, they can be viewed by people in my social networks	1	2	3	4	5
I love to write	1	2	3	4	5
I wanted to express disappointment about the purchase	1	2	3	4	5
I wrote a review as part of a review contest for best reviews	1	2	3	4	5

Q 12. Did Pennywell's website play a role in persuading you to make the purchase online?

Yes ☐

No ☐

I did not purchase online from Pennywell's website ☐

If you selected "No" or "I did not purchase online from Pennywell's website", then head over to Q 15, else continue to the next question.

Q 13. Listed below are some options about Pennywell's website. Did any of them have an effect on your decision to purchase online from their website?

Please select from a scale of 1 to 5.

	Strongly Agree				Strongly Disagree
Easy to browse pages	1	2	3	4	5
Well designed website	1	2	3	4	5
Website has an entertaining theme	1	2	3	4	5
Colours used on the website	1	2	3	4	5
Information available on the website	1	2	3	4	5
Easy to make a purchase	1	2	3	4	5
Website appeared safe & secure for online transaction	1	2	3	4	5
There were no error pages	1	2	3	4	5
Contact information is easily accessible.	1	2	3	4	5
Pennywell's presence on social networking websites (E.g. Facebook, Instagram)	1	2	3	4	5
Images showed me what to expect when I visit Pennywell	1	2	3	4	5

1=Strongly Agree   2=Agree   3=Neither Agree nor Disagree   4=Disagree   5=Strongly Disagree

Q 14. After browsing Pennywell's website & making the decision to purchase online, did you for any reason abandon that purchase?

Yes ☐

No ☐

*If you answered No, skip to Q 17, else continue to the next question.*

Q 15. If you abandoned your plan to purchase online on Pennywell's website and instead made the purchase in person or over phone, please tick your reason(s) for doing this.

No information about cancelation   ☐
Encountered an error page   ☐

Had second thoughts about the price ☐

Website did not look trustworthy ☐

Process was taking too long ☐

Dates I wanted were not available ☐

No search box to find information ☐

If other, please specify…………………………………………..

Printed below is a screenshot of Pennywell's online ticket booking page to help you refresh your memory. Please use this as a reference to answer the following questions.
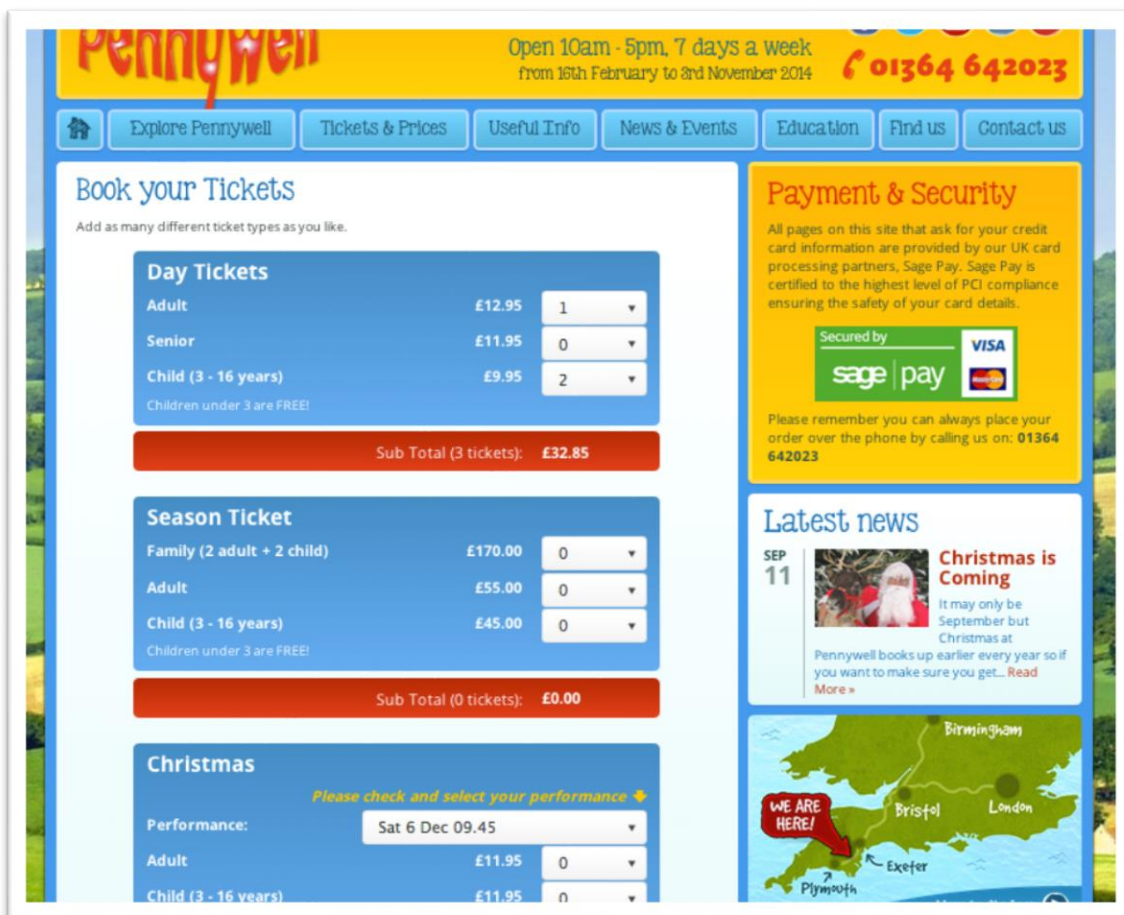
Q 16. Listed below are some statements about Pennywell Farm's website and social networking pages. Please rank them from a scale of 1 to 5.

