

Smart Phone; Confused User: Theory and methods for understanding the user experience of smartphones

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Abstract

Traditional studies of usability have focused upon goal-based measures of efficiency and effectiveness. As a consequence of the recent shift in the focus of technology from the workplace to the home however, the field of Human-Computer Interaction has become increasingly concerned with a number of factors including satisfaction, enjoyment, creativity, entertainment and aesthetics, which together form the concept of user experience. A variety of approaches have been taken in order to clarify and analyse this elusive concept, and a corresponding number of frameworks have been formulated. Whereas certain frameworks contemplate the study of user experience from a practical, design-based approach, others take a more abstract, holistic approach. With a number of exceptions however, neither approaches appear to have had a significant impact upon the design community. Thus, the current investigation marks an attempt to supplement the existing theoretical frameworks with a means of analysing user experience that is rooted firmly in the data. Drawing heavily upon Grounded Theory, a number of techniques are established in order to facilitate the understanding of the user experience of smartphones. From this a number of experiential categories are identified, each of which having significant implications for the design of products that engender user experience.

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1. Introduction

1.1 From Usability To User Experience

“How does effective interaction design provide people with a successful and satisfying experience?” This was the question asked of the various jury members and committee advisors who presided over the first ACM/interactions design awards. As documented by Alben (1996), their objective was to define a set of criteria that could be used to evaluate successful interaction design, and in particular, quality user experiences. Whereas the majority of competitions within the design industry tended to focus upon surface design, rewarding the physical appearance or mechanical construction of a product, the ACM/interactions design awards considered the less perceptible aspects of the user-product interaction, such as *“the way it feels in [the user’s] hands, how well they understand how it works, how they feel about it while they’re using it, how well it serves their purposes, and how well it fits into the entire context in which they are using it”* (Ibid, p.15), which together forms a holistic impression of the user experience offered by a particular product. Although the awards are sadly now defunct, this pooling of ideas was one of the first attempts to define a coherent set of tangible criteria for evaluating the quality of experience.

Of course, formulating a precise definition of experience, let alone constructing a practical set of design criteria, is an extremely difficult task, which is why it still remains a contentious area in the field of Human-Computer Interaction (HCI). Traditionally, HCI has been concerned with designing interactive products for the workplace, focusing on task-based, goal-oriented aspects of design that ultimately result in greater efficiency and maximum utility. If a product is easy to learn, effective to use, satisfying, as well as being safe, efficient and functional, it is generally regarded as being usable (Preece, 2002). The ISO definition of usability refers to the effectiveness, efficiency, and satisfaction with which specified users achieve specified goals in particular environments (ISO 9241-11). Furthermore, by turning these goals into specific usability criteria, they can be used to accurately assess the usability of a product in terms of how it can help, or hinder, a user’s performance (Preece, 2002). With such clear-cut objectives, and with measures of productivity providing quantifiable indicators of success, a rigorous scientific approach can be taken, in which precise hypotheses tested under rigorous laboratory studies are used to inform design. Over the years, this adherence to the ‘Scientific Method’ has resulted in a rich breadth of research documenting various aspects of interaction, and has inspired the design of most of today’s hardware and software applications. From the ‘learnability’ of a word processor to the prevention of time-wasting errors or even serious physical harm through badly designed products (Preece, 2002), studies of HCI and Interaction Design have ultimately led to vast increases in productivity and have greatly enhanced how work is achieved.

As technology becomes more affordable however, the ubiquity of interactive products has become more noticeable with computerised components emerging in the majority of household appliances, including washing machines, microwaves, CD players, and even the refrigerator. Technology has gradually crept into virtually all aspects of our everyday lives and is now specifically being designed to support people in the home as well as in the workplace. Consequently, the means used to assess the usability of such

products has also been forced to change in order to reflect the diverse nature of the tasks and other activities that are likely to be carried out. The important issues no longer solely concern quantitative, objective measurements, such as the amount of person-hours devoted to staff training activities or the number of words comfortably typed per minute. Instead, more subjective, emotional considerations are now at the heart of interaction design. That is not to say that traditional usability studies no longer have a role outside of the workplace. This is evidenced by Norman (1988), whose well-respected “bible” of usability, *“The Design of Everyday Things”*, provides design guidelines for all manner of household equipment. Even the criteria established by the ACM/interactions design awards incorporated some aspects of usability, primarily in questions such as *“Is the product easy to learn and use?”* and *“Does the product serve users in efficient and practical ways?”* which appear under the *“Learnable and Usable”* and *“Appropriate”* criterion categories, respectively. Usability issues are inextricably linked with the design of quality user experiences. With the shift from the workplace to the home however, the ‘Scientific Method’ that once provided the appropriate rigour to traditional usability studies, is more difficult to apply. Designers have become much more interested in the emotional impact of a product, concerning themselves with issues of satisfaction, enjoyment, creativity, entertainment and aesthetics. Given that these factors are difficult to define, let alone measure, the use of laboratory studies and the careful control of variables are less suited to such matters. With the desired outcome no longer a known quantity, the field of Human-Computer Interaction and the successful design of user experience becomes a much more comprehensive task.

1.2 Overview of the Contents

This report is broken down into a number of distinct sections. Following this introduction, section 2 presents a review of the literature. As well as describing the benefits of user experience, this section is also separated into design-based and experience-based approaches to user experience. The final section of the literature review covers the research upon mobile phones before concluding with the proposals for the current investigation. Section 3 looks at each aspect of the design of the current investigation, and section 4 provides a brief summary of the fieldwork that was based on this design. The discussion of the data is broken down into the five key themes of identity, sociability, security, organisation and relevancy. Section 6 describes a number of limitations to the methodology of the current investigation, before the conclusion in section 7, and a bibliography in section 8. A number of appendices follow thereafter.

2. Literature Review

2.1 The Benefits Of User Experience Design

Before any attempt to explicate the intricacies of user experience can be made, the virtues of this dramatic shift in design approach must first be considered. After all, the advantages of designing usable products are relatively straightforward – namely, to boost productivity, increase efficiency and reduce any hazards to either the user or the system itself. User experience design however, presents much fewer apparent benefits, which may not be too far removed from traditional work-related efficiency, as proposed by Norman (2004) in his study of *Emotional Design*. Signifying his own shift in approach from traditional usability to user experience design, Norman argues that the more pleasing a product is, and the stronger the positive affect that it induces, the greater the productivity and efficacy of the user – regardless of their task. Norman believes that “*positive emotions are critical to learning, curiosity, and creative thought*” (Ibid, p.19) and cites the work of the psychologist Alice Isen (1993), who has demonstrated that positive affect is crucial to creative thinking and problem solving. Whereas negative emotions, such as fear and anxiety lead to a narrowing of a person’s thought processes, in order to focus their attention upon the potentially dangerous situation with which they are confronted, positive emotions have the opposite effect. Positive feelings of happiness and relaxation cause a person’s thought processes to expand, allowing for much greater creativity, imagination, and the ability to solve problems that would otherwise defeat the more negatively affective person.

The benefits of user experience design have also been considered from an economic viewpoint by a number of authors. On a more flippant note, Norman (2004) points out that the positive emotions that are evoked by certain products, asking “*When you wash and polish your car, doesn’t it seem to drive better?*” and “*When you bath and dress up in clean, fancy clothes, don’t you feel better?*” (Ibid, p.10). Norman also speculates that this is why the fortunes of Apple were turned around following the introduction of the visually exciting and highly functional iMac computer – the product looked good instilling immense emotional appeal. Pine and Gilmore (1999) go much further and suggest that our entire economy is rapidly heading towards a stage where experiences are paramount for commercial success. Documenting the history of economic progress as a series of evolutionary stages - from agrarian to industrial to service economies, Pine and Gilmore argue that due to the rapid “commoditisation” of goods and services, which are becoming indistinguishable by any means other than price and availability, businesses must now differentiate themselves from others by offering the consumer a unique “experience”. Pine and Gilmore argue that the ability to successfully “wrap” a deliberately designed, engaging experience around an existing product or service in order to differentiate it from others, will suitably equip businesses for this impending economic evolutionary shift. They also offer some examples of businesses that have attempted this very transformation, such as “Niketown” and the “Rainforest Café”, both of which have gone above and beyond the traditional services offered by their competitors in order to provide distinct and memorable experiences that complement the products and services that they are selling.

Although Pine and Gilmore do not go so far as to provide specific methods and techniques for designing an experience, they do offer guidance in the form of a

primitive model of experience design. Despite the fact that experience is an incredibly complex concept, which can be engaging on any number of dimensions, two of the most important aspects identified by Pine and Gilmore are “*the level of guest participation*” and “*the kind of connection or environmental relationship that unites customers with the event or performance*” (1999, pp. 30-31). The “*level of guest participation*” dimension posits passive experiences, where the customer has little or no impact upon the event taking place, against active experiences, where the performance or event is affected by the customers. Pine and Gilmore provide respective examples of listening to a concert (passive) and skiing down a mountain (active). The other experiential continuum identifies experiences that “[occupy] a person’s attention by bringing the experience into the mind” (1999, pp. 31) which are opposed to experiences in which the customer “[becomes] *physically (or virtually) a part of the experience itself*” (1999, pp. 31). Watching TV (absorption) and playing a virtual reality game (immersion) are the respective examples provided for this dimension. The intersection of these two significant dimensions defines what Pine and Gilmore refer to as the “*realms of experience*”. Where an experience is high in absorption, but relatively passive, such as listening to music or reading for pleasure, it is located in the realm of “*entertainment*”. Pine and Gilmore concede that this is a rather ambiguous and potentially questionable term, but argue that for such a wide range of potential activities in this quadrant, it is the most appropriate label. Experiences that are equally high in absorption, but require much more active involvement, such as the pursuit of knowledge or development of skills are collected together within the “*educational*” realm. Where participation is just as active, but involves much greater immersion, Pine and Gilmore label these experiences as “*escapist*” and cite such examples as theme parks, casinos, virtual reality headsets, and Internet chatrooms. Finally, experiences for which participation is relatively passive yet still just as immersive due to their impact upon the senses, such as visiting an art gallery or admiring an object of natural beauty, are located in the realm of the “*esthetic*”.

Emanating from Harvard Business School, Pine and Gilmore present a compelling case for this significant economical development, drawing upon their notable commercial experience and citing numerous high-profile American companies, such as Walt Disney, AOL, Nordstrom, Starbucks, Saturn and IBM, that already lend credence to their claims. It is this distinct American bias however, that may have limited the longevity and global utility of their proposals. Formulated amidst the dot-com boom of the late 1990’s, during a period of rapid growth in the economy of the United States, characterised by inflated prices, inflated investment and inflated claims, Pine and Gilmore’s landmark thesis may have been victim of a temporary economic fluctuation thus hampering the new evolutionary development it so triumphantly heralds (“The Experience Economy”, Wikipedia, 2004). Also, despite espousing a broad applicability of their claims, Pine and Gilmore postulate their business metaphor firmly in the field of entertainment where “*work is a theatre and every business a stage*”. In true Disney-style, customers are referred to as “*guests*” who experience events, or “*performances*”, that are staged by employees, or “*actors*”, on behalf of businesses, or “*experience stagers*”. This metaphor, coupled with their similarly theatrical “*principles for designing memorable experiences*” (theme the experience; harmonise impressions with positive cues; eliminate negative cues; mix in memorabilia; and engage all five senses) makes it difficult to envisage the pertinence of Pine and Gilmore’s proposals to the design of anything other than the frequently cited examples of theme parks, restaurants

and shopping centres. Nevertheless *“The Experience Economy”* has proved to be highly influential as both a practical business philosophy and an academic resource. It also marks one of the first attempts to explore the concept of user experience.

Although the traditional goods and services that are representative of the earlier industrial and service stages of the economy play a significant part in the vision of Pine and Gilmore, they are only viewed as a means of delivering an experience. For example, the simple and pleasurable experience of drinking a cup of coffee is superseded by the *“heightened ambience or sense of theatre”* that is embodied in the *“ordering, creation, and consumption of the cup [in a] five-star restaurant or espresso bar”* (Pine and Gilmore, 1999, p.1). Similarly, the food on sale in a restaurant is relatively unimportant providing it is wrapped within a unique and pleasurable dining experience. Whilst this is an important distinction to any business that is susceptible to such a shift in consumer perceptions, it is of little significance to designers of specific products for whom experience is a phenomenon that should emanate from the product itself rather than as part of the environment. Pine and Gilmore’s ideas correspond poorly to products and services for which there is no “stage”, and where the “performers” are the actual users themselves. It is the design of such products that provided the impetus for the ACM/interactions committee to establish a set of design criteria (Alben, 1996), and is the basis for *“The Building Blocks of Experience”* – a proposed framework of experience by Forlizzi and Ford (2000). Highlighting the difficulties in outlining an all-encompassing definition of experience and sufficiently identifying specific user experience design goals, Forlizzi and Ford have produced an initial framework for understanding experience as it relates to user-product interactions.

2.2 Design-Based Approaches to User Experience

2.2.1 Forlizzi and Ford - The Building Blocks of Experience

Acknowledging the current trend towards designing the user experience, as well as noting the largely unsuccessful attempts to *“demystify”* the concept, Forlizzi and Ford begin by providing a number of definitions, based on both their existing work and their own research. In its *“purest form”*, experience is defined as *“the constant stream that happens during moments of consciousness”* (Forlizzi and Ford, 2000, p.419). Drawing upon the theory of “Experienced Cognition” proposed by the cognitive scientist, Richard Carlson, Forlizzi and Ford identify this type of experience as the *“self-talk or self-narration”* that people use to *“acknowledge the passing of this kind of experience”* (Ibid, p. 419). Whereas this type of experience is ongoing and continuous, Forlizzi and Ford’s second definition of experience refers to specific events or processes that have a *“beginning and an end”* and which ultimately *“change the user, and sometimes, the context of the experience as a result”* (Ibid, p. 420) create an experience. This definition of experience, in which it is the product of specific events or processes, was inspired by the work of philosopher John Dewey, and is one of the most common interpretations of the concept. The final definition of experience refers to the post-event communication of an experience to a variety of audiences through stories and recollections. Although this interpretation has been thoroughly explored by the Artificial Intelligence researcher, Roger Schank, as a means of condensing and remembering experience, Forlizzi and Ford regard it as an excellent means of communicating user findings to a multi-disciplinary product design team.

Despite this thorough attempt to define the ambiguous concept of experience, Forlizzi and Ford are keen to acknowledge that, unlike traditional usability, *“neatly predicted outcomes”* can no longer be designed. They point to the ‘Russian-Doll’-like multi-faceted intricacies of an experience, which can affect a variety of people on a variety of levels in a variety of contexts. Although a product can engender an experience through *“its form language, its features, its aesthetic qualities, and its accessibility”* (Ibid, p. 420), it is the users themselves who shape the experience through their *“prior experiences”* bringing to a situation their *“emotions and feelings, values and cognitive models for hearing seeing, touching and interpreting”* (Ibid, p. 420). Expectations (and a lack of them) are also seen as an important factor, with a novel, unexpected situation (or a novel, unexpected use of a product beyond the intention of the designer) leading to a totally new and engaging experience. Together these two aspects form what Forlizzi and Ford refer to as *“user-product interactions”* which take place in a *“context of use, shaped by social, cultural and organisational behaviour patterns”* (Ibid, p. 420). In other words, it is suggested that not only do designers need to understand the product they are designing, they must also investigate: the potential users of the product, the context it will be used in, and the nature of the interactions that may occur, which are all inextricably linked, and can be used to make decisions about the relationships between the components of a user-product interaction. Forlizzi and Ford also indicate a plethora of other potential influential factors (such as cultural backgrounds; emotional states; personal interpretations; chance; and coincidence) that cannot be designed for but can have a significant effect upon user experience.

In an astute summary of existing attempts to unravel the concept of user experience, including Pine and Gilmore’s Experience Economy (1999), and even the ACM/interactions design criteria proposed by Alben (1996), Forlizzi and Ford (2000) observe that the much of the previous research focuses mainly upon creating task/process models of experience, based on poorly defined interpretations of the concept. Although the cognitive benefits of providing pleasurable, positive and usable experiences have since been documented by Norman (2004), Forlizzi and Ford argue that such attempts are indicative of the still-prevalent adherence to traditional work-oriented studies of usability, and that designers should be attempting to *“embody new qualities of experience beyond ones that are merely usable or pleasant”* (Forlizzi and Ford, 2000, p.421). With this in mind, Forlizzi and Ford propose an initial framework that is specifically designed to *“talk about experience in a way that is meaningful for designers”* (Ibid, p. 420). Essentially, this again involves the dissection of experience into four distinct categories. Whereas the “realms of experience” proposed by Pine and Gilmore focused mainly upon specific types of experiences, categorised by the degree of immersion and involvement, Forlizzi and Ford present an array of experience categories that are distinguished primarily by the cognitive impact they have upon an individual. These include: “subconscious” experiences that are characterised by routines, practiced activities or inherently usable products; “cognitive” experiences that *“that require us to think about what we are doing”* (Ibid, p.421); “narrative” experiences *“that have been formalised in the user’s head”* (Ibid, p.422); and “storytelling” experiences whereby meaning is bestowed upon situations and recounted through personal life stories and stories of product use. Whilst this certainly provides a more comprehensive analysis of experience, the abstract nature of the cognitive terms it draws upon results in a framework that is less tangible and of presumably less use to designers than any of the models previously criticised by Forlizzi and Ford.

Emphasising the consideration of all influential factors upon the user-product interaction – both user, product and context of use - Forlizzi and Ford recommend that attention should be paid to the individual components of the framework, and the different types of interactions and experiences that each one has to offer. However, whilst Forlizzi and Ford are keen to moot their framework as a “*common way to talk about experience in a way that is meaningful for designers*” they are reluctant to offer any practical suggestions of how their theory could actually be implemented. Despite their long-term goal of aiming to supplement their framework with “*strategies for making the theory live in practice*” the frequently-cited research of Forlizzi and Ford provides only a cursory means of discussing user experience with little hint of the design implications it potentially offers. Although the preliminary nature of their framework is emphasised from the outset, and a desire to refine it through further qualitative user research is stated, it is difficult to envisage how Forlizzi and Ford intend this somewhat abstract framework to be used practically in the design of “*beneficial products and experiences*”. It may even be the case that designing specific user experiences, whether pleasant, usable or otherwise, is near impossible, and that all designers can hope to do is create *potential*, rather than *actual* experiences. This is the approach taken by Hassenzahl (2003) who proposes an important separation of the user perspective from that of the designer.

2.2.2 Hassenzahl - The Thing and I

Conceding that the number of situations in which a product may be used, and thus the variety of experiences it may offer, is immense, Hassenzahl (2003) identifies two distinct categories of usage situation, based on his existing research: goal and action modes. Goal mode may be considered as recognition of traditional usability objectives, whereby the fulfilment of a task is paramount and determines all actions. In a bid to remain effective and efficient, individuals consider themselves “*serious*” and “*planning*” with the product merely representing a “*means to an end*”. Action mode, on the other hand, could be seen to represent the objectives of user experience – emotional aspects of usage where action is important and “*volatile*” goals are determined “*on the fly*”. Efficiency and effectiveness is less important in such situations, with the product often being considered an “*end in itself*” to sustain “*playful*” and “*spontaneous*” activity. Whereas in goal mode, low arousal is preferred and experienced as relaxation, in action mode it is experienced as increasing boredom. Conversely, high arousal is experienced as mounting anxiety or frustration in goal mode, often as a result of poor usability preventing goal fulfilment, whereas in action mode it is experienced as excitement. According to Hassenzahl, each mode represents a distinct psychological state and that every product can be experienced in either state. It is this flexibility that, Hassenzahl believes, provides a more helpful distinction between the current rigid dichotomies of “*tool*” and “*toy*” or “*leisure*” and “*work*”, which have so far cluttered the separation of traditional task-based usability approaches from those of the more abstract concept of user experience.

Given the huge variation in impact that different situations can have upon the use of a particular product, Hassenzahl argues for the separation of the user’s *actual* experience from the *potential* experience envisaged by the designer. Thus, the designer goes only so far, combining a number of tangible product features, such as the content, presentational style, functionality and interactional style, in order to create an *intended* product character. This is a high-level description that summarises a product’s attributes, e.g. novel, interesting, useful or predictable, the function of which being to

reduce cognitive complexity and to trigger particular strategies for handling the product. The user then perceives and interprets the product features in order to construct an *apparent* product character - their personal reconstruction of the designer's intended product character. Hassenzahl stresses that the product character is purely subjective and is only *intended* by the designer, stating "*there is no guarantee that users will actually perceive and appreciate the product the way designers wanted it to be perceived and appreciated*" (Hassenzahl, 2003, p.33). How a user interprets the product character is based upon the particular combination of product features and their personal standards and expectations. Differing standards will result in varying product characters between people, and also within people over time, as a result of increasing experiences with the product. This is reminiscent of the shifts between the varying components of experience in the framework of Forlizzi and Ford (2000). As the novelty of a product wears off, or greater familiarity is gained, perceptions will change and the user experience may vary wildly. It also echoes the "Mutable" category of the ACM/interactions design criteria, which asks, "*Does the design allow the product to change and evolve for new, perhaps unforeseen, uses?*" (Alben, 1996, p.15)

As a result of the interplay between the subjective interpretation of a product character and the particular usage situation, Hassenzahl argues that a variety of "*momentary emotional consequences*" can ensue, which are classifications of user experience. These include judgements about the product's appeal, emotional expressions and behavioural manifestations. The appeal of a product is an evaluative judgement that stems from experiences with and feelings towards a product in a particular situation. Whilst Hassenzahl concedes that emotional expressions are much trickier concepts to define, an important distinction is provided in terms of user expectations. Whereas the level of satisfaction towards a product depends upon the extent to which certain expectations are met, other emotions, such as joy or pleasure require no expectations. In fact, the more unexpected the event is, the more intense will be the pleasure. Although Hassenzahl goes no further to explore the emotional consequences of the user-product interaction, his framework does address an important consideration – that the actual experience a user has with a product may be considerably different from that intended by the designer. It is one of very few frameworks that actually isolate the responsibility of the designer, shifting the emphasis of user experience towards the individual. Taking into account the wild situation-dependent fluctuations in the "*consequences*" of a product, there may be little need for designers to concern themselves with the actual emotional impact a product has upon the user, but instead to concentrate on the product character and usage situations.

Hassenzahl proposes a number of attributes that define the product character, based on the major functions of products: to enable people to manipulate their environments, to stimulate personal development, to express identity and to provoke memories. An important distinction is made between pragmatic attributes, which are "*inextricably tied to internally generated or externally given behavioural goals*" (Hassenzahl, 2003, p.41), and hedonic attributes, which are "*tied to individuals' self and their psychological well being*" (Ibid, p.41). This again, is reminiscent of the distinction between traditional usability goals and the more emotional qualities of user experience. If a product is primarily instrumental, providing "*effective and efficient means to manipulate the environment*", it is considered to have pragmatic attributes. Hedonic

attributes, on the other hand, concern the emotional aspects of the user-product interaction. For example, Hassenzahl argues that in order to allow personal development through the proliferation of knowledge and development of skills, products must be stimulating, providing new impressions, opportunities and insights. With strong parallels to Norman's (2004) argument for designing pleasurable products, Hassenzahl believes that the "*stimulation provided by novel, interesting or even exciting functionality, content, presentation or interaction style will also indirectly help goal fulfilment*" (Hassenzahl, 2003, p.35). By raising attention, such products may compensate for a lack of motivation, allowing users to attain their goals, or consider new solutions to problems. Identification is also another important hedonic attribute of the product character. In order to be seen in specific ways by relevant others, individuals express themselves through physical objects – their possessions, thus satisfying the basic human needs of being socially recognised and exerting power over others. Finally, the provocation of memories and a means of representing significant past events, relationships or thoughts is an important consideration when designing the product character.

2.2.3 Norman – Emotional Design

According to Hassenzahl, a successful product is one that has been designed with each of these factors in mind, with the ultimate design goal being a product that combines both strong pragmatic and hedonic characteristics. This is a similar approach to that of Norman (2004), who, marking his own shift in perspective from usability to user experience, identifies three different levels of design: visceral, behavioural, and reflective. Visceral design refers to provocation of the instinctive, hard-wired emotional responses that occur as part of our immediate reaction to a product. Although this primarily refers to issues of aesthetics, it also addresses other sensory features, such as the feel, taste or sound of a product. This is suitably addressed in the ACM/interactions design criteria, which asks, "*Is using the product an aesthetically pleasing and sensually satisfying one?*" Behavioural design addresses the same issues as Hassenzahl's pragmatic product attributes – essentially, issues of usability, with a focus upon goal-based performance. Revisiting issues first addressed in "*The Design of Everyday Things*" (1988), Norman argues that for products to appeal on a behavioural level they must be functional, understandable, and inherently usable – regardless of their appearance or other issues. In fact, the distinction that Norman makes between the potentially different "conceptual models" of both the designer and the user, as well as the "system image" that is a product of their combination, is remarkably similar to the differing "product characters" of both the user and designer perspectives in Hassenzahl's (2003) framework. Whereas Hassenzahl acknowledges that different product characters are bound to emerge as a result of a variety of influences, Norman maintains that the designer must communicate the same mental model to the user for a product to be used successfully. The final – reflective - level of design proposed by Norman, again, covers similar ground to that of Hassenzahl conveying a plethora of hedonic qualities including the message, culture image and meaning of a product or its use. A strong element of reflective design lies in the recounting of experience to others – a facet explored in Forlizzi and Ford's "storytelling" component of experience. Through retrospective memories and reassessment of an experience, the overall impact of a product emerges.

Despite clear distinctions between the different levels of design, Norman (2004) considers them mutually compatible, with a complex interplay occurring between them. For example, the visceral angst of riding a fearsome rollercoaster and the high arousal and increased adrenaline that accompanies it, is in constant competition with the reflective pride of having conquered the fear and being able to boast about it to others. A refusal to board the ride may be seen as domination of the visceral level, whereas the enhanced self-image from having taking the challenge strengthens the reflective appeal. Similarly, our instinctual visceral revulsion towards bitter or sour food and drink is often overcome through the reflective development of an “acquired taste”. Making reference to traditional cognitive psychological theories, Norman (2004) refers to activity that is initiated from the lowest, visceral levels as “bottom-up” behaviour, and activity stemming from the highest reflective level, as “top-down” behaviour. Depending on the intentions of the user, and what factors are most important to them, the same product will appeal across a variety of levels. Despite claiming that no product can be designed without a consideration of each level of design, Norman concedes that some products will appeal at certain levels, be it visceral, behavioural or reflective, more than others and that designers should embody in their products an understanding of the complex individual differences that comprise our personalities, and the wide variety of situations in which their products will be used. A similar approach is taken by the designer Hudspith (as cited by Forlizzi, 2004) who also proposes a three-dimensional model of user experience, based on the psychological experiential needs of the user.

2.2.4 Margolin - Getting to Know the User

The emotional aspect of user experience is also considered to be of prime importance, by Margolin (1997), who proposes a similar four-dimensional framework of product use. Arguing from the point of view of a designer, Margolin believes that with knowledge of *technique* having been the traditional focus of design for many years, the functional aspects of product design have been thoroughly documented. Due to the fact that a product “*does not exist in a vacuum*” however, designers must now broaden their focus to include issues of product use and knowledge of *user experience*. That is not to say that usability issues can now be neglected, but they must now be supplemented by a much broader understanding of the user. This is summarised tersely by Margolin, who states that “*designers must, of course, know how to design, but they must also know for whom they design and why*” (Ibid, 1997, p.231). To this end, Margolin proposes a variety of dimensions that describe the relationship not between the user and the product, but directly between the user and the designer. Despite the lofty implications of his first suggestion, the *social* dimension of product use takes into consideration the social and environmental impact of certain products. Drawing attention to the negative aspects of certain products, such as the misuse of firearms, or the ecological degradation caused by radioactive and chemical substances, this aspect of the designer-user relationship puts pressure upon the designers to take responsibility when creating potentially harmful products. The second dimension acknowledges the traditional design origins of the framework, by considering the *inventive* aspects of the user-designer relationship. Instead of merely addressing existing design issues, designers are encouraged to conceive new products that will be of value to users. The two remaining dimensions cover more familiar territory, addressing the *operational* aspects of design, including issues of product simplicity, and also the *aesthetic* aspects of design, which not only refer to the appearance of a product but also the meaning that users attach to it and the reflective, value-laden qualities that it imbues – the area

where there is, according to Margolin “*the least communication between designers and users*” (Ibid, 1997, p.231).

2.2.5 Broadening the Inspiration

Although the frameworks of Norman (2004), Hudspith (as cited by Forlizzi, 2004) and Margolin (1997) are remarkably similar in terms of their multi-dimensional approach, they are distinct enough to be considered individually. Whilst the pragmatic and hedonic categories, identified by Hassenzahl (2003), are common themes throughout each framework, they are supplemented by a variety of other experiential concerns that must also be considered. Despite an exploration by Norman, of the potential implications of his framework and a cursory attempt to introduce real-life examples by Hudspith, no attempt is made in any of the frameworks to provide useful and practical design guidelines. Margolin however, despite also refusing to commit to anything pragmatic, does indicate a variety of methods that designers can use to further their knowledge of the user. The most immediate and intuitive of these involves designers drawing upon their own satisfaction or frustration with products, given the fact that they too are users with a wealth of experience to share. As well as broadening participation in the design process on an individual level, Margolin also proposes that cultural diversity should be incorporated so that the array of objects, activities, services and environments worldwide – the global product milieu – can be greatly enhanced. The consideration of cultural influences upon product design is also encouraged by Kerne (1998), who proposes a number of modifications to the ACM/interactions Design Awards Criteria outlined in the introduction, as well as introducing a new cultural representation guideline. Although somewhat extreme in places, Kerne’s amendments denote a somewhat different approach to the exploration and definition of user experience. Bearing in mind, the various accounts of user experience and the elusiveness of a definitive explanation, it should perhaps not be so swiftly dismissed.

2.3 Experience-Based Approaches to User Experience

The frameworks that have so far been discussed each represent design-based attempts to explore the intangible concept of user experience. Although rarely achieved, the impetus of each model is to develop a selection of pragmatic guidelines that designers can realistically follow in the creation of usable products that promote positive user experiences. In each example, the components of experience are identified, and the external physical properties of the world of artefacts are mapped onto their psychological effects (Wright, McCarthy & Meekison, 2003). However, whereas the authors of each of these frameworks tend to regard qualities such as engagement, fulfilment and fun as actual properties of technology that can be incorporated into the design process, other researchers consider such qualities as merely a product or outcome of certain kinds of experience with, or through technology. Such an approach dictates that a true elucidation of experience will stem, not from analysis of the user-product interaction, but from a consideration of a wider sphere of experiential influences. Wright et al. (2003) believe that the parochial approach taken in existing theories of user experience, which mainly take into consideration subjective feelings, behaviour, activity, social practise and knowledge, has hindered exploration of the complex relationship between people and technology. Instead, Wright et al. propose a holistic approach to *all* aspects of experience. Citing the philosophers Dewey and Bakhtin as inspiration for their own framework, Wright et al. advocate approaches that

successfully appreciate the complexity of experience without attempting to formalise a precise specification through inappropriate deconstruction of the concept.

Irrespective of the fact that his seminal work “Experience and Education” (Dewey, 1938) is an analysis of “traditional” and “progressive” education, it provides a clear and concise statement of Dewey’s basic criteria of experience. Dewey's theory is that “*experience arises from the interaction of two principles -- continuity and interaction*” (as cited in Neill, n.d., para. 6). “Continuity” refers to the aspects of experience that relate to the individual, and the influence that each experience has upon a person’s future, for better or for worse. An appropriate experience modifies the person who has the experience, and also the quality of subsequent experiences. Such an experience is desirable when it “*fosters growth, arouses curiosity, and carries a person to a new and stronger place in the future*” (Forlizzi, 2004). “Interaction” however, refers to the situational and environmental influence upon a person’s experience. Dewey believes that the context in which an experience takes place can change and be changed by the active properties of an experience. Together, these two distinct components interact in such a way that “*one's present experience is a function of the interaction between one's past experiences and the present situation*” (as cited in Neill, n.d., para. 6). The experience that stems from their interaction between continuity and interaction marks a “situation” in which both the user and the context of use are transformed.

2.3.1 Wright, McCarthy and Meekison - Making Sense of Experience

The understanding of experience as a holistic concept, incorporating not only the immediate relationship between self and object, but also the personal interests and ideologies that a person brings to and takes away from a situation, forms a key tenet of Wright et al’s own framework of experience. Although the authors are keen to uphold the “irreducibility” of experience, emphasised by Dewey, they present their framework as a more pragmatic means of exploring the multi-faceted concept. To this end, a number of “threads” are identified, which together form a “braid” of experience. One of these threads refers to the *compositional* structure of an experience, which is “*concerned with part-whole structure of an experience*”. This is similar to the narrative component of experience, introduced by Forlizzi and Ford (2000), and focuses upon the “*possibility, plausibility, consequences and explanations of actions*”. A theme that is common throughout many experiential theories forms another thread, which is concerned with the *sensual* aspects of experience and our “*sensory engagement with a situation*”. Like the visceral level of Norman’s (2004) framework, Wright et al. point to feelings of fear, thrill and excitement that are characteristic of this thread, as well as less immediate sensations of belonging and feeling welcome or feeling awkward and uneasy. Despite their similarity, the authors are keen to make a distinction between this and the thread of experience concerning *emotion*. Because they can be evoked through control of the senses, emotions such as anger, joy, satisfaction and frustration, which can both influence and be influenced by a situation, are collected together in this separate category. The final thread of experience concerns issues of time and space, in which actions and events unfold. “Time flies!” is a suitable expression for this thread as “*both space and time may become connected or disconnected as an experience unfolds*” (Wright et al., 2003, p.48) causing our immediate perception to change.

