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Examining the factors that influence the voluntary disclosure of information by consumers to commercial organisations

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By
Christos Themistocleous

Examining the factors that influence the voluntary disclosure of information by consumers to commercial organisations

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by

Christos Themistocleous, BSc, MA

Supervision: Andrew Smith and Christian Wagner

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To my uncle Yiannis Stavrinides (1956-2014)
and grandfather Costas Polykarpou (1927-2014)

Abstract

The impetus of this research is to examine how different presentation techniques of data-capturing questionnaires influence the amount of voluntary disclosures of private information by consumers to commercial organisations. The research focused on the interaction of three dimensions that influence voluntary disclosures namely psychological processes, relational depth and instrumental factors, specifically utilising the three concepts deriving from the instrumental factors dimension for the synthesis of the questionnaires. These concepts were *comparative nature* (Acquisti, John and Lowenstein, 2012) *dyadic relationships (*Zimmer et al., 2010), and *question sequences* (Moon, 2000; Acquisti, John and Lowenstein, 2012).

This research incorporated a 3x3x3 matrix based on the three respective conditions of the above concepts, thereby generating 27 different conditions -each of which reflected a unique presentation of the questionnaire. A quasi-experimental survey-based design was incorporated for the testing of each of these conditions and their influence towards three areas: i) *Overall actual disclosure of information*, ii) perceptions of individuals regarding *loss of face*, *loss of privacy* and *compensation required for full disclosure*, iii) perceptions of individuals regarding *impersonal trust* and subsequent relational depth. This examination was based on the conceptualisation of a three-dimensional framework which incorporated multidisciplinary factors identified by previous literature to have an influence on voluntary disclosure. Additionally, a pre-test study was utilised for identifying reliable measurements of overall actual disclosure while informing the design of the questionnaire based on the *question sequence* concept.

This approach represents the first attempt at examining the synergistic behaviour of concepts that influence the presentation of data-capturing questionnaires; their comparison with the individual employment of each concept in terms of their influence on overall actual disclosure; as well as the examination of how each of these conditions influences the cognitive processes of individuals that lead them to

disclosures of private information. This approach was complemented by analyses that sought to confirm the high-level conditions of each concept (H1), while deductively verifying previous claims by other academics and building upon their work (H3).

Results provided confirmation of certain synergistic behaviours of concepts that increase overall actual disclosure, while pinpointing specific combinations that lead to abstention from information disclosures. Certain counterintuitive findings were also present and were addressed through a closer examination of previous research and a cross-examination of this Thesis' hypotheses.

Publications

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List of Abbreviations

Theories

SRT= Social Response Theory

SET= Social Exchange Theory

Models and frameworks

RRM= Revelation Risk Model

DDM=Disclosure Decision Model

DM= Disclosure Management (framework)

Concepts incorporated in the conceptual framework

DR= Dyadic Relationship

CN= Comparative Nature

QS= Question Sequence

IF= Instrumental Factors (refers to all three DR, CN and QS)

LoF= Loss of Face

LoP= Loss of Privacy

LoFP= Loss of Face and Privacy

COMP= Compensation offered for disclosure of information

IT= Impersonal Trust

Conditions of Dyadic Relationships

Rea= Reasoned Dyadic Relationship condition

Unrea= Unreasoned Dyadic Relationship condition

Non-Dyadic= Non-Dyadic Relationship condition (denotes the absence of the Dyadic Relationships concept)

Conditions of Question Sequence

Asc= Ascending order of questions in respect to their privacy invasiveness

Des= Descending order of questions in respect to their privacy invasiveness

Ran= Random order of questions in respect to their privacy invasiveness

Conditions of Comparative Nature

HighCN= High-level condition of the concept of Comparative Nature

LowCN= Low-level condition of the concept of Comparative Nature

NonCN= Non-Comparative Nature condition (denotes the absence of the concept of Comparative Nature)

Statistical analysis terms

MLR= Multiple Linear Regression

ANOVA= Analysis of Variance

MANOVA= Multiple Analysis of Variance

ANCOVA= Analysis of Covariance

MANCOVA= Multiple Analysis of Covariance

SE= Standard Error

Additional terms

OAD=Overall Actual Disclosure

SDB= Social Desirability Bias

FIPs= Fair information Practises

1. INTRODUCTION CHAPTER

1.1 Research context and objectives

This thesis focuses on the examination of factors that have an influence on the voluntary disclosure of information by consumers to commercial organisations. The importance of this area of study is attributed to the fact that, in this modern age, the collection of customer information represents one of the major challenges that organisations have to face in order to acquire a competitive edge. The evolution of marketing in the last few decades has shown that consumer information is vital for the profitability of modern organisations (Deighton, 1996). Academics like Nowak and Phelps (1995) argue that the correct use of consumer information enables organisations to build customer loyalty while expanding their customer base through customised advertising. Additionally, Graeff and Harmon (2002) and Acquisti, Brandimarte and Loewenstein (2015) mention that consumer information allows organisations to satisfy the growing demand of more personalised products and individualised attention. Nevertheless, this generates what was more recently identified by Lee, Ahn and Bang (2011) to be the personalisation-privacy trade-off. This trade-off occurs when consumers sacrifice certain amounts of private information in order to allow organisations to offer them more personalised products.

When it comes to the ways that consumer information can be collected, Robertshaw and Marr (2005) argue that organisations can easily obtain data through direct transactions (transactional data) or through indirect means (non-transactional data). More precisely, non-transactional data is linked to the accumulation of data that is either non-related, or at best, indirectly related to the original transaction (Lee, Ahn and Bang, 2011). Even though non-transactional data are more difficult to be obtained by organisations compared to the transactional data, some argue that the first is as important for organisations as it can provide insightful information on lifestyle and psychological characteristics of

individuals (Robertshaw and Marr; 2005). The use of this information is believed to be extremely valuable for organisations as it can reveal shopping patterns of consumers, credibility levels of customers while also enhancing product development (Reed, 1999). The only drawback for organisations that seek to acquire non-transactional data is the fact that this type of data relies (or should rely) on voluntary disclosures by individuals (Linden, 2002; Lee, Ahn and Bang, 2011).

As non-transactional data is not directly related to the original transaction, but can still be acquired by organisations and used without the consent of the individual, several ethical issues emerge regarding the protection of consumer privacy. More precisely, these issues arise because of the acquisition of non-transactional data without the consent of the individual whose data is used, stored or shared with other parties. Acquisti, Brandimarte and Loewenstein (2015) argue that this threats the individual's autonomy, not only as a consumer but also as a citizen. Additionally, this clearly affects both the customer's right to privacy[1] and his/her choice to disclose (or not) private personal information to organisations. Therefore, organisations are faced with what Linden (2002) describes as the explicit vs. implicit data collection dilemma. The explicit data collection method is made by explicitly asking consumers to disclose private data while the implicit data collection is characterised by Huang and Lin (2005; p.28) as more of a "behind the scenes" approach where information is being gathered without the involvement of the individual whose information is being acquired and processed.

Because of this, in recent years several data protection initiatives like *Midata*[2] in the UK (for central Europe see *EU Data Protection Directive* [3] and for the US

[1] One of the first papers to discuss about the right of privacy of consumers was Warren and Brandeis (1890).
[2] MiData was launched in 2011 through a partnership between the UK government and 26 organisations including Google, E.ON, Master Card, Visa, RBS, Lloyds Banking Group and more. More information can be found on https://www.gov.uk/government/news/the-midata-vision-of-consumer-empowerment.
[3] More information regarding the Data Protection Directive in Central Europe can be found here: https://epic.org/privacy/intl/eu_data_protection_directive.html.

Cyber-security initiatives[4]) are slowly becoming more dominant in the data protection arena. For example, Midata is poised to provide consumers with access to their personal data held by marketers which, according to Reed (2014), will help shift the balance of information asymmetry between consumers and organisations. An asymmetric exchange occurs when consumers receive limited value for providing information to both firms and public sector services. Attention should be drawn to the fact that data protection initiatives, like Midata, aim to empower consumers while assuring them that their personal data is well protected and not shared with any third parties unless consent is provided. To this end, it can be argued that these initiatives seek to substantially reduce the flow of consumer information to organisation that profit from selling them to third parties or fail to get consent for acquisition and use of that information by the respective individuals in the first place. This arguably limits the usage of implicit data collection methods, mentioned above, and at the same time embraces the importance of more explicit methods of data capture. As explicit data collection processes are based on voluntary disclosures by individuals, it is essential for organisations to identify key factors that make these processes more reliable, effective and efficient.