1=Strongly Agree   2=Agree   3=Neither Agree nor Disagree   4=Disagree   5=Strongly Disagree

	Strongly Agree				Strongly Disagree
Website made me want to purchase online	1	2	3	4	5
Online purchase process is simple	1	2	3	4	5
Website did a good job of guiding me through the ticket booking process	1	2	3	4	5
Images and videos on the website were very attractive	1	2	3	4	5
Website made me feel important	1	2	3	4	5
I was offered helpful suggestions regarding the day-trip to Pennywell	1	2	3	4	5
Language used on the website was relatable	1	2	3	4	5
Website colours made me want to spend more time browsing	1	2	3	4	5
Website fonts were clear and bold	1	2	3	4	5
Pennywell's social networking page(s) made me want to be a part of their online community	1	2	3	4	5
Looking at posts published by Pennywell on their social networking page(s) makes me want to plan a visit again	1	2	3	4	5

Q 17. Listed below are some statements about what makes Pennywell's website credible. Please rank them from a scale 1 to 5.

| 1=Strongly Agree   2=Agree   3=Neither Agree nor Disagree   4=Disagree   5=Strongly Disagree |

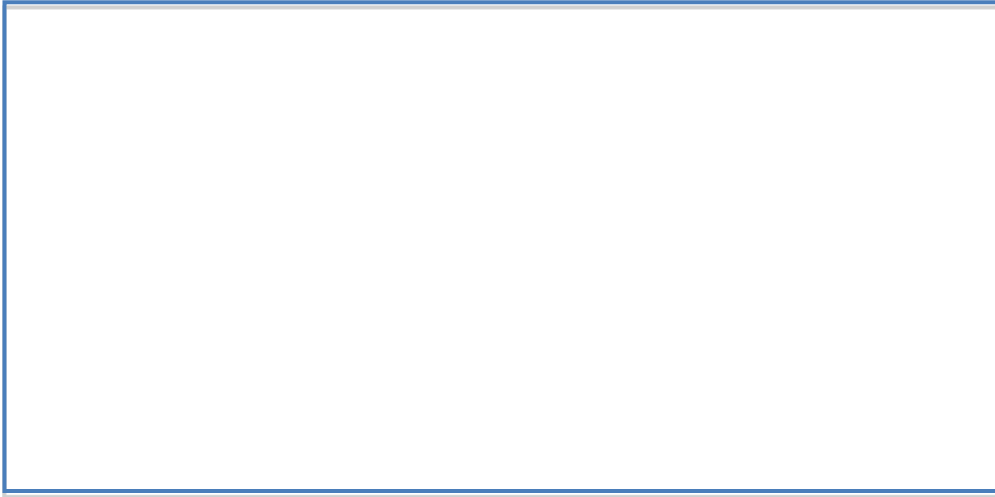|	Strongly Agree				Strongly Disagree
Pennywell's website displayed a Trustmark that made me feel I could trust them with my credit/debit card information	1	2	3	4	5
Pennywell's website has expert information, which made me want to trust them with my credit/debit card information	1	2	3	4	5
Pennywell's website loads without any errors, which made me want to trust them with my credit/debit card information	1	2	3	4	5