Arguing that experience always occurs through either the first or third person - be it recounting it to ourselves or to others - and that we are always engaging in this sense-

making process, Wright et al. (2003) consider experience to be both *reflexive* and *recursive*. In an attempt to delineate this complex process, Wright et al. propose a number of stages. One of the stages takes place both before and during an experience, and concerns our expectations, possibilities, resolutions and ways of making sense of an episode. Based on the work of Dewey, this stage of the sense-making procedure emphasises the importance of the thoughts and expectations (based on other experiences) that people bring to a situation. This anticipation can cause both apprehension and excitement, and will be continually revised throughout the course of an experience, shaping further experiences beyond it. The pre-linguistic immediate response of the connecting stage is reminiscent of the visceral reaction described by Norman (2004). It refers to the immediate impact on an individual, before any meaning can be given to the experience. The interpreting stage of the sense-making process takes place once we have connected with the experience, and describes how we give meaning to an unfolding experience. Not only is this linked to the initial anticipation stage, through the constant comparison to our expectations, but also to the stage of the process where a degree of reflection takes place. Here, judgements are made about the unfolding experience and value is placed upon it. Once the event has taken place, we attempt to relate it to both our previous and future experiences in order to “*make it our own*”. Such appropriation forms another stage of the sense-making process, which according to Wright et al. can have a huge impact upon our sense of ‘self’, and will influence how we identify with the experience and also manipulate our desire to repeat it. Similar issues arise in the final - recounting - stage of the process, where experience is considered in the context of other experiences and new possibilities are found. Not only does this occur through internal reflection, but also through the natural recounting of an experience to others.

As can be seen, the framework proposed by Wright et al. marks a different approach to the more “*explanatory*” theories of user experience. Although some familiar aspects are present in the framework, its holistic perspective of experience coupled with its strong philosophical underpinning, presents a broader understanding of this elusive concept. It may be argued that the lack of practical design principles offered by the framework, and the inconclusiveness of the empirical data that it is used to gather, consign it to mere academic speculation. This is, to some extent, conceded by the authors who acknowledge the exploratory and undefined nature of their investigation. Nevertheless, Wright et al. maintain the pragmatic nature of their creation as a potential “*tool for analysing experience*”. Furthermore, due to their expansion of the concept of experience beyond the immediate product-user interaction, incorporating both anticipation and reflection into a holistic sense-making process, Wright et al. argue that designers should no longer concern themselves with designing *an* experience, but instead designing *for* experience. Whilst Hassenzahl (2003) makes a similar point, in terms of the futility of predicting an actual user experience, Wright et al.’s framework marks one of the first attempts to practically explore the antecedents and consequences of an experience, in terms of what the user brings to and takes away from a situation. It is not, however, the first approach to posit experience in the wider context of an individual’s prior history and future outcomes. Rhea (1992) proposes a similarly holistic view of user experience, posited in the field of market research, which also considers the complex process involved in a user-product interaction.

2.3.2 Rhea - Focusing on Customer Experience

Similarly shifting the focus of design away from the actual product itself, and towards the wider concerns of the user experience, Rhea's framework "*pulls together every element of customers' everyday interactions with products*" (1992, p.41). The real opportunities for design, according to Rhea, stem from a reassessment of all the ways in which a product might influence and benefit the customer in terms of its physical, emotional, intellectual and cultural impact. To this end, Rhea documents how a customer's everyday experience with a product moves through a common cycle comprising four stages: Life Context, Engagement, Experience and Resolution. Movement occurs linearly through each of these stages, which marks an important distinction from the framework of Wright et al. (2003). As with Wright et al's sense-making process however, this cycle demonstrates the wide-reaching nature of user experience, both before and after an event takes place. "*Life Context*" marks the first stage of the cycle and incorporates everything that a user brings to an experience including their needs, concerns, attitudes and problems. The initial "*Engagement*" with a product - marked by a shift in "*Commitment*" - occurs in the second stage of the cycle. Rhea acknowledges the plethora of influencing factors upon this stage of experience as well, including prior experience with the product, advertising and word-of-mouth recommendations, arguing that good design is characterised by a product's "cognitive presence", attraction and communication. Whereas the meaning given to the unfolding experience is divided between the "*Interpreting*" and "*Reflecting*" stages of Wright et al's sense-making process, Rhea envelops all of these dimensions into the "Experience" stage of the cycle, marking a period of "*Involvement*". Here, Rhea states that a product must be reliable and create a pleasing experience that addresses the concerns of the customer, solves problems and both meets and, if possible, exceeds expectations. Hassenzahl (2003) made a similar point that satisfaction with a product depends upon the extent to which certain expectations are met. The fourth "*Resolution*" stage of the cycle, marked by a period of "*Integration*", forms a lasting impression of a product. Finally, whereas Wright et al. state that their stages of experience can be moved between in any order, "*Disengagement*" with the product, results in the Customer Experience Product Cycle returning to the initial "*Life Context*" stage, in anticipation of the next user experience.

2.3.3 Jaasko and Mattelmaki - Observing and Probing

Although common themes run throughout each of the frameworks considered so far, the intricate, multi-faceted nature of experience, which can be "*examined from many angles*" (Jaasko & Mattelmaki. 2003), is exemplified by the variety of alternative factors addressed by each author. Nevertheless, it is the diametrically-opposed stance of current approaches that has led to criticism by Jaasko and Mattelmaki (2003), who argue that the frameworks and models presented in existing research are either too general to draw practical conclusions from or too specific so as not to cover all aspects of experience. As a result, Jaasko & Mattelmaki present their own framework to describe the qualities of user experience in order to reveal practical, concept design oriented issues. Arguing for a multi-disciplinary approach to user experience, incorporating product design, user interface design, engineering and marketing, Jaasko and Mattelmaki cite the traditional design areas of usability and ergonomics as still providing an important counterpart to the more abstract components of experience, such as meaning and motivation. However, despite impressive claims of an all-encompassing framework of experience offering both micro- and macro-analyses of

the concept, all that the model, proposed by Jaasko & Mattelmaki, amounts to, is a cursory list of the varied factors that influence experience. Referring to them as *“relevant aspects that have an impact on the human-product relationship in product concept design”* (Ibid, p.127) the influential factors suggested by Jaasko & Mattelmaki unsurprisingly include appearance, user interface, user personality, product meaning, environment, interaction, and product novelty. Furthermore, this list is divided into two groups – qualities of experience that are directly product related, such as appearance and the user interface, and qualities that related to the context of the experience, such as personality, meaning, and novelty. Thus, the lofty aspirations of an ultimate model of user experience are essentially reduced to the familiar dichotomy of traditional usability design approaches against the emotional, subjective aspects of user experience design.

2.3.4 Alben - Navigating a Sea Change

It is the holistic consideration of all aspects of user experience that leads us back to the ACM/interactions design criteria outlined in the introduction. Although ambitious in their approach, the various jury members and committee advisors who presided over the guidelines had one goal in mind – to address all aspects of product interaction in order to establish a workable set of criteria for designing quality user experiences. Despite the awards that originally inspired these guidelines now being defunct, their influence is still wide reaching, as evidenced by the number of designers and teachers who use them to inspire their own work and that of others (Alben, 1997). Nevertheless, the author who first documented the criteria, Lauralee Alben, admits, in an essay that revisits the initial investigation, to a *“nagging feeling that something was missing”*. Certainly, the amendments to the original criteria by Kerne (1998) have since added a lively, cultural aspect to the criteria but at the heart of Alben’s uncertainty is the belief that the contextual aspect of experience has been overlooked in favour of the *“radical, logical terms”* defined in the guidelines. Consequently, she notes, *“people often miss the context by severing the criteria from the heart of the matter – quality of experience”* (Alben, 1997, p. 10). This particular dilemma, and indeed the problem faced by researchers of user experience, was alluded to in personal correspondence with Lauralee Alben, in which she argued that the problem might lie *“in trying to parse things, to separate user experience into black OR white, practical OR philosophical.”* Her suggestion therefore was that *“perhaps a BOTH/AND viewpoint and awareness are needed.”* To this end, Alben has drawn together a collection of anecdotes based on her experience as a design consultant. She believes that the exploration of experience must come second to the investigation of humanity and has proposed a number of fundamental human qualities that must also be considered, including what she terms *“vision”, “discovery”, “truth”, “passion”, “heart”* and *“common sense.”* For each of these terms she also provides a concrete example of how her design company has embraced these wider concerns.

With such issues in mind, Alben (1997) believes that the true potential of design will come to bear, remarking, *“it is an opportunity to design not only quality experiences but our own humanity.”* In an attempt to harness these various factors into a significant whole, Alben has formulated a holistic, integrated model, called the *“Sea-Change Design Process”* (2002), which *“allows for both realistic, tangible aspects of design and the intangible aspects of experience as well.”* (Alben, personal communication, July 21, 2004). Using the analogy of the ocean, Alben tenuously refers to the winds of the atmosphere as representing universal influences upon experience, the surface of the

ocean representing the tangible experience of artefacts, and the circulating deep waters representing the physical, cognitive, emotional and spiritual aspects of humanity. Together, these naturally interact to form the complexity of human experience. Although this imaginative description may seem somewhat at odds with the frameworks discussed so far, the theory that is beneath the elaborate imagery marks an important attempt to capture the multitude of influences upon the user experience of a product. Furthermore, the Sea-Change Model (Alben, 2002) is one of very few frameworks to have actually been embraced by the design community, and Alben cites a number of real-life case studies to support this claim, including the interface design of Apple Computer's Mac OS. Thus, despite the extravagance of its oceanic allegory, the Sea-Change Model (Alben, 2002) marks a growing appreciation that factors beyond the mere design of a product are just as crucial to the design of user experience.

2.3.5 Battarbee - Defining Co-Experience

Whether specific or general, pragmatic or philosophical, all of the frameworks of user experience discussed so far identify the user as a passive interpreter of an experience - be it one that has been acutely designed for them, or is a product of the interaction between user, product and their situation. What these approaches often fail to appreciate however is the role of the user in actively creating their own experiences. It is the tendency to consider experiences as "*private and subjective*" which is the main target of criticism by Battarbee (2003). By considering experience as an individualistic concept, designers of products attempt to create "*contexts for experience*" that exploit the solitary activities of the user. Battarbee however, argues that "*some experiences only "come to life" when they can be shared*" (Battarbee 2003, p.1) providing the questionable example of a digital camera, which for most of the time goes unused, until groups of friends get together in order to pose for pictures, comment on expressions and share the photographic experience. Battarbee chooses to ignore the many users of digital cameras for whom photography is a solitary pastime, yet despite this unconvincing illustration of what Battarbee defines as "*co-experience*", a number of studies are cited which further demonstrate that "*collaborative use is important*" in a variety of products. Furthermore, the cooperation evidenced in this brief review of the existing literature leads Battarbee to suggest that "*social user experience is more than the sum of the individual experiences*" (Ibid, p.1). As a result, Battarbee proposes an expansion of the concept of user experience to "*encompass not only the individual side of experience, but also to take into account the social side*" (Ibid, p.1). By empowering users with the freedom to create their own social experiences, Battarbee believes this should overcome the difficult task that designers face of anticipating product use in order to create specific experiences.

One of the prime examples of an everyday product that embodies the key principles of co-experience is the mobile phone. Aside from the obvious social nature of such a ubiquitous device, the ever-increasing number of features, including cameras, video recorders, and voice recording facilities, also provide a rich source of creativity. When combined, an embodiment of these two major functions can be found in the multimedia message service (MMS) provided by the majority of current mobile phones. According to Battarbee, whose study goes on to investigate the implications of this new technology, co-experience in MMS takes form in "*the use of the mobile phone in creating a message*". Ignoring the seemingly implicit social function of simply sending the message to someone else, Battarbee envisages a collaborative process in which a number of people are involved in actually creating a message.

Similarly, the experiential aspect of co-experience occurs in “*the message itself and how its content is experienced and interpreted.*” Based on a four-week diary study of mobile phone users documenting the use of multimedia messages, Battarbee identifies several examples of co-experience, which demonstrated that “*being the owner of the MMS phone did not mean that the person was its only user.*” The communication of context, whereby a picture of the user’s surroundings is accompanied by a brief summation of their thoughts and feelings, demonstrates how participants share their mood and context both spontaneously, and in response to the messages of others. The use of multimedia messages for sending greetings, emotive descriptions and invitations is also highlighted, as well the ease in which other people can participate in message creation. Finally, the least surprising but most common demonstration of co-experience exploited the rich context afforded by multimedia messages in order to convey humour – something that was found to be present in a vast amount of messages. According to Battarbee, each of these examples demonstrates how experiences creatively come to life when they are created together or shared.

2.4 Mobile Phones

The existing research into the use of mobile phones and the impact they have upon the user somewhat reflects the recent investigative shift in the field of Human-Computer Interaction. Despite being a fairly new technology, at least in terms of its current manifestation, the mobile phone has been the subject of an abundance of research. Studies by Bjork (2001), Harper (2001), Helyar (2001), Ketola and Roykkee (2001), Palen and Salzman (2002a) and Ziefle (2003) have all considered the practical aspects of designing mobile technology, such as creating an efficient interface, developing a usable system on which to base the technology, and establishing technology that is not dependent upon a high degree of user expertise. The environmental consequences of mobile phone use have also been investigated by Fishbein (2003), and the impact that such devices may have upon our health has been outlined in the Stewart Report (IEGMP, 2000) – the result of an investigation carried out by the British-based *Independent Expert Group on Mobile Phones*. Similarly, the political debate inspired by issues of safety, risk and fear in Australia have been outlined by Smith (2001), in a report which is entitled “*Until there's evidence there's no comment*” – a statement which adequately sums up the current attitude of the authorities towards such concerns.

As well as investigations into the more general aspects of mobile phone usability, many studies (especially those carried out by mobile phone manufacturers, such as Nokia - for a summary, see Lindholm, Keinonen and Kiljander (2003)) have focused upon various operational factors, ranging from the efficiency of the navigational menu system to the optimum layout of the keypad, the outcome of such research being evident in the vast number of efficient and usable devices that are currently available on the market. As was discussed in the previous section however, the ever-increasing ubiquity of computing technology has resulted in significant changes to the field of Human-Computer Interaction. No longer is the impetus upon designing efficient, usable products that satisfy specific goals and objectives; instead, the focus is upon designing enjoyable, pleasurable products to assist us in our everyday lives. The mobile phone perfectly characterises this shift in purpose, having transformed from a mere tool of the workplace to one of the most common consumer devices on the market. It would be expected therefore, that research concerning the mobile phone would make a similar transition, focusing more upon the subjective aspects of such a

device, instead of the traditional issues of functionality. It would seem however, that the difficulties in attempting to define the elusive concept of experience and compile practical design guidelines have also hindered any attempt to explore such issues in mobile phones.

That is not to say, however, that existing mobile phone research has focused solely upon usability issues. The history and development of the mobile phone and other mobile technologies has been thoroughly investigated by a number of authors, including Agar (2003), Beaubrun and Pierre (2001), Farley (2000), Gibson (1997), Lacohee, Wakeford and Pearson (2003). Similarly, trends in the use of mobile phones, both globally and country-specific, have also been documented by Brown (2001), Cohen and Lemish (2003), Ling (2000), Fortunati (2001) and Palen, Salzman and Youngs (2001). In an attempt to establish the role of the mobile phone in today's society, a vast amount of studies have explored the socio-economic implications of such technology. Studies by Green, Harper, Murtagh and Cooper (2001), Katz and Aakhus (2002), Leung and Wei (1999), Palen, Salzman and Youngs (2001), and Rheingold (2002) have considered the impact that mobile phones have had, and are still having, upon all aspects of our culture, including the ability of such devices to connect and unite people despite geographical restrictions, to act as symbols of wealth and status, and even to create a "*virtual social scene*" that users take part in via their mobile phone. A phenomenal amount of research has concentrated upon the take-up of mobile phones by young people. Although their results are predominantly based upon teenagers in Scandinavian countries (presumably at the behest of mobile phone manufacturers, such as Nokia, who are based there), studies by Grinter and Eldridge (2001), Hashimoto (2002), Kasesniemi and Rautiainen (2002), Ling (2000), Ling and Helmersen (2000), Oksman and Rautiainen (2001) and Taylor and Harper (2001) have all considered the integral role that the mobile phone plays in the lives of today's youth.

One of the most influential and original studies of this kind is by Taylor and Harper (2002), who, in an four-month ethnographic study of teenagers and their use of mobile phones, attempted to explore the design implications of mobile phones, based on an understanding of the societal needs of individuals. Taylor and Harper argue that as well as meeting the technological requirements of teenagers, the mobile phone also serves various other sociological purposes. Compelling evidence of the so-called practise of '*gift-giving*' is provided, in which certain text messages, call-credit and mobile phones themselves are treated as 'gifts'. Although little explanation is given in the paper itself, '*gift-giving*' refers to "*the exchange of the tangible between both physically distributed and co-proximate groups.*" Through observations and interviews of general mobile phone amongst teenagers, Taylor and Harper identify a specific set of phone-mediated interactions, which are shown to resemble the social practices of gift-giving. For example, the sending and receiving of text messages is likened to the ritual exchange of gifts, which embodies meaning and "*makes tangible something of us as givers and our relationship with the recipient*". Also, with the receipt of such gifts, there is the obligation to reciprocate, which develops a mutually cooperative relationship. The alliance and friendship that is mediated through use of the mobile phone is also considered, as well as the status and rivalry it can provoke. Finally, the objects of exchange offered via the phone are shown to be assigned value by teenagers, according to what it is, whom it is from, how it is formed and the context in which it was sent and received. Nice messages are kept, and in certain contexts the text message can be seen

as an invaluable object of exchange. Although gift-giving is the only social practise demonstrated in these examples, and the data corpus upon which it is based is relatively small, Taylor and Harper subvert the existing research to show how the use of mobile phones is as much a consequence of our societal needs as our societal needs are of mobile phones.

As well as investigating how technology mediates the deeply rooted social practices that we participate in, Taylor and Harper use their findings to provide a brief number of examples of how such practises can inform future design. Whilst they are keen to avoid specific design discussions, their intentions are to provide a rough illustration of potential future technologies. These ideas have also been developed in a further investigation by Berg, Taylor and Harper (2003), which illustrates how ethnographically oriented field studies of phone users can be used to inform the design of mobile phones and to determine how they might be used more fruitfully, and what services might be well-received by customers. As well as suggesting various design ideas, Berg, Taylor and Harper also address the various criticisms that have been levelled at such an approach. These include accusations that ethnography-inspired design suggestions focus upon the wrong level of detail, producing design requirements that are too vague or modest. Such an approach has also been criticised for commenting on existing practises rather than prescribing new forms of computer-mediated activity. Refuting such criticism, Berg, Taylor and Harper argue that due to the persistence of certain social practises across various social groups, the data collected from ethnographic field studies can reliably be used instead of theory to propose and consider future technological solutions that are likely to be compatible with and useful in people's everyday social lives. Furthermore, through an understanding of common social practices, and how such practices are routinely accomplished, Berg, Taylor and Harper argue that the ways in which new technologies might impact, either positively or negatively, upon commonplace, social activity, can be further understood.

Despite the numerous attempts to define and elucidate the concept of experience however, the application of such theory to actual design issues has been somewhat lacking. Whilst the impetus behind the majority of the frameworks discussed in the previous section is to create products that engender positive user experiences, very few of them have actually been employed for this purpose. This may be due to the difficulty in defining such a vague and elusive concept, as evidenced by the number of different frameworks that have been proposed. Alternatively, it may be that designers are reluctant to embrace the shift towards user experience. It is the purpose of this investigation therefore, to apply the existing literature upon user experience to the design and use of mobile phones. In particular, the aim of this project is to develop a means of collecting and analysing data about users' experience of mobile phones, in order to determine how to design products that engender better experiences.

3. Design

3.1 Capturing 'User Experience'

The impetus for this investigation was to develop a means of collecting and analysing data about users' experience of mobile phones. More specifically, the investigation was to focus upon the Orange SPV E200 smartphone – the first mobile phone to operate on the Windows Mobile software platform. Although a detailed product specification can be found in Appendix I, the SPV E200 provides advanced functionality including an integrated camera, Bluetooth capabilities, and full personal information management and e-mail facilities, within the familiar Windows environment. A number of handsets were made available by Microsoft Research for the purpose of this investigation. Considering that the SPV E200 was one of the first devices to exploit smartphone technology, this opportunity provided an excellent focus for the study of user experience of mobile phones. Unlike traditional usability studies, which often rely upon a rigid, scientific methodology in order to elicit quantifiable data, the study of user experience must rely upon descriptions and other anecdotal evidence that is of a more qualitative nature. Despite the criticism that interpretation of it is largely subjective, the data elicited by qualitative research methods is much richer and more comprehensive. When used properly, it can provide access to a wealth of information that is beyond the scope of statistics, experimental designs and quantitative survey research. No longer residing solely in the domain of the humanities, qualitative research is now used in HCI alongside traditional quantitative research. Whereas the extent to which quantitative data can be used in the field of Human-Computer Interaction is somewhat limited to statistical analysis however, the scope for qualitative research is much greater. Also, unlike the field of usability, which has been thoroughly documented and explored using quantitative and qualitative research methods, the field of user experience is still largely unexplored, and the variety and quality of information emerging from largely qualitative research methods is still being uncovered.

As has already been established, user experience is such an elusive concept that it cannot simply be reduced to quantifiable survey data or statistical analysis - the actual capture of the thoughts and feelings concerning user experience is much more complex. As well as being extremely dependent upon a range of influential factors, it is also a phenomenon that cannot be confined to a single event or situation. The frameworks suggested by Wright et al. (2003) and also Rhea (1992) each identify a number of distinct stages that take place before, during and after a particular experience. This is something that had to be taken into account when selecting appropriate methods of data collection – all aspects of user experience had to be captured from anticipation to reflection. The most appropriate and enriching means of gathering information in such a situation therefore, was deemed to be the through the use of interviews – a frequently used tool of qualitative data collection. Fontana and Fray (1994), who provide a thorough analysis of this technique, state that interviewing is more than a mere research tool, but part of the social fabric, a method of interaction and learning about each other. Although somewhat time-consuming, such a method allows the interviewee to express their thoughts and feelings in their own words, which often results in a much richer source of data (Denscombe, 1998). With such a subjective, emotional issue as experience, it was felt that this approach would ensure

that a greater depth of information was sought and that valuable insights would be gained.

As described by Fontana and Fray (1994), interviews can either be structured, whereby a rigid, predetermined set of questions are followed, or unstructured, in which interviewees are asked to respond to broad, open-ended questions. Considering the time constraints upon this investigation, it was felt that some degree of structure was necessary. That is not to say that diversions and detours from the questions would be discouraged however, but the interviews essentially would remain focused due to the efforts of the interviewer and a mild adherence to the predetermined set of questions. Following an extensive brainstorming session focusing on the various uses and functions of mobile phones, a broad number of questions were devised. In order to obtain a broader understanding of the participants' orientation and expectations towards technology, as well as providing a means of familiarising the participant with the type of data required, these questions were supplemented by a number of questions about their current lifestyle. Care was also taken to ensure that the questions remained 'open' and could not be addressed by mere "yes" or "no" replies. The resulting set of questions, which can be found in Appendix II, covered various general aspects of the interviewee's life including organisation, their use of the Internet, leisure time, music, photography and personalisation, before focusing on the intricacies of their existing mobile phone use. In order to identify unusual events, which may not have been picked up by relying on participants to report their everyday activities, a number of questions were based on the Critical Incident Technique. This is a methodology devised by Flanagan (1954), in which participants are asked to identify specific incidents which they have experienced personally, and which have had an important effect on their behaviour. The interview then concluded with a number of questions probing the participant's anticipation of using a smartphone. Although not exhaustive, the extensive list of questions ensured that all aspects of mobile phone use would be explored and that the various facets of user experience would be considered. A short interview was also conducted with each of the participants after the investigation period in order to capture their reflection upon using the SPV E200. This again consisted of a loosely structured question, which probed how they had got on with the device, and whether it had met their expectations. Again, the full set of questions can be found in Appendix II.

Whilst the use of interviews were appropriate during the anticipation and reflection stages of experience however, they were unlikely to successfully capture user experience *in situ*, especially due to the ubiquitous nature of mobile phones - the use of which is often unplanned and can occur at any time of day. In order to address these issues therefore, a diary study of the users' interaction with the SPV E200 mobile phone was introduced to supplement the interviews. Based on an ethnographic research technique, this required users to record their experiences with the mobile phone along with a brief description of how it made them feel at that particular moment in time. Traditional diary studies are often paper-based, with participants being required to interrupt what they are doing in order to manually note down their experiences, or otherwise record them at the end of the day when the events of interest are likely to have been partially forgotten. In the current investigation however, as well as the focus of the investigation, the SPV E200 mobile phone was used as a means of collecting data. Exploiting the Voice Memo function of the SPV E200, users were able to swiftly and conveniently record their experiences *with* the mobile phone *using* the mobile

phone. This novel concept was based upon the work of Palen and Salzman (2002b), who originally expanded upon the traditional diary study technique, through the use of telephony and voice-mail. In their study, participants were required to make reports to a dedicated voice-mail line, which provided an easy and less time-consuming way of reporting activities of research interest. The current investigation marked an attempt to build on this approach in order to create an efficient and convenient means of capturing information as naturally and spontaneously as possible.

3.2 Case Studies

Qualitative data provides a richness and detail that is absent from quantitative measures, and some argue it is *“better able to deal with the intricacies of a situation and do justice to the subtleties of society”* (Denscombe, 1998, p.38). One of the most enlightening qualitative research methods available to the researcher is the case study, which focuses upon only one or a few instances of the population or situation under investigation. In this approach, the spotlight of investigation is focused upon individual instances rather than a wide spectrum. Although contrary to any mass study, the aim of case studies is to *“illuminate the general by looking at the particular”* (Denscombe, 1998). In doing so, insights may be gained that have wider implications, and data may be revealed that would not have come to light through a more widespread investigation. Advocates of this approach argue that while statistical methods might be able to deal with situations where behaviour is homogeneous and routine, case studies are necessary in order to deal with creativity, innovation, and context. Researchers do not focus on the discovery of a universal, generalisable truth, nor do they typically look for cause and effect relationships; instead, emphasis is placed on exploration and description. It is particularly useful in situations where the researcher has little control over events, and due to the naturalistic requirements of the approach, there is no pressure on the researcher to impose laboratory-like controls or to change the circumstances in any way. In order to capture the complex reality of a particular situation however, the use of a number of research methods are encouraged, which in turn will result in multiple sources of data, thus facilitating the validation of data through triangulation (Denscombe, 1998). Providing that the researcher is aware of the uniqueness of the data produced by case studies, and is willing to pay attention to the detail and rigour that is necessary in order to justify such an approach, the use of case studies as a qualitative research method is entirely appropriate in the investigation of abstract concepts, such as user experience.

Although there should be no intention of uncovering data that can be statistically generalised to a larger population, the aim is to select cases that represent a population in which the phenomenon of interest is present. It is in doing this, that *“the phenomenon of interest observable in the case represents the phenomenon generally”* (Stake, 1994, p.243). That is not to say that issues of typicality must drive case selection; instead, each example must be considered in terms of the opportunity it provides to learn about the phenomenon of interest. Where the phenomenon of interest only occurs in a specific population, the selection of representative cases is fairly intuitive, due to the limitations imposed by such infrequency (Stake (1994) provides the example of hostages). More widespread occurrences of a phenomenon allow for suitable examples to be easily found, but such convenience is overshadowed by the vast number of diverse cases that are obtainable. This is an important consideration in the current investigation, where the phenomenon of interest – the user experience of

mobile phones – is something that occurs in every individual who uses such a device – a population that, as established previously, is rapidly increasing. The selection of case studies for this investigation were based upon personas created by the mobile phone company, Orange, in the development of the SPV E200 smartphone.

3.3 Personas

In order to design for specific users as accurately and effectively as possible, Cooper (1999) advocates the use of personas, through which designers can “*develop a precise description of [the] user and what he wishes to accomplish*” (Cooper, 1999, p. 123). Merely asking potential users outright is folly, according to Cooper, due to their frequent inability to even identify the problems they face, let alone envisage solutions. Instead, designers should make up pretend users and design for *them*. Such creations are referred to as ‘personas’, which are “*hypothetical archetypes*” of actual users and provide the “*necessary foundation of good interaction design*” (Ibid p.124). Cooper encourages the creation of a believable “*cast of characters*” in order to articulate the user population of a particular project. This is then reduced to a small number of key personas, which will form the main focus of design. These are created with specific personalities, skills, preferences, motivations, and even carefully chosen names, in order for them to become a “*concrete individual*” in the minds of the designers and programmers. Without this realism, the designers and programmers may be tempted to simply design for themselves or each other instead of the user – a dangerous practice, according to Cooper, due to their somewhat conflicting approaches to technology. The rhetoric presented by Cooper is duty-bound to be somewhat triumphant, given his claim to have conceived the idea of using personas as a design tool - a claim which is refuted by supporters of Geoffrey Moore, who argue that personas have been used in marketing ever since the publication of his book “*Crossing the chasm*” (1991) over a decade ago. Nevertheless, personas do appear to have been employed throughout the design community. Whether they have actually been used as Cooper intended however, to inform the design process from the very beginning, or whether they are merely the creation of marketing executives tacked onto the final product, is difficult to determine.

For the benefit of potential users, who might be asking the question “*What can the SPV E200 do for me?*” Orange has provided on their website several persona-based examples of how typical SPV E200 owners use their mobile phone. Conveniently managing to highlight every single feature of the SPV E200, these “*real-life stories*” are documented as a number of scenarios in the lives of “Louise”, “Jill” and “Miguel” – student, mother of two, and exchange broker, respectively. From taking a picture of friends going wild on the dance floor, to emailing the latest share price to a colleague, the SPV E200 is portrayed as an extremely flexible and desirable device that is suitable for a whole range of different users and uses. Curiously, the use of the SPV E200 as an actual means of speaking to someone else is somewhat underplayed. Although it is made very convincing in the interactive online marketing that the personas of “Louise”, “Jill” and “Miguel” are in fact actual owners of SPV E200 handsets, there is no indication of whether the device was designed with such users in mind or whether the apparent diversity of users has been subsequently highlighted in order to provide mass appeal. Thus, a grounded, real-life examination of the applicability of these personas was necessary in order to provide a suitable number of case studies in which the ‘phenomenon of interest’ that is user experience, can be explored.

3.4 Objectives

As well as providing a demographic basis for the case studies in the current investigation, the personas suggested in the Orange SPV E200 marketing also presented certain scenarios of use, upon which specific tasks were based. For example, the mother of two, “Jill” uses the task list function of her SPV E200 to organise a children’s birthday party, takes a picture of her children using the integrated camera, and then sends the pictures to her husband via a multimedia message. Similarly exchange broker, “Miguel” synchronises the calendar and contact details of his SPV E200 with those on his PC before checking a share price on the device and e-mailing it to a colleague. These scenarios, although presumably selected to promote the various features of the device, provided a number of circumstances on which to base the specific objectives to be carried out by the real-life equivalent of each persona. The details of each persona and the relevant scenarios of use can be found in table 1. Although the majority of data in the current investigation was provided by spontaneous “diary” recordings of the user experience of each participant, the introduction of specific tasks provided an opportunity not only to further assess the validity of the Orange SPV E200 marketing, but also to stimulate use of the various features of the device, in order to actually engender user experience. Examples of the variety of functions offered by the SPV E200 were distributed across each of the three personas, which resulted in different objectives for each of the corresponding case studies, and allowed all aspects of the mobile phone to be explored.

The main drawback to such an approach however, was the goal-based nature of prescribing set tasks, which was reminiscent of traditional usability studies, and was unlikely to successfully capture the phenomenon under investigation. Also, by instructing users to behave in a particular way or to carry out specific actions, the objective, naturalistic aspect of case studies was somewhat undermined. It did however have the benefit of ensuring that users explored the many functions of the SPV E200, which, after all was the focus of the investigation. What was necessary however, was a means of supplementing the task-based assessment of the Orange personas with a more flexible, user-directed evaluation of user experience. Inspired by the Cultural Probes technique created by Gaver, Dunne & Pacenti (1999), the individual cases under investigation were also required to use their imagination in an open-ended exercise designed not only to promote the use of the mobile phone in inventive ways, but also to encourage reflection of the feelings and emotions that are evoked by using the device – a key aspect of user experience. From an extensive list of emotional adjectives, taken from a variety of sources including Robert Plutchik's psychoevolutionary theory, and book two of Aristotle's *Rhetoric* (“List of Emotions”, Wikipedia, 2004), the participants were required to make an arbitrary selection of five of the adjectives and carry out certain activities with their mobile phone which they felt was representative of such a description (e.g. “*Do something... exciting / daring / surprising / relaxing / boring ...with your mobile phone*” – A Complete List can be found in Appendix III). For example, doing something “creative” with their mobile phone could have entailed the use of the camera facility to take a photograph or video. Similarly, playing on the games included with the mobile phone may have been considered “entertaining”. The choice of adjectives, and the means by which they were carried out was completely up to the user, who was free to make their own interpretation. This method, which has been dubbed the “Grounded Experience Technique”, due to it being grounded in the experience itself rather than it being a consequence of a procedure, was believed to

embrace the spirit of cultural probes, in which the objective views of users are dismissed in favour of “*a more impressionistic account of their beliefs and desires, their aesthetic preferences and cultural concerns*” (Gaver et al., 1999). The cameras, photo albums and postcards distributed by Gaver and colleagues, in order to “*provoke inspirational responses from the target group*” were suitably represented in this investigation by the technological equivalents of camera phones, digital storage and photo messages. Although Gaver et al. insisted that precise analyses and carefully controlled methodologies should be eschewed in favour of more “*unscientific*” methods, it was felt that the fragmentary nature of the data obtained by this method would have been somewhat unreliable had it not been supported by other methods of data collection. Thus, the user experience design inspiration, which was provided by the Grounded Experience Technique, was neatly complemented by the goal-orientated tasks based on each persona, in order to allow the concept of user experience to be thoroughly explored.