Related research focusing on the examination of the factors that influence voluntary disclosure, within organisational settings, has grown significantly since the mid-90s, with several papers emerging from different disciplines like consumer psychology, consumer behaviour, and marketing. In regard to the disciplines of consumer psychology and behaviour, an important amount of research focuses on the conceptualisation of frameworks that explain the cognitive processes that individuals go through when disclosing certain information (see Omarzu, 2000; Barnett, 2004; Afifi and Streuber, 2009). The marketing literature extends its reach towards relational factors that have an influence on voluntary disclosure. Relational concepts like trust, relationships and intimacy in organisational settings are heavily examined with the positive influence of these,

[4] More information regarding the Cyber-security initiatives of the US can be found here: http://www.theguardian.com/us-news/2015/jan/12/obama-cybersecurity-initiatives-student-data-consumers.

towards voluntary disclosures, being the main convergence point for most academic views (Falk and Wagner, 1985; Shelton et al., 2004; Brock and Zhou, 2012; Biggemann, 2012).

Interestingly, part of the marketing literature specialises on the examination of the effectiveness of different methods of data-capture like self-completed questionnaires, questionnaires completed by another person and more (Long et al. 1999; Hanna et al., 2005). Even though organisations can acquire customer information through interviews, questionnaires or even focus groups, online data-capturing surveys are considered to be one of the most efficient and effective data-accumulation techniques (see Long et al., 1999; Moon, 2000). This method was also found to be more effective in terms of information disclosure by individuals compared to any other off-line method (Hanna et al., 2005). Because of this, more recent papers focused on factors that enhance the efficiency and effectiveness of online data-capturing surveys. In particular, they experiment with question sequence effects, capitalisation on comparative nature of individuals, as well as examinations regarding reciprocal information exchanges and their effects towards voluntary disclosures (see Moon, 2000; Zimmer et al., 2010; Acquisti, John and Lowenstein, 2012).

Still, due to the multi-disciplinary element of the examination of factors that influence voluntary disclosure, there is a gap in the literature regarding the cross-examination and further investigation of the interactive behaviour of these factors in order to maximise the effectiveness and efficiency of online data-capturing questionnaires. The main objective of this Thesis is therefore the identification and examination of multi-disciplinary factors that influence voluntary disclosure and their inclusion into a unified conceptual framework. This would allow the better understanding and further examination of the information disclosure process in organisational settings. Furthermore, this Thesis seeks to cross-examine the synergistic behaviour of concepts that influence the presentation and design of online data-capturing questionnaires, with the overall objective being the

enhancement of their effectiveness and efficiency in the data-accumulation process.

Apart from the organisational side, this thesis takes into consideration certain ethical issues, and incorporates in its examination concepts that seek to empower and better inform consumers in the process of information accumulation, while basing its design on explicit data collection methods that embrace voluntary disclosures.

1.2 Methodological approach

This research focused on the revision of existing literature that leads to the conceptualisation of this Thesis' framework, and then proceeds to its quantitative, empirical investigation. The synthesis of the proposed conceptual framework is based on three dimensions:

i) The psychological processes dimension which incorporates the framework of *Disclosure Management* (DM) (Barnett, 2004) and the concepts that constitute it. This dimension seeks to examine factors that influence the cognitive processes of consumers that lead them to voluntary disclosures.

ii) The *relational depth* dimension which focuses on the concept of trust and its influence on the information disclosure process. Even though relational depth is part of the disclosure management framework, its design here was based on the views of Shapiro (1987) in regard to the need in marketing research of specifying the type of trust based on the context in which it is examined, and focused on trust in online data-base marketing environments, namely, *Impersonal Trust* (IT) (Shoenbachler and Gordon, 2002). As the definition of relational depth in this research was different to that of Barnett (2004), it was translated to a dimension of its own.

iii) The *instrumental factors* dimension which incorporates three concepts that influence the practical appearance of online data-capturing questionnaires. These three concepts are Dyadic Relationships (DR) (Zimmer et al., 2009), Comparative Nature (CN) (Acquisti, John and Lowenstein, 2012), and Question Sequence (QS) (Acquisti, John and Lowenstein, 2012)[5]. **Diagram 1.1** below provides a visual summarisation of the proposed conceptual framework (section 2.2 further explains the synthesis of the three dimensions of the proposed conceptual framework).

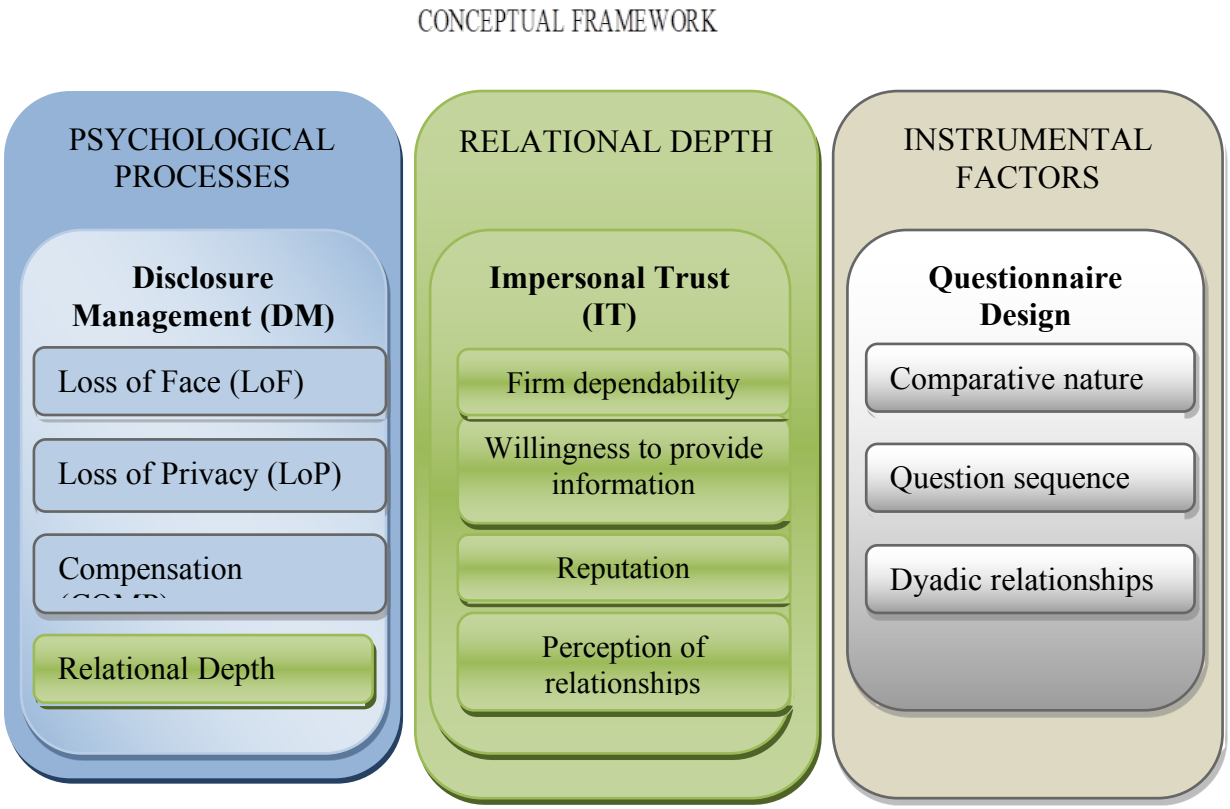

Diagram 1.1: *Visual summarisation of the three dimensions of the conceptual framework.*

The empirical exploration of this framework was based on post–positivistic views and the incorporation of a 3x3x3 matrix, based on the three conditions of the three instrumental factors. This led to the employment of a quasi-experimental questionnaire-based design (survey experiment) for its examination. This process

[5] Acquisti, John and Lowenstein (2012) examined both concepts of comparative nature and question sequence individually in the same paper (published in the Journal of Marketing Research). The paper is constituted by seven studies three of which examined the concept of comparative nature (studies 1a,b,c) while the remaining four were devoted to the examination of question sequence (studies 2a,b,c,d).

served as the main study of this Thesis, and is denoted throughout this document as **main study.** A total of 27 conditions were generated, each of which was reflected in the questionnaire's initial section (Section A). This served as the main manipulation process. Sections B and C of the questionnaire were identical for all conditions. The objective of this design was to examine how each of the 27 conditions influenced Overall Actual Disclosure (OAD) as well as the psychological and relational factors that constitute the other two dimension of the proposed framework. More precisely, this was done to record the embarrassment levels of individuals, their perceptions of loss of privacy and relational depth (with the scenario's organisation), as well as perception regarding compensation required for full information disclosure by individuals. This was done to verify the claims of existing literature, while examining the previously unexplored synergistic behaviour of these instrumental factors. The three conditions of each instrumental factor that led to the generation of the 27 examined conditions are depicted in **diagram 1.2** below.