Pennywell can be easily contacted via telephone, email or on their social networking pages, which made me want to trust them with my credit/debit card information	1	2	3	4	5
I visited a review website like (TripAdvisor, Google Reviews) to see what others thought about Pennywell before booking the tickets online	1	2	3	4	5
I visited Pennywell's social networking pages to see what others were saying about Pennywell, before booking the tickets online	1	2	3	4	5

Q 18. From a scale of 1 to 5 (1= Very persuasive and 5=Not at all persuasive), please rate Pennywell Farm's website on how persuasive it has been in motivating you to make the booking online.

1= Very persuasive ☐

2= Some-what persuasive ☐

3= Had no effect on me ☐

4= Not persuasive ☐
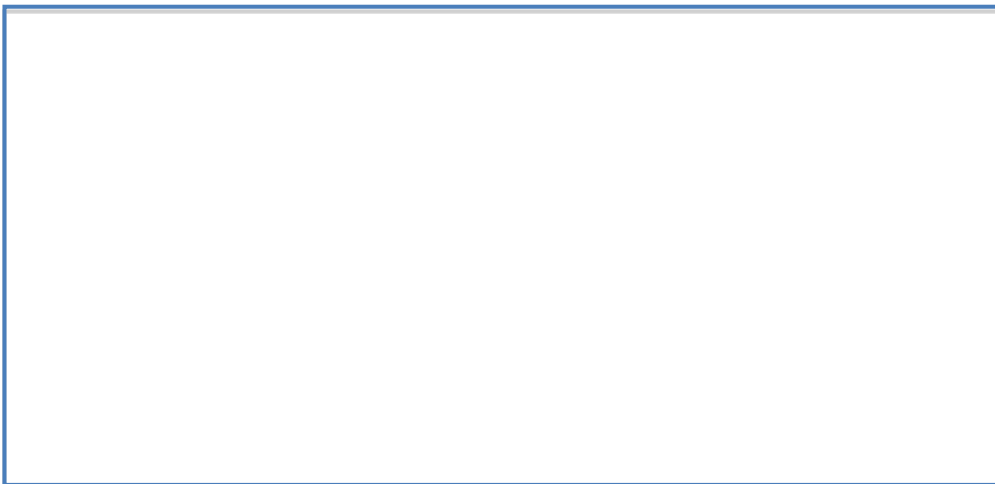
5= Not at all persuasive ☐

Q 19. What made you want to book your tickets online from Pennywell's website? Please use the text box below to comment, else leave blank.

Q 20. How did you hear about Pennywell's website? Please use the text box below to comment, else leave blank.

Q 21. If you have any suggestion(s) for Pennywell on how they can improve their website to offer you a better online shopping experience, please mention it in the box below, else leave it blank.

Please ignore next three questions (Q 22., Q 23 and Q 24.) and head to Q 25. The following three questions are only for those respondents who selected "No" for Q 5.

(Please do not answer if you just answered the question above)
Printed below is a screenshot of Pennywell's website.

Q 22. Please use the image printed above as a reference and select from the options below to explain your first impressions of the website.