3.5 Interpretation

Given the relatively uncharted territory of user experience, which has yet to be as thoroughly investigated as traditional usability aspects of product design, it was unclear exactly what was to be gleaned from such an investigation. Certainly, there were themes and issues to be investigated but unlike usability studies, where a precise hypothesis can be made and subsequently tested, there were no precise goals that can be used to guide the investigation of user experience. It is with this in mind, that an alternative method of analysing the data was considered, whereby the data itself directs the course of the investigation. This approach is known as ‘grounded theory’ and originated with the work of Barney Glaser and Anselm Strauss and, in particular, their book “*The Discovery of Grounded Theory*”, which was published in 1967. It is a general methodology for developing theory that is grounded in data – that is, theoretical development takes place strictly on the basis of empirical research (Denscombe, 1998). This is in direct contrast to the traditional ‘logico-deductive method’ of science, in which empirical research is carried out in order to test the validity of “*grand*” pre-conceived theories (Denscombe, 1998). The theory does not profess any unique methods of data collection, and a plethora of data collection materials and techniques “*provide indispensable data for social research*” (Strauss, 1987). Having said this, there is a preference towards unstructured qualitative techniques, such as unstructured interviews, open-ended questions and field notes, in order to ensure that theories are generated from the raw data rather than tested against pre-determined answers. Theories should be generated by a systematic analysis of the data, although not, as some researchers believe, by the common ethnographic approach of “*letting the data speak for themselves*” (Denscombe, 1998). A concerted effort must be made to analyse the data and to generate theories from the data. In Grounded Theory, this is achieved by persistently comparing emerging concepts and theories with the existing data, and improving them by testing them against new data collected specifically for the purpose (Strauss, 1987).

In accordance with the notion of using the data to develop theories rather than test them, Grounded Theory insists that researchers should start out with an ‘open-mind’. In other words, they should not bring with them a rigid preconceived set of ideas that may potentially shape the course of the investigation. There is some confusion between different accounts of Grounded Theory as to how informed a researcher should be

about a subject. Some extreme proponents, such as the co-founder Glaser (1978), believe that the researcher should have a completely “blank mind” on the subject under investigation and bring with them no preconceived ‘baggage’. Others, such as Strauss and Corbin (1990), are more realistic in their assessment that researchers are bound to be aware of previous research, and that the influence of wider social, political, economic, and historical influences is bound to have an effect on the events that are under analysis. Despite the intentions of this approach however, even Glaser and Strauss acknowledged in their original outline that even the most dutiful researcher “cannot be entirely free from the influence of social conditioning and previous theorizing” (Denscombe, 1998, p.124). Nevertheless, the widely accepted view of Grounded Theory is that existing theories should inform but not shape the current investigation.

In order to analyse the raw data that was generated by the techniques outlined above (e.g. field notes, interview transcripts, documents etc.), a procedure was carried out, in which the key components or general principles that were assumed to underlie the phenomenon of user experience were “discovered”, and a number of categories, concepts and properties, as well as interrelations between each of them, were identified. The ability to perceive such categories and relationships is termed “*theoretical sensitivity*”, and despite the virtuous intentions of the original Grounded Theory, is affected by a number of factors, including one's reading of the literature and one's use of techniques designed to enhance sensitivity. The initial interrogation of the data, known as ‘open coding’ is concerned with identifying, naming, categorising and describing themes that appear to be crucial for understanding that phenomenon. At this stage, the codes will be fairly descriptive and are likely to involve labelling chunks of data in terms of their content. According to Strauss and Corbin (1990), it is important to have fairly abstract categories in addition to very concrete ones, as the abstract ones help to generate general theory. Once this stage is complete, and a number of categories have been identified, the secondary process of relating codes (categories and properties) to each other takes place – this is known as ‘axial coding’. Links and associations are identified that allow certain codes to be subsumed under broader headings and certain codes to be seen as more crucial than others. The final stage of analysis is the process of choosing one or more categories to be the core categories, and relating all other categories to these categories. This is known as ‘selective coding’ and identifies the key factors that are considered vital to any explanation of the complex phenomenon under investigation.

4. Fieldwork

Before any analysis of the data is described, a brief introduction to each participant and their relative personas is provided below. It must be noted that for the purposes of anonymity, and also to facilitate direct comparison, the participants in this investigation have been given the same names as their relevant Orange persona.

4.1 'Have Fun And Keep Updated' - Louise's Night

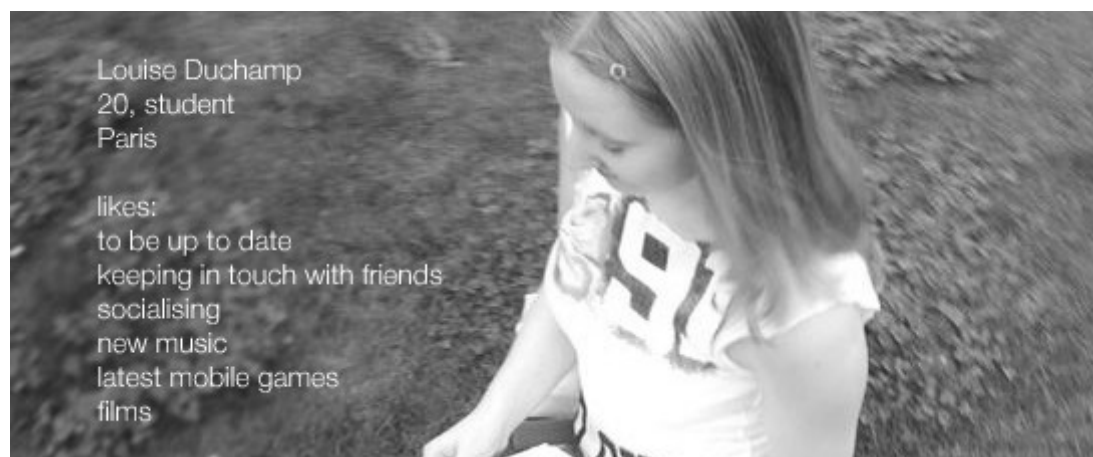


Figure 1: The Orange persona of "Louise"

The participant chosen to represent the Orange persona of Louise (see Figure 1.) was a 22-year old female from Loughborough in Leicestershire. Although strictly not a student during the period of investigation, the participant had only recently qualified as a teacher following a four-year university degree. She also worked part-time looking after children. Her hobbies included swimming, reading, shopping and socialising. When asked to comment on her similarity to the persona of Louise, the participant remarked: *"I like to keep in touch with friends, and I like socialising. I'm not really into mobile games or new music. I suppose I do like to keep up to date with things. She is partly like me, but not completely."* In the Grounded Experience Technique, the adjectives chosen by the participant and the means by which they achieved them are detailed below:

Do Something...	Participant Interpretation
"FUN"	The participant played on the games that are included with the SPV E200, which surprised her in terms of how entertaining she found them.
"TOGETHER"	On an opportune visit to the Angel of the North, the participant and her boyfriend took pictures of each other and shared their experience.
"LOVING"	The participant sent a picture of herself to her boyfriend.
"BORING"	The participant rang her mother.
"ANNOYING"	By experimenting with various ringtones of the SPV E200, the participant discovered that it annoyed her sister immensely.

The scenarios of use suggested in each persona are detailed below, along with the participant's success in carrying out each of the relevant tasks:

<p><i>"Louise is watching film trailers on her SPV deciding what to do with her evening"</i></p>	<p>Although the participant successfully managed to locate a film trailer to download on the Orange World website, poor network coverage meant that she was unable to successfully complete this task.</p>
<p><i>"She receives an instant message from Sara inviting her out for drinks with friends"</i></p>	<p>The MSN Messenger facility proved very popular with the participant, her having previously used it on her home computer. Consequently, she managed to successfully send and receive instant messages.</p>
<p><i>"Whilst waiting at the bus stop Louise personalises her SPV with a new screensaver and ring tone"</i></p>	<p>Despite managing to find the relevant section of the Orange World website which would allow her to download a screensaver, the participant could not find one that she preferred over a picture of her cat, which she had already chosen as a screensaver.</p>
<p><i>"On the way to the bar Louise plays a game she downloaded earlier"</i></p>	<p>Despite managing to find the relevant section of the Orange World website which would allow her to download a game, the participant was disappointed to discover they were not free, and was somewhat reluctant to enter her payment details.</p>
<p><i>"Whilst Louise and Sara are chatting in the bar Sara comments on how amazing Louise's new screensaver looks"</i></p>	<p>Although the degree of enthusiasm over the device was somewhat muted, the participant was happy to show the SPV E200 to her friend, who she claimed was "very impressed".</p>
<p><i>"Using her SPV Louise plays an MP3 from her SD Memory Card to the DJ and asks if he has the track"</i></p>	<p>Unfortunately the handsets provided for the purposes of this investigation did not include memory cards, although this was irrelevant, as the participant could not work out how to download MP3 files.</p>
<p><i>"Hearing the track, her friends go wild on the dance floor. Louise takes a picture and emails it to an absent friend"</i></p>	<p>Although the multimedia messaging facility was hardly used due to a lack of people to send pictures to, the participant hugely enjoyed using the integrated camera, and considered it to be one of the best features of the SPV E200.</p>

Although Louise was mildly apprehensive in the anticipation interview about using the SPV E200, she was also excited about using the various features of the device that were unavailable to her on her existing mobile phone. This enthusiasm towards such features manifested in her actual use of the smartphone, which mainly focused upon the integrated camera. Poor network coverage, and various usability issues marred Louise' enjoyment of the SPV E200, but ultimately, as she revealed in her reflection interview, she enjoyed the experience. Despite claiming that the smartphone was inappropriate to her needs, she appreciated the benefits it had over her existing model.

4.2 'Keep In Touch' – Jill And The Twins



Figure 2: The Orange persona of "Jill"

The participant chosen to represent the Orange persona of Jill (see Figure 2.) was a 37-year old female from Driffield in East Yorkshire. As well as being a mother of two young children, the participant also worked as a checkout operator at a local supermarket. The participant was very family orientated, and consequently listed her hobbies as spending time with the kids, entertaining friends and shopping. When asked to comment on her similarity to the persona of Jill, the participant remarked: *“Well, she's a bit older than me! Her kids might be a bit older than my two. I suppose like her, I like keeping touch with family, but when I say that, I mean my husband and kids rather than aunts and uncles. For me, the technology would have to be simple, because I have to rely on the kids quite a lot to tell me how to do things. In a way, I have to be organised because, not only do I have to work at the supermarket, I've got ironing to do, meals to cook and I also like to leave time to spend with the kids. We don't very often go on foreign holidays. We like trips to London, but what I do look out for are cheap holiday breaks on the Internet. So I suppose, I have something in common with whoever that woman is.”* In the Grounded Experience Technique, the adjectives chosen by the participant and the means by which they achieved them are detailed below:

Do Something...	Participant Interpretation
“NEW”	Giving the relative simplicity of her existing mobile phone, the participant considered most of the functions of the SPV E200 to be new to her.
“YOU ARE PROUD OF”	The participant was proud of herself in terms of the general progress she made in operating the SPV E200.
“FRUSTRATING”	Her difficulty in operating certain functions of the SPV E200, such as multimedia messaging resulted in much frustration for the participant.
“SILLY”	Using the Voice Note function of the SPV E200, the participant recorded various silly messages with her children.
“ANNOYING”	When using the text messaging facility, the participant found it annoying how the predictive text function incorrectly predicted what she wanted to write.

The scenarios of use suggested in each persona are detailed below, along with the participant's success in carrying out each of the relevant tasks:

<p><i>"Jill inflates the last party balloon and ticks the last item in Ben's birthday party to do list"</i></p>	<p>The participant struggled to use the task list facility. Not only did she fail to see the purpose of such a function, but she also found the predictive text function when writing the tasks somewhat annoying.</p>
<p><i>"She sends a text message to John, who is on business in New York "Ben's party is ready, wish you were here!"</i></p>	<p>Being one of the functions with which she was already familiar, the participant had no problem sending a text message to her husband.</p>
<p><i>"Jill uses her SPV to photograph Ben opening his presents and having fun"</i></p>	<p>The integrated camera of the SPV E200 was considered by the participant to be one of the best features of the mobile phone. Consequently, she frequently took photographs of her children having fun.</p>
<p><i>"After the party, Jill uses the gallery to organise her favourite party photographs"</i></p>	<p>The participant found the gallery on the SPV E200 to be a useful means of viewing the photographs she had taken. She successfully managed to rename photographs that she wanted to keep.</p>
<p><i>"Jill then uses her contacts lists to send the party pictures to John and all the family"</i></p>	<p>The multimedia messaging facility proved somewhat difficult to the participant, who resorted several times to the handbook in order to discover how to send them. Nevertheless, she successfully managed to complete the task.</p>
<p><i>"She receives and plays to Ben a message with an audio clip of John singing happy birthday"</i></p>	<p>Although the participant managed to use the Voice Note facility for the purposes of the investigation, and also used it to record various silly messages with her children, she did not manage to send a recording via a multimedia message.</p>

Jill was incredibly apprehensive and somewhat overwhelmed in the anticipation interview about using the SPV E200, claiming it was far too complicated for her to understand. This characterised her somewhat reluctant approach to technology, and her preference towards traditional artefacts. An important influence upon her use of technology however, was her two children, who, she claimed, often assisted her with various technological matters. Consequently, Jill felt a certain responsibility towards keeping abreast of technology, if not for herself, then for her children. Unfortunately, her reluctance towards the technology persisted throughout the investigation, and Jill found it difficult to carry out many of the persona-based tasks. Although some of the emotions selected in the Grounded Experience Technique reflected her sense of achievement at having overcome certain technological drawbacks, others described the frustration caused by such difficulties. A similar pattern occurred in Her Voice Note diary reports, which fluctuated from a sense of victory to irritation. Unfortunately, her inherent reluctance, coupled with the various technological setbacks, resulted in Jill denouncing the SPV E200 in the reflection interview.

4.3 'Manage Your Time And Be Secure' - Miguel's Big Meeting



Figure 3: The Orange persona of "Miguel"

The participant chosen to represent the Orange persona of Miguel (see Figure 3.) was a 35-year old male from Hull. Although he was not an exchange broker, the participant had an equally demanding occupation as the practice manager of a busy doctors' surgery. He was studying part-time for a degree. Consequently his free time was somewhat diminished and he listed his hobbies as watching television, reading and going to the cinema. When asked to comment on his similarity to the persona of Miguel, the participant remarked: *"I would probably say 'yes' to being in control. I'm probably more of a control freak at work than I care to admit. In terms of being in contact with colleagues, working on the move, being a sharp dresser - not really, and having the latest technology, no that's not me."* In the Grounded Experience Technique, the adjectives chosen by the participant and the means by which they achieved them are detailed below:

Do Something...	Participant Interpretation
"FUN"	The participant downloaded and viewed a trailer for the comedy film "The Incredibles" – an experience marred only by the fact it could not be saved.
"NEW"	Using a mobile phone to access the Internet was a completely new experience for the participant.
"FOR SOMEONE ELSE"	Although a lack of credit meant that he was unable to send it, the participant attempted to send a multimedia message to his brother.
"ALONE"	Using the Voice Note facility of the SPV E200 to make recordings for the purposes of the investigation was something the participant carried out alone.
"BORING"	Although he found the calendar function immensely useful, the entering of meetings, appointments and other events was considered boring by the participant.

The scenarios of use suggested in each persona are detailed below, along with the participant's success in carrying out each of the relevant tasks:

<i>"Before leaving the office for his meeting, Miguel updates his contacts and calendar from his PC"</i>	Although the participant used the calendar function extensively, he was reluctant to connect the SPV E200 to his computer for fear of losing existing data or contacts.
<i>"On the way to the meeting, Miguel checks his client's share price, connecting to the internet with Internet Explorer"</i>	The participant successfully navigated to an appropriate monetary website, and located the share price of a local communications company.
<i>"Switching from Internet Explorer, Miguel emails his clients the new figures"</i>	The participant regarded the e-mail facilities as one of the worst functions of the SPV E200. Despite having navigated several menus trying to setup an account, he could not send any email. Consequently he accessed his existing Hotmail account via Internet Explorer.
<i>"Stuck in traffic, Miguel decides to have the meeting via a conference call using the SPV speaker phone"</i>	Due to the nature of his profession, the participant had little reason to communicate urgently whilst on the move. Furthermore, the difficulty in accessing the speakerphone mode meant that the feature went unused.
<i>"The deal is done. Leaving the taxi, Miguel updates his calendar reminding him to sign the contracts in the morning"</i>	Triumphing the calendar function as one of his favourite features of the SPV E200, the participant hugely appreciated the ability to set reminders, which were useful during a busy day at the office.
<i>"Miguel Instant Messages everyone in the office inviting them for drinks to celebrate"</i>	Although fairly familiar with MSN Messenger on his home computer, the participant did not use the version supplied with the SPV E200 due to it being unsuitable for business purposes.
<i>"Before his colleagues arrive, Miguel backs up all the data on his SPV"</i>	Although the security of data was of prime concern to the participant, he was reluctant to he was reluctant to connect the SPV E200 to his computer for fear of losing existing data or contacts.

Miguel's enthusiasm in the anticipation interview about using the SPV E200 hindered only by the presumption that he might be confused by the technology. Although not a heavy user of mobile phones, considered the SPV E200 to have certain advantages, most notably as a symbol of status. This enthusiasm towards the SPV E200 extended to the majority of the persona-based tasks, which he tackled with ease, and also the Grounded Evaluation Technique, which exemplified his appreciation of the new features. The novelty of the device soon wore off however, and Miguel reported that his use of the SPV E200 was significantly diminished during the final week of the investigation period. Although he appreciated the organisational assistance provided by the SPV E200, he considered it to be somewhat irrelevant to his needs.

5. Discussion

Following the initial open coding stage of analysis, a number of codes were identified. A complete list of these can be found in Appendix IV. Via a process of inductive and deductive thinking, these various codes were then related to one another, in the axial coding stage of analysis, to form five key categories – identity, sociability, security, organization and relevance, which are explored in detail below. Finally, in the selective coding stage of the investigation, a single category was selected, which was felt to be the core theme around which the other categories were based.

5.1 Identity

5.1.1 Public and Private Expression

One of the most pervasive themes throughout the investigation was that of identity. According to Norman (2004), the concept of self is “*a fundamental human attribute*”, which manifests both privately, in terms of how an individual considers him or herself in relation to others, and also publicly, in terms of how the individual thinks others perceive them. Despite such a distinction however, these two facets of identity are inextricably linked and the way in which we express our identity is often a product of both our personal, private self-image and also the image that we wish to convey to others (Erikson, 1968). Wright, McCarthy & Meekison (2003) establish this in the ‘*appropriating*’ aspect of sense making, explaining how we relate an experience to our sense of self. A wide variety of symbols are used to represent our identities, which, according to Norman (2004) include “*the way we dress and behave, the material objects we possess, jewellery and watches, cars and homes*” which are all “*public expressions of ourselves*” (p.53). Some of these symbols are more immediate than others, particularly those that are inherently of a public nature, and are often used to distinguish the individual in socially relevant ways. For example, in the current investigation, Miguel referred to the garden as providing the “*best expression of individual taste*” in a situation where other potential symbols are largely indistinguishable. He argued that “*the houses around here are much the same - same design, same colours, same white doors, so if you’re, say, expressing yourself through your house, it is very difficult, and so the garden is the best [means of] expression.*” According to Hassenzahl (2003), in order “*to be socially recognised and to exert power over others*” (p.35), which he argues is a fundamental human motive, a product has to communicate identity through the hedonic attributes of its product character. As well as providing a means of social distinction however, symbols can also express the more personal aspects of our identity. Miguel, Louise and Jill each referred to the desktop wallpaper on their computers which, due to only being seen primarily by the user themselves and very few others, provided a personal expression of identity.

5.1.2 Private Expression

Whether as a means of public or private expression, the mobile phone is a remarkably versatile symbol of our identity. Over the last decade, in accordance with the growing use of mobile phones, manufacturers have incorporated many customisable aspects to the design of their products including interchangeable fascias, ringtones and wallpaper – the latter being akin to the customisable aspects of computing technology. The psychological implications of this were established in Blom (2002) and also Blom and Monk (2003). This has provided a versatile means of allowing users to express their

identity and differentiate their mobile phone from the vast number of identical handsets on the market. Norman (2004) however, argues that *“things do not become personal because we have selected some alternatives from a catalog of choices. To make something personal means expressing some sense of ownership, of pride. It means to have some individualistic touch”* (p.220). Louise expressed her individuality by choosing to *“decorate”* her SPV E200 handset with various background images and ringtones (see Figure 4.). The technological



Figure 4: Louise's screensaver - a picture of her cat.

limitations of her existing handset had meant that she was limited to a standard monochrome display, but the large, colour screen of the SPV E200, coupled with the integrated camera, allowed her to take a picture of something important to her - her cat – and display it as her background image. The self-image expressed in such behaviour is indicative of the reflective level of Norman's (2004) three-level framework. The element of personal expression also affected the choice of ringtones on her existing phone, which she believed were *“better than the boring tones that come with your phone as standard - particularly the Nokia Tone.”* It is interesting to note that the familiar *“Nokia Tone”*, which is present on all Nokia handsets and represents something of a trademark ringtone for the company, is regarded by the participant as her least favourite of all ringtones. It has recently become somewhat iconic due to comedian Dom Joly choosing it to blast out of an oversized mobile phone in his parody of intrusive mobile phone culture, in the television show *“Trigger Happy TV”*. Perhaps such disdain is indicative of the desire for greater personalisation, with the *“Nokia Tone”* representing the epitome of mass-market standardisation. Unfortunately, the ringtones available on the SPV E200 did not satisfy Louise, who claimed to prefer the ringtone on her existing phone *“because I chose it myself - Angels by Robbie Williams.”* This reflects Norman's (2004) statement that despite being able to choose from a pre-determined set of alternatives, such customisation has *“little or no personal relevance, little or no emotional value.”* The mother of two, Jill, was, to some extent, appreciative of the customisation afforded by her mobile phone, although her technological apprehension meant that she was often at the behest of her children, whose personal choices dominated the mobile phone!

5.1.3 Humour: A Private and Public Expression

According to Norman (2004), *“even those who deny any interest in how others view them actually do care, if only by making sure that everyone else understands that they don't.”* (p.53) Although Miguel was keen to visually differentiate his house from those of his neighbours, this desire did not, he claimed, manifest in his use of mobile phones. Instead he exploited the humorous aspect of customisable ringtones in order to make an aural statement, musing that *“having Colonel Bogey ringing out at work...seems highly appropriate.”* The expression of humour through mobile phones, particular as a consequence of the *“rich context”* afforded by the multimedia capabilities of modern devices, has also been highlighted by Battarbee (2003), who identified humorous aspects, including *“situational commentary, absurd messages, insults, puzzles and spoofs”* in 12% of all messages sent during her investigation. This is consistent with

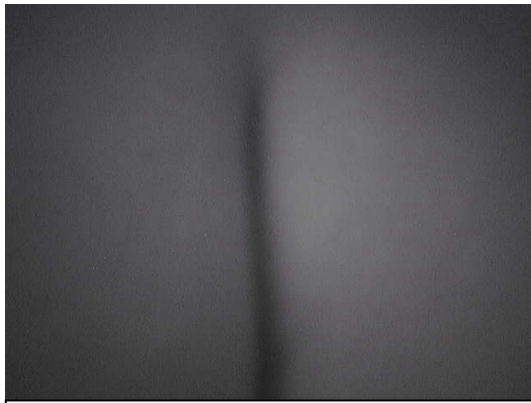


Figure 5: One of the humorous uses of multimedia messages identified by Louise.

the current investigation, in which Louise's anticipation of using the multimedia functionality of the SPV E200 was that it would allow her to capture "*funny things that you would want to show people.*" (see Figure 5.) Although our sense of humour is undoubtedly an element of our private, individual character, such examples are indicative of a more public expression of identity. It also evokes the need for identification, as detailed in the hedonic attributes of the product character in Hassenzahl's (2003) framework. As well as expressing our personal tastes and

particularities for the benefit of no one else but ourselves, we also cultivate a certain public image, which represents the identity that we wish to convey to others (Erikson, 1968). This can differ according to who we are with, what we are doing, and what we wish to achieve from a particular situation, and it is apparent from each of the case studies that the mobile phone plays a significant role in conveying this image.

5.1.4 Public Expression

For Miguel, the actual choice of his existing mobile phone was influenced by the very image he wished to portray. "*I had images of my using it at work and flicking it out but that never really happened. I picked one, which looked more business like. I didn't fancy the Nokia look, with the multi-coloured console on it. I wanted something that looked business like so I bought this little grey thing with a fold down flap, a 'Fox Mulder' effort. It was probably a posing factor.*" Irrespective of the practicalities of actual use, Miguel instead appears to have embraced the cultural image of the mobile phone as a *de rigueur* technological device. This belief is another prime example of the reflective level of Norman's three-level framework of experience, which is "*all about message, about culture, and about the meaning of a product or its use*" (Norman, 2004, p.83). Such an attitude persisted throughout the current investigation, with one of his first comments about the SPV E200 being that it "*has a high posing factor*". Curiously, Miguel confessed that his actual mobile phone usage is somewhat limited, and mainly restricted to matters of organisation when other means of communication will not suffice. He nevertheless makes reference to "*a certain cachet*" and "*prestige*" that stems from such a device, which he likens to business cards or company cars in terms of the status they provide. Recounting a time when he displayed the SPV E200 to his friends, Miguel noted "*a sense of penis envy*", which arose from the inevitable comparison that ensued. Thus, for Miguel, it would appear that the practical benefits of the mobile phone are outweighed by the status that such a device can provide. Again, this is directly reminiscent of the desire of individuals to express their self through physical objects, as identified by Hassenzahl (2003). The social advantages of the mobile were of little concern to Louise however, who argued that due to the prevalence of mobile phones, they did not carry the same allure that they once might have done. "*It's not like an item of clothing that you can show off, it is something that you need*". Nevertheless, she expressed a sense of shame towards her existing phone, which she regarded as "*a bit of a brick*" which "*needs a paper bag over it, like on the advert*" and even confessed to having replaced the fascia with that of the next model up. Furthermore, having shown the SPV E200 to her friend, and noting her positive

reaction, Louise claimed that she *“felt quite proud of it really - it all looks very cool.”* This is corroborated by Norman (2004), who remarks that *“our self-image plays a more important role in our lives than we like to admit”* (p.53). Thus, it would appear that mobile phones are inextricably linked with our expression of identity, be it publicly or privately, and they are used as much as a status symbol as they are as a practical tool of communication.

5.1.5 Etiquette

The social etiquette of mobile phone use was an emotive subject in the current investigation, with contrasting opinions as to when and where the use of such devices was appropriate. Wright et al. (2003) identify such moral dilemmas in the ‘appropriating’ process of sense making, where the compositional aspects of an experience, such as whether it is correct to use a mobile phone in public, *“may relate positively to our sense of self or not”* (p.50). For Jill, the mobile phone was an important means of keeping in touch with others, and consequently its use in public places, such as on buses and trains or in the street was deemed perfectly acceptable. Even in more intimate surroundings, such as a restaurant, the potentially indecorous use of her mobile phone was justified by the connection it provided to the babysitter looking after her children. Although seemingly oblivious to the majority of socially inappropriate uses of the mobile phone however, Jill’s role as a supermarket checkout operator meant that she came in contact with other members of the public on a regular basis, and only here, with the roles reversed, did mobile phones become a great source of irritation: *“What really irritates me is when I’m serving a customer, and their phone goes off and they carry on talking. I think that is so rude. They’re talking and giving me change with the phone stuck to their ear. I don’t like that. It really annoys me.”* It is such impropriety that hugely influenced Miguel’s use of the mobile phone. Although he conceded that *“if it was absolutely necessary, say in an emergency, [the use of mobile phones] wouldn’t really bother me”*, he nevertheless claimed to be *“reluctant to use a mobile phone when standing in the street because I don’t like the image of people walking along with them.”* Again, the image that is conveyed by mobile phones takes precedent over their practicality, although curiously, the *“prestige”* that arose from the SPV E200 itself, did not extend to its actual use, which Miguel regarded in quite a different light. Having received a call during a visit to a shopping centre, he admitted to having felt quite self-conscious about using the SPV E200 in public. Noticing other people around him using their phone without any hesitation, he remarked *“I always have a feeling that such people are rather sad when they have to ring up relatives to ask what things they should be buying. This is perhaps the reason why I felt embarrassed. Maybe they felt I was doing the same thing.”* A similar self-consciousness was also evident in Louise’s use of her mobile phone. Although unperturbed about using her mobile phone on public transport, she was acutely aware of the people surrounding her. Consequently, her conversations became somewhat muted and she was reluctant to *“say anything controversial or confidential.”* Although the use of mobile phones in public is clearly acceptable to Louise, she is acutely aware of the image she portrays when doing so. According to Norman (2004), to whom such concerns represent the reflective aspect of experience, *“all of us worry about the image we present to others – or, for that matter, about the self-image that we present to ourselves”*(p.84).

5.1.6 Design Implications - Customisable, yet Recognisable

Thus, it would appear that mobile phones not only impact upon our private identity, in terms of how we express our self-image through them, but also upon our public identity, in terms of how others perceive our use of the mobile phone. Norman (2004) states that *“the concept [of self] is deeply rooted in the reflective level of the brain and highly dependent upon cultural norms. It is, therefore, difficult to deal with in design”* (p. 53). Nevertheless, designers are endorsing the customisable aspects of mobile phones not only in terms of the actual hardware, such as interchangeable fascias, but also in terms of the software, which due to its growing complexity and also the flexibility afforded by large colour screens, can allow for a greater degree of customisation. Nearly every aspect of the mobile phone can be adjusted to the user’s personal preference, and with further technological developments this personalisation will become greater still. As was exemplified in Miguel’s reference to the “Fox Mulder” image he was trying to cultivate, the use of mobile phones in popular media, such as “The X-Files”, has had a huge impact upon how people identify with the technology. Modern blockbusters are often littered with significant product placement – often for technology such as the mobile phone, which is as beneficial to manufacturers as it is to the film studios in terms of the increased revenue and identification that stems from such blatant advertising. Although the personalisation of mobile phones is an important aspect to many users, and allows them to express their private identity, designers must ensure however, that their products cannot be made completely unrecognisable through extensive customisation. This is due to the fact that the actual model of mobile phone can have a huge impact upon the public identity of mobile phone users, and being seen with the latest handset is just as, if not more, important as making it unique to the individual through personalisation. Thus designers should perhaps approach the creation of mobile phones with the intention of creating devices that are customisable, but ultimately recognisable.

5.2 Sociability

5.2.1 A Fundamental Human Trait

The etiquette of mobile phone use appears to be strictly related to social norms and conventions. These are prescribed rules of behaviour, the violation of which provokes guilt and resentment (Landesman, 1995). This was evident in the personal embarrassment felt by Miguel when he received a call in public and the resentment he expressed towards others who were nonchalantly violating this controversial code of conduct. As has already been established, our sense of identity is inextricably linked to the attitudes and perceptions of other people, and the way in which we attempt to communicate our identity is heavily influenced by our conformity to particular social standards. We exist alone, but we also exist amongst others, and it is this social consideration that helps shape our behaviour, and defines our identity. Citing the work of Goffman, Battarbee (2003) argues that the essential tasks of being a social being are *“to present yourself to others in a favourable way”* and to *“keep social connections active”* (p.2). As humans, we need and desire association with our own kind, which in turn forms the basis for our whole society. In an interpretation of the work of designer Patrick Jordan, Norman (2004) describes the *“socio-pleasure”* which is derived from interaction with others. In his own framework, Norman posits our inherent sociability at the visceral level of experience, although he concedes that reflective analysis may shape our social behaviour. Many examples of sociability were demonstrated in the

current investigation. For example, mother of two, Jill, appeared to be very family orientated, and considered “*entertaining*” to be one of her hobbies by “*having people round for meals or barbeques*”. When at university, Louise spent her free time “*socialising, and going out with friends*”. Likewise, Miguel often chooses to unwind after a hard week at the office by going out on a Friday night “*with the lads*”. The desire to interact with other people is an intrinsic part of human nature and a crucial aspect of our daily activities.

5.2.2 Social Organisation

Reflecting upon the impact of technology, Norman (2004) remarks that “*much of modern technology is really the technology of social interaction: it is the technology of trust and emotional bonds*” (p.157). Thus, unsurprisingly, considering its purpose as a tool of communication, the mobile phone is strongly intertwined with issues of sociability. On a purely practical level it is frequently used to organise social gatherings. The text function is often employed for this purpose, as demonstrated by Louise, who used it “*to arrange to meet people to go out and to plan my social life*”. Similarly, the prevalence of mobile phones amongst Miguel’s circle of friends, coupled with the busy lives they lead, has resulted in them communicating via text message in order to arrange their nights out. As Miguel remarks: “*I’d be less likely to ring them during the day to ask if they were going out as they have busy jobs. If however, I were to text them, it is a lot easier to get a message through to them.*” This reliance upon the text message seems to stem primarily from the convenience they provide and also their unobtrusive nature. “*They may be on the bus on their way so I’ll text them and they’ll text me back instantly to say they’ll be in the pub at a certain time. They’ve got nothing else to do on the bus.*” As well as conveniently facilitating the organisation of a night out however, the text message also provides a certain confirmation or “proof” of an arrangement that is more tangible than the transient nature of a phone call. When referring to texts of this nature, Louise admits “*if someone has agreed to something in them, and I’m scared they will drop out, I keep them just for proof.*” Curiously, it is the use of text messages to “drop out” of an agreement or to cancel an arrangement that is strongly disapproved of by many users, due to the impolite evasiveness of such an act. When a friend dropped out of going to a University Ball, Louise’s disappointment was compounded due to the means by which she was informed: “*She let me know via text, which I was very annoyed with. I tried ringing her, but she said she didn’t want to talk because I would have a go at her! She told me to text her to tell her what I thought.*” This is reminiscent of Taylor and Harper’s (2002) study of gift-giving between teenage mobile phone users, in which the cancelling of the ultimate arrangement – a relationship – via text, was regarded as “*the most contemptible use of the technology*” (Ibid, p. 443). Clearly, whilst the mobile phone is remarkably convenient in making and keeping arrangements, etiquette dictates that its use as a means of breaking an arrangement is strictly forbidden.

5.2.3 Social Connection

Aside from the organisation of social arrangements, another benefit of communicating via text message concerns the asynchronous nature of such a facility, which, as highlighted by Jill, means that “*they don’t have to be there, as when you use the phone to ring someone. If they are not there you can still text.*” This demonstrates a curious phenomenon of the mobile phone whereby the very presence of such a device, and the communicative potential that it provides, evokes a sense of security and connectivity.