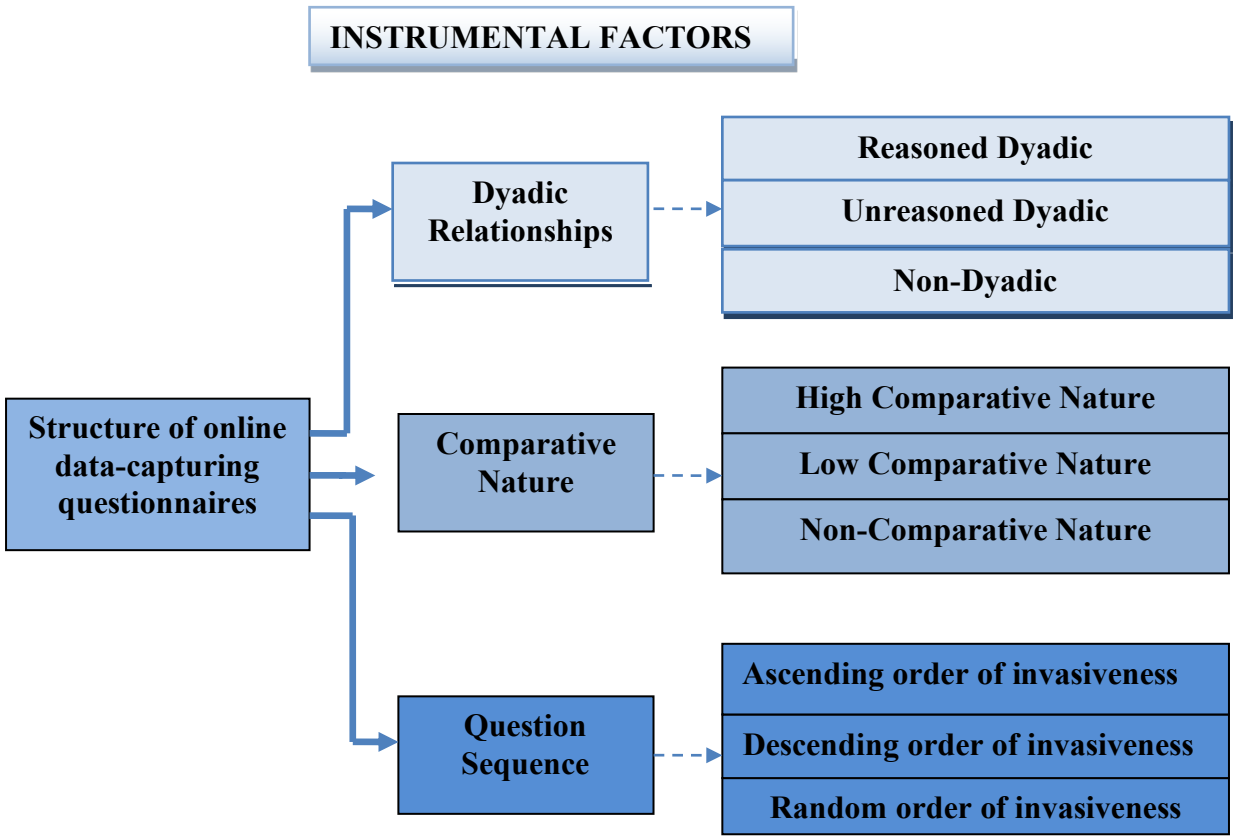

Diagram 1.2: *Visual summarisation of the conditions of the three instrumental factors that influence the structure and presentation of online data-capturing questionnaires.*

Prior to the main study, an initial pre-test study (denoted throughout this document as **pre-test study**) was conducted which sought to capture consumer perceptions towards the invasiveness of a series of privacy related questions. This generated a rank of these questions based on their perceived privacy invasiveness which was used to inform the design process of the main study. Apart from its pre-test nature, the study was also designed as a platform for the examination of consumer interactions with continuous and discrete number rating scales. For the sake of clarity and due to the pre-test study's complex, and somewhat unrelated nature, only the part of the pre-test study that served as the main study's pre-test is justified, examined and analysed in this Thesis. Therefore, the pre-test study in this document is referred to the part of the study which served as the pre-test of the main study and nothing is further mentioned in the main text of this document regarding its scale comparison aspects[6] (an extended abstract regarding the scale comparison aspect of the pre-test study is included in Appendix 9).

The primary objective of this Thesis was the identification and cross-examination of different multi-disciplinary factors that influence voluntary disclosure of information by consumers to commercial organisations though online data-capturing questionnaires. From this, the main theoretical contributions of this research were the examination of the previously unexplored synergistic behaviour of factors that influence voluntary disclosure and further development of these concepts, as well as the examination of how the individual and combined employment of instrumental factors influence disclosure mediating processes like the disclosure management psychological process. In regard to methodological contribution the utilisation of a quasi-experimental design for the examination of the 3x3x3 matrix allowed the examination of this interactive behaviour of conditions as well as their cross-examination with other disclosure-influencing factors.

[6] The scale comparison aspect of the pre-test study involves the examination of consistency of single point data capturing scales (i.e. semantic differential scales) with interval capturing scales (i.e. Ellipse-based interval-capturing scales) and comments on the interchangeability of the two scales in marketing research.

The research hypotheses of this Thesis were based on the cross examination of the constructs that constitute this Thesis' conceptual framework and drew on existing literature. For the sake of clarity this Thesis' five sets of hypotheses are summarised below. The main discussions and justifications regarding the synthesis of these hypotheses can be found in section 2.3.

The hypothesis examining the influence of the three instrumental factors (question sequence, comparative nature, dyadic relationships) individually towards overall actual disclosure, is presented below.

H1: The individual utilisation of the high-level conditions of the three instrumental factors in the questionnaire positively influences overall actual disclosure.

The second set of hypotheses that examine the synergistic behaviour of the three instrumental factors (question sequence, comparative nature, dyadic relationships) and their influence towards overall actual disclosure is presented below.

H2a: The combined utilisation of the high-level conditions of the instrumental factors in the questionnaire positively influences overall actual disclosure.
H2b: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire has significantly higher positive influence on overall actual disclosure compared to the individual utilisation of the high-level conditions of instrumental factors.

The third set of hypotheses, presented below, examines the influence of the concepts that constitute the dimensions of psychological processes (loss of face, loss of privacy, compensation) and relational depth (impersonal trust) towards overall actual disclosure.

H3a: The higher the perceptions of impersonal trust by the respondents towards the organisation, the higher the overall actual disclosure.

H3b: The lower the perceptions of loss of face and loss of privacy during information disclosures by respondents, the higher the overall actual disclosure.
H3c: The lower the compensation required for full disclosure the higher the overall actual disclosure.

The fourth set of hypotheses examines the influence of instrumental factors (question sequence, comparative nature, dyadic relationships) towards the psychological processes (loss of face, loss of privacy, compensation) and relational depth (impersonal trust) factors, both when utilised individually and combined. H4 is presented below.

H4a: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire reduces concerns regarding loss of face and loss of privacy.
H4b: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire reduces compensation required for full disclosure of information.
H4c: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire increases perceptions of impersonal trust.
H4d: The combined utilisation of the high-level conditions of the instrumental factors in the survey reduces concerns regarding loss of face and loss of privacy.
H4e: The combined utilisation of the high-level conditions of the instrumental factors in the survey reduces compensation required for full disclosure of information.
H4f: The combined utilisation of the high-level conditions of the instrumental factors in the survey increases perceptions of impersonal trust.

The fifth set of hypotheses compares the influence of the combined and individual utilisation of instrumental factors (question sequence, comparative nature, dyadic relationships) in the questionnaire towards psychological processes (loss of face, loss of privacy, compensation) and relational depth (impersonal trust).

H5a: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire further reduces concerns regarding loss of privacy and loss of face compared to the individual utilisation of instrumental factors.
H5b: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire further reduces the compensation required for full disclosure of information compared to the individual utilisation of instrumental factors.
H5c: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire further increases perceptions of impersonal trust compared to the individual utilisation of instrumental factors.

All hypotheses (H1-H5) were addressed through the quasi-experimental survey of the main study, with the pre-test study being used to inform the main study's design while identifying and resolving potential validation issues.

1.3 Thesis structure

This section seeks to delineate the structure of this Thesis and explain what the reader is expected to find within each of the five main chapters that constitute it. These chapters are visually summarised in **diagram 1.3** below.