Website seems easy to follow ☐

Eye catching colours ☐

Attractive images ☐

Easy to read text ☐

Website looks trustworthy ☐

Q 23. After having a look at the website, would you consider booking your tickets to the Pennywell Farm attraction directly from their website?

Yes ☐

No ☐

Q 24. Please use the text box below to explain why you would not be interested in booking online from Pennywell Farm's website.

[text box]

Q 25. How often to do you purchase physical products (*Eg: Clothes, Shoes, Groceries etc.*) online? Please tick ONE of the options listed below.

Daily ☐

About once a week ☐

About once every fortnight ☐

About once every month ☐

About once every six months ☐

About once a year ☐

I never shop for products online ☐

Q 26. How often do you purchase service experiences (*Eg: Event tickets, Flight tickets, Hotel bookings etc.*) online? Please tick ONE of the options listed below.

Daily ☐

About once a week ☐

About once every fortnight ☐

About once every month ☐

About once every six months ☐

About once a year ☐

I never shop for service experiences online ☐

About you

Q 27. Your Age:

18-24 ☐   25-34 ☐   35-44 ☐   45-54 ☐   55-64 ☐   65-74 ☐   75 or older ☐

Q 28. Your Gender:

M ☐   F ☐   Other ☐

Q 29. Your Location:

England ☐   Northern Ireland ☐   Scotland ☐   Wales ☐

If other, please specify _____

Q 30. Your email address (only if you'd like to participate in the prize draw):

_____

Thank you for filling my questionnaire. Your responses are of great value to my research. If you have any queries or are interested in finding out more about my research, please contact my Director of Studies, Dr. Nigel Jackson at nigel.jackson@plymouth.ac.uk

Appendix 12.1: Ethical protocol for questionnaire data collection

This research will involve human participants, specifically customers of Pennywell Farm and other similar tourism SMEs who use the Internet. Despite there being minimal risk to the participants, it is nevertheless imperative that the research adheres to codes of practice and thus, the University's, the ESRC's and the Market Research Society's fundamental principles are drawn upon, to ensure protection of the human participants. Furthermore, the Social Research Association's Code of Practice has been the referral point for carrying out a risk assessment that addresses any threats to the researcher's safety. The proposed research also adheres to the ESRC's principles of good scientific practice and Research Ethics Framework, which may be viewed by accessing: http://www.esrc.ac.uk/_images/framework-for-research-ethics-09-12_tcm8-4586.pdf (15/11/2014). Adherence to the ethical procedures involving human participants has also been incorporated into the design of the main research instruments-the structured questionnaire and the web content analysis, in the following way.

(a) Informed consent: The researcher will inform potential participating tourism SMEs about the purpose and implications of the research that may affect their willingness to take part in the research. The tourism SMEs will also be provided a sample of the questionnaire for approval.

Prior to carrying out the web content analysis, the tourism SME's permission will be requested. The questionnaire will inform potential participants (customers and/or newsletter subscribers of tourism SMEs) in advance of any aspects of the questioning that may influence their willingness to take part in the study. The questionnaire will also inform the participants of their right to withdraw from the questionnaire at any moment. Furthermore, the questionnaire states from the outset that the respondents must be 18 or over.

(b) Openness and honesty: The researcher will be open and honest about the proposed research, its purpose and application. The tourism SMEs will be offered the opportunity to stay anonymous unless they wish to have their name published in the research. A copy of the web content analysis will be shared with the tourism SMEs. Furthermore, at the outset, the questionnaire will offer the respondents (customers and/or newsletter subscribers of tourism SMEs) an open and honest explanation of the proposed research, its purpose and application.

(c) Right to withdraw: All participants (tourism SMEs and their customers) will be informed from the outset of the proposed study that they have the right to withdraw at any time without penalty.