This was evident in Louise's reluctance to turn off her mobile phone, regardless of whether she was in lectures or at work. *"I suppose I could have switched the phone off, but I'd rather put it on silent, so that it is always there and I am always connected."* Even when the situation dictated that she could not carry the mobile phone on her person, Louise's desire to remain connected was still apparent. *"When I am teaching in schools, I leave it on silent in my bag, so that any texts that arrive are instantly waiting for me when I check it at lunchtime. If you turn it off, you have to wait for them to come through, which can be annoying if you are expecting something important."* Whenever poor network coverage threatened her ability to send or receive text messages however, the sense of disconnection was evident, with Louise claiming to feel *"isolated"* and out of touch with her friends. By keeping her phone switched on throughout the day and night, Louise ensured that she was constantly available and permanently in touch. *"Although I know no one is going to ring in the middle of the night, it is nice to feel connected still, and nice to receive text messages when you wake up in the morning."* These examples are reminiscent of the 'connecting' process identified by Wright et al. (2003), which is vital in making sense of an experience. It also situates appropriately in the 'emotional' thread of Wright et al's framework.

Such a phenomenon is also highlighted by Battarbee (2003) who regards the *Synchronous – Asynchronous* continuum of mobile phone use as an important dimension of co-experience. Citing the example of MMS messages that *"describe mundane situations and experiences but do not request direct replies or responses"* Battarbee points to an asynchronous channel of communication that is open all day long. Whilst this was of great reassurance to Louise who argued that *"you can send text messages to say things that you wouldn't necessarily bother ringing people just to say"*, the constant interaction afforded by the mobile phone was of little consequence to Jill, who only communicated during fixed times, when she chose to switch it on. Her preference towards traditional technology meant that she mainly relied upon her home phone to keep in touch with others. In a stark contrast to the uninterrupted connectivity desired by Louise, the only time that Jill chose to switch on her mobile phone was *"when I know that someone is going to text me."* Conversely, it was the possibility of being contacted at all times of the day that caused Miguel to frequently switch off his mobile. By ensuring that calls are diverted to his answer phone, he claims to have retained the freedom to respond at a more appropriate time. This marks a distinct generational gap between these three case studies. Possibly as a consequence of having grown up with the technology, Louise is extremely dependent upon her mobile phone as a means of feeling connected to others, and is willing to be contactable at any time of the day or night. Jill and Miguel on the other hand, who are both in their thirties and still refer to mobile phones as *"new-fangled technology"*, do not experience the same attachment and are perfectly happy to switch off their devices. Nevertheless, it is by having a channel of communication that is open all day long, that Battarbee (2003) believes our sense of social connectedness is being extended, and that further attempts should be made to encourage such asynchronism across a wider technological platform.

5.2.4 Social Cohesiveness

As well as providing a general sense of connection, which may or may not be desired, the sociable aspect of mobile telephony can also bring about a certain affinity amongst specific groups of individuals. For example, Jill's indifference towards using the SPV E200 to sending photo messages stemmed from an awareness that her friends would be

unlikely to be able to receive them on their technologically incompatible handsets. Similarly, Miguel believed that he has “*gained a certain connectivity with the people with whom I go out with of an evening because they use their mobile phones an awful lot*”. The ‘appropriating’ process of sense making in Wright et al.’s (2003) experience framework is evoked in such behaviour, whereby the experience of using a mobile phone has been directly appropriated into their lives, in order to make the experience their own. A more immediate demonstration of such technological cliquishness is evident from the selection of names that populate the contact list of a mobile phone user. For example, in the current investigation, Jill declared that the only numbers that she stores on her mobile phone were those of her close friends and family. Although she conceded that the addition of contact details for services, such as taxis or doctors, would be extremely useful, she was reluctant to extend her contact list beyond the immediate members of her private circle. Louise however, proved to be rather more lenient in her contact list criteria, citing the contact details of her local restaurants, taxis, and place of work. Going a step further, she also confessed to having included the contacts of people that she no longer wished to speak to, so that “*it will display the name of who it is when they call me*” thus allowing her to avoid any unwanted communication. It would appear that Jill has likened the contact list of her mobile phone to her traditional address book, which she generally relies upon to store her details. There is a significant sense of ‘connecting’, which according to Wright et al. (2003) is a pre-linguistic sensual phenomenon that allows us to give meaning to a situation. The privacy and intimacy of this traditional repository of contact information is mirrored in the careful selection of names that populate her mobile phone contact list, regardless of the inconvenience it may cause. Louise however, has embraced the expediency that such a function provides, and populates her contact list with all manner of useful contacts. Seemingly, although the practical use of mobile phone is inherently social, the formulation of the contact list also provides an important means of displaying and maintaining social groups.

5.2.5 Design Implications - The Virtual Go-Between

Giving its inherent use as a tool of communication, the sociability aspects of the mobile phone will always be the prime consideration of designers and the driving force behind further technological developments. Technological advances should ensure that current memory restrictions are lifted, allowing a greater number of text messages, contact details and other data to be stored on a handset. For ultimate security, such data could even be transferred from the handset to a centralised database allowing for near-unlimited storage and the ability to prevent thieves from gaining access to personal information in the event of the device being stolen. To further exploit the comfort provided by perpetual connectivity, designers should look towards ensuring that the user never has a reason to turn off their device. This could involve making the device sensitive to “quiet zones”, such as cinemas, restaurants, or crowded trains and consequently automatically muting its ringtone and other aural alerts. Such a facility would also be beneficial to the public identity of users, in terms of mobile phone etiquette. Social cohesiveness could be further exploited through an extension of existing technology. Not only could mobile phones maintain social groups, they could also provide the means of creating them. If the device could be programmed to store a “profile” of the user, which contained various information such as their hobbies, interests or even their marital status, this could be beamed via Bluetooth technology to other users in the vicinity in order to alert them of someone with similar interests to them. Although for reasons of privacy and security such a feature could be disabled,

for the majority of users, this virtual go-between would allow for an ever-increasing circle of friends and the connection of disparate users who might otherwise have remained passing strangers. The mobile phone is becoming an important part of our social lives, and further advances in technology will only ensure that such a trend continues.

5.3 Security

5.3.1 A Constant Concern

The formation of social groups provides numerous benefits, including the opportunity to interact with like-minded individuals, to feel connected, and to provide a sense of status. It also provides an important and necessary feeling of security and reassurance. As Norman (2004) comments, "*security is more of a social or human problem than a technological one*" (p.146) and, indeed, it is only through our interaction with other people that such matters become important, as without sociability there would be no need for security. The privacy and confidentiality that is a consequence of effective security is of great concern in the modern world, where technological advances, such as the Internet and e-mail, closed-circuit television cameras (Gilchrist, 2004), customer loyalty cards and other intrusive devices have resulted in the gathering of a vast amount of personal information about everyone of us, including our buying and spending habits, finances, lifestyles and even our whereabouts at any given time (A vast amount of information about various privacy and security issues can be found at the website of Privacy International – www.privacyinternational.org). Consequently, we go to great lengths to ensure that our lives remain as secure and private as is possible. This was evident in Jill's reluctance towards the Internet. Despite having used it to find "*last minute holiday bargain breaks*" and various items on the online auction site, eBay, she admitted to being "*rather sceptical about entering my credit card details on the Internet.*" The worrying proliferation of data that is gathered from numerous sources was reflected upon by Miguel who expressed a concern over the number of "*avenues and repositories there are for information.*" It is due to this abundance of personal data that he admitted to being reluctant to release further details – "*anonymity being my goal*" – a flippant, yet somewhat telling remark as to Miguel's security concerns. The security concerns expressed by Jill also extend to her parental responsibilities and despite proclaiming the virtues of the Internet, she is reluctant to allow her children extensive access to it, choosing to install a child protection filter as an extra safeguard. Whether safety measures are employed to protect personal privacy or that of others, issues of security form an important consideration of our daily activities.

5.3.2 Personal Privacy

Given the ubiquity of the mobile phone, which acts as not only a symbol of status but also a significant means of communication, a number of important security threats and concerns are inevitable. One of the most commonly expressed hesitations regards the storage of personal information. As has already been addressed in the previous section, there is a certain reluctance from some users towards populating the contact list with the details of individuals who are outside of their private circle. There are certain parallels between such apprehension and the 'anticipating' process of Wright et al.'s (2003) experience framework, where "*all sorts of expectations, possibilities and ways of making sense of an episode*" (p.48) are brought to an experience. Even for the

contacts that make it to the list however, the amount of information that is stored about them is a matter of concern. Modern mobile phones, including the SPV E200, allow all manner of details to be added to each entry, including postal and e-mail addresses, occupation details, websites links, notes, and an identifying picture. Although Louise was quite happy to add a variety of contacts to her list, for security reasons she did not wish to add any further details about them beyond their name and number. Jill expressed a similar concern about the organisational aspects of the SPV E200, such as the diary, calendar and task list, claiming to not *“fancy the idea of putting all my details onto the phone.”* Miguel even confessed to have gone a step further by removing all of the contact details he had added to his mobile phone. Although he admits that this was primarily due to the inconvenience of having to maintain the rapidly changing details of his contacts, he also noted that it removed the burden of responsibility that stems from having to protect personal details that may be stored on the device. When asked if he would be prepared to exchange his existing phone for the SPV E200, he remarked that *“there would be no issues if we were to swap it right now as there are no telephone numbers and [only] three text messages on it”*. It would appear that despite the convenience that may arise from such a multi-functional ubiquitous tool of communication, the potential for data to end up in the wrong hands has resulted in reluctance from each of the participants to commit anything of significance to such a device. Such reluctance may be justified however, as reports of the first ever virus to specifically targets smartphones, such as the SPV E200, begin to emerge (Sturgeon, 2004).

5.3.3 Security Risk

Mobile phones could put users at greater risk, not only in terms of the loss of confidential data stored on such devices, but also in terms of the monetary value of the actual handsets, which are a potential target for thieves. This was an important consideration for Jill, who revealed that she usually kept her mobile phone hidden away because *“I don’t like it being on show. If it is left out, it could get stolen so I keep it in my bag as a safety precaution.”* Similarly Miguel revealed that the coat he wears to work has a *“special pocket sewn in for a mobile phone with a Velcro flap on the inside”*, which, apart from the fact that *“it all adds to the X Files image”*, meant that the device would not be on show, and thus less of a target for thieves. This was one of the most common considerations in the current investigation with the users in each case study alluding to the desirability of the SPV E200. Whereas the image conveyed by such an expensive device, however, was one of the initial benefits identified by Miguel, the security implications of owning a SPV E200 were of prime concern to Jill, who admitted: *“I was worried about losing this phone to be honest, that’s why I wanted to give it back. It’s a hell of a responsibility carrying that thing around.”* One of the reasons that she gave for not wanting to own such a device was that she would *“hate carrying around something so expensive”* and that it would be *“alright as long as I had it hidden and not open to public gaze”*. The apparent mundanity of Louise’s existing phone did not appear to provoke the same concerns however, as she revealed: *“I read about people getting mugged for their mobile phones, and for a while I was a bit conscious about using it in the street. I tend not to be too bothered about it nowadays. Everybody seems to have a phone, or is able to get one, so I’m not too worried about that anymore. Plus phones are usually insured.”* Nevertheless, she anticipated that her usage of the SPV E200 would be dominated by thoughts about *“what I had done with it, whether I had left it in a safe place, and whether I had done my bag up properly.”* As well as the ‘anticipating’ process of Wright et al.’s (2003)

experience framework, there are also echoes of the ‘reflecting’ process, during which security threats are considered. Evidently, the desirability of the SPV E200 is perceived to be two-fold, appealing to both image-conscious users and opportunist thieves alike.

5.3.4 A Sense of Security

Although a number of security-related drawbacks can arise from carrying a mobile phone, particular one as desirable as the SPV E200, such a ubiquitous device can also provide immense reassurance to certain individuals. In accordance with the framework of Wright et al. (2003), the mobile phone becomes appropriated into the user’s life by means of the sense of security it provides. Even for users such as Miguel, who claim not to rely on their mobile phone to a great extent, the presence of such a device in the glove box or at the bottom of a bag provides a welcome sense of security. Having been delayed by traffic on a trip to Bristol, Miguel found *“it was very useful to be able to ring ahead to say that I would be later than expected”*. He also added that *“it might be more useful if I was out and I’d missed the last bus, particularly if I were female.”* This was indeed one of the benefits of mobile phones expressed by Louise who found that *“when I’ve been walking in the dark, and no one else is about it’s been nice to have.”* In order to avoid such a situation however, she found her mobile phone was useful in ringing ahead to arrange a lift with her parents. Although Jill was somewhat indifferent towards using the mobile phone at home, often choosing to switch it off, she admitted that *“I do take it with me when I leave the house. In fact, I always have it with me when I go out”* and also *“when I’m going out in the car on my own, I like to have it with me more or less as some reassurance.”* Interestingly, during the course of the investigation, Jill chose to carry the SPV E200 around with her wherever she went, although not for reasons of personal security. Instead, it was the cost of the phone which made her feel *“as though I’ve got to take it everywhere with me because I am frightened of losing it.”* So although manufacturers may currently emphasise the reassurance that is experienced by carrying a mobile phone, they might also consider the sense of responsibility that is evoked by such an expensive item of technology – the upshot being that the user may choose to carry it wherever they go.

5.3.5 Trust and Reassurance

In order for the mobile phone to provide a pervasive sense of security to its users, it must also engender a certain degree of trust. According to Norman (2004), the three qualities that are implied by trust include *“reliance, confidence, and integrity”* (p.142). Norman argues that the apparent complexity of technology can result in users feeling out of control and frequently disappointed. Consequently, he remarks, *“trust eventually gives way to rage.”* On a purely practical level, issues of battery power and signal strength can have a huge impact upon the perceived reliability of the mobile phone. As Louise explained, *“it’s frustrating when messages won’t send because the signal is so poor here. When the battery dies, that’s annoying. I know it’s my fault for not charging it up, but still.”* Although Jill could not recall a time when the battery charge had let her down, a visit to Center Parcs meant that she could not get a signal, and consequently felt let down by her existing mobile phone. Unfortunately, the complexity of the SPV E200 meant that the battery life was equally unreliable and tended to discharge rapidly. This was a complaint made by both Miguel and Louise, who found this technological drawback rather disappointing. As Miguel remarked, *“the battery life is a pain because I can charge the damn thing up and if you have it on*

during your waking hours, which is the main point if you want someone to contact you, the battery runs down after about two or three days. It has then to be fully charged again.” Louise made a similar comment, noting that her existing mobile phone held its charge for much longer. Curiously, Jill claimed that she only had to charge the SPV E200 up once during the two-week investigation, although this may have been due to her reluctance to use many of its features and also the frequency with which she turned it off. When considered from the viewpoint of Wright et al. (2003), our perception of trust appears to stem from a certain anticipation of using the device, as well as sense of reflection, during which we consider its reliability based on our experience.

The degree to which the users in each of the case studies trusted their mobile phones was evident in whether or not it was only place where they kept the details of their contacts. For example, although Jill stored certain names and numbers in her contact list, she also relied upon a hard copy in the private telephone directory of her address book. Although Louise claimed to do the same to some extent, many of her contact details existed solely on her mobile phone. She even questioned her reliance upon the device, following an unfortunate incident in which she knelt on her mobile phone, which resulted in her losing the details of all of her contacts. Consequently, she stated, *“I wouldn’t really say it is secure. I should really write them all down somewhere but at the moment I don’t.”* The use of the SPV E200 for organisational purposes also brought about issues of trust, with Louise claiming, *“I would trust my mobile to remind me of appointments and events, but I would trust my diary a lot more.”* This preference towards traditional methods was evident in the responses of each of the users when asked whether they found their home or mobile phone more reliable. Referring again to the unreliability of the battery charge, and also the cost of running a mobile phone, Miguel claimed to prefer the security of his landline. *“I would forget to charge up the mobile phone and we would finish up with people trying to ring us and not getting through.”* Having experienced a time, whilst at university, when she had to rely solely upon her mobile phone, Louise also claimed to prefer a landline. *“You feel you can’t talk for very long because you are conscious of running out of credit ... The landline is also much more reliable because you don’t have any signal problems, and you wouldn’t get as many cold calls.”* The cost of calls was also an important consideration to Jill, who preferred her home phone. Like Louise, she also made reference to having received unwanted calls and text via her mobile phone and preferred the security that her landline offered. Thus, it would appear that as well as providing an important sense of security, as a consequence of its ubiquitous nature, the mobile phone can also evoke feelings of mistrust and insecurity, when issues of reliability and desirability are brought to the attention of the user.

5.3.6 Design Implications - Ubiquitous Security

As has been discussed previously, the mobile phone provides an important symbol of status to certain users, which is at the root of such security concerns. Perhaps if measures were taken to somehow make them less of a status symbol, this would reduce their desirability, resulting in greater security for the individual. It would however, conflict with the objectives of mobile phone manufacturers who heavily promote the ostentatious appearance of each device, in order to appeal to image-conscious users. In order to resolve this dichotomy, designers might wish to exploit the previously discussed customisability of such devices. Fascias could be designed so that the user can choose to either make their mobile phone appear very desirable, so as to create a particular image and identity, or to make them appear very standard and unremarkable,

in situations where the desirability of the device may make pose a significant security risk. Such a facility may also appeal to users who require the benefits of a complex device, but are conscious of the negative image that may be portrayed by a visibly ostentatious mobile phone. In terms of personal security, ensuring that the “Pay As You Go” users are clearly informed of the amount of credit they have remaining, would ensure that they are never inconvenienced or are put at risk due to a lack of credit. Allowing for greater communication with the emergency services could further enhance the reassurance that is already provided by mobile phones. For example, by combining the mobile phone with a rape alarm, the device could not only sound a piercing audible alarm to alert passers-by, but also automatically contact the police, with specific location information. This could also be beneficial if the device is stolen, allowing it to be located by the police, or more seriously, if a child was abducted. Parental controls could be provided that cause a child’s mobile phone to alert the police or the parents with specific location information if the child strays beyond a certain proximity. Such a facility is already being called for by a coalition of children’s charities (“Call for mobile tracking controls”, BBC News Online, 2004) Although various security risks are posed by mobile phones, the communication offered by such devices combined with their growing ubiquity, makes them an invaluable extension to personal security, which designers must further exploit to ensure the safety of their users.

5.4 Organisation

5.4.1 The Pressures of Everyday Life

In order for us to feel secure, we must exert some degree of control over our lives. An internal locus of control – that is, the extent to which individuals perceive outcomes as internally controllable by their own efforts – is necessary for healthy mental and emotional development (Rotter, 1966). One of the ways in which individuals can maintain this sense of personal control is through the organisation of their everyday activities. Although circumstances differ from person to person, the majority of us lead complex lives, which require some degree of organisation in order to ensure that appointments are kept, deadlines are met, and that enough time also remains for us to recuperate and unwind. This was evident in each of the three case studies, where the roles of businessman, mother of two, and student each brought about their own complexities and time pressures. The domestic pressures upon Jill were immediately apparent in the initial interview, which had to be conducted whilst she simultaneously did the ironing, prepared dinner and kept an eye on her children. Furthermore, the source of her apparent technological reluctance appeared to stem from a notable lack of free time. Characteristic of her attitude towards modern technologies was the phrase: *“If I had more time, I would probably try and get into it.”* Regardless of the timesaving potential and convenience of many technological devices – which she often appreciated, Jill considered the initial amount of time that must be invested in order to reap such returns far too valuable. Miguel also appears to lead a busy life, in which there are many demands upon his time. Not only does he work full-time as the Practice Manager at a busy Doctors’ Surgery, he is also studying towards a psychology degree with the Open University. Finally, although currently experiencing something of a hiatus between qualifying as a teacher and starting her first position, Louise’s life is dominated by the necessary preparation for her new role and also her part-time job as a nanny.

5.4.2 A Tool of Organisation

Although perhaps not the most obvious purpose, or even the most conventional, the ubiquity of the mobile phone nevertheless makes it a useful and readily available tool of organisation. Modern mobile phones, including the SPV E200, incorporate a number of facilities that allow the user to organise their lives. On a basic level, this may be a simple calendar on which brief reminders can be stored. The more complex organisational functions of “smartphones”, such as the SPV E200 however, include ‘to-do’ lists, schedule planners, e-mail facilities and synchronisation with desktop PC applications. Although these certainly boost the organisational capabilities of the mobile phone, and provide an excellent cognitive aid, such facilities appear to be primarily intended for use in business situations – a fact that did not go unnoticed by the users in each case study. One of Louise’s initial comments about the SPV E200 was that the “*No Upcoming Appointments*” message that is displayed upon the homepage of the device made it feel “*more like a business person’s phone*” and that she didn’t “*particularly have a busy enough schedule for that sort of thing!*” Similarly, Jill preferred to use her traditional paper-based calendar to enter the dates of any appointments or events rather than rely upon her mobile phone. Although they both lead busy lives, the apparent degree of organisation they required was not perceived to be sufficient enough to warrant the use of a mobile phone, which was clearly considered to be of use only to people whose lives required organisation of a business nature. In accordance with this assumption, Miguel greatly appreciated the calendar function of the SPV E200, and commented that “*during a busy day at work, the ability for the phone to send out a call sign, perhaps fifteen or thirty minutes before an appointment or a meeting is very useful to remind you and takes away the stress of having to remember such things when you are very busy.*” Thus it would appear that the extent to which the organisational aspects of mobile phones are utilised is a consequence of the type of organisation that it is perceived to support.

5.4.3 Technological Reluctance

As has been established however, we all require some degree of organisation in our lives, and the users in each of the three case studies were no exception. Therefore, perhaps other factors were influential in their apparent reluctance to use the SPV E200 for this purpose. Aside from the fact that she “*didn’t use the calendar as I didn’t have any important events to put on it*”, Louise also made the point that “*it’s a bit of a fuff to put [organisational information] on the phone.*” - the relatively small screen coupled with the need to enter everything via the alpha-numeric keypad making data entry rather laborious. Her preference towards a traditional paper-based calendar was also a consequence of the clarity and usability that is offered by such an artefact: “*I like it so all of my appointments and things to remember are all on one sheet, and you can see exactly where you are. You can also tick things off when you have done them. It’s also much easier to scribble something down on a calendar than it is on a mobile phone.*” Although Jill curiously claimed to be disinclined to use the organisational aspects of her mobile phone “*because of the expense*”, her reluctance largely stemmed from the perceived complexity of such functions. Even Miguel, who embraced the calendar function of the SPV E200, argued “*if I were arranging a meeting on the phone, it would be much easier to grab the paper diary and scribble it in rather than get the phone out and enter it in that.*” He explained that such reluctance stemmed from having to “*go through several screens and menus and type in entries then go through the same rigmarole to look it up again.*” Seemingly, even when the mobile phone is

acknowledged by the user as providing a greater degree of efficiency through its organisational assistance, the usability drawbacks associated with the device can be a tremendous barrier to use.

Issues of usability and unnecessary procedure associated with the SPV E200 were not limited to purely organisational matters however. A vast number of comments were made by each of the participants in this investigation about even the most basic functions of the device. For example, although he noted that the problem was symptomatic of all mobile phones, Miguel commented that the quality of voice calls on the SPV E200 meant that it *“sounds as if you’re sitting at the bottom of a manhole.”* – an issue which he claimed, if addressed, would vastly improve his view of mobile phones. The predictive text feature of the text messaging function was also a source of great annoyance, with Miguel stating, *“I would much prefer to type my own messages rather than have the phone try and predict what I am going to say.”* Jill also bemoaned the text message facility of the SPV E200, which, due to being unlike her existing phone, she found difficult to use. *“The predictive text function keeps coming on, and trying to predict what I am trying to write. I just don’t understand it.”* Furthermore, she found many of the other features of the SPV E200, such as multimedia messaging and the ‘to-do’ list to be *“far too complicated”* and *“beyond me”*. Actually sending the message proved difficult to Louise, due to the unforgiving nature of the error messages generated by the SPV E200. Having prepared a text message to send, Louise complained, *“It came up with the warning that it hadn’t sent, but it lost the message so I had to type it all out again, which took forever. I’ve done this twice and I’ve still not managed to send the message and it is really frustrating.”* Similarly, Miguel found it irritating how text messages simply *“disappear into the ether”* if an error interrupts their transmission. Evidently, even the most basic of functions that are common to all mobile phones were the source of much frustration with the SPV E200.

The more technologically advanced capabilities of the SPV E200, such as Internet and e-mail functions, also posed many difficulties for each of the participants. Although Miguel was impressed with the speed and success of logging onto the Internet via the SPV E200, he was somewhat confused by the lack of any indication that it had disconnected once the session had ended. *“There doesn’t seem to be any distinct message or symbol to say that you have actually left the Internet and therefore it seems quite possible that you could leave the phone logged on and subsequently, I presume, pay out a continuous fee.”* Remarkably, the same problem was encountered by Louise, who resorted to removing the battery in order to reset the entire device – a solution, which, she noted *“was not ideal”*. Although a number of different symbols are displayed to indicate various states of the device, including connection to the Internet, which is indicated by the presence of the letter ‘G’, their arbitrary nature meant that users were often confused as to what they stood for. Having puzzled over these symbols without any further understanding, Miguel remarked, *“following consultation of the Orange instruction book of the phone, I am no wiser.”* He reserved the worst of his wrath, however, for the e-mail function of the SPV E200, which he complained was *“squirreled away in the depths of the menus and its not obvious how you go about getting to your e-mail.”* He also remarked, *“it is easy to get to the Internet, there’s the big blue E and you’re in but the e-mail is a different kettle of fish altogether I thought. When I was using the e-mail, I gave up in the end and used hot mail through the Internet.”* Although he eventually found a sufficient solution, the irritation he suffered in attempting to perform such a relatively simple procedure, resulted in him deeming e-

mail to be the “*worst designed function*” of the mobile phone – hardly the desired opinion of a so-called “smart” phone.

5.4.4 The Importance of Usability

Many more complaints were made about various other aspects of the SPV E200, ranging from the “*busy*” layout of the display to the “*slippery*” texture of the device. Many of these evoked the ‘sensual’ thread of Wright et al. (2003) experience framework. For example, Miguel suggested that a rubber grip could be added to the device to prevent it from being easily dropped. Although a number of shortcomings in the design of the SPV E200 may have been highlighted by such criticism, they also serve to underline the fact that usability has an important role in the user experience, which was indicated by the strength of emotion felt by each of the participants when confronted by these various setbacks. In order for the mobile phone to become a truly indispensable device, that the user can rely upon to assist in the organisation of their lives, it must conform to a number of design principles that are inherent in the majority of well-designed products. As established in the literature survey, such matters have been thoroughly documented by a wide range of authors, however none more so than Donald Norman, who as well as identifying and prescribing a number of design recommendations in his seminal book “*The Design of Everyday Things*” (1988), also posited such factors as part of the behavioural level of his three-level model of user experience (2004). This, and indeed many other frameworks of user experience, such as Jaasko and Mattelmaki (2003), Margolin (1997) and Alben (1996), consider the pleasure and effectiveness of use to be just as important as the opportunity for reflection, or the raw, visceral appeal of a product’s appearance. As Norman aptly declares:

Usage is the critical test of a product: Here is where it stands alone, unsupported by advertising or merchandising material. All that matters is how well the product performs, how comfortable the person using it feels with the operation. A frustrated user is not a happy one.

(Norman, 2004, p. 78)

Usability and utility issues are an important aspect of experience, according to Hassenzahl (2003), forming the pragmatic attributes of the product character. It is the combination of strong pragmatic attitudes, and strong hedonic attributes that ultimately results in the desired product. Failure to achieve either of these two objectives results in a product that is “*simply unwanted*”. Although the SPV E200 appears to have provoked a number of pragmatic concerns, a number of hedonic benefits, such as social and personal identification, have been identified in the previous sections. According to Hassenzahl’s (2003) product character framework, such a combination of strong hedonic attributes and weak pragmatic attributes should result in a “*SELF*” product which is “*inextricably linked to users’ self, e.g. their ideals, memories and relationships.*” Although somewhat surprising considering the pragmatic purpose of the smartphone, the issues identified in the previous sections, to some extent, correspond appropriately to this prediction.

5.4.5 A Familiar Appearance

Despite the criticisms that were levelled at the SPV E200 in terms of its functional drawbacks, one of the main advantages identified in the current investigation was its

conformity to existing technology. The SPV E200 was the first device to run on the new Windows Mobile for Smartphone platform developed by Microsoft, which according to the marketing material provides the “*familiarity of Windows coupled with the power of mobility*”. This familiarity was certainly not lost upon the participants in the current investigation, who each found the similarity to their desktop versions of Windows to be beneficial in exploring and using the device. This was evident in Miguel’s initial exploration of the SPV E200, during which he soon became accustomed with the familiar features of the popular operating system. Having found the Start button, he joked that presumably it is used to turn off the device, as with traditional versions of Windows. Not only was the appearance of Windows Mobile familiar however, but also the means by which the user must navigate the various screens and menus. Miguel commented on how the ‘back’ and ‘home’ keys were reminiscent of those used in Microsoft Internet Explorer, which made navigation more logical and intuitive. Although Louise initially assumed that the ‘home’ key provided a shortcut to allow her to phone home, she soon became familiar with the operating system, and recognised programs such as MSN Messenger and Solitaire, which she enjoyed because “*it is the same as the one on the computer - a game I already knew how to play.*” Finally, although Jill admitted that she was not a big computer user, she appreciated the ability to customise the appearance of the SPV E200, noting “*It’s like on the computer - you can take a picture and use it as your background.*” Despite the concern expressed by Miguel, that someone approaching this device without an existing knowledge of Windows would struggle, the familiarity experienced by each of the participants was extremely beneficial towards their satisfaction and enjoyment of the device.

Familiarity, which can be defined as the degree to which a user recognises the components of the user interface and views their interaction as natural (“familiarity”, www.usabilityfirst.com), is essential to any device of this nature, particularly one that must be frequently accessed in a variety of environmental conditions. Although, as in the case of Windows Mobile, this can be achieved by relying upon a standardised metaphor, designers may also attempt to mimic the visual appearance of real-world objects in order to embody an important sense of familiarity. In terms of Wright et al.’s (2003) framework, the ‘appropriating’ process is made much easier through adherence to devices that have already been appropriated into the user’s experience. An example of such mimicry lies in the integrated camera of the SPV E200, for which designers have drawn upon the familiar features of a traditional camera, albeit one of a digital persuasion, in order to create a recognisable, and thus inherently usable, function. Similarly, the calendar function of the SPV E200 adopts the appearance of a traditional diary or calendar so as to provide the user with an immediately familiar interface. It is interesting to note that the features that were more frequently utilised and appreciated by each participant were the ones that had a real-world equivalent with which they were already familiar. For example, Jill and Louise, for whom the capture and display of cherished moments was important, expressed great enthusiasm towards the camera function of the SPV E200. Their appreciation of the calendar function however, was somewhat limited. Conversely, Miguel found the integrated camera to be little more than a “*gimmick*” and considering it to be “*the preserve of perverts*” due its potentially covert nature, yet he did however favour the calendar function, having already utilised the real-world equivalent to a great extent. By exploiting the familiarity of well-known objects and design metaphors, designers can ensure that their products are much easier to understand and can be used intuitively. Consequently, in a product

as ubiquitous as the mobile phone, which is heavily relied upon for a growing number of purposes, such comprehension will ultimately result in our retaining a greater sense of control and organisation over our lives.

5.4.6 Design Implications – Clarity and Familiarity

Various usability issues have been highlighted, which if addressed, would not only make the SPV E200 much easier to use, but would also impact dramatically upon the user experience. Clarity and familiarity are the key goals that designers must strive towards, making the various functions of the mobile phone much more obvious and reminiscent of existing technology. With large colour screens available there are relatively few technological restrictions upon creating a clearer and more efficient interface. In terms of the actual hardware of such devices, an improved battery life, perhaps supported by a solar- or kinetic- powered backup battery, would ensure that the mobile phone can be always be relied upon. Furthermore, if the devices were made more durable, or at least more durable in appearance, this may even reduce the cautiousness surrounding their use – especially with expensive devices such as the SPV E200. For times when the fragility of such devices is a prime concern, disposable mobile phones could even be introduced, which, like their photographic equivalent, could be used for a period of time before being thrown away. Aside from the security benefits that would stem from such improved reliability and durability, the organisational aspects of the mobile phone might also become more significant. If the device could be relied upon, then the user may be more likely to trust it in assisting them with their daily organisation. Although calendars and reminders are already present in mobile phones such as the SPV E200, offloading more organisational responsibilities onto the device itself could further enhance these features. When arranging a meeting or appointment, users could simply allow their mobile phones to communicate the users' schedules with each other in order to establish a mutually convenient time. Similarly speech-synthesised audio reminders could be used, which not only alert the user to an important event but also vocally inform them of the details. Ultimately, the mobile phone could become a virtual secretary or personal assistant, which the user could rely upon to organise their daily activities. Care must be taken however not to exclude users for whom appointments and meetings are not a big part of their lives. Therefore, as well as promoting the organisational potential of the mobile phone in terms of business arrangements, designers could also accommodate domestic arrangements, which are just as crucial to many users. A device that could communicate with appliances such as the cooker or microwave, in order to arrange for meals to be pre-heated before the user arrives home, or the refrigerator in order to receive reminders of what to purchase when shopping for groceries, may be hugely beneficial to the majority of users. Designers should therefore seek to enhance the organisational aspects of the mobile phone in order to make it a truly indispensable device.