Starting with **Chapter 2**, Part I examines key factors that influence voluntary disclosure as identified in the current literature, and is comprised by three main sections: psychological factors, relational factors, and instrumental factors that influence voluntary disclosure. Certain parts of the literature review chapter critically evaluate respective frameworks and views of other academics, while highlighting the importance of certain concepts in this Thesis. Part II provides the conceptualisation of this Thesis' framework based on the concepts identified in the first part. Similar to the first part's structure, the conceptual framework's three dimensions are *psychological processes*, *relational depth* and *instrumental factors*. The conceptualisation includes justifications for the inclusion or exclusion of certain concepts and is used to inform the methodology chapter. Finally, Part III provides explanations for the synthesis of this Thesis' main hypotheses.

Chapter 3 justifies the methodology followed in this research and is divided into three main parts. Part I includes the philosophical underpinning of this Thesis; it introduces key epistemological notions, defines the term methodology and provides a small review regarding the different methods for data capture and analysis. Furthermore, this part is enriched by an examination of the tendencies of other academics in the field in respect to their employed methods of data-capture and concludes with this Thesis' philosophical positioning. Part II focuses on the research design of the pre-test study. A thorough analysis regarding its research design is provided, clarifying the structure for each of the questionnaire's sections while specifying how certain issues identified in the pilot study were handled.

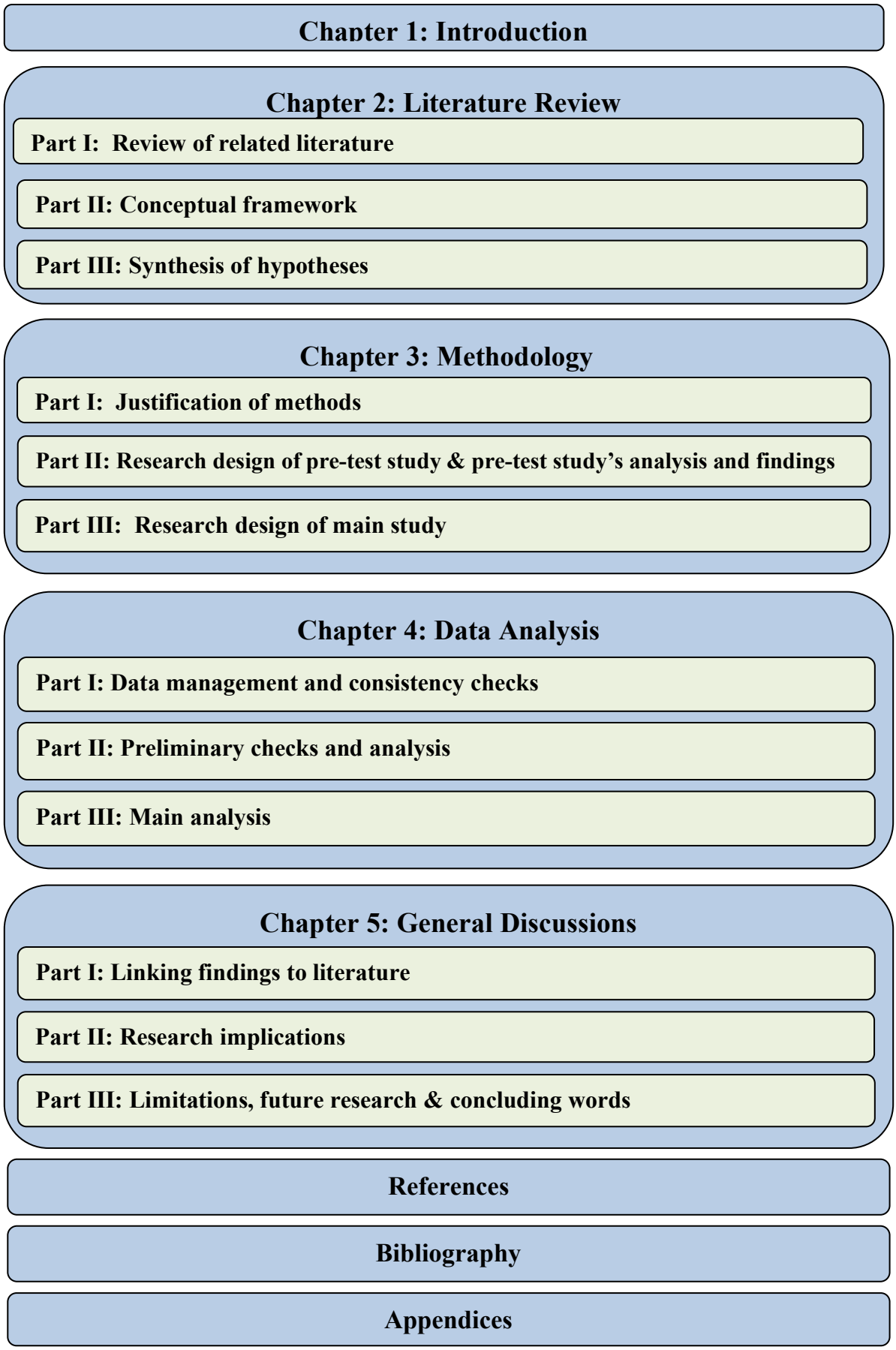

Diagram 1.3: *Visual summarisation of the chapters that constitute this Thesis.*

Additionally, Part II of chapter 3 includes the analysis and findings of the pre-test study which were used to inform the design of this Thesis' main study. Finally, Part III focuses on the main quasi-experimental survey-based study that sought to quantitatively examine the proposed conceptual framework and test this Thesis' hypotheses. Part III provides clear explanations on how each of the framework's constructs was operationalised in the design of the questionnaire, as well as how different conditions influenced the actual presentation of the questionnaire.

Chapter 4 provides the analysis of the data obtained through the quasi-experimental survey of the main study. Part I provides information regarding data management and consistency checks undertaken for the experiment's conditions. Part II includes additional preliminary tests and the analysis of the open-ended question regarding compensation required for information disclosure. Part III focuses on the main data analysis and the testing of this Thesis' main hypotheses.

Chapter 5 provides the main discussion based on the findings generated from the data analysis. Part I reconsiders findings from the main study in light of previous research. Part II includes discussions regarding practical, theoretical and managerial implications. Finally, Part III provides discussions regarding the limitations of the present research, recommendations for future research as well as concluding words.

The Thesis finishes with an alphabetical list of references[7], a bibliography of sources utilised and finally a section that displays all the appendices[8].

[7] References are provided in Harvard style format.
[8] The reader is informed in-text whenever tables, pictures, sections or further information on the related topic are included in the appendices section.

2. LITERATURE REVIEW CHAPTER

Introduction

The literature review chapter of this Thesis addresses key papers that tackle different privacy-related issues and critically analyses factors that influence voluntary disclosure of information from the disciplines of marketing, consumer psychology and consumer behaviour. The literature review chapter is divided into three main parts.

Part I is constituted by three sections. Each of these sections reflects a dimension of this Thesis' three-dimensional conceptual framework. Prior to these a sub-section is included, named 'defining self-disclosure and information sensitivity', which provides the context in which certain terminologies are used in this Thesis.

More precisely, the first section of Part I critically analyses the **psychological factors** that influence consumers when disclosing information and examines the cognitive processes that consumers go through when engaging in disclosures. Reviewing the theory of *social exchange* was essential in understanding how individuals act and behave in situations of information exchange. This fuels several frameworks that seek to conceptualise these cognitive processes of individuals. Three key conceptual frameworks are presented in this section with the main focus being on Barnett's framework of *Disclosure Management* (DM). DM investigates the process of balancing the benefits and risks from a potential disclosure by the individual, and seeks to examine different stimuli that influence this process with the overall objective being the maximisation of information disclosure. The second section includes the **relational factors** that influence self-disclosure and how the relations between the *projector* and *recipient* of information influence how much information the former will divulge to the latter. The concepts of *relationships*, *intimacy* and *trust* are examined with the main focus being on the concept of *impersonal trust* due to its suitability in this line of

research. The third section of Part I introduces and reviews the **instrumental factors** that influence consumers in divulging information. These factors seek to examine how consumers perceive different methods of data capture in terms of privacy-intrusiveness, and more precisely, how data-capturing questionnaires can be designed in order to decrease privacy concerns and increase information accumulation. The three key concepts examined in this section are *comparative nature* (Acquisti et al., 2012), which is based on the theory of social compliance and herding; *dyadic relationships* (Zimmer et al., 2010), which is based on Social Response Theory; and finally *question sequence* (Acquisti et al., 2012) which is based on the concept of question order effects.

Part II of this chapter focuses on the conceptualisation of this Thesis's main framework while providing justifications for the inclusion of the chosen factors that influence disclosure. Similar to Part I's main sections, the conceptual framework's dimensions are *psychological processes*, *instrumental factors* and *relational depth.*

Finally, drawing from the conceptualisation of this Thesis' framework**, Part III** identifies the main research gap that this Thesis seeks to address and proceeds in justifying the synthesis of this Thesis' main hypotheses.