(d) Protection from harm: The researcher will endeavor to protect the participants from physical and psychological harm at all times during the investigation. Given the nature of the proposed research, the questionnaire only aims to collect information about the user's reaction to online experiences offered by tourism SMEs. As the research does not aim to collect any sensitive data, the risk of causing physiological and psychological harm is minimised. Moreover, the questionnaire states that respondents should be 18 and over. Minors are often seen accompanying adults to tourism SMEs and might not be able to fully comprehend the questions. In order to reduce the number of incomplete or inaccurately filled questionnaires, only adults will be permitted to participate in the research. This decision has also been made to avoid causing any physiological or psychological harm to vulnerable young minors. Based on the Social Research Association's (SRA) Code of Practice, risk assessment has been carried out with the DoS, first and second supervisors to address the issue of the researcher's own safety. Given the nature of the research, there are no major risks involved. The researcher will only have direct contact with the tourism SMEs, who will either be professional contacts of the DoS, first and second supervisors or professional contacts of the tourism SMEs. Any contact that takes place between researcher and questionnaire respondents (customers or newsletter subscribers of the tourism SMEs), will be indirect. The tourism SMEs will share the questionnaire with the respondents (customers or

newsletter subscribers of the tourism SMEs).

(e) Debriefing: The researcher will, wherever possible, provide the tourism SMEs and the questionnaire respondents, an account of the purpose of the study as well as its procedures. In case of the tourism SMEs, this will be done face to face along with an email explaining the study. In case of the questionnaire respondents, it will be done at the outset of the questionnaire.

(f) Confidentiality: The researcher will ensure confidentiality of the participant's identity and data throughout the conduct and reporting of the research. The tourism SMEs will remain anonymous unless they wish otherwise. The web content analysis of the tourism SME websites will be encoded so that no written record exists side by side. Furthermore, the questionnaire will also be encoded so that no written record of the participant's name and data exists side by side.

(g) Professional Bodies Whose Ethical Policies Apply to this Research: Given that the research is being conducted under the broader field of Marketing, the research will also adhere to the code of conduct regulated by the Market Research Society, which may be accessed:
https://www.mrs.org.uk/pdf/code%20of%20conduct%20(2012%20rebrand).pdf
(15/11/2014). Based on the Social Research Association's (SRA) Code of Practice, risk assessment has been conducted to ensure the researcher's own safety. The SRA's Code of Practice may be accessed: http://the-sra.org.uk/wp-content/uploads/safety_code_of_practice.pdf (19/11/2014).

Appendix 12.2: Ethical protocol form for eye tracking study

This research will involve human participants who are prospective customers of Pennywell Farm. There is no risk to the participants, yet it is nevertheless an imperative that the research adheres to the codes of practice set forth by the University, the Economic and Social Research Council's (ESRC) and the Marketing Research Society's fundamental principles. There is no known eye tracking research society that can assert ethical codes but Jakob Nielsen who has conducted extensive research in this field suggests ethical considerations that may viewed by accessing the following link, http://media.nngroup.com/media/reports/free/How_to_Conduct_Eyetracking_Studies.pdf (7th September, 2015). Furthermore, the University's Research Ethics Policy, Code of Practice of Research and procedures may be viewed by accessing the following link http://www1.plymouth.ac.uk/research/ourresearch/Documents/Plymouth%20University%20Research%20Ethics%20Policy.pdf (7th September, 2015). I understand that the University seeks to ensure that all research for which it has responsibility satisfies these principles and Code of Practice, undertakes an ethical review of all pure and applied research, and concurs with the ethical requirement of the research funding bodies. The proposed research also adheres to the ESRC's principles of good scientific practice and Research Ethics Framework, the latest version of which may be accessed using the following link http://www.esrc.ac.uk/_images/framework-for-research-ethics_tcm8-33470.pdf (7th September, 2015). This research adheres to the ethical procedures involving human participants, mentioned in all of the above. Following are the considerations, which will be taken while conducting the eye tracking experiments.