5.5 Relevance

5.5.1 The Importance of Relevance

Common throughout the four distinct themes of identity, sociability, security and organisation is an intertwining sense of relevance. Although relevance itself has no direct bearing upon the emotional impact of a particular product, it is seemingly an important consequence of many other aspects of user experience. If, as Hassenzahl

(2003) suggests, the user fails to identify with the product character then a judgement of irrelevance will occur, resulting in emotional and behavioural consequences towards its use. Similarly, Norman (2004) notes that *“the overall judgement of a product comes through reflection.”* If a product has little reflective appeal, let alone behavioural or visceral appeal, it is likely to be deemed irrelevant by the user. Furthermore, in accordance with the framework proposed by Wright et al.’s (2003), if the experience of a product offers little connection with a user, and therefore cannot be suitably appropriated, or reflected upon, the likelihood of it being adopted by the user is small. Relevance is the ultimate test of a product. It was certainly an important consideration for each of the participants in the current investigation, whose opinions of the SPV E200 seemed to hang on whether or not the device was appropriate to them. This was immediately apparent from Jill’s verdict on the SPV E200, in which she declared *“it’s far too complicated for me. Not very straightforward. I mean it’s good when you get into it, but it takes a lot of effort and is just far too complicated for my needs.”* For Jill, who leads a busy lifestyle balancing a part-time job and looking after her two young children, time is extremely precious. Products that are deemed irrelevant by Jill may however be relevant to her children – an issue that engenders an important sense of responsibility. Although she appreciates the advantages that technology can bring, and to some extent is willing to explore its potential, if not for herself then for her kids, it must be something that has an immediate benefit in order for her to willingly embrace it. Despite recognising the potential of the SPV E200, Jill’s satisfaction with her existing mobile phone, coupled with a reluctance to further explore such a complex device, resulted in a judgement of irrelevance. Claiming that she could not see herself using one, Jill remarked *“I feel the phone is suited for a businessman or a professional, but not for someone like me.”*

A similar sentiment was shared by Louise, who despite becoming reasonably adept at operating the device and praising its various features, claimed, *“I don’t think this is really my sort of phone.”* Sociability is very important to Louise, and her dependency and attachment to her mobile phone is indicative of her desire to keep in touch with others. Although the complexity that had discouraged Jill posed no real problems to Louise, the image and purpose conveyed by such a device was felt to be more appropriate to a businessman than a student. Consequently the perceived relevance of the SPV E200 was somewhat lacking. Even in the role of a business tool however, the SPV E200 was of little relevance to Miguel, who, after the initial novelty of using such a device, noted that *“all the bells and whistles that are on this phone are interesting, and a novelty at first, but I have soon found it has taken up residence next to my old phone in my bag and is used very rarely.”* He did however concede that the SPV E200 *“could certainly be a useful business tool if I was keeping it, and it was my own phone”* although he considered the organisational aspects of the device to be much more relevant than such *“gimmicks”* as the integrated camera. Seemingly, many factors can influence the subjective perception of relevance, which is essentially a judgement based upon the extent to which an individual’s needs are met. Such needs could pertain to issues of identity, sociability, security or organisation, which is what makes relevance such a fundamental and overarching aspect of user experience.

5.5.2 Novelty Value

One of the more deceptive aspects of user experience, which could create a false impression of relevance, is the novelty that stems from a new experience. Hassenzahl (2003) argues that the novelty of *“interesting or exciting functionality, content,*

presentation or interaction style” (p.35) may be beneficial in achieving the particular goals of a product. Norman (2004) also cites the work of designers Khaslavsky and Shedroff, who believe that the incorporation of elements of surprise and originality serves to distinguish a product from others available on the market. Whilst powerful in the initial stages of an experience, novelty value is not the solution for sustained product use. This was evident in Miguel’s reflection of using the SPV E200, which he admitted was at first was *“quite a novelty”*. This appeal soon wore off however, and after only a week he revealed that he hardly used the device other than for the purposes of this investigation. A similar impression was given by both Louise and Jill, for whom the various features of the SPV E200 seemed to be little more than fleeting curiosities, which ultimately had little long-term benefit. When asked what her favourite features of the mobile phone were, Louise detailed the photographic capabilities, the Internet facilities and the Voice Memo function – all of which, she noted, were not present on her existing mobile phone, which seemed *“ever so basic”* in comparison. She admitted to finding herself *“using the phone for more functions than my existing phone, which I only use mainly for calls and text messaging. This could have been the novelty value though, but I certainly used more functions.”* Even Jill admitted during the course of the investigation that she was *“really, really loving the use of this camera”* and that *“it’s amazing what you can do with it really.”* Nevertheless, despite such alleged benefits, they both proclaimed that the SPV E200 was not for them, suggesting that the novelty of the more unconventional functions of the mobile phone has no long-term appeal in terms of product satisfaction. Despite their initial interpretation of the device, their subsequent reflection, according to Wright et al.’s (2003) framework, has resulted in judgement of irrelevancy. The apparent product character, constructed by each user, appears to have manifested somewhat different to the intended product character, established by the designer (Hassenzahl, 2003). Hassenzahl argues that this is out of the hands of the designer, and is purely a consequence of a poorly communicated product character. Nevertheless, designers must still ensure that their products are appropriately matched to the needs and desires of their intended users. As demonstrated in the current investigation, failure to do so will result in indifference towards the product and reduce the likelihood of long-term use.

5.5.3 The Benefits of Relevance

If however, the needs of the user are appropriately addressed in a product that meets, or even exceeds, their expectations, then the benefits in terms of user experience will be great. Hassenzahl (2003) identifies a number of consequences that will result from a particular experience, including satisfaction, pleasure and appeal. Such positive effects were evident from the attachment shown by both Louise and Jill towards their existing mobile phones. When asked about what had surprised her about such devices, Jill remarked, *“I said that I’d never have one but now I don’t know what I would do without it.”* Similarly, Louise commented, *“I have realised that I couldn’t do without it”* And also that *“I don’t tend to go anywhere without it.”* In accordance with the ‘recounting’ process of sense making, identified by Wright et al. (2003), both Louise and Jill have reflected upon their experience of mobile phones, and naturally are willing to recount it to others. Their need to feel connected to others has resulted in a remarkable degree of dependency upon their existing mobile phone, which is relevant to this need. Miguel however, for whom staying in touch is less important, is somewhat indifferent towards such devices, and has consequently deemed the mobile phone to be largely irrelevant to his needs, claiming that it is *“not very important at all because I don’t use it enough for it to be too significant. As I said, I rarely have it switched on.”*

Another benefit that will stem from a device that meets the needs of the user is satisfaction. Regardless of the perceived benefits of other devices, the relevance of her existing mobile phone evokes an important sense of satisfaction in Jill, who remarked, *“I know that you can have them updated, but for me my mobile phone does me fine. It does what I want it to do.”* This is echoed in Miguel’s comments about his existing mobile phone, in which he noted, *“All it does really is take calls and text and it has an address book. There is little else it does. It’s just basically ideal for me.”* Although other factors such as brand loyalty, or familiarity may have an influence, it is the relevance of their existing mobile phones to their needs that results in greater satisfaction. The discovery of the games provided with the SPV E200 however, proved extremely relevant to Miguel, who found they were useful in *“killing a few minutes waiting for something to happen.”* This marks another consequence of relevance – that of enjoyment. Jill however, for whom *“there aren’t any games that I’d like to play on the mobile phone”* derived little pleasure from such pastimes, and claimed that they *“just doesn’t appeal to me at all.”* A number of positive effects can stem from a device that is relevant to a user’s needs. Consequently, if such relevance is acknowledged, various emotional consequences, such as attachment, satisfaction and enjoyment will transpire, which are desirable objectives of product design.

5.5.4 Falling Between Three Stools

In order to establish a positive user experience therefore, the impetus should be upon the designer to create products that are distinctly relevant to the user. This may be achieved by focusing upon the individual aspects of identity, sociability, security and organisation, but ultimately, it is the relevance of a product, which is of prime importance. Although this may seem a somewhat obvious claim, it would appear from the findings of the current investigation that designers are not achieving this objective. The way in which Orange has chosen to market the SPV E200 smartphone, suggests that it is relevant to a wide variety of users. The alleged flexibility and wide range of features that the SPV E200 offers, is supposedly relevant to an exchange broker, a student, as well as mother of two. The design of such a malleable device, which appeals to a wide cross-section of users, is a phenomenal achievement and surely marks an important breakthrough in product design. This investigation however, has demonstrated that this may not be the case. Although certain features of the SPV E200 may have been beneficial to each of the participants, the user experience of such a device is somewhat marred by the number of features that are also redundant to the user. As was reported in the previous section, Miguel found the calendar function to be extremely useful, whereas both Louise and Jill found it irrelevant. Conversely, both Louise and Jill enjoyed using the integrated camera, which Miguel regarded as something of a cheap gimmick, which held no relevance to him. Whereas both Louise and Miguel enjoyed using the games supplied with the SPV E200, Jill was relatively unenthused by them, and whereas the Voice Note function went unused by both Louise and Miguel, other than for the purposes of this investigation, Jill was impressed by such a feature, which she used to entertain her children. Different users have different interests, and rather than suiting everybody, the plethora of features on the SPV E200 only served to impair the overall user experience of each individual, for whom, it would appear, a more limited number of specific functions would have been preferable.

5.5.5 Design Implications – One for All OR All for One?

Whilst targeting a product at a wide variety of users may be beneficial in terms of increased revenue, the effectiveness of such product diversity appears to be poorly reflected in terms of user satisfaction. When designing a mobile phone, or indeed any product of such ubiquity, the manufacturer must be aware of the diversity of potential users. That is not to say however, that the functionality of the product must be broadened in order to accommodate as many of those users as possible. The greatest commercial success, according to Cooper (1999), will stem from designing for a single person. This is due to the fact that everyone is different and that *“facilities that please some users will interfere with the enjoyment and satisfaction of others”* (Cooper, 1999, p.125). Citing the example of an automobile that is designed to satisfy a wide spectrum of users but ultimately fails due to its overall lack of appeal, Cooper argues that instead of designing an all-encompassing “wonder” product that satisfies a variety of users, a variety of products should be designed, each of which satisfying a single user. Such wisdom appears to have been neglected by Orange however, whose persona-based marketing of the SPV E200, gives little consideration towards the diversity of the intended users. Consequently the device fails to be entirely relevant to an exchange broker, a student, or a mother of two. Therefore, instead of attempting to create products that appeal to a wide range of users and, consequently, only partly satisfying each of them, designers should perhaps target their creations towards a much narrower segment of the market, thus resulting in much greater satisfaction. Such an approach would substitute the multi-functionality of the smartphone for a range of devices that are appropriate to specific users. For example, a mobile phone designed specifically with the exchange broker in mind, may cultivate a particular image of professionalism through a stylish appearance. Whereas various organisational functions, such as a calendar, diary and schedule reminder, would be a necessity in such a design however, irrelevant features, such as an integrated camera or media player, could be omitted. The sociability requirements of a student may manifest in a mobile phone that omits so-called business functions in favour of features that allow the user to keep in touch with other people. Whilst a stylish appearance may also be necessary, communicational functions, such as text and multimedia messaging, as well as an integrated camera to capture memorable moments would be paramount. Finally, a relatively unsophisticated mobile phone, which would be easy to use and could provide the necessary degree of security and connectivity when required, would be beneficial to a mother of two, for whom irrelevant features, such as games, would provide unnecessary complications. By sacrificing the economical advantages of designing a single product in favour of satisfying a wider range of users, mobile phone manufacturers will provoke a much greater degree of product satisfaction than they would by attempting to suit all users with a single “smart” device.

6. Limitations and Further Research

Before any definite conclusions can be made, attention must be drawn to a number of methodological limitations and drawbacks that could have potentially influenced the outcome of this particular investigation. Not only will these establish the validity of the findings, but also serve to highlight opportunities for future research.

6.1 Interviews

Although the use of interviews has been deemed a crucial means of gathering rich qualitative data about the phenomenon under investigation, care must be taken to ensure that relevant information is elicited as naturally and unobtrusively as possible. Given the relative familiarity that the interviewer had with each of the participants in the current investigation however, the effects of interviewer bias can be presumed to be minimal. There may have been the possibility that participants attempted to ‘please’ the interviewer, by giving what they assumed to be desirable answers. Considering the abstract nature of many of the questions however, and an intentional vagueness about the investigational aims on the part of the interviewer, the potential for such ingratiating should hopefully have been minimised. A more likely influence upon the participants in the current investigation might have been the use of a video camera to record the interviews. As well as providing a reassuring backup to the audiotape recording, the intent of using a video camera was to capture the non-verbal communication of the participants, and in particular, their immediate impressions of the SPV E200 once it had been presented to them. Unfortunately, the visual data collected by this approach was of little research interest, with each participant responding in a slightly apprehensive but ultimately unperturbed manner. Such inconclusive data, coupled with the participants’ obvious discomfort about being filmed has led to the conclusion that the unobtrusive use of audiotape alone may have been preferable.

Regardless of the means by which they were captured, certain aspects of the interviews could have been improved in order to elicit the same, if not superior, responses in a more efficient and less time-consuming manner. Certain questions proved unsuccessful in eliciting satisfactory responses and were consequently dropped; other questions were developed over time in order to provoke more responses. Such adjustments are evident of a developing interview technique. Although specific aspects of the interviews ultimately proved irrelevant in the final analysis, this was characteristic of grounded theory based approaches, in which little is known from the outset about the phenomenon under investigation or the specific cases and situations under which it will be observed. Given more time, further research could explore the theory that has emerged from the data in the current investigation, and focus more specifically on the key themes that have been identified. This would not only allow weaker questions to be eliminated but also more specific questions to be tailored according to the emerging trends in the data, thus resulting in a more accurate and succinct interview. The interviews took place both before the participants were presented with the SPV E200, in order to capture *a priori* their anticipation of using the device, and afterwards, so that their reflection upon having used the device could be recorded *a posteriori*. Although certainly the most appropriate method for capturing this type of data, the pre-experience interview may have suffered somewhat due to the difficult nature of

capturing anticipation. Despite questions that were designed to provoke such thought, each of the participants had little concept of what a smartphone would be like and often repeated the basic information they had already been told by the interviewer.

It would seem that measurements of anticipation are difficult to gather through questioning alone, as often the experience is difficult to anticipate and even harder to capture in a formal response. Rather, more indirect measures should be used, perhaps using more concrete examples (such as the demands of the task, and their reaction to it) rather than expecting the participants to conjure up anticipation of something that is, in this example, completely unfamiliar to them. This has parallels to real life, where not every experience has an anticipation. Certainly anticipations can occur during the experience where, according to Wright et al. (2003), they are constantly revised, but very rarely, from scratch. The examples provided by Wright et al. are of experiences that are not entirely fresh (such as visiting a shop) and therefore easily imaginable. Alternatively, in order to prepare them for the tasks and to develop a pre-experience sense of anticipation, the participants could be 'briefed' before the actual period of investigation. It may be argued that part of the experience of a product is the consideration of reviews, articles, marketing material, word of mouth, and other influential factors, which allows opinions to be formed prior to actually purchasing the device. In order to simulate this crucial aspect of experience, a small 'press pack' of marketing material, including reviews, pictures, specifications and advertisements, could be given to the participants in the week prior to them receiving the device. Not only would this support the development of prior expectations and heighten the participants' sense of anticipation towards actually using the device, it would also mean that the participants are better informed of the product when the pre-experience interview are carried out. By ensuring that the material provided is available in the public domain, and is the type of information that would be available to anyone who is considering purchasing such a device, this would allow a realistic sense of anticipation to develop without impairing their actual experience.

6.2 Voice Notes

The actual experience of using the SPV E200 was captured by encouraging participants to record their thoughts and feelings using the integrated Voice Note facility. As with the voice-mail diary study by Palen and Salzman (2002b) on which this technique was based, the use of Voice Notes proved to be extremely successful in capturing information as naturally and spontaneously as possible. Miguel commented that he "*was far more likely to use it rather than writing something down on a pad*" and that the need for no additional equipment meant that it was much easier to make spontaneous recordings. As a consequence of having used it for the purposes of the investigation, Jill also enjoyed the Voice Note facility and remarked that it was a feature with which she would normally not have bothered. This provoked the possibility, also considered by Palen and Salzman (2002b) in their study, that natural usage of the mobile phone might be influenced by the task itself. Considering that the user experience of the mobile phone was the focus of the investigation however, and not precise patterns of use, such a potential effect was deemed inconsequential. The social aspect of recording Voice Notes in public was highlighted by Louise, who admitted to making some of her recordings at home instead of when they occurred to her on the move. Although recording a Voice Note was assumed to be as inconspicuous as using the device in the traditional manner, Louise argued that the

anecdotal nature of the recordings made the procedure somewhat embarrassing when in the presence of other people. She believed that a human response, such as that from a dedicated phone line, would have resulted in more detailed and informative comments being made. Nevertheless, the timestamp and background noise on each of the recordings indicated that the majority of Voice Notes made by the participants were recorded spontaneously in different locations at various times of the day. Further spontaneity could be encouraged by pre-setting the calendar function to remind the participants to make recordings, or by contacting them directly in order to ascertain what they are doing with the mobile phone at that particular time.

The only perceived problem with this method, in terms of the data it provided, was a tendency for participants to report issues concerning the usability of the mobile phone, such as being unable to find a particular button or finding the screen to be rather cluttered, rather than describing their experience of the device. Although clear instructions were provided as to what was required from such a task, these could be enhanced in future investigations by also providing examples of the type of comments that are expected. Furthermore, in order to ensure that participants remain focused on the phenomenon of interest, a smaller copy of the instructions could also be attached to the actual device itself, providing participants with a permanent reminder of the objectives. It must be remembered however, that usability issues are crucial to the understanding of user experience, and that the frustration caused by a puzzling or misleading interface is just as much an aspect of user experience as the joy that stems from the successful interaction with a device. Too great a restriction upon what the participants should and should not include in their recordings, may mask important issues, which only emerge through comments appertaining to the practicalities of use.

6.3 Grounded Experience Technique

In order to stimulate use of the SPV E200, the participants were issued with a number of objectives, which they were instructed to carry out during the course of the investigation. Certain objectives were based directly on the Orange personas and required the participants to carry out specific goal-based instructions; others were based on the emotional aspects of user experience and allowed the participants themselves to determine how they would be achieved. The tasks that were directly based on the activities of the relevant Orange personas proved to be a fairly successful means of evaluating the plausibility of this increasingly used design and marketing tool. To this end, there were relatively few drawbacks in terms of the methodology. Certainly, the participants were reluctant to carry out some of the activities, although this was considered to be a limitation of the personas rather than the methodology used. Although attempts were made in the initial interviews to determine whether the participants bore any relation to the personas they were chosen to represent, subsequent research could further assess their relevance by asking the participants to comment on the likelihood of the suggested activities and scenarios. Despite the success of the persona-based tasks, there were initial concerns over the goal-based nature of such a method, which, it may be argued, could have impacted upon the natural use of the device. After all, an accurate assessment of user experience would not be achieved if participants were merely following a preconceived, and somewhat idealised, 'model' of mobile phone use. Such concerns were addressed to some extent in the remaining tasks however, by allowing the participants to determine appropriate responses to purposely-ambiguous stimuli.

Although the Grounded Experience Technique proved successful in encouraging the use of the SPV E200 and establishing how certain experiences manifest in mobile phone use, certain limitations prevented the activity from achieving its full potential. The purpose of the activity was to promote experiential activity by encouraging the participants to actively *do something* with their phone. Although this was implicit in the title of the activity and also in the instructions provided, each of the participants chose to address this requirement retrospectively at the very end of the investigative period, by simply matching their experiences to the corresponding emotions. Given that usability issues had plagued many of the participants, a similar selection of mainly negative emotions, such as “frustrating” or “boring”, were therefore selected by each of them. Had the participants purposely attempted to carry out a selection of experiences instead of merely attributing the emotions to existing experiences, a more positive demonstration of mobile phone use may have emerged. Further research might address this by arranging the emotions into specific groups from which the participant must make their selection. By instructing them to select one from each group, this would eliminate the tendency to select a similar set of emotions, and should provoke a wider range of responses. Negative emotions could even be removed from the selection, as it is highly unlikely that a participant would purposely set out to do something negative. Certainly a negative response may stem from a particular activity, regardless of the intention of the participants, however the potential for negative experiences should not be encouraged. Certain adjectives such as “risky”, “daring” or “brave” could also be eliminated, due to the fact that the participants in this investigation considered them to be somewhat unreasonable requests. Ultimately, the Grounded Experience Technique represents an initial attempt to explore the elusive concept of user experience in a novel and exciting manner. It is only through further research that a more productive selection of experience stimuli will be discovered, and a more rigorous methodology will be developed.

7. Conclusion

Despite their author's intentions to "*enrich their understanding of the product milieu*" (Margolin, 1997, p.228) or to create "*strategies for making the theory live in practice*" (Forlizzi and Ford, 2000, p.419), the frameworks that contemplate the study of user experience from a practical, design-based approach seem to have had little impact upon the design community. Each of these approaches has attempted to delineate user experience into a specific, design-based framework that not only allows for the "*operationalisation and measurement of key elements*" (Hassenzahl, 2003, p.41) but also situates the theory in real life so that "*designers may better understand how people perceive and value objects.*" (Ibid, p.41). Unfortunately, the applicability of such frameworks to real-life user experiences appears to be somewhat limited. This was somewhat noticeable in the current investigation, in which the user experience of smartphones appeared to bear little relation to the tangible concept of experience outlined in such functional design-based theories. Certainly, there were aspects of the analysis that drew upon these frameworks, but ultimately, these were issues over which it is claimed by their authors, that designers have little control, such as the "*apparent product character*" suggested by Hassenzahl (2003), or the reflective level of Norman's (2004) three-level approach. These aspects are primarily a consequence of the user's interpretation of a particular experience, rather than a specific manifestation of experiential design efficiency. Perhaps what designers need, in order to establish products that engender user experience, are not specific guidelines that can be strictly adhered to, but instead more inspirational guidance that manifests through a less regimented and rigorously delineated approach. After all, there may be potential dangers in attempting to create specific, intransigent experiences, which should only be experienced according to the intentions of the designer. Such attempts may only serve to alienate the user by denying them the opportunity to bring to the experience an extraordinary wealth of idiosyncratic and situational influences.

Given the exploratory nature of the study of user experience, which is still in its infancy and somewhat underdeveloped conceptually, perhaps a more abstract approach needs to be taken, which attempts to "*isolate the elements of experience*" (Wright, McCarthy and Meekison, 2003, p.43) in order to "*understand their interaction and how they mutually constitute each other.*" (Ibid, p.44). Even the study of usability, which is now a very practical field of investigation in which tangible, practical guidelines of efficient use are established, was originally rooted in the somewhat abstract concepts of cognitive psychology. Accordingly, a more applicable and perceptible theory of user experience may emerge from current metaphysical expositions, which, although still somewhat abstract and impractical, nevertheless signify an important step towards a thorough demarcation of the elusive concept of experience. Certainly, the current investigation identified many aspects of user experience that were reminiscent of holistic, experience-based approaches to the concept. Not only did this provide some authentication of the more abstract interpretations that characterise such approaches, but also it served to further underline the belief that user experience cannot easily be reduced to specific design guidelines. It would appear however, that despite the perceptive elucidations of experienced-based approaches, which appear to be corroborated by real-life occurrences, their actual application in design is currently somewhat limited. Whether this is due to the intangibility of such approaches, which prove difficult to apply directly to design, or whether the concept still requires further clarification before the adoption of such

approaches can realistically be expected, is unclear. Wright, McCarthy and Meekison (2003) concede that their framework “*requires some fine-tuning and some clarification of concepts if it is to be used as a tool for analysing experience*” (Ibid, p.52), suggesting that it is still a long way before their framework provides a pragmatic set of tools for designers. Although the, admittedly similar, framework provided by Rhea (1992) is rooted thoroughly in market research, and claims to depict “*a complete cycle of customer experience with a product, from the customer’s point of view*” (Ibid, p.41), it too appears to have had little bearing upon actual product design. In fact the only author to provide specific examples of real-life applications is Alben (2002), who despite a somewhat obscure maritime allegory, appears to have created a framework that has been embraced by certain elements of the design community. Given its attempt to draw together both practical, design-based methods and abstract, experience-based approaches, this holistic framework is indicative of the approach that should perhaps be taken towards the exploration and design of user experience.

Although remarkable progress has been made with regard to the exploration of user experience, the concept, despite being the focus of much research, still remains somewhat vague and undetermined. Also, irrespective of certain exceptions, the applicability of current frameworks to real-life user experiences is somewhat limited. Where both design-based and experience-based frameworks seem to falter, however, is not in their attempts to elucidate the notion of user experience, which, regardless of perspective, pose interesting and useful definitions of an unwieldy concept, but in their efforts to align such explanations with real-life pragmatic occurrences. Theory and classifications of the various aspects of user experience are often established before any attempt is made to determine how the phenomenon manifests in reality. This hypothetico-deductive approach whereby hypotheses are formulated before being either confirmed or ruled out by experimental analysis, is characteristic of the ‘Scientific Method’ of investigation. As established in the introduction however, although such an approach is often suitable in traditional usability studies, it is less relevant to the more exploratory and tentative investigation of user experience. Therefore, whilst the elusive concept of experience may prove difficult to rigidly pin down and appropriate, some attempt must be made to find a more realistic, tangible, and grounded means of evaluation. This was the approach taken in the current investigation, which although perhaps somewhat sensitised towards existing theories and frameworks, nevertheless marked an attempt to root the study of user experience firmly in the data. By basing the methodology upon grounded theory techniques, the current investigation has allowed for the dominant issues concerning the user experience of mobile phones to emerge from the actual data itself, thus allowing for a more accurate and revealing account of this elusive aspect of product design. Not only did this succeed in elucidating significant aspects of the user experience of smartphones, it also established a number of design implications for such devices based on the data itself. Thus, whilst the various approaches to user experience each have their own merits, a method of investigation is necessary that establishes a descriptive theoretical definition based upon a testable foundation of data, instead of a making a contrived attempt to apply the data to a pre-conceived prescriptive outline. The use of grounded theory techniques, suitably addresses this issue, and further exploration of this technique should allow for the creation of tangible design implications as well as a more precise definition of the concept, in order to ultimately cumulate in a more grounded theory of user experience.

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Appendix I – SPV E200 Product Specification



(As described on the Orange website
[http://developers.orange.com/site/enuk/knowledge/
devicespecs/p_spve200new.jsp](http://developers.orange.com/site/enuk/knowledge/devicespecs/p_spve200new.jsp))

Smartphone features:

- Microsoft Windows Smartphone 2003 Operating system.
- Integrated camera.
- Bluetooth™ capabilities.
- Full personal information management and e-mail functionality through Outlook.
- Schedule appointments.
- Manage your contacts.
- Organise your tasks.
- Synchronisation with desktop PC.
- Pocket Internet Explorer.
- MSN Messenger.
- Windows Media Player.
- Unified inbox stores all incoming messages, including new e-mail, voice-mail, and SMS text messages.
- Five-band graphical equaliser and stereo widening to enhance playback sound.
- High fidelity stereo headset for music player and voice calls.

Full specifications/dimensions:

- Weight: 130g.
- Measurements: 50.1 x 120.4 x 23.5mm.
- Five-way joystick and larger keys on the keypad for easy-to-use experience.
- Colour display: 176 x 220 pixels.
- Easy-to-use menus.
- 65,532 colour screen.
- Windows Media Player for MP3 and wav files.
- Music file download from compatible PC over USB cable.
- SD Memory card storage for music content and other files.
- Multimedia Messaging (MMS): Storage for up to 50 MMS messages.
- Enhanced SMS support: chat, distribution list, SMS concatenation, templates, and picture messages, Storage for up to 150 SMS messages.
- Email over SMS.
- Preloaded Jawbreaker /Solitaire game.
- Personal ringtones for incoming calls: MP3/AAC, Polyphonic ringtones, and True Tones.
- Internal phone book for up to 250 entries.
- Full profiles settings.
- Integrated hands free speaker.
- Video support 10 frames per second.
- SMTP/POP3/IMAP protocols support for email.
- Tri-brand operation.
- GSM 900 + 1800 and 1900 networks; automatic switching between bands.

Appendix II – Interview Questions

Anticipation Interview

The Basics

- In approximately what age bracket are you?
- What do you do for a living?
- Tell me a bit about yourself... (Background? What do you do for a living? Marital status? Kids?)

Technology In General

- Do you generally keep abreast with technology (Gadgets, devices, computers etc.)?

Organisation

- When organising aspects of your life, such as dental appointments, meetings, birthdays etc., what methods do you use?
- Do you / would you rely upon a mobile phone to organise your life, and if so, what events / reminders do you / would you trust it with?
- How detailed is your contact list, and do you consider it secure? Is your mobile phone the only place that you keep everybody's details?
- What are the criteria for adding someone to your contact list (Friends? Family? Services? Etc.)?

The Internet

- Do you use the Internet at home or at work, and if so, what do you use it for? What about e-mail?
- Have you ever attempted to access the Internet using a mobile phone (e.g. WAP or GPRS), and if so, what did you think?

Leisure

- How do you normally spend your free time?
- What are your favourite types of games to play, be it board games or computer games?
- What is most important to you when playing games?
- How entertaining do you find the games that are included with your mobile phone, and in what circumstances would you play them?
- Are there any games that you would like to be able to play on a mobile phone?
- Do you use any other features of your mobile phone (such as through text messages) to play your own games?

Music

- What type of music do you listen to, and when?
- What equipment do you use to listen to music (e.g. a hi-fi, walkman etc.)?
- How do you feel about using your mobile phone to listen to music, and do you feel it could replace such portable devices as the Walkman or iPod?
- How interested are you in downloading music from the Internet, and would you download it to your mobile phone?

Photography

- What interest do you have in photography (e.g. camera / video recorder)?
- How comfortable do you feel in using a traditional camera / video recorder?
- For what reasons do you take photographs / videos?
- What about your mobile phone? Does that have a camera / video facility? What sort of things do you take photos / videos of with it, and why?
- In what circumstances would you use a camera / videophone instead of a traditional camera / video recorder?
- How important to you is the quality of a photograph / video, and do you consider a camera phone / video capable of providing that quality?
- How do you currently store photographs / videos, and why, and to whom are they shown?
- How would you store the photographs / videos taken with your camera phone, and to whom would they be shown?
- Under what circumstances would you send one of your photos via a multimedia message?

Personalisation

- Many products these days allow for some degree of personalisation. For example, watches with interchangeable faces, different coloured fascias for mobile phones, even trainers that can be manufactured with a design/logo of your choice. What does personalisation mean to you, in what circumstances do you like to add a personal touch, and for whose benefit?
- What do you think of the current trend of customising mobile phones with ring tones, pictures and interchangeable fascias?
- What influenced your current choice of ringtone and background picture on your mobile phone, and what do you think it says about you?
- If your house was on fire, all your family and pets had been saved, but you could rescue only one object/thing... what would it be?

Mobile Phones

General Usage & Competence

- What influenced you to buy a mobile phone (e.g. convenience, fashion etc.)?
- What can your current phone do?
- In what circumstances do you generally use your mobile phone?
- How well acquainted are you with the functions of your mobile phone?
- What are the functions that you enjoy the most?
- What functions cause you the most frustration?
- Which function surprised you the most?
- Have you ever felt overwhelmed by the functions of your mobile phone?
- What was the last new feature you learnt how to use on your mobile phone?
- In what circumstances would you use the text facility?
- How and why do you keep the texts you have sent / received?

Impact Upon Lifestyle

- Aside from the monetary value, how important is your mobile phone to you?

- What do you feel you have gained / lost from having a mobile phone?
- How cautious are you about using your mobile phone?
- Are you always available on your mobile phone and in what circumstances would you switch off your mobile phone?
- How ‘connected’ does your mobile make you feel with your friends and family, and would you feel disadvantaged without it?
- When has your mobile phone made you feel closer / hostile towards someone?

Positive Affect

- Tell me about a time when you have been glad to have been carrying your mobile phone...
- Conversely, has there ever been a time when you wished you had left it at home?
- In what circumstances does carrying your mobile phone make you feel secure / insecure?
- How confident would you feel replacing your home phone with your mobile phone? Which is more reliable?

Negative Affect

- When has your mobile phone irritated you or made you feel angry?
- When did your mobile last let you down (e.g. by running out of charge / credit, poor signal etc.)?
- When was the last time you had a problem with your mobile phone, and how did you resolve it?
- When have you ever felt limited in your ability to use your mobile phone?

Social Influence

- If you are sitting down in a café or bar, what do you do with your phone?
- Are you proud of your phone, or like the advert says “Are you ashamed of your mobile”?
- What do you think your mobile phone says about you?
- If you had to cancel an appointment with a friend at short notice, how would you choose to let them know?
- What influence do you feel that celebrities, such as David Beckham, have when advertising mobile phones?
- How do you feel about using your mobile phone in a public place?
- Would you be happy / would you feel about using your mobile...
 - ...in the street?
 - ...shopping in the supermarket?
 - ...in a restaurant?
 - ...with friends?
 - ...on public transport (bus or train etc.)?
 - ...in the cinema / theatre?
- Please comment on the banning of mobile phones in certain areas (e.g. hospitals, aeroplanes etc.)?

Etiquette

- When is it appropriate to send a text (SMS or MMS) message, and when is it inappropriate?
- How do you feel if the person you are calling diverts you to their answer-phone?

- Are there any situations in which photo (MMS) messages are more, or less, appropriate than standard text messages (SMS)? Do they add anything more to the message?
- How comfortable do you feel about using “txt spk” as opposed to proper spelling and grammar?

This Investigation

- What to you does the concept of a ‘smart phone’ mean?
- What would you ideally like a ‘smart phone’ to do for you?
- How would you feel carrying around a ‘smart phone’?
- What features of a phone, whether they currently exist or not, would make it a “must-buy” purchase for you and why?

(Upon viewing the persona...)

- Is this you?

Anticipation Interview

- How did you get on...?
- What were your expectations of using a ‘smart phone’, and how have they been met?
- In what ways has your mobile phone gone beyond your expectations?
- In what ways has your mobile phone failed to meet your expectations?
- Could you see yourself using one?
- Did you feel more connected?
- What do you consider to have been the advantages and disadvantages of a ‘smart phone’?
- What has been the best thing about using a ‘smartphone’?
- What has been the worst thing about using a ‘smartphone’?
- How does the ‘smart phone’ compare to your old phone?
- Would you be willing to swap your old phone for this ‘smart phone’ – right now?
- What did you think about...
 - Using the phone to make calls?
 - Text Messaging?
 - Photographs / Videos / Photo Messaging? (Photography)
 - Internet / Email? (The Internet)
 - Music? (Music)
 - Games? (Leisure)
 - Calendar / Task List / Contact List? (Organisation)
 - Ringtones / Backgrounds / Other settings? (Personalisation)
- Did you use the instruction book at all?

Appendix III – Grounded Experience Technique

Do something...