2.1 PART I-REVIEW OF RELATED LITERATURE

2.1.1 Defining self-disclosure and information sensitivity

Psychological factors and their influence whilon voluntary disclosure of information is a well-explored area in the literature. Nevertheless, before proceeding to its examination and review, it is essential to define the terms of voluntary disclosure and self-disclosure, and explain the fashion in which these are used in this Thesis. Self-disclosure is defined as any personal information that one person communicates to another (Altman and Taylor, 1973; Collins and Miller, 1994) with Derlega et al. (1993) arguing that disclosures are the verbal

communications of relevant personal information. Self-disclosure is also linked to the discipline of psychology where its therapeutic notion in overcoming past traumas, psychological complexes and other issue*s,* is often examined and analysed (Cozby, 1973; Bernadette, 1988; Stiles et al., 1992). The term self-disclosure is also incorporated in the marketing and management literature and is frequently referred to as the voluntary divulgence of personal information by one person to another individual or entity (i.e. organisation) (Moon, 2000; Barnett, 2004).

This Thesis uses the terms self-disclosure and voluntary disclosure of information in an interchangeable fashion so long as the topic of disclosure being discussed complies with Blaus (1964) and Heath's (1976) notion of *voluntary exchange* of information. This is defined as the exchange of information which takes place if both sides find it preferable to the alternatives open to them at the time of the exchange (Heath, 1976;p.20).

Essential to the process of self-disclosure is also the type of information individuals are asked to divulge. A reasonable argument is that the more private/sensitive certain information is for the individual, the more difficult it is to disclose it. This is supported by Long, Hogg, Hartley and Angold (1999) as well as Huang and Lin (2005) and Mothersbaugh et al. (2012) who indicate that the type of information required by organisations is a vital parameter that affects information disclosure. Nowak and Phelps (1995) mention that personal information can be classified into sensitive and non-sensitive, with Robertshaw and Marr (2005) supporting the view that sensitive consumer information revolves around the areas of personal medical conditions, sex preferences, drug use as well as personal financial information. Still, it is important to bear in mind that individuals are rational in the way they perceive sensitive information; appreciate differently the compensation provided to them for disclosing certain information; while weighting the benefits and losses from a potential disclosure differently (Barnett, 2004; Premazzi et al., 2010). This rationality of individuals is reflected in the study of Alan Westin who categorises individuals into three groups based on

their overall perception towards privacy and disclosure of information. The study included 6 surveys between the years 1990-2003, all of which were based on US samples. The findings from all six surveys were summarised by Kumaraguru and Cranor (2005), and Westin's categorisation of consumers based on how individuals perceive privacy is as follows:

Privacy Unconcerned: Individuals who are unconcerned about their personal information and easily provide information for low or even no benefits in return.

Privacy Pragmatists: Majority of individuals who balance the pros and cons from disclosing information and choose carefully whether to disclose or not certain information. They usually engage in disclosures when the potential benefits exceed potential losses.

Privacy Fundamentalists: Individuals that completely avoid the disclosure of information to organisations and are not induced by any benefits being offered with disclosure.

In addition to this, studies provide augmentations on Westin's framework based on more recent data (see Tsarenko and Tojib, 2009). Still the three main categories as proposed by Westin are met with minor augmentations on the characteristics of the individuals included in each. Capitalising on the observation of rationality of individuals based on information sensitivity, Huang and Lin (2005) explain that consumers are less willing to disclose information they perceive as sensitive as they are worried that their information might end up in the wrong hands which can be harmful to the individual's privacy. Furthermore, Long, Hogg, Hartley and Angold (1999) identified that consumers are comfortable when sharing information about their attitudes, less comfortable when sharing demographic and geographic information, and least comfortable when discussing financial affairs. Moreover, Huang and Lin (2005) indicate that even though the majority of consumers are privacy pragmatists, and therefore willing to trade information for something valuable, when it comes to revealing sensitive information, behaviours

that characterise privacy fundamentalists may be triggered. This means that certain information, and in particular the type of information that consumers are being asked to provide, may trigger different disclosure-patterns and behaviours.

2.1.2 Psychological factors that influence voluntary disclosure

An important part of the literature focuses on examining the different levels of cognitive behaviours of individuals that lead to disclosure of information. These models include different types of stimuli (positive and negative) that influence the decision making of individuals when it comes to information disclosures. This section begins by defining Social Exchange Theory (SET) and explains its application in social psychology by reviewing three SET-related conceptual frameworks. These are Barnett's (2004) *Disclosure Management Framework*; Omarzu's (2000) *Disclosure Decision Model;* Afifi and Steuber's (2009) *Revelation Risk Model*.

2.1.2.1 Social Exchange Theory

Social Exchange Theory (SET), as its name suggests, is based on the element of exchange of tangible or intangible sources that have value between two or more parties. Heath (1976) specifies that through social exchange, the entities that participate in it are to be better off with it than they would have been without it. SET has attracted a lot of attention in academia since the late fifties and early sixties and has been applied to different disciplines like anthropology, social psychology and sociology (Thibault and Kelley, 1959; Blau, 1964; Chadwick-Jones, 1976). With its origins traced back to the 1920s (see Mauss, 1925) and with many academics having diverging views in many of its aspects, the theory is fuelled by one main notion that serves as the main convergence point for most academic views in the field: social exchange involves a series of interactions between different parties that generate obligation (Blau, 1964; Chadwick-Jones, 1976; Cropanzano and Mitchell, 2005). Even though its definition may seem straightforward, the aspects and concepts that define SET are heavily analysed.

Thibault and Kelley (1959) as well as Blau (1964) embrace the fact that there is a need for a relationship between parties in order for a social exchange to take place. An interdependent transaction allows the development of strong relationships due to the notion of reciprocity regarding the actions of each party. The concept of r*eciprocity* refers to what Ekeh (1974) defines as "the mutual reinforcement by two parties of each other's actions" (p.47) and it is enhanced by the aspect of *interdependence* (Cropanzano and Mitchell, 2005).

The concept of *reciprocal interdependence* is something emphasised by Cropanzano and Mitchell (2005) in their interdisciplinary review. They explain that for the development of relationships to the point where commitments become mutual, parties need to follow certain rules of exchange that are characterised by reciprocal interdependence. Additionally, they focused on different constructs that allow the development of relationships through social exchange, citing *trust* as a "promising construct" (p.884). Furthermore it is mentioned that the resource of exchange plays a crucial role as certain types of resources, such as money, status, information, love, services and goods might have different value when offered by different individuals (Foa and Foa, 1974). From this, it can be argued that information (as a type of exchange resource) has value for both the party who holds it as well as the party who seeks it. Therefore in order for an exchange to take place, reciprocal interdependence is essential.

Richards (1976) supports that in SET, *knowledge* regarding the party (parties) with which there is an exchange is vital. Knowledge regarding the party's previous and potential actions as well as reputation, may allow the better establishment of reciprocal interdependence. Moving from broad to specific, SET's aspect of *knowledge* can be linked to Nowak and Phelp's (1995) crucial point of knowledge possessed by consumers regarding the use of their personal information by organisations. This was found to have an influence towards the consumers' propensity to disclose certain information. In particular, Nowak and Phelps (1995) identified three categories pertaining to the consumer's knowledge of data

collection. These were: a) full knowledge of collection and use; b) knowledge of collection but not use; and c) no knowledge for either collection or use.

Based on the concept of knowledge, Culnan (1993) specifies that consumers tend to disclose information more willingly when they are being informed by the organisation on how it intends to use it. This allows a more reciprocal interaction between individuals and organisations which alleviates information disclosure concerns. Interestingly, Zimmer et al. (2010) capitalised on this and employed *dyadic relationships* in their study in order to synthesise reciprocal information exchanges examining whether this increases information disclosures or not. This was done by explaining to individuals in the questionnaire how the acquired information would be used by the organisation prior to asking for it in order to facilitate *knowledge* regarding information use.

Chadwick-Jones (1976), who sought to explain SET through social psychology, mentions that behaviour can be linked to either a reward or punishment -using the term *reinforcement exchange theory* to describe this link. He bases this notion on the fact that "(…) if the occurrence of a given behaviour is followed by reinforcement, then its strength increases" (p. 647). Furthermore, he specified that the projection and utilisation of a reward can strengthen an existing beneficial behaviour or enable the inducement of another. Still as foretold, rewards can take different forms, from monetary rewards (money) to love, with Skinner (1953) mentioning that not all types of rewards are easy to isolate, let alone measure.