(a) **Informed consent:** The researcher will inform the potential participants about the purpose and implications of the research, which might affect their willingness to participate. An information and consent form will be emailed to the participants before they arrive. This form will inform them about the experiment, how the eye tracking system collects data, what the data will be used for and eye-health conditions that must be addressed before they can continue with the research. Participants will then be asked to sign and confirm their participation and email it to the researcher, before the experiment is carried out. A copy of this form will be given to the participants for their records upon their arrival. All the participants who will be approached with a request to participate in the research, will be 18 or over.

(b) Openness and honesty: The researcher will be open and honest about the purpose and application of the research experiment. The participants will be informed that they will remain anonymous. From the outset, all of the concerns and queries that the participants raise will be dealt with openness and honesty. It is important to make the participants aware of what type of data is being collected, as some might fear that their faces are being recorded. The eye tracking system only records the participant's pupil movements.

(c) Right to withdraw: All participants will be informed in writing and verbally, and from the outset that they have the right to withdraw from the experiment at any time.

(d) Protection from harm: The researcher will endeavor to protect the participants from physical and/or psychological harm at all times during the experiment. Given the nature of eye tracking, only the pupil movements are being recorded using a non-intrusive technology. The headset is light, flexible and comfortable. In the case of any unease encountered by the participant, they will be allowed to withdraw. Those who are allergic to silicone will not be allowed to participate. The researcher will sit adjacent to the participant, in case they require any assistance. The researcher and the participant will be the only two people present in the experiment lab. The websites that the participants will be asked to look at are not sensitive, and will cause no psychological harm. Furthermore, the headset will be cleaned using anti-bacterial wipes and dry cloth, to avoid transmission of any bacteria or viruses, onto the next participant. Those with contagious eye/skin conditions will not be allowed to participate in the experiment. All the necessary care will be taken in order to avoid causing any physiological and/or psychological harm to the participants.

(e) Debriefing: The researcher will provide an account of the purpose of the study as well as the function of the eye tracking technology. This will be provided at the outset of the experiment and during the experiment, if necessary.

(f) Confidentiality: The researcher will ensure confidentiality of the participant's identity and the data, throughout the research. The participants will remain anonymous.

(g) Professional Bodies Whose Ethical Policies Apply to this Research: The eye tracking research is being conducted under the broader field of marketing, therefore the research will also adhere to the code of conduct regulated by the Market Research Society, which may be accessed via the following link

https://www.mrs.org.uk/pdf/mrs%20code%20of%20conduct%202014.pdf (7th September, 2015)

Appendix 12.3: information consent form for eye tracking study

Welcome!

Please read this consent agreement carefully before you decide to participate in the study.

This is a consent form to participate in a Plymouth University PhD user experience research experiment, which aims to look at how tourists engage with online experiences offered by tourism websites. Your information will remain anonymous and will be combined with a few others, to learn about overall responses.

Purpose of the study: This experiment will not be testing your ability to use the website! Please don't be anxious. This is an eye tracking experiment that involves recording your eye movements using an eye tracker headset and data capturing software. The goal is study how your eyes move when you browse the website. This information will help in establishing website reading patterns. The system will ONLY record your pupils; your voice or your face will NOT be recorded. Please be assured that if you feel uncomfortable or uneasy, you can withdraw from this experiment at any moment. After you have completed the tasks, you will be asked a few questions about your experience using the websites.

Date and time for the experiment: TBC

Duration: The experiment will require 60 minutes but you will not be expected to wear the headset continuously for 60 minutes!

Risks: There are no major risks involved in this experiment. The headset is cleaned with anti-bacterial wipes and dry cloth after every use. In the rare case the headset feels uncomfortable or causes pain, you can withdraw. During the experiment, I will be the only person present in the room with you.

Benefits: To thank you for taking the time to visit the University and participate in this experiment, you will receive £10 for the hour. You will receive this payment at the end of the session.

Things to avoid: Please don't bring any food/drink items inside the laboratory. You can leave these outside. Once your eyes have been calibrated with the screen, please avoid touching the headset. This will disrupt the experiment and we will have to restart.

Confidentiality: Please be reassured that your identity and all other information will remain anonymous. The recorded eye movements will be presented in the form of visual maps generated with the software. Images of your pupils will not be shared with anyone.