...fun

...comforting

...risky

...random

...daring

...loving

...hopeful

...boring

...scary

...new

...surprising

...for someone else

...frustrating

...intimate

...cool

...creative

...exciting

...rewarding

...pleasing

...funny

...you are proud of

...boastful

...bizarre

...inspiring

...kind

... brave

...relaxing

...mean

...together

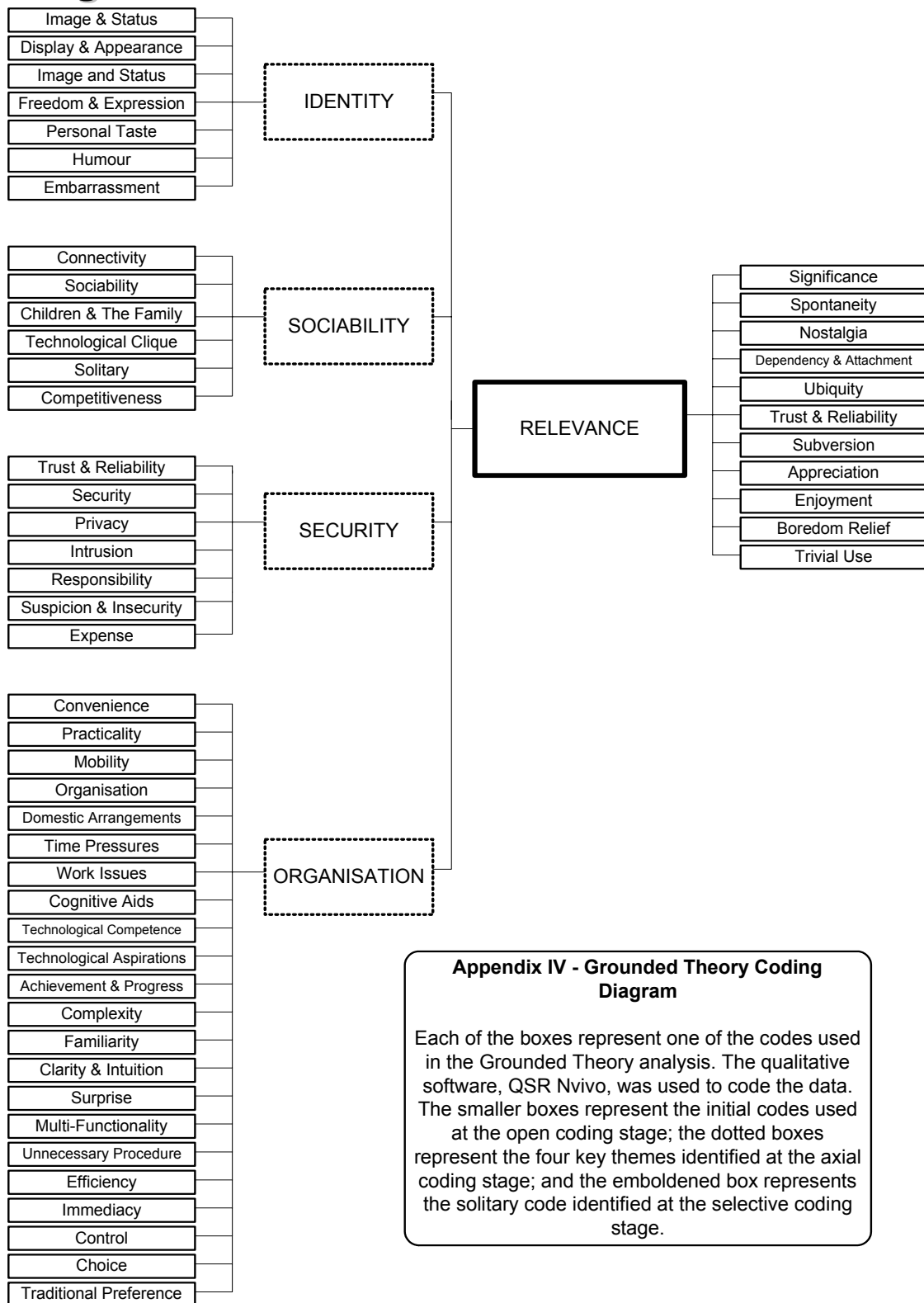
...alone

... silly

...annoying

...using your mobile phone. (PLEASE PICK ANY FIVE)

Appendix IV - Grounded Theory Coding Diagram



Appendix IV - Grounded Theory Coding Diagram

Each of the boxes represent one of the codes used in the Grounded Theory analysis. The qualitative software, QSR Nvivo, was used to code the data. The smaller boxes represent the initial codes used at the open coding stage; the dotted boxes represent the four key themes identified at the axial coding stage; and the emboldened box represents the solitary code identified at the selective coding stage.

Appendix V – Interview / Diary Study Transcripts

“LOUISE” ANTICIPATION INTERVIEW 26th JULY 2004

Q: In order to determine, which age bracket you are in, please state your age.

A: Twenty two.

Q: What do you do for a living?

A: I've just finished at University, and I'm going to be a teacher, starting in September. I also work part-time looking after two kids from the family down the road.

Q: Do you generally keep abreast of developing technology? For example, new gadgets or the computer.

A: No, not really. I'm not very good at working them, so I generally don't bother.

Q: Say you are organising aspects of your life, such as dental or hairdressing appointments, or birthdays, what methods do you use?

A: I mainly use a calendar. I sometimes use a diary, which is a bit more portable than a calendar as I can keep it with me all the time, especially when I am at Uni or at work. I never use my phone. We have a calendar in the house that we all use.

Q: Would you rely upon a mobile phone to help you in organising your lifestyle?

A: No, not really. I like it so all of my appointments and things to remember are all on one sheet, and you can see exactly where you are. You can also tick things off when you have done them. It's also much easier to scribble something down on a calendar than it is on a mobile phone. I would trust my mobile to remind me of appointments and events, but I would trust my diary a lot more.

Q: How much use do you make of the contact list facility, incorporated in your mobile phone?

A: Well, for one thing, it is full it has got as many contacts in it as it will hold. If I want to add a new number, I have to delete somebody, which isn't ideal. I usually delete people who I haven't seen for years, or whose number I can easily get from others sources. Apparently it holds around 90 contacts, but I don't think I know that many people! It isn't helped by the fact that my phone stores each of person's different numbers as separate entries their home and mobile numbers, for example. I only put people's names and numbers on I wouldn't put any other details.

Q: Is your mobile phone the only place that you keep everybody's details?

A: I mainly keep all of my contact details on my mobile phone, although I have got some of them in an address book as well. I don't know why I trust it to be honest, because I lost all of my numbers when I cracked the screen on my old phone. I moved the SIM card to my new phone, but all my contacts were stored on the old phone, and not on the SIM card, and I couldn't retrieve them. So, I wouldn't really say it is secure. I should really write them all down somewhere but at the moment I don't.

Q: What are the criteria for adding someone to your contact list who gets to be on it?

A: People whose number I want to keep, such as friends and family. Recently I've added the numbers of a couple of teachers from my new school. I've also got the numbers of a few taxi services and restaurants. I had the college phone number on it, and also the people I work for. I sometimes add numbers that I don't want to answer the phone to I include them so it will display the name of who it is when they call me.

Q: Do you use the Internet at home or at work, and if so, what do you use it for?

A: It's not actually working at home at the moment, but when I can access it, I use it to check my emails, book trains... and generally find out information. I've used it for essay research. I rarely just 'surf' the Internet for the fun of it. I tend to use it to find specific information that I am looking for.

Q: How much use do you make of e-mails?

A: I am quite a big user of e-mail, but I haven't checked it for a long time. It is certainly much easier than writing a letter.

Q: What use have you made of the mobile phone in accessing the Internet?

A: I've never attempted to do it, but I've tried it on a friend's phone and I couldn't do it. I just didn't understand how it works. Also it wouldn't let me log on without a password, so I just left it. I wasn't using it for anything in particular just having a play, to see if I could do it. I didn't need to use it, and I couldn't be bothered working it out. It would be extremely useful if I could at the moment however, seeing I can't access the Internet on my computer at home!

Q: How would you usually make use of your leisure time?

A: At the moment, seeing as I haven't started my new job, I mainly spend it sitting in front of the television, or shopping! I do a bit of swimming sometimes, and I read quite a lot. I feel a bit isolated at home. When at college I spent my free time socialising, and going out with friends.

Q: Do you play any board games, card games or computer games and if so what are they?

A: I don't really play any games anymore. I do prefer board games, like Monopoly and Cluedo. I quite like the board game I play with the little girl that I look after it is a

Sherlock Homes detective game. That's quite good. You read a case and you have to solve who did the murder or the burglary or whatever. It's a bit like Cluedo, but more complicated. I also like the "Who Wants To Be A Millionaire?" board game, or any quiz-type games. I never use the computer to play games.

Q: When playing games, what is most important to you?

A: The entertainment that it provides. I generally like playing with other people it is about socialising. I like playing with others, such as family or friends, but not my Dad, because he always wins. I can't play anything by myself there's no one to beat!

Q: What games, if any do you play on your mobile phone?

A: I played with the games when I first bought the phone. I've got 'Snake', on which I have a very high score, courtesy of the little boy I look after. There's a game called 'Space Impact' but I don't get that, so I don't play it. I hardly ever play them. Maybe occasionally, if I am on a train and bored, or if I don't have enough money to ring or text anyone, I will use it, but it is a bit of a last resort.

Q: How entertaining are they? When do you play them?

A: Mainly when I'm really bored on the train or the bus. I rarely set out to purposely play the games they just pass the time when I am bored. The kids I look after like the games they'll often steal my phone to play 'Snake'.

Q: Are there any games you'd like to be able to play on your mobile phone?

A: Tetris would be good, like on the Game Boy. Also quizzes would be good ones where you can test your knowledge.

Q: Considering the (provided) example of Mobile Poker, do you use any other features of your mobile phone (such as text messages) to play your own games?

A: Me and my friends at Uni use the anonymity of text to send messages to lads as though we are another girl. I send her boyfriend a message as though I was a girl who saw him out at the weekend and I quite like him. They do the same to my boyfriend to see what they say.

Q: What type of music do you listen to?

A: Really cheesy music, for example, Chesney Hawkes, but also old stuff like Meatloaf, Status Quo, Beach Boys, and George Michael whatever comes on the radio. I like R'n'B at the moment, in particular 50 Cent. I like all sorts a mixture of old and new. I don't like dance music. Well, I don't mind if you can sing to it, but not when it is just bass.

Q: When do you listen to music?

A: I usually put the radio on in the morning when I'm getting ready. I have it on as background when I'm cooking or cleaning or whatever. It's mainly the radio I listen to.

I've got a Sony Discman, but I don't really use it, because I never think to take it with me, and it's a bit big to fit in my bag. You've got to carry CD's around with you as well, which isn't very convenient.

Q: Would you listen to music on the mobile phone?

A: Yes, that would be nice, so long as it is free, as I would have the mobile phone with me all the time. You wouldn't have to think about picking up your Discman and choosing which CD's you want to play. There isn't a radio function on my Discman, which I don't like. I'd like to have the option of listening to my own music or listening to the radio.

Q: What about the Internet as a source for music?

A: I've used it occasionally, with the help of my friend. I mainly download songs that I can't find anywhere else, like Chesney Hawkes, and other oldies. It would be nice to be able to download them to my mobile phone, but it takes too long to find out, and I never get chance to.

Q: What interest do you have in photography?

A: I like taking pictures. I think they are good for capturing memories that you can reminisce over later. I usually take pictures of funny things, or special moments when you are out with your friends, or of something I'd like to remember, like a memory of a good night out. Also, if I go to a new place, which I might not visit again, I like to take a picture of the scenery, but I never remember to have my camera with me!

Q: How comfortable do you feel in using a traditional camera or video recorder?

A: I've never used a video recorder, so I wouldn't be very comfortable with using one. I'm not too bad at using a camera, although I often chop people's heads off, or take photos that are out of focus. Mine isn't exactly top of the range.

Q: How would you feel about using your mobile phone for photography?

A: I'd like a camera on my mobile phone. If I were buying a new mobile phone, that's definitely one of the features I would want it to have. You'd be able to have it with you all the time, and take a picture whenever you want. I'd certainly use it more spontaneously than I would a traditional camera, as I have my phone with me all the time, but I don't often take my camera out with me. I'd probably use it when I was out and about, as at home, you can get your traditional camera out. It would be good for taking sneaky things where you wouldn't really be able to use a camera. For example, when I've been at people's houses, I've wanted to take sneaky pictures to bring home to show my Mum.

Q: How do you feel about the quality of the photographs that you take?

A: I don't like it when a photo is blurred, or has a finger over the lens, or whatever. I don't think the formal posing of, say, wedding photos, are always necessary. Sometimes it is nice to take natural pictures, rather than ones formal occasions. I think

a camera phone would be good for those types of situations, but I would want to be able to print them out. I much prefer a paper copy that can hold in my hand, as opposed to one that I have to view on a screen. I also think the camera phones would have to be of a certain quality so that there is a point in using them instead of a normal camera.

Q: How do you store your photographs?

A: I've got them in photo albums. I've made a collage of all the pictures from my 21st birthday, which is in a big frame. Some of my photos are in frames, like nice family photos, or ones of my cat.

Q: To whom are they shown?

A: I often show the pictures to people who are actually in them, such as my friends, but generally whoever wants to see them. I like to look at them on my own every now and again. Obviously, the ones that are on display around the house can be seen by anyone who visits. I think I would show more of the photos on my phone to other people, than I do normal photos, because it would be much easier. Plus they would usually be of funny things that you would want to show people. Also you wouldn't have to get them developed so you can show them instantly.

Q: Do you like the idea of being able to send pictures to other people with your mobile phone?

A: Yes, I think that is a nice idea. I'd probably send funny pictures. It would be nice to be able to share pictures with my friends, who are now scattered around the country. It would also be much easier than posting a copy, or scanning it in to the computer and emailing it. It would be good for taking photos of clothes in shops when I shopping, so I can remember what I want.

Q: How does the personalisation of products appeal to you?

A: I've got a phone that allows you to change the cover, but I've never bothered to be honest. I've even got a replacement cover but never bothered putting it on. I have however, changed the screen saver on the phone a few times, as I get bored of having the same one. Personalisation is good, because a lot of people like it, but it is not for me. I think it is best for things to look smart, rather than personal. Having said that, on my phone, at the moment I have got the case for the next model up, because I thought it looked better.

Q: How about anything else that is not necessarily of a technical nature?

A: Not really. I have some furry dice for the car leopard print, very classy. I do have a personalised number plate that's personalised... and a bit tacky! I do like it though. I've changed the background on my computer to a picture of my cat. The background on my Dad's computer is of a wedding he went to, with all the people, and the surrounding area.

Q: For whose benefit do you personalise things?

A: I suppose mine, really. No one else gets to look at my desktop or my screensaver other than me. It's the same with the screensaver on my phone it's personal to me.

Q: What do you think of the current trend of customising mobile phones with ring tones, pictures and interchangeable fascias?

A: I like it. I've got 'Angels' by Robbie Williams on my phone, and also 'Dancing Queen' by Abba. They are better than the boring tones that come with your phone as standard particularly the Nokia Tone. Some ringtones are really annoying. I'd rather not hear the call and phone them back later rather than have an awful ringtone go off.

Personalisation certainly doesn't appeal too much with phones, because they are displayed almost all of the time, when people can see them. I know people can see the number plate on a car but that is more discrete. The wallpaper on the phone could be a personal picture, and if you lost your phone or even if you had it out on a table, you wouldn't want anyone else to see it. Also, I think it can look tacky. If I could pick any phone, I wouldn't go for one that everybody else had, but I wouldn't design my own cover for it. I'd just like a plain metal one, something smart. Everybody is doing their own these days and it looks rubbish.

Q: What influenced your current choice of ringtone and background picture on your mobile phone, and what do you think it says about you?

A: They are just songs that I like. I got a free scratch card with my phone that allowed you to download two free ringtones. It may be a bit stingy but I don't think I'd pay to download ringtones. Some people download a new one every month, but that's not for me. My friend sent me a picture of a cat, which I am using as my current background. The one I had before was a picture of teddy bear that said, "I'm special", which was from my friend - that was sweet of her. I just had smiley faces before that, because I didn't have any interesting pictures.

Q: If your house was on fire, all your family and pets had been saved, but you could rescue only one object or thing... what would it be?

A: Well, my phone would be in my pocket... Either the album of my baby pictures, because I like that. It is something you couldn't replace. Or the teddy bear I had when I was little because I wouldn't want to lose it. Other than that it would be my wardrobe.

Q: What influenced you to buy your mobile phone?

A: I needed a new one because my old one didn't work anymore the battery was broken. I'd just liked that particular model and I had wanted it for a while. It was fairly fashionable at the time but not any more! The thing that influenced me to buy a mobile phone in the first place was being able to keep in touch with people. It was in the Sixth Form at school, just before I came to University, but I really got it for when I was away from home at University. I was going to be away from home, and there wasn't a phone in the halls of residence. Now that I have one, I have realised that I couldn't do without it.

Q: What can your current phone do?

A: Not a lot. It can ring people. It can do text messages, picture messages but not proper pictures. It has a few games... an alarm clock... a calculator. That's about it really.

Q: What do you use it for?

A: I generally use it all day... and night. I mainly use it for text messaging. I don't really use it to call people very often. I just use the landline if I want to ring people. For the first two years at University, I didn't have access to a landline, so I used my mobile phone for everything. When I got a landline, the mobile phone became used just for sending texts mainly. I use the alarm clock, and the calculator, but I rarely use the games. The calculator is strange to get used to, but it is useful when you don't have a calculator with you.

Q: How well acquainted are you with the functions of your mobile phone?

A: I can do everything on the mobile phone that it can do. I can text without looking, using predictive text.

Q: What are the functions that that you enjoy the most?

A: Definitely texting. I wouldn't say I enjoy using my alarm clock or my calculator, but they are useful.

Q: What functions cause you the most frustration?

A: None of them, particularly. It's frustrating when messages won't send because the signal is so poor here. When the battery dies, that's annoying. I know it's my fault for not charging it up, but still.

Q: What surprised you about the mobile phone?

A: Nothing really. They do an awful lot now, but I think they have introduced the new features bit by bit instead of suddenly allowing you to do everything. It has been less overwhelming that way. If I had to say one thing, I think it would be video phones. I think they are really impressive.

Q: Have you ever felt overwhelmed by the functions of your mobile phone?

A: Not with mine, because it is very simple and I feel pretty confident with it, but maybe with others I might. My Dad gave me his to ring someone, and I couldn't work out how to do it!

Q: What was the most recent new thing you learned to do with it?

A: I'm not sure... I've been very familiar with it for a long time. Probably my calculator.

Q: In what circumstances would you use the text facility?

A: To keep in touch with people. To arrange to meet people to go out and to plan my social life.

Q: How and why do you keep the texts you have sent / received?

A: The ones I receive yes, I keep a lot of those, but I have filled up my Inbox. My mobile phone can only store ten at a time. It doesn't have enough memory to store anymore. Whenever I get a new text, I have to delete old ones, which I select according to how important they are. I keep texts if someone has agreed to something in them, and I'm scared they will drop out. I keep them just for proof. If they are nice messages, I write them down in my diary, otherwise I delete them. It would be easier just to keep the text, instead of having to write it out. It seems a shame to have to delete them when someone sends you a nice one.

Q: Aside from the monetary value, how important is your mobile phone to you?

A: Yes, it is important. I don't tend to go anywhere without it. It is my only way of contacting some people. It's nice to be able to text someone if I am bored silly at work. It is also nice to know that if something bad happened you'd be able to get in touch with someone, or they'd be able to get in touch with you if something happened to them.

Q: How would you feel if you lost your mobile phone?

A: I would be quite annoyed because a lot of the number that I have on it, I don't have anywhere else.

Q: What gains or losses do you feel there have been by having a mobile phone?

A: Having a mobile phone has made it much easier to keep in touch with people. You can send text messages to say things that you wouldn't necessarily bother ringing people just to say. It's also easier to send a text message instead of having full conversations with someone. The only thing I've lost from having a mobile phone is the urge to ring people. It is easier to text people, so I maybe don't talk to them as much as I used to. I've also lost a lot of money using a mobile phone!

My Dad would say he has lost the ability to not be contactable. When he's been at work all day, he still gets phone calls at night on his mobile phone.

Q: How cautious are you in using your mobile phone?

A: I am very confident in using it, in terms of my ability. In terms of using it around other people, such as on trains or buses, I don't mind it, and I certainly do it. I don't like the idea of people listening in and I wouldn't have a really private conversation in public. I often get the kids at work reading over my shoulder, which I don't like.

Q: Are you always available on your mobile phone?

A: Yeah, most of the time, apart from when the signal is poor. When I'm at work I'm not meant to have it on, and in lectures it is meant to be switched off, but I've got voice mail, so I always get any messages.

Q: Do you ever switch your mobile phone off?

A: No, I don't actually - only when I have to if it has run out of charge. I should do because it is probably bad for your battery leaving it on. I often think, when I get a text message at three in the morning that I should have turned it off! Although I know no one is going to ring in the middle of the night, it is nice to feel connected still, and nice to receive text messages when you wake up in the morning.

Q: How 'connected' does your mobile make you feel with your friends and family?

A: Yes, very much so. The thing I mainly use to keep in touch with people is the text message.

Q: Has your mobile phone ever made you feel closer or hostile towards someone?

A: Yes hostile, when the person I have sent a text message to doesn't reply! I don't like it when people swear in their texts, especially when they don't swear when they are talking to you. I don't like it when it is obvious that the person has sent the same text message to lots of people, like a group text it's not very personal. My friend dropped out of going to the Uni ball, when I had already bought the tickets. She let me know via text, which I was very annoyed with. I tried ringing her, but she said she didn't want to talk because I would have a go at her! She told me to text her to tell her what I thought. I feel closer to someone when they send a nice text message, even though they may be miles away.

Q: Tell me about a time when you have been glad to have been carrying your mobile phone...

A: I can't think of anything in specific. Just simple things like using it to arrange a lift home from the bus station, or letting my parents know when my train is going to be late, so they'll know when to pick me up. When I've been walking in the dark, and no one else is about it's been nice to have.

Q: Conversely, has there ever been a time when you wished you had left it at home?

A: No, not really. There haven't been any occasions that I can think of. It's awkward when people text you things and you wish you didn't know. With a phone call you can ignore it and pretend you are unaware, but with a text message, the other person knows you will have received it.

Q: In what circumstances does carrying your mobile phone make you feel secure?

A: My mobile makes me feel more secure when I am on my own. I've often travelled into Nottingham city centre on my own, and been on my own there all day. It's nice to know that if something happened, and there are a lot of dodgy people in Nottingham, I could ring someone.

Q: In what circumstances does carrying your mobile phone make you feel insecure?

A: I read about people getting mugged for their mobile phones, and for a while I was a bit conscious about using it in the street. I tend not to be too bothered about it nowadays. Everybody seems to have a phone, or is able to get one, so I'm not too worried about that anymore. Plus phones are usually insured.

Q: How confident would you feel replacing your home phone with your mobile phone?

A: Well, I did, for a couple of years at University, and it was all right. It was very expensive to ring on Pay As You Go, so I ended up using it less than I would a normal landline. You feel you can't talk for very long because you are conscious of running out of credit. I think I prefer a landline phone. The landline is also much more reliable because you don't have any signal problems, and you wouldn't get as many cold calls. I like the landline, but I'd still like the mobile phone to send texts, so I suppose I'd want both. One advantage of the mobile is that it is just one number to remember, which would be useful if you moved house.

Q: When has your mobile phone irritated you or made you feel angry?

A: When my text messages don't send because of the poor signal. Also, when I've had an annoying text message or an annoying phone call, I tend to take it out on the phone. It's not the phone's fault really.

Q: Tell me about any instances when your mobile phone has let you down!

A: In the first year at University, I was very ill with tonsillitis. At first the doctor thought it could be meningitis, so I was obviously very concerned and upset, and I wanted to talk to my Mum. Unfortunately, I didn't have any credit, and I was too ill to get out of bed to go and buy any credit. I didn't have my debit card registered either; so when I rang up to register it, they said it would take a few days. In the end, I had to get out of bed to get a phone voucher, even though I was at Death's door. I couldn't send anyone else to get it for me, as I didn't have any cash. I only had my card, which needed to be signed!

Also, I received a phone to say I had got my job, from the headmaster at the school. He rang me on my mobile while I was on the train, but it went into a tunnel so I couldn't receive the phone call, and he ended up having to leave a message on my answerphone. I would really liked to have spoken to him, to thank him for giving me the job, but I couldn't! I hadn't realised for ages as my phone was at the bottom of my bag, and I hadn't seen the 'Missed Call' warning. Instead, he rang my home, and my Mum had to take the call. By the time I was able to ring him back, he had already gone home.

Q: If you are sitting down in a café or bar, what do you do with your phone?

A: I generally tend to just leave it in my handbag. It is still handy, and goes together with my purse and everything else. I occasionally check it to see if I have received a text message, but it is a bit rude if you are with other people to sit looking at your phone waiting for somebody else to talk to!

Q: Are you proud of your phone, or like the advert says "Are you ashamed of your mobile"?

A: I don't think they are anything to boast about as everybody has them nowadays. It's not like an item of clothing that you can show off, it is something that you need. Having said that I'm a bit ashamed of it, as it is a bit of a 'brick'. I've had it for two years, which isn't really that long, but technology moves so fast. I'd certainly like a smaller model.

Q: What do you think your mobile phone says about you?

A: Well, you get people who want to show off with their really fancy, state-of-the-art mobile phones. You get people, like my mum, with an ancient model that they don't know how to work, and then there's people like me who have a not very exciting model that does the job, I suppose. I think it says quite a lot about your attitudes towards mobile phones. What it says about me though... (Laughing) Bit boring but does the job!

Q: If you had to cancel an appointment with a friend at short notice, how would you choose to let them know?

A: It depends who it was. If it was a very close friend, I'd either ring them or text them it just depends who and why. The text message is certainly easier, and you don't have to face the person on the other end saying "Aww, why?" It's the coward's way out, I suppose! I had to cancel on a friend, so I rang her, but only for one ring or two, so it would look liked I had tried, then I texted her saying "I tried ringing you but I couldn't get through."

Q: What influence do you feel that celebrities, such as David Beckham, have when advertising mobile phones?

A: For me personally, David Beckham having the phone is a good reason for me not to have it! He has certainly used it for more than what he advertises! I'm sure he is very influential towards teenage boys... and girls... who would like to have the same phone as him, but it doesn't affect me. In the same way, I wouldn't drink Coke because a celebrity does. I suppose the advertising of phones makes allows you see other phones available. If I hadn't seen any other phones, I wouldn't necessarily think mine is bad. It provides something to compare your own phone to. If you didn't know there were any other different types of phones, you wouldn't be aware of what other phones can do. For example, mine can't take pictures, but I know other can.

Q: How would you feel about using your mobile phone in the street?

A: I would be happy to do that.

Q: Shopping in the supermarket?

A: Not if you are paying I think that's rude. I have done before though it's very hard to sign the slip with a phone to your ear. Using it while wandering around the shop is fine.

Q: In a restaurant?

A: No, I wouldn't use it then. In a smart restaurant, it seems a bit rude.

Q: When you are with friends?

A: Yes, I would then.

Q: On a bus or a train?

A: Yes, I would, but I wouldn't have a very intimate conversation because I'd be aware of all the people around me. I wouldn't say anything controversial or confidential.

Q: In the cinema or theatre?

A: Ooh, I've had the phone go off in the theatre - that was ever so embarrassing. I got told off and I switched it off straight away. After that, I always remember to turn it off.

Q: How do you feel about the banning of mobile phones in certain areas, such as in hospitals, or on an aeroplane?

A: I don't like the 'silent' carriages on Virgin Trains, which are nearly always late, and if someone is picking you up at the other end, you need to tell you are going to be delayed. I certainly think cinemas, theatres and restaurants should be made mobile-free, because you don't want someone's mobile phone going off when you are watching a film, or a show, or eating your dinner. I don't think they should be totally banned because they are not dangerous to your health particularly.

Q: When is it appropriate to send a text and when is it inappropriate?

A: It is a bit more private, a bit more discrete. I suppose people could read it over your shoulder, but no one could see what you are writing if you didn't want them to. I think it is a bit inappropriate if you go out with someone, and they sit there having a text conversation with someone else whilst you are talking to them. Although they provide privacy for yourself, they can be excluding to other people without you realising. They are appropriate in your home. They are good for making arrangements, and keeping in touch with people. I know its not specifically texting, but I really hate it when people use phone their phone when they meant to be at work. For example, I took the kids I look after trampolining, and the instructor stopped the lesson to answer the phone, which I would never dream of doing, particularly with a class of kids, so why is she allowed to? I suppose it depends what job you are in. I use my phone when I'm looking after the kids, but it doesn't matter as much then.

Q: How do you feel if you are ringing phoning someone and they divert you to their answering machine?

A: I suppose it depends if you realise that's what they have done. If they've pressed the red button, you get a bit paranoid as to why they don't want to talk to you. I certainly have done it in the past to people I don't want to talk to, so I just assume that they are doing the same. If you think about it, it could be that they are doing something important. For example, they could be in a lecture. I've done that in a lecture before,

and pressed the red button because I couldn't answer it there and then. I suppose I could have switched the phone off, but I'd rather put it on silent, so that it is always there and I am always connected. When I am teaching in schools, I leave it on silent in my bag, so that any texts that arrive are instantly waiting for me when I check it at lunchtime. If you turn it off, you have to wait for them to come through, which can be annoying if you are expecting something important.

Q: How comfortable do you feel about using "txt spk" as opposed to proper spelling and grammar?

A: I do use text speak a bit, but I don't like it. I don't like it when they try to speak like gangsters, with "DA" and "WIV" and "LUV". Even things like "L8R" annoys me, but I occasionally use "2NITE" and things like that. I use it to save characters on a text message, so that it all fits into one message rather than spilling into two. I do like to get value for money though, so I use all the characters in one message.

Q: How easy do you find it to express yourself with a mobile phone?

A: I'm all right. I'm quite good with words generally which helps. I do find the size of text messages quite limiting though. I tend to write a really long text only to end up cutting it down, until it makes very little sense!

Q: What to you does the concept of a 'smart phone' mean?

A: One that can do clever things, like taking pictures, and other amazing things, accessing the Internet. To be honest though, I'm not really sure. I imagine they would have lots of clever features that I haven't got on my current phone! I hope it's not like a "Smart" car miniature and ugly.

Q: Do you think a smartphone could add anything more to your life?

A: I'd like to be able to check my e-mails on the phone, and I'd like to be able to take photographs. I wouldn't say they are particularly life-enhancing features, but they are pretty convenient and it would be nice to have them. It would have to be fast and easy to use.

Q: What would you ideally like a 'smart phone' to do for you?

A: I'd like it to take pictures, as I've said... I'd like one where you could 'lock' your text messages so that other people can't read them if they get hold of your phone. I have to delete all of my messages at the moment, so that the kids I look after can't read them. They see my text messages as their own personal daily soap opera. So, I'd certainly like there to be more privacy in a smartphone. I know they already have a PIN lock facility that you can use, but I would prefer something that is more specific to the text messages. It would be good if it had a locator device on it, like those keyrings, so if you have lost it you can shout it and it makes a noise. I also think they should be more sturdy as I have broken mine in the past by dropping them.

Q: How would you feel carrying a smart phone around?

A: I'd feel a bit of a poser to be honest. I'd feel a bit embarrassed, to be carrying a big flashy phone. Also, as they are quite expensive, I would have to think about what I had done with it, whether I had left it in a safe place, and whether I had done my bag up properly things like that.

Q: What kind of image would it give you in your job?

A: (Laughing) "Ooh, look, she's got a trendy phone" The kids I look after would like it. They are the sort of kids who are very into their technology and would love to play with it. They have all the latest computer gadgets. They'd be very impressed with a fancy new phone.

Q: (Producing "student" persona) Is this you?

A: I like to keep in touch with friends, and I like socialising. I'm not really into mobile games or new music. I suppose I do like to keep up to date with things. She is partly like me, but not completely.

Q: (Producing the phone) What are your first impressions of the phone?

A: Ooh, it's nice. It's simple looking, which is good it looks like a Nokia. It's not too big to be honest. I was expecting something really big and chunky. It's not too heavy either. I think it is lighter than my existing phone. It's probably about the same size as mine though. The only time I find the size of the phone a problem is when I have a little handbag. It feels a bit plasticity. It looks like a TV remote control. It's got a nice big screen. I'm not sure how to turn it on. I like the blue lights behind the keys. I'm not really sure what I'm doing with it. I don't think this is really my sort of phone. It feels more like a business person's phone with "No Upcoming Appointments" on the main screen. I don't particular have a busy enough schedule for that sort of thing! I can't work it. I haven't a clue. I'm a bit scared about using it. It's totally different to the Nokia I'm used to. I don't know what I'm doing. I keep pressing buttons that do strange things and I can't get out of it! The noise it makes is like a computer. Overall, I like it. Ooh, a camera... and a video! I'm still stuck on a funny screen. What's the little house picture for? Is that to phone home? Ooh, MSN Messenger, I like that, that'll be good. I should be okay. I've got the instructions to help me work out all of the functions. I'm the kind of person who needs to read the instructions to work out how to do things. I must admit, it looks a bit complicated.

**"LOUISE" TRANSCRIPTION OF VOICE RECORDINGS 26th JULY 9th
AUGUST 2004**

RECORDING 1:

26/07/2004 21:42:32

I'm trying to look at my text messages but I can't find them and it is annoying and I can't find the 'back' key or the 'select' key. It is very different to mine, but I'm going to read the instructions to work out how to do it.

RECORDING 2:

26/07/2004 21:45:18

I can't work anything I can't even do it with the instructions! Why is there not a 'back' key? How do you get predictive text? I've pressed the button where it says 'T9' and it's not given me predictive text. <sigh> Silly. It's frustrating I want my old phone back! Horrible phone...

RECORDING 3:

27/07/2004 15:01:16

I tried to play the game last night but it didn't work. I couldn't work out how to do it at first, but now I've learnt, I've had a good play and it is quite good fun. I've also changed all my ringtones and things. Apparently you can record your own ringtones, so I might have a go at doing that.