When applying Chadwick-Jones's (1976) argument within the consumer psychology spectrum of this research, the projection and provision of a reward to consumers in return for valuable personal information by an organisation or another entity, can be arguably considered as a significant inducement for the consumer to engage in disclosure of information. This is also supported by academics whose research was based on the direct examination of compensation in relation to disclosures (Premazzi et al., 2010; Deutskens, et al., 2004). Interestingly, individuals may be rewarded in non-monetary ways as well. More

precisely, certain uses of information can provide certain benefits to individuals. For example, information can be provided in return for more tailored products or services based on the needs of the individual; private medical information may be used for finding the symptoms of an illness and so on. Linking this to the arguments of Culnan (1993), prior knowledge of the uses of the acquired information by the individuals may serve as a positive, non-monetary stimulus for disclosure.

Another vital point regarding SET is made by Heath (1976) who specified that an exchange can be either voluntary or coerced. Even though the distinction between the two is a hard one, with Blau (1964, p.91) mentioning that "someone may give money to another person just because the second holds a gun on the head of the first" (who arguably exchanges his life for money), the majority of social exchange theorists focus on voluntary exchanges. These are the exchanges which make all involved parties better off with them than without them. Interestingly, based on Heath's (1976) view, it can be argued that an involuntary acquisition of information, or as Huang and Lin (2005) define the implicit data collection method[9], does not qualify as an exchange. This is due to the fact that, as Heath (1976) mentions, "exchange can take place if both sides find it preferable to the alternatives actually open to them at the time of the exchange "(p.20).

Important to Social Exchange Theory is also the *power* and the *dependency* that one party has over the other that determines the relationship based on which a social exchange takes place. Heath (1976) specifies that dependency increases when alternatives are less satisfactory, ultimately limiting the bargaining power of the party. When applying this to the two social actors that are the main focus of this research -the consumer holding personal information and the organisation seeking it- it can be argued that one of the consumer's alternatives could be the potential disclosure of information to another organisation that provides more benefits in return for disclosure. What this implies is the avoidance of disclosure

[9] Implicit data collection methods involve the acquisition of information by organisations without the direct involvement of the individual who holds it, neither the acquisition of his/her consent regarding potential uses.

until a better deal transpires for the individual. From the organisational side, the main alternative could be the acquisition of much needed consumer information in an implicit fashion which would imply the acquisition and use of information without prior consent. The main problem of this action is that by following an implicit instead of explicit approach, data acquisition would enter the domain of unethical and arguably illegal conduct as they do not qualify as exchanges based on Heath's definition of exchange. This leaves organisations with very few options and a growing need to maximise the accumulation of consumer information by improving their approach in the data collection process. In order to acquire information in an explicit fashion, organisations can utilise certain means in order to increase the effectiveness of this method by offering compensation in return for disclosure (Premazzi et al., 2010; Deutskens et al., 2004; Andrade et al., 2002) and/or by highlighting potential uses of acquired information (Zimmer et al., 2010; Nowak and Phelps, 1995) and more.

Following the review of literature regarding SET and its link to information disclosures, it is important to identify how SET is reflected in the decision making of individuals. The following section focuses on frameworks that are fuelled by the notions of Social Exchange Theory, and examine the cognitive processes that individuals go through when disclosing (or not) certain information. These frameworks are Omarzu's (2000) *Disclosure Decision Model*, Barnett's (2004) *Disclosure Management Framework* and Afifi and Steuber's (2009) *Revelation Risk Model,* with the first two being included in the spectrum of consumer psychology and the third in the spectrum of psychology communications. The next section reviews each of the three models starting with Barnett's Disclosure Management framework.

2.1.2.2 Barnett's Disclosure Management Framework

A framework that is fuelled by the notion of SET is Tiffani Barnett's (2004) *Disclosure Management Framework*. Disclosure Management (DM), refers to the cognitive process that consumers go through when disclosing (or not) certain

information. In order for consumers to maximise their wealth and minimise potential adverse consequences, they need to balance both the positives and negatives that are generated from a potential disclosure (i.e. disclosure management). Similarly, Such et al. (2012) mention the term *privacy utility trade off* in order to describe (with slight alterations) the process of DM further noting that not all benefits from disclosure are known *a priori.* DM indicates that when potential benefits from disclosure exceed potential losses then the individual engages into actual disclosure of information. These benefits and losses were categorised in Barnett's framework in four main stimuli; *loss of privacy* and *loss of face*, both representing the negative stimuli of the process, and *compensation* offered in return for disclosure as well as *relational depth* between projector and recipient of information representing the two positive stimuli. These four constructs constitute the DM framework and are presented in more detail below.

Loss of face: Starting with loss of face, Dahl, Manchanda and Argo (2001) identified loss of face to be a form of ramification for individuals that results from the disclosure of sensitive information. They specify that loss of face is the embarrassment an individual encounters when disclosing sensitive information - normally related to medical conditions, financial information and sexual preferences. Dahl et al. (2001) base their definition of embarrassment on the work of Edelmann (1987) and Miller and Leary (1992), mentioning that "embarrassment involves a threat to an individual's presented self resulting from unwanted evaluations from real or imagined audiences and it is considered to play a powerful role in regulating social behaviour" (Dahl et al., 2001; p474). It is further supported that loss of face is linked to privacy related questions that involve embarrassing areas of information regardless of the potential physical losses and implications that those might have. Loss of face, which is considered to be a negative stimulus in the disclosure management process, is further influenced by the element of familiarity that the *projector* has with the *recipient* of information since the loss of face is considered to be more intense when interacting with a familiar person instead of a stranger (Baxter and Wilmot, 1985). This showcases that relational depth between the recipient and projector of

information under certain circumstances can have negative implications towards disclosure of embarrassing information.

Dahl et al.'s (2001) concept of loss of face is intensified in interpersonal settings compared to impersonal ones. Impersonal settings include the accumulation of information through questionnaires instead of interviews, a method which was found to be preferable by respondents when disclosing information (Long et al., 1999). This ensures that relational depth actually facilitates disclosure of information instead of hindering it, a thought that is further developed in the relational factors section of the literature review (2.2.1)

Loss of privacy: Loss of privacy, as its name suggests, is based on the loss of private information an individual encounters when disclosing information. The type of information being disclosed has a direct influence on the amount of privacy being lost (Huan and Lin, 2005; Culnan, 1993; Long et al., 1999). The disclosure of information that is perceived by the individual to be sensitive results to a greater loss of his/her privacy. Sensitivity of information is defined as "the potential loss associated with the disclosure of that information" and is linked to psychological, physical and material losses from disclosure (Mothersbaugh et al., 2012; p.77). The incorporation of loss of privacy in DM is based on the argument that sensitive information is difficult for organisations to extract as it heavily tips the individual's mental scale towards the disclosure avoidance side meaning that individual's abstention from disclosure is more probable when asked to reveal sensitive information (Barnett, 2004). Still, DM specifies that reinforcing the positive stimuli to the point where benefits exceed perceptions regarding loss of privacy and loss of face, it can result in the divulgence of information.

Compensation: Compensation serves as a positive stimulus in the disclosure management process, since its presence in information exchange scenarios can help individuals to overcome concerns regarding losses that are linked to information disclosure. The offering of compensation in return for disclosure of information is a widely explored concept (Andrade, Kaltcheva and Weitz, 2002;

Barnett, 2004; Deutskens et al., 2004; Premazzi et al., 2010). When examining the importance of trust between consumers and organisations, Premazzi et al. (2010) indicate that trust can work as a major facilitator when it comes to self-disclosure. Furthermore, they specify that in the absence of trust ,the element of compensation can be used in order to influence consumers. This is linked to Andrade et al.'s (2002) statement that "(compensation) reduces the subjective costs of self-disclosure" (p.350) thus influences the consumer's propensity to disclose. This in return makes the divulgence of information a more logical and wise decision for individuals.

Another point worth mentioning is that the nature of compensation offered by organisation to consumers, tips the cost-benefit scale differently, as compensation can take different forms such as monetary, non-monetary, charity based, lottery based and more (Premazzi et al., 2010). Deutskens et al. (2004) indicate that monetary compensation is the most effective since it provides more freedom in terms of usage. Nevertheless, what needs to borne in mind is that compensation does not always have a positive influence on self-disclosure. In particular, the study of Andrade et al. (2002) identified that certain rewards linked to organisations with low reputation were characterised by respondents as "decoys" and where treated with suspicion. This implies that compensation in return for information requires a correct implementation by the organisation in order to ensure its effectiveness regarding information accumulation.

Relational depth: Barnett (2004) specifies that the relational depth that an individual has with the organisation seeking to acquire his/her personal information helps to alleviate concerns that derive from a potential disclosure. This can be more precisely defined as the minimisation of *perceived disclosure consequences*[10]. Perceived disclosure consequences, as defined by Barnett, are "the active considerations of the ramifications from disclosure of personal information" (p.42). Relational depth, which is specified in the framework as the

[10]The perceived disclosure consequences are also known in the literature as perceived disclosure risks (see Shoenbachler and Gordon, 2002).

sum of trust, familiarity (intimacy) and commitment between the two parties that engage in the exchange of information, is considered to be a positive stimulus in this cognitive process of Disclosure Management.