Please confirm that you are 18 or above ☐

Please fill out the following questions.

The eye-tracking headset is made of silicone. Are you allergic to silicone?

Yes ☐ No ☐

Do you have any of the following?

Eye implants ☐

Cataracts ☐

Glaucoma ☐

Permanently dilated pupils ☐

Have difficulty reading computer screens ☐

Bifocals ☐

Trifocals ☐

Layered contact lenses ☐

Regression lenses ☐

If you have any of the above, you may not be able to participate as the conditions above can interfere and result in inaccurate data.

*If you wear single vision contact lenses or single vision glasses, you CAN participate in the research.

Are you currently suffering from any contagious eye or skin condition?
Yes ☐ No ☐

If you do, I regret to inform that you may not participate in the research, as many others will use the same eye-tracking headset.

Please avoid wearing heavy mascara or fake eye lashes on the day of the experiment. These can interfere with the eye tracker.

If you have any queries or concerns, please do not hesitate to contact my Director of Studies Dr. Nigel Jackson at nigel.jackson@plymouth.ac.uk

Thank you for taking the time to read the document. Please sign the attached form to confirm your participation.

Many Thanks

Payal Loma Ghatnekar

Plymouth University Doctoral Scholar

CKY 510

Drake Circus

Plymouth

Devon PL4 8AA

Consent form

I have read and understood the attached research participation information and conditions. Having filled all the required information, I can confirm that the information I have provided is true to the best of my knowledge. I understand that the research will keep my identity anonymous and only my pupil movements will be recorded. If at any moment I feel uneasy or choose to withdraw, I understand that I may do so. I also understand that in the case I withdraw from the experiment, I shall not receive the research participation payment.
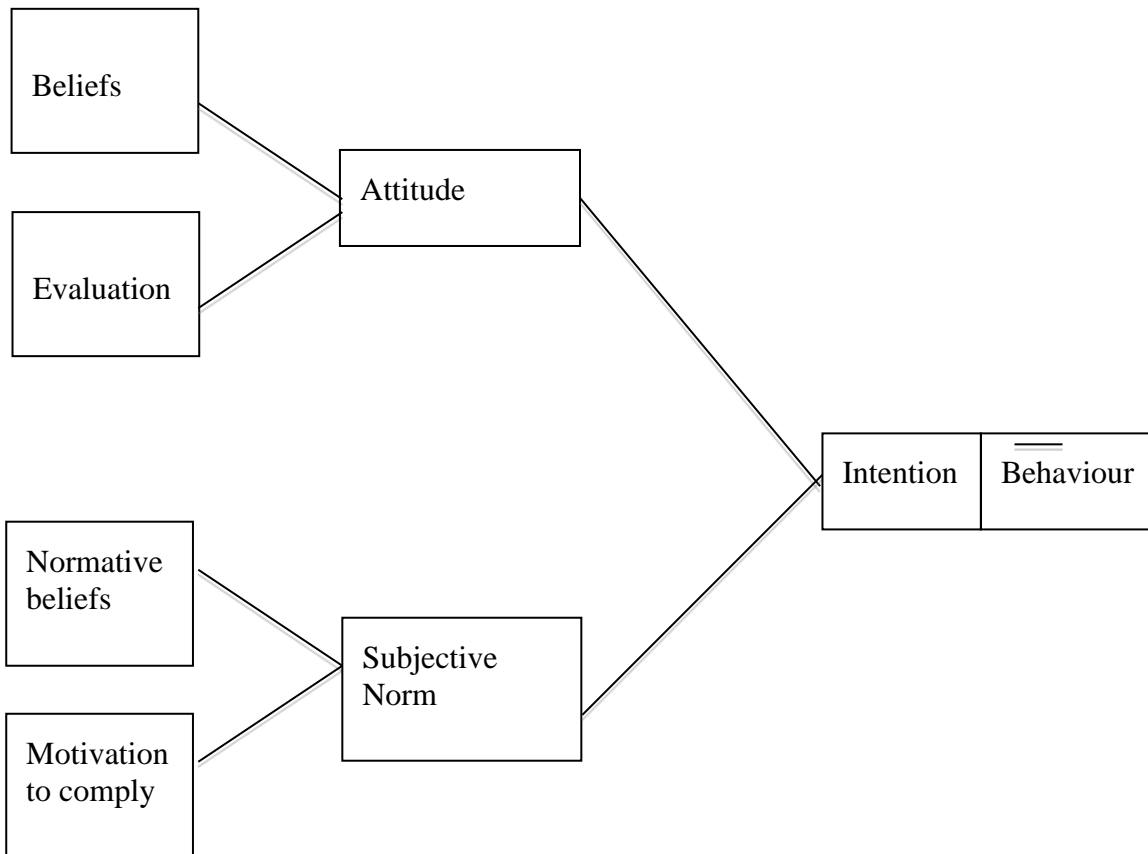
I agree to participate in the eye tracking experiment ☐