RECORDING 4:

29/07/2004 18:56:34

I'm getting into using the phone now. I've got the hang of it. I can do all of the basic things such as send a text message and all that. I like the pictures I've got a nice screensaver of my cat, which is very cute and nice. I haven't used any of the Internet stuff yet. I keep trying to find a message but I don't know whether it is working yet because of the bad reception here, which is frustrating because I would like to play with it. I have to admit, I got my old phone out, and it seems very basic and simple compared to this one.

RECORDING 5:

29/07/2004 18:57:04

I like the games the Solitaire and the popping thingy (Jawbreaker). They are very good. For someone who never plays games I am quite enjoying them.

RECORDING 6:

30/07/2004 20:49:20

Just used the camera on the phone to take a picture of my cat - all curled up she looks very cute. It was easier than getting a camera out as I had the phone with me. This meant I could take a picture straight away before she moved. It's really good, I was really pleased with it.

RECORDING 7:

30/07/2004 20:49:42

One thing I have noticed is the battery life, which doesn't last very long. I don't know whether that is due to all the features on the phone which drain the battery, but I charged it a couple of days ago and I'm down to one bar now. It's annoying, as I have to keep plugging it into the wall.

RECORDING 8:

30/07/2004 20:50:36

I've been trying to send text messages but the poor reception meant that they wouldn't send. This was very frustrating. Also, it came up with the warning that it hadn't sent, but it lost the message so I had to type it all out again, which took forever. I've done this twice and I've still not managed to send the message and it is really frustrating.

RECORDING 9:

31/07/2004 19:34:20

I've just taken a picture of my sister and it was horrible. <laughs> This made me feel really good.

RECORDING 10:

01/08/2004 20:43:18

I've been trying to send a picture message but I'm not having much success. It keeps coming up with a warning saying it has not been sent. I can't see why. It says in the instructions that you have to send it as a MMS, which I think is an e-mail. Now it has a funny 'G' on the screen, which apparent means it is connected to G-P... er... I don't know what those letters are. I don't know how to get it un-connected. <sigh> I can't do it and now I am annoyed and frustrated. I just wanted to send a picture message and I can't see why it has to be this difficult. It certainly doesn't sound that difficult in the instructions.

RECORDING 11:

03/08/2004 10:49:06

Well it turned out that picture messages weren't sending because it had my SIM card in the phone, which hasn't got the correct SIM update, which meant that the G-P... er... I still don't know what those letters are. Anyway, it meant that it wouldn't work. The big 'G' in the middle of the screen means it is available and the little 'G' at the side of the screen means it is connected. My picture messages sent all three of them, which was good, so I was quite pleased with that, but I couldn't work out how to disconnect from the GP... GPRS? It says to press the red button to hang up but I kept pressing that and all it did was lock the keys. I was puzzled as to how to turn it off, so I had to turn it off with the power switch. That disconnected it, but it was not ideal.

RECORDING 12:

03/08/2004 10:50:38

I was bored on the bus on the way to Nottingham, so I thought I would try out all of the exciting things the phone can do. I started off by trying to find some wallpaper. I had a look through all the different ones, but I couldn't find one that I liked, or was any better than the picture of my cat, so I left that one on. I also had a look at the games. You have to pay to download them, but it is not like it uses your credit you have to put your credit card details in, which I am not very keen on doing, due to security issues. It did say something about it 'leaving a secure site', so I didn't want to do that. So, I haven't downloaded any games. What I really like is the MSN Messenger, which is fantastic. I think it is quite expensive though I used £1.50 just talking on Messenger, but I really liked it, it was good. It's certainly one of the better features of the phone. I had a look at the Windows Media Player to see if I could listen to some music, but you have to download it and I can't quite work out how you are supposed to do that. I'm going to have a go at viewing a film trailer now, which is quite exciting.

RECORDING 13:

03/08/2004 10:53:00

I showed my friend Jane the phone. She was very impressed with it. I felt quite proud of it really - it all looks very cool. She wanted to know all about it, and if you can get it in the shops etc. I was able to show her all the pictures in the multimedia album, which was good I like that. I like the pictures feature I think that is very useful. It is nice to be able to take a picture and show it to somebody without having to think about taking

a camera or the photos with you or anything like that, which is all very good. Very convenient.

RECORDING 14:

03/08/2004 15:21:16

Well that was frustrating. I've just found a movie trailer that I wanted to watch. It wouldn't work but I've apparently not got enough network coverage. That's really annoying because I wanted to watch it, as I am bored.

RECORDING 15:

07/08/2004 12:43:24

I went to Whitby but I had forgotten my camera, so I used the phone to take a picture, which was good. I was quite relieved that I could take a picture, even though it wasn't on a proper film. I just hope I can still get it from the camera onto the PC so I can print a copy of it, which would be really good.

RECORDING 16:

07/08/2004 14:11:28

I've just done a video clip of Whitby Abbey, and the view around it. I was surprised at the quality of the video, but it is difficult to make out the commentary as it picks up a lot of noise from the wind.

RECORDING 17:

08/08/2004 15:56:06

I am at Hadrian's Wall and making use of the photo facility as I am still without a camera. I liked the way you can take the picture more than once it is very satisfying the way you can get the picture just right by taking it lots of times. Also, you can see the picture as soon as you've taken it unlike a normal camera.

RECORDING 18:

08/08/2004 16:16:28

A lady has just offered to take a picture of me and my boyfriend. I gave her the phone and she was surprised that it was a phone I was using instead of a normal camera. She seemed a bit daunted by this. It was a bit awkward and embarrassing having to explain how to work it, and then the picture didn't actually take properly because it was on the wrong setting, but I didn't like to say! I wanted to use the self-timer, but it didn't appear to have one, which was rather disappointing, as I couldn't have a picture of my boyfriend and me together.

RECORDING 19:

08/08/2004 16:19:08

I've been thinking about how the pictures might come out when I get them off the camera, er, phone. I was quite surprised to see in the settings that the pictures should be full screen size instead of tiny little ones, which was quite surprising. That's really good I'm really impressed.

RECORDING 20:

09/08/2004 16:04:36

Just done something a bit naughty... I've sent my lovely boyfriend a rude photo message, which was impossible to take due to being unable to see the screen! I was a

bit apprehensive, as it is a rather intimate thing to keep on the phone, and I'm not sure whether to trust my phone with it! I just hope he likes it!

RECORDING 21:

09/08/2004 16:04:58

My boyfriend and I have just been to see the Angel of the North, and taken some really good pictures together. We took a picture then immediately had a look at it and then discussed what other angles and poses we could take, which was really good and allowed us both to enjoy something that is normally quite private.

RECORDING 22:

09/08/2004 16:05:52

There is a kind of guilty pleasure in experimenting with all of the different ring tones, which really really annoys my sister and was really good fun.

“LOUISE” REFLECTION INTERVIEW 9th AUGUST 2004

Q: What were your expectations of using a 'smart phone', and how have they been met?

A: I thought it would be nice to have one that would do more exciting things than mine. I was looking forward to having one with a camera on it, but I was a bit apprehensive that I wouldn't know how to use it. I enjoyed it I liked using it. I liked the camera and MSN Messenger. At first I found it hard to use, but once I'd used it and got the hang of it, it wasn't that complicated or difficult.

Q: Could you see yourself using one?

A: It made me want a new phone because it has made mine look really crap. I think it looked nice. I felt I should look after it more than I do with mine, simply because it looked so expensive.

Q: Did you feel more connected?

Not particularly - no more than my previous phone. Especially with the poor signal I keep getting. You'd think that the phones would become more efficient and work off poorer signals better. I felt more connected when I used MSN Messenger, especially as I haven't got the Internet at home at the moment. It was cool how I could connect to it whilst on the bus, which meant I could have a private conversation without everyone hearing. It is feasible that I would never have to disconnect from my Messenger, meaning that I could be in contact wherever and whenever - aside from the cost, that is.

Q: In what ways has your mobile phone gone beyond your expectations?

A: It was easier to use than I thought it would be. It had features on it that I didn't necessarily think I wanted, but I actually quite liked. For example, the games I quite enjoyed these, especially the JawBreaker game. I was impressed that the pictures would be a decent size, instead typical mobile phone thumbnail size. I wasn't expecting it to have Messenger on it. It was better than text as it had the existing conversation on screen and was more immediate. I wasn't expecting it to be able to take videos. I thought this was very good.

Q: In what ways has your mobile phone failed to meet your expectations?

A: I don't think it has! It needs an alarm clock on it. It was annoying that it wouldn't work with my own SIM. It was annoying that you couldn't hang up when you had been on the Internet I didn't like that. It was a bit big and chunky, but I suppose it needs to be that big.

Q: What has been the best thing about using a 'smartphone'?

A: Pictures, the Internet, tape recorder all things that I have not got on mine. The street cred I was proud to show it off to Jane. My old phone needs a paper bag over it, like on the advert.

Q: What has been the worst thing about using a 'smartphone'?

A: Size, security I should have been a bit more wary as it would be more expensive to replace than my existing phone. The cost would be a big disadvantage. It didn't hold its charge very well presumably due to the colour screen and photos etc. My old phone held its charge for much longer. Charging the smartphone was a pain. It took ages to switch on and load up!

Q: How does the 'smart phone' compare to your old phone?

A: Much better mine seems ever so basic now. Mine hasn't got a camera or tape recorder or Internet nothing exciting. The smartphone has better games, and a bigger colour screen. I found myself using the phone for more functions than my existing phone, which I only use mainly for calls and text messaging. This could have been the novelty value though, but I certainly used more functions.

Q: Would you be willing to swap your old phone for this 'smart phone' right now?

A: Yes, please can I? But I have all my phone numbers on my current SIM, plus I have my five free texts on my existing tariff! I don't have any message I want to keep as it doesn't store many. I wrote them all out the other day, so it is currently empty.

Q: What did you think about using the phone to make calls?

A: Fine, no problems at all no different to my existing phone. At first, I kept pressing reject instead of answering the call, but I got used to it. The quality of it was good pretty standard. Reception was not very good at home, but this is an Orange problem rather than the phone.

Q: Text Messaging?

A: Better, because you can store more on the phone. Also, when you are sending the text message you can see whether you have signal to send the text message whereas on mine, you can't see that. I couldn't work out how to do a smiley face though my old phone had the option to insert smiley. Predictive text was okay similar to other

phones. I didn't use the folders to store the messages, but this is something I would have looked into.

Q: Photographs / Videos / Photo Messaging? (Photography)

A: Good I liked them photo messaging was brilliant. Wherever you were, you were able to take a picture without having to think about taking a camera with you. On holiday when I ran out of film, I was still able to take pictures. The video was good, as I've not got a camcorder and its not something I've been able to do before. Sometimes it is better than just taking a picture, as you can get more in. It is nice to be able to send pictures, although I didn't know many people with a picture phone!

Q: Internet / Email? (The Internet)

A: I didn't use the email it didn't really interest me. I had a bit of play with the Internet. I tried to watch a trailer but couldn't because of the reception. I had a look at pictures and games but I couldn't download any of them, as you had to enter credit card details, which I wasn't keen to do. I had to have the instructions with me, in case I did something stupid, but it was alright quite self-explanatory. Still had problems hanging up though, which left me in doubt as to how much credit I had left. The best thing on the Internet was the Messenger, because I could stay in touch on the move and I am already used to the technology. It did need a messenger account, which luckily I already had. I wouldn't fancy setting it up online as it is too complicated on such a small screen.

Q: Music? (Music)

A: I couldn't work out how to do it.

Q: Games? (Leisure)

A: I just used the two that were on it. I liked the Solitaire, because it is the same as the one on the computer a game I already knew how to play. JawBreaker was good I liked the noises and graphics. I used the card one when I was bored waiting for the train.

Q: Calendar / Task List / Contact List? (Organisation)

A: Didn't use the calendar as I didn't have any important events to put on it I like to keep them on my proper calendar because I always have! It's a bit of a faff to put on the phone. I didn't use the task list didn't know there was such a thing. It would have been nice for shopping lists though as I always write them and leave them at home like the camera! The contact list was just as I had it, but you can have more than one number under one person (home, mobile etc) which was good. It was quite easy to add numbers to the SIM, and you can add allsorts of details like addresses. I would have put further details on if I had it longer it would save having an address book, and I would always have it on me.

Q: Ringtones / Backgrounds / Other settings? (Personalisation)

A: I liked the backgrounds, because I could have a picture of Millie, my cat. I preferred the ringtone on my existing phone, because I chose it myself - Angels by Robbie Williams. The ones that came with it were better than the ones that came with my phone, but they were just standard really. I had a play with some of the settings, but I generally left them alone. I chose the best layout to display my picture.

Q: Did you use the instruction book at all?

A: The instructions are abysmal more confusing than the phone. Made it sound 20 times complicated than it actually was. But I don't like instruction books in general, so it was probably just me. I used it when I wanted to do something but didn't know how to do it. I used it to look up strange symbols that appeared, like the GPRS "G". I usually attempted to do something, and only looked at the instruction book if I couldn't do it.

"MIGUEL" ANTICIPATION INTERVIEW 23rd JULY 2004

Q: In order to determine your age bracket, please tell me your age.

A: Thirty-five.

Q: What is your occupation?

A: Practice Manager at a Doctors' Surgery.

Q: Please tell me something about yourself in term of your career.

A: I've been working for the NHS for the past sixteen years - eight years at the Health Authority and eight years working for the Practice.

Q: Do you generally keep abreast of technology for example, gadgets, devices, computers etc?

A: I keep fairly up to date. Not at the cutting edge I don't think, of what is going on but I consider that I have a reasonably good understanding of how things are working.

Q: When organising every day aspects of your life, such as dental appointments, meetings etc, what methods do you use?

A: A diary chiefly, to remind me of the dates of events. Such things as dental appointments, I have to fit these around my work, either early in the morning or after work in the evening. That is the sort of organisation I put into things like that. I don't use a calendar as some people do, just a diary, which could be regarded as an extension of a calendar.

Q: How would you envisage that a mobile phone may be used in the organisation of your lifestyle?

A: I wouldn't envisage using a mobile phone for this, particularly as the one I own at the moment, does not have such functions as a diary on it. Even if it did, I doubt very much if I would use it. The reason for that is because I find it much easier to pick up a pen and write it down on paper rather than go through several screens and menus and type in entries then go through the same rigmarole to look it up again.

Q: On your current mobile phone, how do you organise the contact list?

A: I used to have an address book on the phone with the details of all my friends and work contacts. These totalled some twenty to thirty names but I found that the details change so often. For instance, friends move and in the work setting, there is a tendency to lose touch with those, with whom you don't liaise from one year to the next. I therefore went through the list and deleted the ones I no longer had contact with but then I thought to hell with this and I chose to delete the lot. Now I don't use the address book or contact list at all but carry the numbers around in a paper diary then open the diary and enter the number from the diary into the mobile phone.

Q: Was that because you found it to be a faff or what?

A: It wasn't a major activity to do as it was quite easy to get the number and it also had the advantage of telling you who was ringing, when I had the names in but now it is just the number, which appears. I found it a chore to keep it up to date.

Q: Do you use the Internet at home or at work and if so, what do you use it for?

A: At work, I use it generally for looking up such information as legislation and guidance, particularly in connection with a new contract, which is to be implemented. I also use it quite a lot for the payroll to look up regulations on sick pay, maternity pay and things like that. Obviously, I use it for e-mails at work.

At home, I use it for shopping in terms of buying from Amazon. Weekly, I log on to Friends Reunited to see if there is anyone new, whom I knew. I don't feel that I use the Internet at home a lot and when I do log on, it is to look at e-mails. In fact, if I log on to the Internet say ten times, I would actually go on to the Internet on two occasions just two times out of ten. The rest is just for my e-mails to be downloaded then I log off again. I may surf the Internet if there were anything specific that I needed to look up. For example, I was writing an essay and had to look up something to do with motor neuron disease. I typed that in and obtained quite a lot of useful information and I surfed through a number of educational sites. That however is an exception rather than the rule.

Q: Have you ever attempted to access the Internet using the mobile phone?

A: I have never done that.

Q: How do you normally spend your free time?

A: If we are talking about free time as not being at work, I study most nights, indeed a minimum of fifteen hours per week of study, which takes up quite a lot of my free time. I watch television and fiddle about on the computer sometimes, doing such things as

digital photography, my having a digital camera. Also I read books and occasionally go to the cinema.

Q: What are your favourite type of games to play, be they board games or computer games?

A: I don't think I've played a board game in donkey's years but I have played on Play Station games such as Tomb Raider games and Football FIFA 2000 and sports simulations like snooker. I don't play any games on the PC ever.

Q: What is most important to you when playing games?

A: I enjoy games with a sense of progression and achievement i.e. getting through different levels towards completion. It is ridiculous really that I have five Tomb Raider games but I haven't played games four and five, or even loaded them because I haven't completed the first three. I took great pride in completing the first two from beginning to end and I'm half way through number three.

Q: What games does your mobile phone have, if any?

A: It doesn't have any games.

Q: What appeal would games on a mobile phone have for you?

A: If my mobile phone had a game and I have only seen someone else's that had the "Snake" game, which goes up and down, I would probably only use it if I were really bored, possibly sitting on a train or something where I was captive with nothing better to do. I would never sit there playing if I something better to do.

Q: What interest do you have in photography?

A: I'm not into photography in a big way in terms of being technically adept at it but I quite like the composition of photographs, taking good pictures and I like to manipulate photographs on the computer. That has been a boost to my interest as I used to get disappointed when using film, having taken what I thought was a good photograph and on having it processed, finding that it looked drab, uninteresting and sometimes badly exposed. On a computer, they seem more vibrant they have light projecting at you whereas normal photographs don't. As I said, you can manipulate them but I really think that is a cheat.

Q: How comfortable do you feel using a camera?

A: I feel comfortable with my own camera because when I bought it, I was going on holiday. Its quite a complicated camera so I spent about a month familiarising myself with it as there are quite a lot of functions and I didn't want to be caught out on holiday. I'd sit with it asking myself, "how do I do this and that?" I did actually revise how to use it before taking it out.

Q: For what reasons do you take photographs?

A: The main use I have for my camera is for holidays. I've also been on a couple of walks and taken photographs but generally, I would say that I use a camera to record experiences - special experiences, not just everyday mundane happenings but holidays and trips out.

Q: What are your feelings about mobile phones with a camera function?

A: I don't like them at all. I cannot see the point of having one. I see people with them and they're obviously designed to fit into a top pocket with a little thing poking out and they suggest to me that they are the preserve of perverts.

Q: How useful do you feel a mobile phone with a camera would be for capturing things you would not normally capture with a normal camera?

A: Pictures taken with mobile phones are generally fuzzy, indistinct things that would never cut the mustard as a decent photograph in any other context. I think that people who manufacture mobile phones should concentrate on producing phones, which are of better quality, rather than trying to cover a multitude of sins such as having games, Internet access and a camera. They should be concentrating on the fact that when using a mobile phone, it sounds as if you're sitting at the bottom of a manhole. Whatever phone you have, no matter how expensive, the actual sound of the other person lets you know that it's a mobile phone straight away because there is a rolling sort of thing, presumably as the radar turns around. It's fuzzy and it sounds echoey. I don't see the point of spreading functions too thin for if you want to take photographs, then you should buy a camera. You can get a cheap digital camera, which produces an infinitely better picture than a mobile phone and I can only think that it is of gimmicky value, produced for kids to take funny photographs, when they are out say at a nightclub.

Q: How do you usually store photographs?

A: I store photographs taken on my digital camera on the computer. I've just bought a digital photo-printer so I've started printing some of them to hang on the wall from holidays and what have you. They're the only place I store them, on the computer.

Q: What type of music do you listen to and when?

A: An eclectic mix! I listen to Sting, and Frank Sinatra. I tend to go through spells of listening to different artists, what you might call "middle of the road" stuff like David Gray. I often listen to music in the car or whatever takes my fancy at home.

Q: What equipment do you use to listen to music?

A: Apart from listening to the radio, I play CDs through the DVD player and listen to them through the television because that is the best output device in the house. I used to have a hi-fi system but the actual output through the DVD player and television is better than the hi-fi system. We use the DVD player as an interim measure with a view to buying a new hi-fi system, but the quality through the DVD player is so good, we just haven't bothered.

Q: You have a device there where you have combined multiple functions.

A: It sounds as if I'm contradicting myself but it's a quality thing. Perhaps if mobile phone manufacturers could simulate the quality I get from the DVD player, then perhaps I might be willing to multi-task but until they do then I won't.

Q: How do you feel about using your mobile phone to listen to music?

A: I would probably be just as unlikely to use the mobile phone to listen to music, as I would be unlikely to use it as a camera.

Q: How interested are you in downloading music from the Internet?

A: Sort of interested. I've explored the possibility of the file swapping sites but I'm concerned about the legality of that. I know many people do it but I don't fancy doing it. There are some legal download sites now for which I'd be quite happy to pay a subscription, as long as it wasn't too much to download stuff, with the knowledge that it was all above board and legal and the quality would be guaranteed.

Q: Many products allow for some degree of personalisation. What does personalisation mean to you and in what circumstances do you like to add a personal touch?

A: I can think of very few things whereby I'd add a personal touch, anonymity being my goal. I suppose the best expression of individual taste might possibly be the garden. The houses around here are much the same same design, same colours, same white doors so if you're say expressing yourself through your house, it is difficult so the garden is the best expression. In terms of personal belongings, I can't think of anything, which I've personalised. Perhaps a good example might be the look of Windows on my computer downloading wallpaper to put on but that's about it.

Q: For whom do you personalise things?

A: Definitely for myself. I don't think my Angelina Jolie wallpaper is for my partner.

Q: What do you think about the trend of personalising mobile phones?

A: I've tried to put personalised ring tones on a mobile phone but they didn't download. This was years ago. Instead, I got the musical notes off the website and typed them in so I've got the themes from Hawaii Five O and Star Wars. I did try recently to find a website whereby I could do that but they seem to have stopped doing it now. They're selling them to you now. I do quite like it really as it can be source of conversation and humour for example, if you're in a meeting and your mobile phone goes off and it happens to be the theme from Mission Impossible.

Q: What influenced you to choose your ringtones?

A: There's a humorous aspect to it. I've always fancied having Colonel Bogey ringing out at work it seems highly appropriate. I quite like the Mission Impossible one and it's quite a well recognised tune, which people recognise from the first few bars. I don't think I'd bother putting recent pop music on as some people like to do because the

quality I've heard is fairly poor and a lot of people wouldn't recognise the tunes. I think that I would only choose TV themes or film themes, which people recognise instantly.

Q: If your house was on fire, everyone is out and safe and you could rescue just one thing, what would it be?

A: Only one! It would probably be a computer because its got a lot of information on it, that would a) if I lost it, it would be a big loss and b) there is a security aspect to it as well. It has all the photographs as I described earlier and I have them in no other place other than the computer so they would be lost. I was discussing with someone recently, how I should be backing up those photographs because one day, the hard drive will go and that will be the end of all my holiday photographs. I also have a lot of college stuff on there that is backed up on to floppy discs but it would be galling to lose. I have a lot of letters, spreadsheets and things, which I need to keep. Also to lose the actual computer itself would be upsetting for it is a good source of entertainment as well as being quite valuable.

Q: What influenced you to buy your current mobile phone?

A: That is quite a difficult question to answer because I resisted it for some time. I probably got it as like a gimmick. I had images of my using it at work and flicking it out but that never really happened. I picked one, which looked more business like. I didn't fancy the Nokia look, with the multi-coloured console on it. I wanted something that looked business like so I bought this little grey thing with a fold down flap, a Fox Mulder effort. It was probably a posing factor.

Q: What can your mobile phone do?

A: Very little, its quite old now. Its got a very small LCD monochrome screen. All it does really is take calls and text and it has an address book. There is little else it does. Its just basically ideal for me.

Q: In what circumstances do you generally use your phone?

A: I use it at work for people to get hold of me when I'm out of the office and it has generally been used a few times by the doctors, who have rung me when I have gone to a meeting. I normally have it switched off so they leave messages on the voice mail. I use it at home mainly for getting in touch with the lads to go out on a Friday night. The only other time I'd use it would be if I were going on a long trip. I'd have it in the glove box in case I broke down, which is quite a common use made of a mobile phone. I don't ever use it day to day to ring people up.

Q: How well acquainted are you with the functions on your mobile phone?

A: Quite well acquainted. I've had it for two or three years during which time I've explored it and been through the menus on it so I'm familiar with how to get to different things.

Q: What are the functions, which you enjoy the most?

A: Certainly the function that I use the most is the texting. When I arrange to go out, I rarely talk to the others but use the texting function. They may be on the bus on their way so I'll text them and they'll text me back instantly to say they'll be in the pub at a certain time. They've got nothing else to do on the bus.

Q: What causes you the most frustration with it?

A: The battery life is a pain because I can charge the damn thing up and if you have it on during your waking hours, which is the main point if you want someone to contact you, the battery runs down after about two or three days. It has then to be fully charged again.

Q: Has it ever let you down?

A: Yes, I compose a long text message once and sent it but there was not enough battery power to send the message, which was very dispiriting.

Q: What about the mobile phone surprised you the most?

A: The shape and size of them. They have reduced in size considerably since the shoebox size of a few years ago but the manufacturers still seem not to want to reduce them to the size of lots of other technology and they have stopped at a certain large matchbox size and shape. The mobile phones are quite thick as a consequence and putting them in your pocket, which is the most obvious place to keep one is difficult. For instance, if I were to go out tonight, I might be tempted to take my mobile phone with me in case I needed someone to pick me up. I'm actually put off that as I don't want to walk around with a large lump in my trouser pocket!!! If you compare a mobile phone with a calculator, you can get a calculator out of a cornflakes box and they are virtually wafer thin and about two to three inches long credit card size. I see no reason why the manufacturers can't do that with a mobile phone and perhaps design it so that it folds out but they seem to be resisting that. It may be a technological thing but I would have thought that in this day and age, when things can be done like that, surely the manufacturers could reduce the size. With more features, such as if you have a camera lens, you have to have a certain thickness.

Q: Have you ever felt overwhelmed by the functions on your mobile phone?

A: When I first bought my mobile phone, I had to find my way around it, which I did. I think that I would be more overwhelmed if I were given a mobile phone with a camera and a thick instruction book, which I had to wade my way through.

Q: In what circumstances would you use the text facility?

A: Mainly for making arrangement such as going out socially.

Q: How and why do you keep the text messages you receive and send if you do keep them?

A: I keep them until they are no longer relevant, then I delete them. At the moment, I have one text message from someone, who texted me with their new telephone number and I haven't yet transferred it to my diary.

Q: Apart from the monetary value, how important is the mobile phone to you?

A: Not very important at all because I don't use it enough for it to be too significant. As I said, I rarely have it switched on.

Q: What do you feel that you have gained or lost from having a mobile phone?

A: I've gained a certain connectivity with the people with whom I go out with of an evening because they use their mobile phones an awful lot. They use them for communication about going out so it keeps me in touch with them. I'd be less likely to ring them during the day to ask if they were going out as they have busy jobs. If however, I were to text them, it is a lot easier to get a message through to them.

Q: How cautious are you about using your mobile phone, for instance, when you are out and about would you be reluctant to use it?

A: I'd be reluctant to use a mobile phone when standing in the street because I don't like the image of people walking along with them. If it was absolutely necessary, say in an emergency, it wouldn't really bother me. I wouldn't generally ring someone up as I was walking through the middle of town shopping or something like that.

Q: Tell me about a time when you have been glad to have been carrying your mobile phone.

A: I drove down to Bristol and I was expected at a certain time but I was delayed by traffic. It was very useful to be able to ring ahead to say that I would be later than expected. I can't think of anything else, in fact I don't use it enough or rely on it to a great extent.

Q: Conversely, tell me about any time when you wished that you had left your mobile phone at home.

A: There hasn't really been such an occasion. It has never been a big distraction.

Q: In what circumstances does carrying a mobile phone make you feel secure or insecure?

A: I never feel insecure carrying it. In terms of feeling secure, as I said before, on a long car journey, it is quite useful. It might be more useful if I was out and I'd missed the last bus, particularly if I were female.

Q: How confident would you feel about replacing your home phone with your mobile phone?

A: I wouldn't want to do that at all, purely because of the situation with the batteries. I would forget to charge up the mobile phone and we would finish up with people trying

to ring us and not getting through. I know someone, who doesn't have a landline she just has a mobile phone. Every time she arrives home, she apparently plugs it in to charge it up so that it is always on full power. When people have to ring her, it is more expensive and every time she has to ring out, it is again more expensive. She claims that she doesn't phone enough people for it to be like that and that it is actually cheaper than paying rent on a landline but it wouldn't be for me.

Q: If you were sitting in a café or a bar, what would you do with your mobile phone?

A: I'd keep it in my pocket. My work coat, an overcoat has a special pocket sewn in for a mobile phone with a Velcro flap on the inside so if I were at work it would be in there. It all adds to the X Files image. Otherwise I'd keep it in a pocket in a café or a bar.

Q: Are you proud of your phone or like the advert asks, "Are you ashamed of your mobile?"

A: I wouldn't say that I'm ashamed of it, as I'm not that bothered. If however I was out with my friends in a pub and we each took out our mobile phones, mine would look quite antiquated compared with everyone else's but I wouldn't be ashamed. I would get over it.

Q: What do you think that your mobile phone says about you?

A: I would describe it as a dull, grey, boring thing with very little function. You draw your own conclusions.

Q: What influence do you feel that celebrities, such as David Beckham have when advertising mobile phones?

A: For me personally, no influence at all but I would imagine that it is very influential for young kids to be seen to have the same phone as David Beckham. It has a certain cachet to it but it has no influence on me whatsoever.

Q: How do you feel about banning mobile phones in certain areas other than for safety reasons as in hospitals or in aeroplanes?

A: I don't think that a ban is necessary. They are very irritating like on trains, when people use them and perhaps a carriage, where mobile phones are banned might be an idea. I feel that in this country, there are too many things as we live in a "nanny state" and they don't cause anyone real harm. Cigarette smoke does but mobile phones don't unless you believe the stuff about the waves affecting the brain. I don't think that a ban is necessary except in places where you can't get away from people using them, like on a train or where there are safety implications.

Q: When is it appropriate to send a text and when is it inappropriate?

A: I wouldn't use a text message at work on business as I consider it unprofessional. I would phone, write or e-mail but I wouldn't text anyone, particularly using all the

abbreviations of words. That I feel would be pretty poor. I think that it is appropriate to use text for friends and you need to get a message to someone quickly.

Q: If you phone someone and the person whom you are phoning diverts you to an answer machine, how do you feel about that?

A: I've found at work, if I'm phoning someone to give them bad news, I actually prefer the answer machine and I can leave a message. I don't find answer machine too irritating but what I do find irritating is when people don't ring you back.

Q: What to you does the concept of a "smart phone" mean to you?

A: I wouldn't know what a "smart phone" is.

Q: If a mobile phone could perform any function for you what would it be?

A: I wouldn't want any more functions than being able to phone someone, receive calls and to be able to send and receive text messages. To improve on those functions I would say a better quality of phone calls- better sound quality. I'd have no interest in any other functions really.

Q: How would you feel about carrying around a "smart phone"?

A: I don't really know. It would probably add to the Fox Mulder image. Initially I would probably feel intimidated by the amount of instructions and how to actually use it but I suppose once you have overcome that, then there might be certain advantages.

Q: (Producing "Businessman" persona) Is this you?

A: I would probably say 'yes' to being in control. I'm probably more of a control freak at work than I care to admit. In terms of being in contact with colleagues, working on the move, being a sharp dresser not really and having the latest technology, no that's not me.

Q: (Producing the "smart phone") Have you seen the phone. What are your first impressions?

A: It looks quite a smart, good-looking phone. It is not too garish. I like the silver look to it and it looks like a business phone to me. A thick instruction book, useful for wedging open the door! (Businessman puts it together with a view to exploring) It takes a little time to warm up but it looks quite impressive, I must admit. I like the ???????? lighting up. It has a high posing factor. The size of the screen is quite good and the phone has a bit of weight to it. This I assume is the camera on the back and video recorder. For a Luddite like myself, this screen is a little daunting. Presumably, this screen is on the lines of Windows, the Windows mobile operating system. So you move around with the joystick and I assume you use the Start menu to turn it off, like on Windows. The back button below the end cell, that can be used to get back to the main screen. Now I've got Solitaire. You move the cards by using numbers for the position of the numbers you again use the numbers. It is quite ingenious.

I think that if I had not used a computer, I would have found this more difficult. There are certain things that you do intuitively because you have learned how to move around. Like the back button, if you've used the Internet explorer, then that makes it easier but someone approaching it without that knowledge may struggle with that. There's a symbol at the top and you can scroll from left to right but I'm not sure how to get back from one screen to the other. The rocker button is the earpiece volume and the middle one is for voice notes.

It looks impressive and I wouldn't feel ashamed taking it out. It looks very sleek and I like the buttons lighting up. Not only does it look good but also it has a functional use if you're using it in a low light. Without the lighting, the numbers are not very easy to see on the buttons. The rest of the buttons are laid out as on most mobile phones. It is not super thin, if you have it in your trouser pocket and you sit down, you could break the screen. For business purposes, once I knew what I was doing, it may be quite useful. I'm not sure how good the Internet access would be, as you can't bring much up on a screen like this.

“MIGUEL” TRANSCRIPTION OF VOICE RECORDINGS 23rd JULY 18th AUGUST 2004

RECORDING 1

24 July 2004, 11:51:02

Just been trying to find the function to look at text messages that have been sent, having sent one last night after having a few drinks. I found it slightly annoying that you can't find messages that you've sent. It may be possible on this machine, but I've yet to find out how you do it.

RECORDING 2

26 July 2004, 16:18:30

When I went out on Friday night and showed the people I was out with this new phone I was using as part of an experiment, it prompted them to get their own telephones and compare functions and their state of their “state-of-the-artness”. I couldn't help sensing that there was almost a sense of ‘penis envy’ over the multi-functionality of this machine.

RECORDING 3

26 July 2004, 16:21:56

Just walked into town and on the way I decided that I would convert the phone to the ‘vibrate’ function in case somebody rang me. Whilst doing so, I almost dropped the phone onto the pavement. It struck me that perhaps the phone should have some kind of rubber grip or trim around the edge of the phone to make them less slippery in your hands. At the moment they seem to be mainly silver and hard plastic. I think this would be quite a good safety measure, particular with this phone, as it is very expensive, and the consequences of dropping it would be ones I'd not like to think about too much.