Even though Barnett supports that relational depth positively influences disclosure of information, it is argued that it can sometimes hinder disclosure. As aforementioned, Baxter and Wilmot (1985) specify that loss of face and embarrassment encountered from a disclosure is maximised when the projector has an existing relationship with the recipient of that information compared to when disclosures are made to a complete stranger. Even though Baxter and Wilmot's view is neither tested empirically nor explored theoretically, it is an interesting argument that is further developed in the relational depth section (2.2.1).

Concluding, Barnett's DM framework examines the psychological processes of individuals that lead them to the disclosure of information. It is worth mentioning that apart from Barnett's empirical exploration of the framework, a more recent practical application can be found in Lee and Larose (2011).

Next is the review of another framework that is fuelled by SET, Omarzu's (2000) Disclosure Decision Model.

2.1.2.3 Omarzu's Disclosure Decision Model

Omarzu's (2000) Disclosure Decision Model (DDM) is based on the assumption that individuals manage their disclosures strategically by having certain goals and objectives that they want to achieve through disclosure of information. As Omarzu specifies, DDM is based on social exchange where information is being exchanged in return for certain tangible and/or intangible benefits. **Diagram 2.1** provides a visual summarisation of the DDM and its three stages.

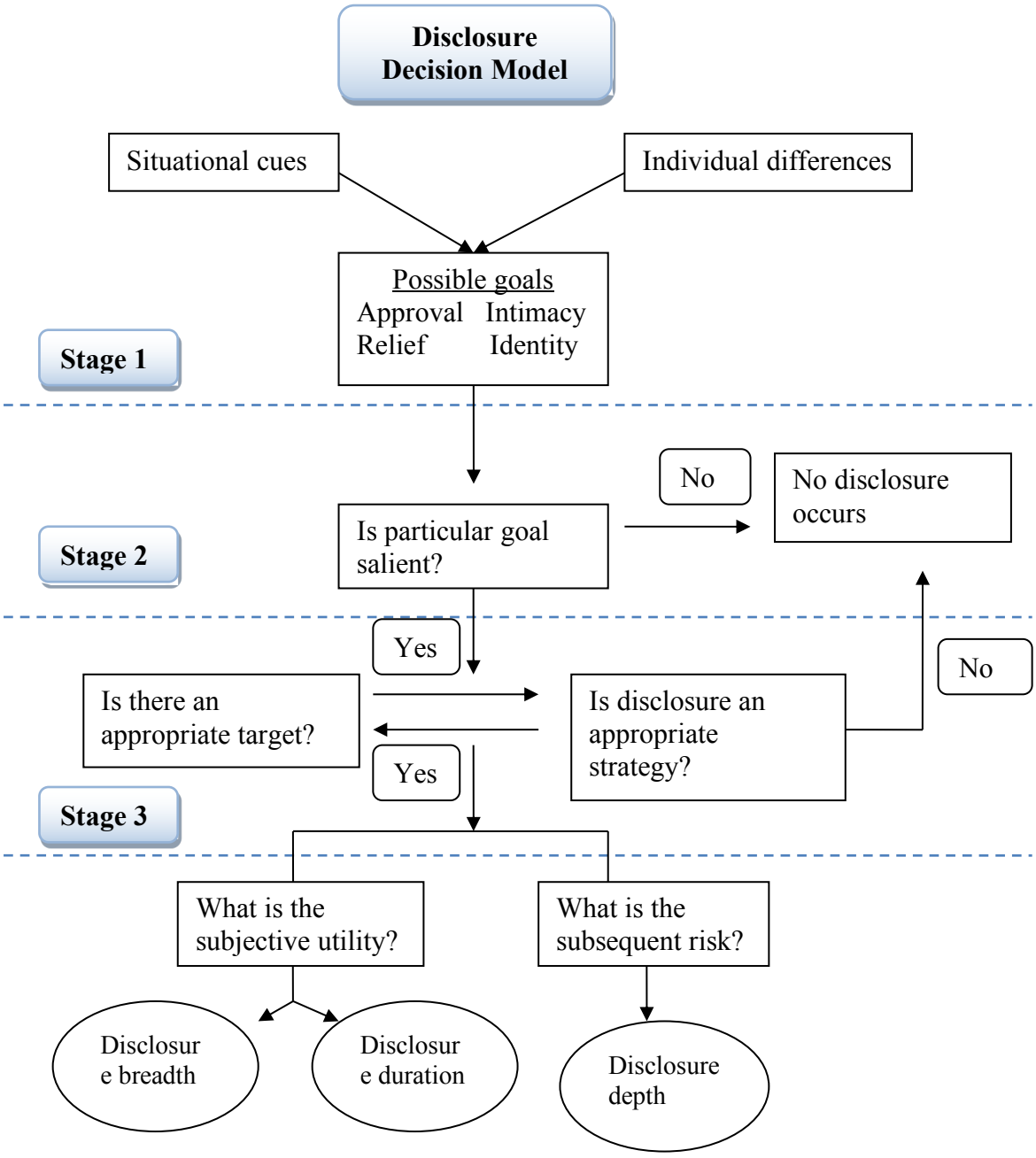

Diagram 2.1: *A visual summarisation of Disclosure Decision Model and its three stages (taken from Omarzu, 2000).*

The DDM proposes that the disclosure decision process is triggered by the formulation of certain goals and objectives that need to be achieved through engaging into disclosure decision process (Omarzu, 2000; p.178). These rewards can be the intimacy an individual might want to develop with another individual, the relief of stress through voluntary disclosure (catharsis), and/or the achievement of social approval. Based on the latter, Baumeister (1982) specifies that

individuals have an ongoing need to be socially approved and accepted, with Omarzu (2000) further arguing that this is the default objective for most individuals.

The second stage includes the selection of strategy in regard to how the objectives set above can be achieved. According to Omarzu this requires the individual to decide whether or not to engage in verbal disclosures in order to achieve these goals. Still, it is specified that during this stage only the decision of disclosing (or not) information is being made as well as to whom, but it does not determine the type or amount of information disclosed.

The final stage of the DDM includes decisions pertaining to what- and the extent to which- information should be disclosed. Omarzu posits that these decisions are influenced by the individual's evaluation of the situation in regard to achieving the desired goals. This 3rd stage is influenced by subjective utility known as the benefits individual perceive to be generated from a potential disclosure. These are the benefits generated from the achievement of goals identified in the preliminary stage. Furthermore, subjective risks are situated in the opposite side of the scale and include the privacy an individual risks to lose when engaging in disclosure of information.

Similar to Barnett's DM, DDM provides a framework of the psychological processes of individuals that precede information disclosure. Nevertheless, contrary to DM, DDM lacks the empirical investigation**.** The author acknowledges this and specifies that empirical exploration would verify the importance of each stage of the framework and would allow its integration with previous related theories. Next, Afifi and Streuber's risk revelation model is reviewed.

2.1.2.4 Afifi and Steuber's Revelation Risk Model

The Revelation Risk Model (RRM) is a model also fuelled by the underlying notions of SET, and seeks to identify and explain factors that allow the prediction of whether an individual will reveal or conceal a secret[11]. Afifi and Streuber (2009) support that individuals go over an assessment of the risks they can have over a potential revelation of a secret.

The four main components of Afifi and Streuber's (2009) RRM are risk assessment, willingness to reveal the secret under certain conditions, communication efficacy, and strategies used. All of these are summarised in the **diagram 2.2** below.