Name:

Signature:

Date:

Contact:
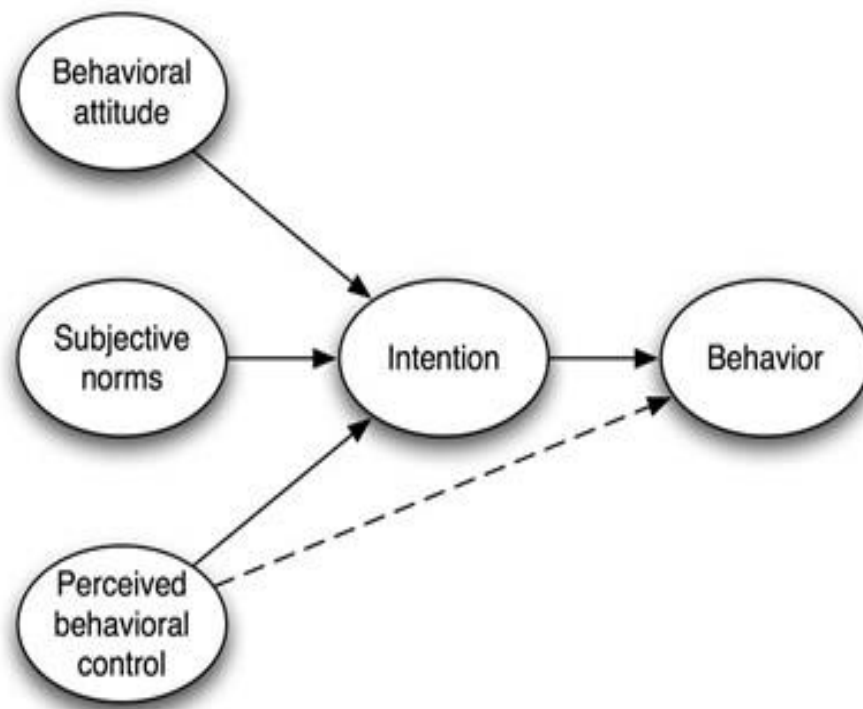
Appendix 13: Theory of Reasoned Action

Beliefs

Evaluation

Attitude

Normative beliefs

Motivation to comply

Subjective Norm

Intention | Behaviour

Ajzen and Fishbein's TRA model (Ajzen and Fishbein, 1975)

Source: Reprinted by Author

Appendix 14: Theory of Planned Behaviour

Ajzen's TPB model (Ajzen, 1991)

Source: Ajzen (1991)

Appendix 15: Elaboration Likelihood Model

Petty and Cacioppo's ELM model (Petty and Cacioppo, 1981)

Source: Reprinted by Author

| High involvement processing | → | Cognitive response | → | Belief and attitude change | → | Behaviour change |

Central route

| Communication | → | Attention and comprehension |

Peripheral route

| Low involvement processing | → | Belief change | → | Behaviour change | → | Attitude change |

504