RECORDING 4

26 July 2004, 16:25:24

Just been playing the game ‘Jawbreaker’ on this telephone and it struck me that a more appropriate title, considering what you have to do in the game, would be ‘Ballbreaker’, however I feel that probably has rather different connotations.

RECORDING 5

27 July 2004, 14:50:06

Just been having a go at surfing the Internet on this phone. I was quite impressed with the speed and success of logging on to the Internet, although I would make the comment that it doesn't tell you when you've actually logged off the Internet and there doesn't seem to be any distinct message or symbol to say that you have actually left the Internet and therefore it seems quite possible that you could leave the phone logged on and subsequently, I presume, pay out a continuous fee.

RECORDING 6

27 July 2004, 14:55:56

Whilst using the Internet, I decided for a bit of fun to download a video clip of the trailer to the film 'The Incredibles', which was very funny. I found out subsequently that the clip is not stored permanently on the telephone, and has a life only as long as the phone is switched on. If you want to see it again, you've got to log on and download the clip again. Considering the fact that you are paying for the clip, it would seem fair for it to be stored on the machine, and it would have been useful for me to store it and show other people at a later time.

RECORDING 7

27 July 2004, 14:59:46

When using the Internet, I've found that strange symbols appear on the title bar of the phone. I didn't know what they meant and, following consultation of the Orange instruction book of the phone, I am no wiser. The letter 'G' appeared in the middle of the screen, and also the right hand side of the screen, near the battery status symbol, but I have absolutely no idea what this means. At one point, I was concerned that it meant that I was still connected to the Internet, and, who knows, maybe I am, but I haven't been able to find out the answer to that one.

RECORDING 8

29 July 2004, 13:22:14

One thing I've found is if you are stuck on how to do something, particularly if you are using Internet Explorer, you can go to various sites which give you quite detailed information on how to do something. However, it is very difficult to remember all that information and then go back to the thing you were doing and remember it all. Obviously there's not an option to print from the help pages as there would be on a normal computer, but some way of switching between the help pages and the function that you are trying to do would be very useful.

RECORDING 9

29 July 2004, 13:26:10

Just been trying to use the e-mail function, and something that I noticed is that on the homepage there is a shortcut icon for Internet Explorer, which takes you straight into it, and I would have thought that a function as significant as e-mail would have a similar shortcut icon to take you there but it seems that the e-mail function is hidden away in the depths of the menu on this phone and it is quite difficult to find.

RECORDING 10

29 July 2004, 13:28:30

Just been trying, valiantly, to send an e-mail, and I thought I was getting somewhere when I got to a screen that asked for the mobile number of the phone, and also a password. However, when I tried to type in the mobile phone number, this prompted it to jump to another website which had completely irrelevant information which was of no use really. It doesn't seem to want to accept anything I enter for this, so at the moment, I am struggling to send an e-mail.

RECORDING 11

29 July 2004, 13:30:24

Just a quick comment about the graphics on the Internet Explorer when using the Internet. As with most computers, when using the Internet, the graphics take longer to download than the rest of the text information, and due to the size and structure of the screen on a mobile phone, the delayed installation of a graphic suddenly pushes all of the text down a considerable distance, and if you are in a hurry, or trying to enter information, it can actually throw you off the page you were looking at, and you have to scroll up or down to get back to where you were. I'm not sure how this could be overcome but it is quite annoying when you have to keep scrolling up and down a page to find where you were at a few seconds ago.

RECORDING 12

01 August 2004, 15:17:28

Just been sending an MMS text message. I found that the predictive text function was switched on. I found this very annoying and I would much prefer to type my own messages rather than have the phone try and predict what I am going to say.

RECORDING 13

01 August 2004, 16:49:16

Just sent an e-mail via Hotmail. It was relatively unproblematic although I would make the comment that in the 10-15 minutes that it took me to compose the e-mail, I could have actually rung somebody up and told them within a few seconds.

RECORDING 14

01 August 2004, 16:51:10

With my impending return to work tomorrow, I decided to setup my diary on the calendar for the coming week. It was relatively straight forward and I could do it without referring to the manual, however, the only disappointing thing about it is that when you look at the calendar view, it doesn't actually show you on the calendar the thing that you are doing. All it does is blank out areas of the calendar in blue to say that there is something happening there, which isn't very helpful as you then have to click onto it to see what you are doing, so that was a bit of a shortfall of the system.

RECORDING 15

01 August 2004, 16:55:08

Just a quick observation, when you are using the Internet and moving around on the screen, moving onto buttons or headings or whatever, the system appears to either underline or put a faint rectangle around the heading to show that you have selected it. This is difficult to see in the best of light, and if you are using it outside, as I have been doing this afternoon, it is virtually impossible to detect and I think perhaps a better suggestion would be to highlight that you are on in some kind of highlighter blue something that makes it more distinct.

RECORDING 16

01 August 2004, 16:57:02

I received my first telephone call in a public place today when my colleague rang me up whilst in Homebase. It was interesting that this caused me some embarrassment and I scuttled off into a corner of one of the aisles away from the people who were around me. I felt quite self-conscious when using the phone and speaking into it. On looking around, I noticed there were other people wandering around the store and appearing to feel quite confident about it but I always have a feeling that such people are rather sad when they have to ring up relatives to ask what things they should be buying. This is perhaps the reason why I felt embarrassed. Maybe they felt I was doing the same thing.

RECORDING 17

08 August 2004, 14:14:14

Just tried a photograph of our barbeque to my brother. I sent the photo message and then got a subsequent message from Orange saying that I didn't have enough credit. It might be useful in future for Orange, or for the telephone, to tell you how much credit you have left. It always seems to be the case that when using a mobile phone then when you actually want to use a particular function, it is not available.

RECORDING 18

17 August 2004, 21:57:10

Just an observation. I've left the phone in my In-tray whilst at work and I've noticed that quite a few people are quite impressed by the look of the phone and obviously by its many functions. It strikes me that there is a certain cachet to having a phone like this, which could be described as similar to comparing business cards or comparing company cars. They are all part of an image really that people might try to cultivate although I hasten to add, it is not something I would really take part in.

RECORDING 19

17 August 2004, 22:00:14

Whilst sitting at my desk at work, one thing I noticed really is how many avenues and repositories there are for information. I don't work in a particularly technologically-advanced office, but to hand I have a paper diary, an e-mail diary and, of course, the diary on this mobile phone. You have to ask yourself, although such wizardry is very clever, do we really need all of these options to record information.

RECORDING 20

17 August 2004, 22:03:08

Just a quick note to say how useful the calendar function is on the phone, particularly with regards to reminders. During a busy day at work, the ability for the phone to send out a call sign, perhaps fifteen or thirty minutes before an appointment or a meeting is very useful to remind you and takes away the stress of having to remember such things when you are very busy.

RECORDING 21

17 August 2004, 22:08:58

An interesting observation is that the people who ring me on my mobile phone at work on work's business almost always tend to be the doctors and not the reception staff. I wonder why this is... It could be that the reception staff know that I don't liked to be

phoned whilst I am out of the office, and are therefore reluctant to phone. It could also be that the doctors generally contacted whilst out of the surgery on their mobile phones and are therefore much more into the mobile phone culture and are used to using it for communication and therefore they are perhaps more likely to contact people that way. I thought this was quite an interesting observation.

RECORDING 22

17 August 2004, 22:16:22

I think this will be my final recording. All I would like to say is that prior to taking part in this experiment, I had an old-fashioned phone with very limited functions, and I used it very rarely. For the past few weeks, I've been able to use this new-fangled phone, with many different functions, for both business and pleasure time. It has not encouraged me to use a mobile phone anymore. All the bells and whistles that are on this phone are interesting, and a novelty at first, but I have soon found it has taken up residence next to my old phone in my bag and is used very rarely.

“MIGUEL” REFLECTION INTERVIEW 18th AUGUST 2004

Q: How did you get on with the project?

A: I've made a comment actually on one of the recordings on the mobile phone. At first it was quite a novelty and I was surprised about how much I tried to use it, which I did for the purpose of the experiment. I did comment that it would be nice to have one of these mobile phones, however after about a week or so, that actually wore of and I didn't really use it or I wouldn't have used it at all had I not been taking part in the experiment. I have a small compartment in my briefcase for phones and I have my old one in there and the smart phone soon got put in there along side it and not used really. It was quite interesting that.

Q: It is quite interesting in that the others taking part were quite worried about using it but got more into it. Do you feel that it wasn't relevant to you?

A: Really the only things I would use on it were the text function and the calendar function but I have other ways of doing that. A calendar function, I have a diary at work and its much easier for me to just write stuff in. If you took away the diary, I would have to use the function on the phone but if I were arranging a meeting on the phone, it would be much easier to grab the paper diary and scribble it in rather than get the phone out and enter it in that. I didn't really get into the multi-function of typing into the phone whilst I was on it and I would have had to keep taking the phone away from my ear to type into it. Maybe an ear- piece with a lead to go into the phone or possibly you could use the hands free loudspeaker, whilst typing in. There were not enough reasons to make me want to go out and buy a smart phone.

Q: In what way has the mobile phone gone beyond your expectations?

A: I think that I was quite impressed by the Internet function. I expected it to be a very basic, trimmed down version and in some ways it is but I was quite impressed by how much you could get onto such a small screen. I didn't use the Internet much as it actually ran out of credits so I was a bit stuck there. The Internet was quite an interesting plus point I think. I was surprised at how aesthetically pleasing it was.

Q: In what way has the mobile phone failed to meet your expectations?

A: I don't think that it has failed too much. In some ways, its what I expected really. I haven't had cause to use it that much. As I said in the first interview, I don't use mobile phones much anyway so it's done what it said on the tin really. I can't really say that it has failed me. The game was quite good if you go by the number of games I've played on it.

Q: Could you see yourself using one?

A: I think if someone were to buy me one, I'd use it but I wouldn't go out of my way to buy a phone with that many functions on. I would stick to something a bit more basic really but then if someone lends you a phone with free credits on it, then you're going to go for it.

Q: What about the image side of it? Would you like to be seen with that kind of phone?

A: That is something I've commented on in the voice recordings. I probably mentioned to you before, there was a time when I first took it out, people actually got their phones out and compared them to mine. It was almost like a prestige to have it. There have also been a couple of instances at work where I leave it on the top of my in-tray and people came in and noticed it and commented that it is a bit swish, so I thought that perhaps they're almost like a status symbol, a bit like having a swish car or something like that. That is not something that would interest me particularly. It was quite nice I suppose that someone complimented you on having it but I don't think I'd be actively showing it off.

Q: Did you feel more connected by using the mobile phone?

A: No more connected than I did with my other basic mobile phone. I suppose that I was more connected to the Internet in that I could go out into the garden when connected but apart from that in terms of people communicating with me, I didn't feel any more or any less really.

Q: What has been the best thing about using the smart phone?

A: Probably the most trivial, the game. The entertainment side and when the Internet was working I was quite impressed by that. I did download but that dried up. I have made a recorded comment about not being kept informed about how much you have got left. Its something that came across particularly irritating when you send a text message, you put an image in, compose a message, send the message and then it tells you by an error thing that comes back that you don't have enough credit to send it. Now it would be very nice to know that before you spend the time composing it. You've just lost it as it disappears into the ether.

Q: What has been the worst thing about using the smart phone?

A: I think the worst designed function is the e-mail. It's squirreled away in the depths of the menus and its not obvious how you go about getting to your e-mail. It is easy to get to the Internet, there's the big blue E and you're in but the e-mail is a different kettle of fish altogether I thought. When I was using the e-mail, I gave up in the end and used hot mail through the Internet. Although the e-mail is not easily accessible, I do feel that it is logical the way the menus are set out, particularly if you're familiar with Windows and once you know the arrows move up and down and left and right I think its well designed in that respect but there just seem to be certain key functions, which are difficult to access and you might use them the most.

Q: How does the smart phone compare with your old phone?

A: Its infinitely superior to my old phone in terms of what it can do. My old phone is a bog standard, text and phone thing with a small, black and white LCD screen but in terms of use, as I said earlier, I haven't used it really any more than I have my old phone.

Q: Would you be willing to swap your old phone for the smart phone right now?

A: Yes, of course, I'm not crazy. I would swap them because obviously the smart phone is more up to date its in colour, pictures and what have you. There would be no issues if we were to swap it right now as there are no telephone numbers and I've got three text messages on it.

Q: What do you think about using the phone to make calls?

A: Yes it was okay, just like other phones I've used really. There was no difference in quality as I could see in terms of what you could hear. Perhaps the only improvement I could think is when you type the number in, it's in huge coloured writing across the bottom whereas on mine its in small figures and it would be easy to make a mistake. It's good for people, who are partially sighted.

Q:text messaging?

A: Text messaging was better than my old phone because it was set out more as a proforma on the screen. You had a box for the number, a title box, if you wanted a picture, there was a box and then you wrote your message at the bottom. My old phone is very difficult you press it and you get a flashing sort of curser, then you type it in and then you okay it, then send it and then you type the number in, so its less intuitive whereas its set out very well on the smart phone.

Q:photography function?

A: I took one or two photographs, which I've left on the phone That seemed fairly easy to do. I'd like to see what the photographs would look like on a computer screen rather than the smart phone screen. They look rather instinct and fuzzy but they may be better quality. It may be due to the size. It was easy to do so I had no problems with that. I didn't try the video and the photo messaging was very similar to the normal text messaging except there was the option of sending a picture and I found that quite easy to do.

Q:games?

A: I used those extensively the Jaw- breaker game. It was quite useful really for killing five minutes whilst I was turning on my own computer at home, which takes about three or four minutes to boot up. I'd pick up the phone and play a game whilst it did boot up. It was quite good for just killing a few minutes waiting for something to happen.

Q: Do you like the nature of the games, which are solitary?

A: There are just two, Solitaire and Jaw- breaker. I preferred the Jawbreaker one. I like the addictive quality of games, where you're trying to beat a previous score and where there is some sort of challenge involved. It would be quite good to play games against other people and I didn't try the Internet based games maybe I should have done.

Q:Calendar, Task list, Contact list?

A: I used the calendar, although I wouldn't have used it normally but I used it for the purpose of the experiment and I found it quite easy to use. This is another recording I've made, it was disappointing that on the actual view of the calendar, events are just shown as blue blocks. To have a few words on such as meeting or something would have been very useful because you had to click on them to find out what you were actually doing. I didn't use it much but I did use it for the purpose of the experiment. I didn't use the task list at all as I have a piece of paper with "Jobs to do" at work. It is just so much easier to access. I didn't set up the contact list, as I wasn't keeping the phone

Q:Ringtones?

A: I fiddled around with those and on a couple of occasions I set it to vibrate mode, so when I went out to the pub, where I wouldn't have heard it. I experimented with actual ring of the phone but it hasn't been a big issue because no one has rung. The only person who knows the number is you.

Q:Background?

A: It's the usual windows, pale blue, swirly. I didn't change it, as I didn't know you could. I did think that it looked quite busy, I didn't like the short cut icons and the way they tend to move around in terms of what you've used. I can't see the point of that so I think it would have been better without them or a permanent list of them all down one side or some thing so that you could nip across instead of this scrolling list.

Q: Did you use the instruction book at all?

A: Yes, I referred to it to find out how to do certain things. It was very much a case of resorting to using the book, rather than using it to explore the phone. In fact, I'd purposely try and do things before consulting it. I was surprised how much I managed to figure out without the book, so the phone must be well designed in that respect. I

suppose a knowledge of computers, in particular Windows, is very useful, in helping to make it a lot more intuitive.

Q: In terms of the “businessman” persona, how relevant or useful is the mobile phone in that area of use?

A: It could certainly be a useful business tool if I was keeping it, and it was my own phone. I would certainly utilise the calendar function more. The fifteen minute reminders prior to an event were very useful. I’d probably use the organisational aspects of the phone much more extensively than I would any of the other features, such as the camera.

“JILL” PERSONA - ANTICIPATION INTERVIEW - 23rd JULY 2004

Q: In order to determine, which age bracket you are in, please state your age.

A: Thirtyseven.

Q: What do you do for a living?

A: I work at Tesco’s as a checkout operator.

Q: Tell me something about yourself.

A: As I said, I’m 37 years of age, married with two daughters. One is aged 10 years and the other is aged 8 years. I like cooking and entertaining and we like having people round to visit. I like football, watching football that is and I enjoy watching Big Brother on television.

Q: Do you generally keep abreast of developing technology? For example, new gadgets or the computer.

A: Probably more so with the kids and for their sake rather than my own interests. The kids are more interested in technology. We have a computer and sometimes they show me how to use it, particularly the elder of the two. If I didn’t have kids, I don’t think that I would bother too much with technology. When you have kids, I feel that you have to make the effort.

Q: Mainly, in what circumstances do you use your mobile phone?

A: I use it more for texting, very rarely for anything else, although I do take it with me when I leave the house. In fact, I always have it with me when I go out.

Q: Say you are organising aspects of your life, such as dental or hairdressing appointments or activities with your daughters, how does your mobile phone feature in your organisation of these events?

A: I don’t use my mobile phone for such things because it is too expensive. Usually I use my house phone.

Q: What else do you use that is not necessarily of a technical nature?

A: I tend to use a calendar the most for organising my time by entering the dates of any appointment or event.

Q: How would you consider that a mobile phone might help you in organising your lifestyle?

A: I wouldn't really use a mobile phone in that way mainly because of the expense. In fact, I wouldn't know how to use it for entering dates.

Q: How much use do you make of the contact list facility, incorporated in your mobile phone?

A: I do use the contact list and I have quite a few names entered, that I find useful. I also have a private telephone directory in my address book, which of course also has addresses.

Q: For what reason do you add people's details to your contact list?

A: I only add the phone numbers of my close friends and family, who have mobile phones. Some people have business numbers such as the doctor or the dentist but I don't do this. Just friends and family.

Q: What use do you make of the Internet?

A: We do usually use the Internet occasionally but at present, the computer is out of commission due to our having an extension built to the house. We sometimes use it to find last minute holiday bargain breaks and I've just got into shopping on the eBay site. I haven't tried to sell anything yet but I've bought one or two things and I am rather sceptical about entering my credit card details on the internet. I don't allow the kids to go on the internet much and as a safeguard, we've got that internet child protection filter.

Q: How much use do you make of e-mails?

A: We do use e-mail but not a lot. I think you go through stages whereby you use it more then hardly at all. Its also a case of finding time and I think its quicker to phone somebody.

Q: What use have you made of the mobile phone in accessing the Internet?

A: I've never used the mobile phone for the Internet. In fact, I've never considered it. Its far too complicated for me.

Q: How would you usually make use of your leisure time?

A: When I do have some free time, I like to go shopping and spending quality time with the kids. We go to leisure parks, we enjoy swimming and the kids are into dancing, so we go to watch them. As I said earlier, I like entertaining and we have

people round for meals or barbecues. On Sundays, if its my day off, we often go out for the day as a family.

Q: Do you play any board games, card games or computer games and if so what are they?

A: We play Monopoly, Cluedo, dominoes and such games as that. The kids like playing with their Playstation and Gameboy but they prefer to play with my husband and me, on Sunday evenings, when we usually get out a board game and play as a family.

Q: When playing games, what is most important to you?

A: Mainly playing with the kids. One of them is terrible at losing but we make sure that she does not always win. Coming first is the most important thing for her, even at the school sports day. She is very competitive, just like her dad but I'm not. For me its taking part that counts and I enjoy taking part as a family. We do do a lot as a family. I don't go on the Playstation or the Gameboy games and I don't like the kids going on them a lot.

Q: What games, if any do you play on your mobile phone?

A: I don't play any but the kids do. They like to play "Snake" but I've never played it. There aren't any games that I'd like to play on the mobile phone, it just doesn't appeal to me at all.

Q: Would you listen to music on the mobile phone?

A: I do keep thinking that I'd like to download a tune but I don't know how to do it. All day, I have Viking radio on and my favourite is Erasure. I like music from the charts too and from the '80s.

Q: Do you listen to music other than on the radio?

A: We have a CD player in the car and we listen to CDs on that. I know you can download tunes on to your mobile phone but as I said, I don't know how.

Q: What about the Internet as a source for music?

A: I've never used the internet for music. If I had the time to sit down and do it, it would probably interest me but it would have to be the right kind of music.

Q: What interest do you have in photography?

A: I've got a digital camera and I think its brilliant. I like to use that to take photographs of the kids when they go dancing. Recently we went to London and took photographs, which we can print off on the computer. That's what we like about the digital camera.

Q: How would you feel about using your mobile phone for photography?

A: If I could afford it yes I would but I'm not particularly bothered. That's what the kids are going to want soon. The elder kid is 10 and she had a mobile phone last Christmas. Technology is moving so fast and if they were to come down in price, I would consider buying a phone, which takes photographs. It would be good but it doesn't interest me just now as I don't see it as a necessity.

Q: How do you feel about the quality of the photographs that you take?

A: I've not really given it much thought. We do have a camera, which uses films as well as the digital and although I like to see a good photograph, the quality doesn't really bother me.

Q: How do you store your photographs?

A: As you can see from the ones on the wall, we frame some but we also store some in albums. There is a stack of them, which we are waiting to put them into albums and one day we'll get around to it.

Q: How does the personalisation of products appeal to you?

A: It hasn't crossed my mind and doesn't really interest me.

Q: How about personalising your mobile phone?

A: I like to have a personal ring tone and have names on it. My elder daughter knows how to do it and so she does it for me. The kids mess about with the phone and so I don't know what the ring tone is at the moment. When I get a text it normally bleeps but it doesn't at present, so I don't know what they have done. It is silent now, so they must have done something.

Q: If your house were on fire and you've got every one out, what one thing would you rescue and why?

A: It wouldn't be my mobile phone. I'd probably grab my purse or my handbag. Why would I do that? I really don't know. Thinking about it maybe I'd grab photographs of the kids, when they were little or the memorable photographs, which I have on the wall because they are personal and have a lot of memories.

Q: What influenced you to buy your mobile phone?

A: I didn't buy it. My husband got it for me for Christmas about four years ago. I always said that I would never have one but he got me one. Someone at the place where he works was selling it. It is an old phone but I'm not bothered, its good enough for me.

Q: What do you use it for?

A: Mainly texting. I rarely use it for anything else. Gradually, I've got more into it and got faster in texting. I used to be really slow but its coming on.

Q: What irritates you the most about mobile phones?

A: What really irritates me is when I'm serving a customer, and their phone goes off and they carry on talking. I think that is so rude. They're talking and giving me change with the phone stuck to their ear. I don't like that. It really annoys me.

Q: What surprised you about the mobile phone?

A: I said that I'd never have one but now I don't know what I would do without it. I like the texting and didn't realise that you could say so much for 10p.

Q: What was the most recent new thing you learned to do with it?

A: The last thing was to change the ring tone. My elder daughter showed me how to do that.

Q: Do you ever keep the texts?

A: My mobile phone only has a short memory. I keep some text messages but when it says that I've got too many, I delete some and save some. I never write any out, I keep them on the phone.

Q: How important is your mobile phone to you?

A: When I'm going out in the car on my own, I like to have it with me more or less as some reassurance.

Q: What gains or losses do you feel there have been by having a mobile phone?

A: Apart from my feeling reassured when I'm on my own, the phone is handy. For instance, if my husband is going to be late home from work, he can either phone or text me and I can delay the tea. It is convenient more than anything. I don't think that there have been any losses - I can't think of any.

Q: How cautious are you in using your mobile phone?

A: I wouldn't use my phone in public as much as some people use them. Obviously, you have to turn it off in certain places. I do use it when I'm going out but when I'm at home, I often switch it off because if someone wants me, I think they are going to ring me using the house phone. Sometimes I'll keep it on when I know that someone is going to text me.

Q: Do you think that it makes you feel more connected with people?

A: It does because I can text away to my hearts content. They don't have to be there, as when you use the phone to ring someone. If they are not there you can still text.

Q: When have you been glad to be carrying your mobile phone?

A: When we were down in London. It was great. Everyone was ringing me to say they'd seen the kids on television and we were ringing them. That was brilliant.

Q: What were the situations when you wished that you had left it at home?

A: To be honest, there have been no occasions when I have regretted having the phone with me.

Q: How confident would you feel about replacing your home phone with your mobile phone?

A: I wouldn't replace my home phone. Not only do I like my home phone, it is cheaper to use. Sometimes I receive a text from say T-Mobile and I think that you can receive such messages when you don't know where they are from. Its like receiving junk mail so I prefer my home phone.

Q: Tell me about any instances when your mobile phone has let you down!

A: I can't recall the battery charge letting me down but when we went to Center Parcs, we couldn't get a signal.

Q: If you're in a café or a bar, what do you do with your mobile phone?

A: I keep it in my bag because I don't like it being on show. If it is left out, it could get stolen so I keep it in my bag as a safety precaution.

Q: Are you proud of your phone, or like the advert says "Are you ashamed of your mobile"?

A: I'm not particularly proud of that one but I'm alright with it. I'm glad I've got it.

Q: What does your mobile say about you?

A: (Laughing) Old and decrepit! It says that I'm not really bothered about technology and that my mobile phone serves my purpose. I know that you can have them updated, but for me my mobile phone does me fine. It does what I want it to do.

Q: If you had to cancel an appointment with a friend at short notice, how would you do it?

A: I wouldn't use my mobile phone to ring her, it would be too expensive. I would text her.

Q: What influence do advertisements using celebrities have on you?

A: They don't influence me at all.

Q: How would you feel about using your mobile phone in the street?

A: I do use it for texting in the street.

Q: Shopping in the supermarket?

A: Yes I do but not when I'm at the checkout.

Q: In a restaurant?

A: Very rarely would I use it in a restaurant although I would have it with me when we go out so that the babysitter can get in touch with me if need be.

Q: On a bus or a train?

A: I'd have it with me and I would use it.

Q: In the cinema?

A: No, you're not allowed. You have to switch them off.

Q: When is it appropriate to send a text and when is it inappropriate?

A: It is not appropriate when you are in a crowd of people and in conversation. I just think that it is rude when you're talking. When I'm at work, on the checkout and you're trying to talk to someone, who is texting whilst handing over money, that's inappropriate and I don't like that. It is however appropriate on a number of occasions, as I've already mentioned like when my husband is going to be late home or I need to get in touch with a friend.

Q: How do you feel if you are ringing phoning someone and they divert you to their answering machine?

A: I don't know how I would feel. It has never happened to me.

Q: How comfortable do you feel about using "txt spk" as opposed to proper spelling and grammar?

A: I used to write the words out in full but now I'm starting to use more text language.

Q: What to you would a 'smart' phone mean or do?

A: One with a camera, quicker technology, one that is smaller, pocket size so that I could put it in more places, not one as big as the one I've got.

Q: How would you feel carrying a smart phone around?

A: I wouldn't want to lose it. I'd be alright as long as I had it hidden and not open to public gaze.

Q: (Producing "mother of two" persona) Is this you?

A: Well, she's a bit older than me! Her kids might be a bit older than my two. I suppose like her, I like keeping touch with family. but when I say that, I mean my husband and kids rather than aunts and uncles. For me, the technology would have to be simple,

because I have to rely on the kids quite a lot to tell me how to do things. In a way, I have to be organised because not only do I have to work at Tesco, I've got ironing to do, meals to cook and I also like to leave time to spend with the kids. We don't very often go on foreign holidays.. We like trips to London, but what I do look out for are cheap holiday breaks on the Internet. So I suppose, I have something in common with whoever that woman is.

“JILL” TRANSCRIPTION OF VOICE RECORDINGS 23rd JULY – 11th AUGUST 2004

RECORDING 1:

30/07/2004 20:27:18

Just trying to send a photo message. I thought I had done it, I've looked in the instruction book, and I still can't do it. Sorry. It's just so frustrating and annoying.

RECORDING 2:

12/12/2003 16:02:44

I'm feeling very proud of myself. I just took a picture of my daughter. It's very good. I'm messing about with it now and I'm feeling very pleased with myself. I can just about work one or two things out. I'm very proud of myself.

RECORDING 3:

12/12/2003 16:02:44

Just sent my first text message.

RECORDING 4:

12/12/2003 18:12:12

I'm really, really loving the use of this camera. I have taken about four or five pictures. I really like it. It's amazing what you can do with it really.

RECORDING 5:

29/07/2004 16:20:02

I've had the phone a week now. I feel it is too technical, well, a lot of it is. I feel as though I've got to take it everywhere with me because I am frightened of losing it. I find some aspects of it easy to understand, other aspects very difficult. I wouldn't be happy purchasing one in the future because it is too technical. I'm just happy with a basic phone, like the one I've got. It's all very good getting the photos, and recording and everything, but I feel it's for... somebody with a bit more brains.

RECORDING 6:

30/07/2004 19:29:38

I've just tried to send a photo message and I found it quite hard. It's so annoying because I just can't work it out. I think I've managed to send the picture but I can't work out how you put text onto it. I'm just so annoyed with myself and with the phone.

RECORDING 7:

02/08/2004 19:10:50

I've just managed to send a photo message and I've had confirmation that it has arrived. I feel like I am getting somewhere now. I'm feeling quite pleased with myself that I have managed it, and also quite relieved.

RECORDING 8:

03/08/2004 17:08:06

I've been trying to use the Task List function of the phone. I've tried to put in my tasks, but it keeps going onto predictive text, and so I can't write anything because it keeps trying to predict my words and getting them wrong. I'm very frustrated with it, I'm sorry – I just cannot work it out. Everything else is fine, but I cannot do the set tasks, such as send a photo message or use the Task List.

“JILL” REFLECTION INTERVIEW - 11th AUGUST 2004

Q: What were your expectations of using a 'smart phone', and how have they been met?

A: I knew it would be quite hard. That's technology for you though. I certainly don't think it is as easy as using my existing phone. It's far too complicated for me. Not very straightforward. I mean it's good when you get into it, but it takes a lot of effort and is just far too complicated for my needs. I couldn't wait to give it back.

Q: In what ways has your mobile phone gone beyond your expectations?

A: The ability to go on the Internet is very useful, but I didn't use it - we're not even hooked up to it at home at the moment. The pictures are very good, but at the end of the day, you've got to know somebody else who has a phone like that. None of my friends have got a phone like that. They might do in years to come, but not at the moment.

Q: In what ways has your mobile phone failed to meet your expectations?

A: Far too complicated. I just want a basic phone and my existing phone is basic enough for me. These bigger phones are far too complicated, which is surprising. You'd think that with increases in technology, the phones would get easier to use, but instead they get more and more complicated! They might be easy to use for some people, but it wasn't for me. It takes a long time to switch on as well, it's not very quick at all. I thought that would be one of the advantages of a smart phone! I also thought the phone would be much smaller. Those flip-up phones available are really small, but this is quite chunky. The size of it is similar to my existing phone which I would regard as a bit of a 'brick'.

Q: Could you see yourself using one?

A: No, not at all. I feel the phone is suited for a businessman or a professional, but not for someone like me.

Q: Did you feel more connected?

A: Not particularly just the same as my existing phone. I was worried about losing this phone to be honest, that's why I wanted to give it back. It's a hell of a responsibility carrying that thing around.

Q: What has been the best thing about using a 'smartphone'?

A: The camera is good, and the ability to record your voice is very good. I'd say the camera is about the best thing on it. The charging was very quick, I must admit it only took about an hour to charge up. My existing phone takes ages. I only had to charge it up once in the last two weeks. The charge lasted quite a long time as well, but I did tend to switch it off quite often during the day.

Q: What has been the worst thing about using a 'smartphone'?

A: Just the basic function of it. It's just not obvious at all. It's not like your bog-standard basic mobile phone. Admittedly, mine is very old, but I am extremely familiar with it. The new phone was far too complicated and very difficult to learn. It is also extremely expensive. You can get a pretty good phone for about thirty pounds nowadays. I would never pay two hundred quid! Okay, so it takes pictures, but for the money I would want it to work better than it does, and would want it simplifying and made easier to use! I'd hate carrying around something so expensive too.

Q: Would you be willing to swap your old phone for this 'smart phone' right now?

A: No, not at all, I am extremely happy with mine.

Q: What did you think about using the phone to make calls?

A: I very rarely use my mobile phone to make calls. I mainly use it for texting. When I did use however, I didn't find it to be particularly different. I knew how to make a call, but I rarely did.

Q: Text Messaging?

A: I didn't find texting as easy as I do with my existing phone. The predictive text function keeps coming on, and trying to predict what I am trying to write. I just don't understand it. Sending the texts was pretty straightforward no problems there.

Q: Photographs / Videos / Photo Messaging? (Photography)

A: No problems with the photographs I enjoyed using that feature. I didn't realise there was a video function on it, which is quite impressive. That's too beyond me though far too complicated. I sussed the Photo Album out that was quite easy to use.

Q: Internet / Email? (The Internet)

A: We're not hooked up to the Internet at the moment, as we're waiting for the extension line upstairs. We haven't been on it for about a month. If I had more time, I would probably try and get into it. My husband would be interested. He managed to send an email from the phone to his work and printed it off.

Q: Music? (Music)

A: No, I didn't know you could.

Q: Games? (Leisure)

A: No, I don't play the games on my existing phone either. I'm just not interested in them at all. The kids have got a Playstation, so they mainly play on that, and the games don't bother me at all.

Q: Calendar / Task List / Contact List? (Organisation)

A: I didn't use the calendar at all. I don't fancy the idea of putting all my details onto the phone. As I mentioned earlier, I couldn't use the Task List, due to the problem with predictive text. The contact list was okay all the numbers from my SIM card were displayed.

Q: Ringtones / Backgrounds / Other settings? (Personalisation)

A: I just used the basic ringtone it came with. I didn't attempt to change it. I'm not really bothered how it rings. I put a background on the phone. It's like on the computer you can take a picture and use it as your background. I had a picture of me and the kids and I used that as the background on the phone. I managed to work that out! That was quite good, but the screen was too busy and you couldn't see the picture very well. I wasn't sure how you could get rid of things on the main screen.

Q: Voice Memos

A: The kids messed around with the recording a bit, and they enjoyed that. I didn't realise that the Earpiece Volume affected the volume of the recordings, and for ages I thought it was broken.

Q: Did you use the instruction book at all?

A: Yes, I did, plenty of times. Particular so when trying to send the photo message. That's what made me so frustrated I just could not do it. I only managed to sort it out by chance.