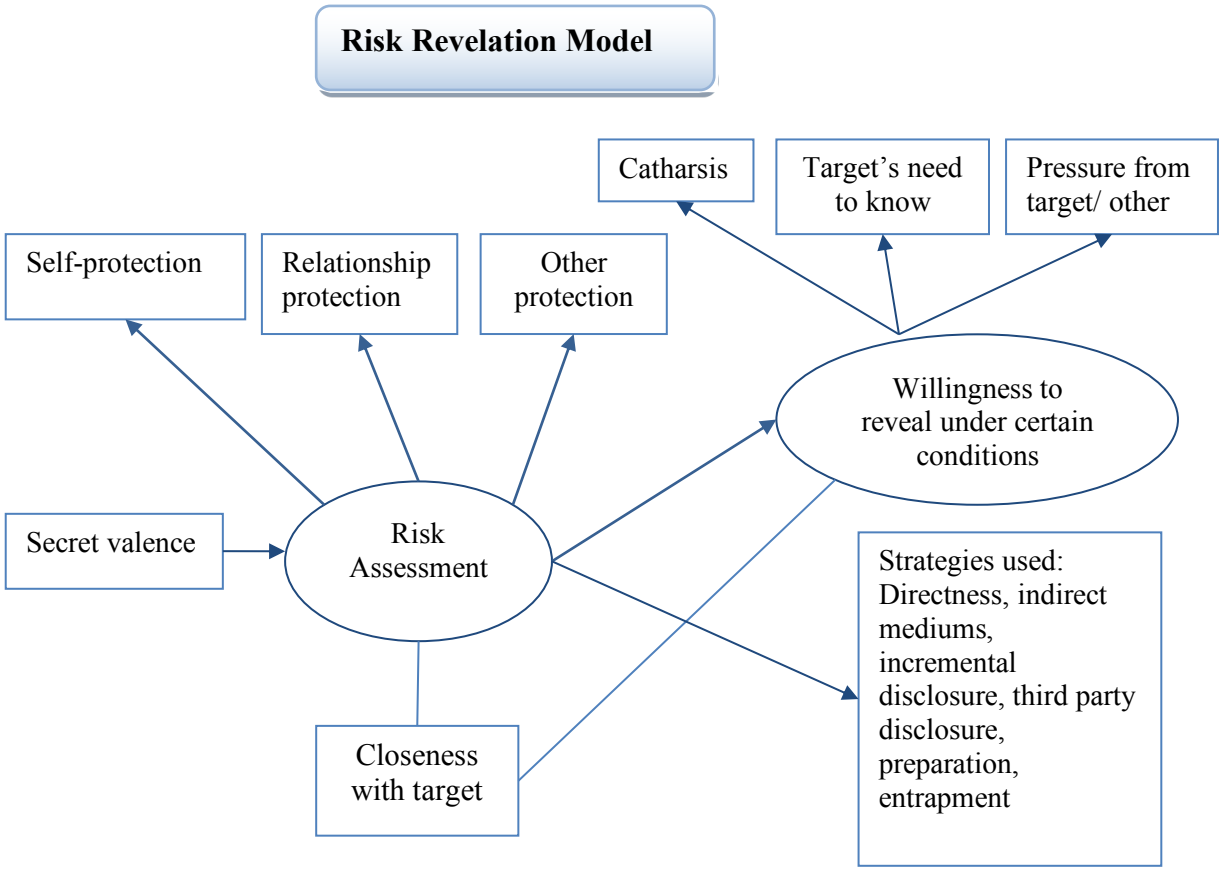

Diagram 2.2: *Visual summarisation of Afifi and Streuber's Revelation Risk Model (taken from Afifi and Streuber, 2009)*

[11] The authors use the word "secret" to describe a piece of private information.

Starting with the risk assessment process Afifi and Streuber acknowledge that the notion of risk assessment included in their model is similar to Omarzu's (2000) definition of risk in regard to the DDM. That is assessing consequences form a potential disclosure and proceeding to revelation or concealment of the secret accordingly. Afifi and Streuber specify that the only difference between their framework's definition of risk and Omarzu's (2000), is the fact that the first takes into consideration the impact of relationships towards the revelation of information as well as the risks that a potential revelation of a secret might have towards them. The consideration and inclusion of relational factors in the RRM arguably serves as a strong-point since relationships are found to be influential when it comes to disclosure of information (Falk and Wagner, 1985; Shelton et al., 2004).

The valence of the secret is also influential towards the *risk assessment* construct as the stronger the valence is, the greater the risks from a potential disclosure. Afifi and Streuber's main argument regarding the risk assessment process is that if the individual assesses that several risks are involved in a potential revelation, the probability of revealing the secret diminishes.

Willingness to disclose or reveal secrets is one of the processes that follow the risk assessment process. Willingness to reveal the secret is influenced by four constructs. The first one is *relational depth* (Barnett, 2004) or closeness between the individual holding the secret and the individual who is interested in it. The closer the two individuals are the easier the revelation of the secret is as long as the secret doesn't have any ramification(s) or risks towards their relationship (Afifi and Streuber, 2009). Additional influences include the need of the individual (who holds the secret) to share it with someone else in order to alleviate him/herself from stress and restore himself to a healthier state, something known as *catharsis* (Stiles et al., 1992). The *pressure of others* towards the individual to reveal his/her secret, together with the *impact of the revelation* towards a particular target, can also influence the willingness of secret disclosure.

Communication efficacy (Bandura, 1977) is also another process included in RRM and is defined by Afifi and Streuber (2009) as "(...) people's belief in their ability to actually communicate information to someone" (p.150). The ability of revealing a secret, even when knowing a potential revelation could cause harm to the individual who holds it, is also found to influence disclosure. As Afifi and Streuber specify, if an individual feels incapable in revealing a secret due to the potential consequences of its revelation, this on its own could hinder the secret's revelation. Similarly strong communication abilities by the individual, can alleviate his/her concerns regarding information disclosure.

Finally the RRM seeks to predict strategies that individuals can employ when handling the revelation or concealment of a secret with these strategies being primarily influenced by the degree of risks involved in a given disclosure.

Concluding, based on Social Exchange Theory, the three frameworks reviewed in this section have a convergence point on the fact that individuals disclose information based on perceived benefits and losses generated from a potential disclosure. This indicates that disclosures occur when potential benefits exceed potential losses.

Section 2.2 provides a comparison between the three frameworks and justifies the inclusion of Barnett's DM in this Thesis's conceptual framework while Appendix 8 provides a summary of the limitations of Disclosure Management Framework, Disclosure Decision Model and Revelation Risk Model.

Still, what needs to be borne in mind is that disclosure of information might take place even when an individual is in a disadvantageous position where risks from disclosure overshadow the benefits. This multiplies the probability that the individual engages in *lying behaviour* (and the provision of false private information) in order to both mitigate potential risks from revelation of truthful information and receive certain benefits (Daniel et al., 2007). The following

section reviews literature that is related to concepts of *lying behaviour* and *avoidance of disclosure*.

2.1.2.5 Lying and avoidance of disclosure

When examining the circumstances under which consumers tend to lie when disclosing information, Daniel et al. (2007) mention that individuals take advantage of their position and tend to misrepresent some personal data. More precisely when there is a larger gap between the "perceived cost of providing personal information and the benefit perceived to be received in return" (Daniel et al., 2007; p.92) there is a greater likelihood for the individual to lie. Daniel et al. (2007) identified three clusters regarding the lying behaviour of individuals:

a) Individuals who in general tend to lie often when disclosing information.
b) Individuals who tend to leave out data instead of falsifying it.
c) Individuals who tend to provide truthful data.

Robertshaw and Marr (2005), when examining the behaviour of consumers regarding disclosure of truthful information, conclude that individuals tend to either omit or falsify personal information when the required information is perceived by the individual as sensitive. According to their study, the main reason of omissions was the fact that most individuals were worried that their information would be passed on to third parties and could become subject to misconduct. Still, the study indicates that general tendencies of individuals when disclosing are headed towards omissions instead of falsifications.

Furthermore, Acquisti, Brandimarte and Lowenstein (2015) specify that, in certain cases, disclosures might occur from individuals that seek to increase self-esteem and ego while trying to project a better image of themselves to others. This observation can be linked to the social desirability bias that is also found in social science research. De Jong et al. (2010, p.14) define social desirability bias as the "participants' tendency to describe themselves in favourable terms by adhering to

socio-cultural sanctioned norms (...)". When acquiring information through questionnaires Additionally, De Jong et al., (2010) specify that lying behaviour can be minimised through ensuring anonymity and untraceability of responses as well as by providing the option of avoidance of disclosure to individuals. These arguments are taken into consideration in the research design of this Thesis' studies, in order to ensure validity and reliability of results when measuring overall actual disclosure.

2.1.3 Relational factors that influence voluntary disclosure

2.1.3.1 Introduction

Relational factors are considered to be extremely important when it comes to information disclosure. Concepts like *relationships*, *intimacy* and *trust,* all of which are identified to be directly or indirectly related with each other (Laurenceau et al., 1998; Biggemann, 2012), provide the main relational context in which disclosure of information occurs. Strong relations are found to be very influential towards voluntary disclosure of sensitive information, and their establishment is considered to be essential for organisations who seek to acquire valuable consumer data. Establishing trust, relationships and intimacy with customers is an important yet complex issue for organisations. On a both practical and more general level, relationship marketing and customer relationship management allow the development of these relational concepts between the organisation and its customers through the consistent utilisation of marketing and customer relations mechanisms, examples of which are customer support services, product personalisation services, loyalty bonuses and interpersonal services (Ahmad and Buttle, 2001; Ryals, 2005). These mechanisms can be either impersonal or interpersonal depending on the nature of the organisation; the industry the organisation is situated in; as well the chosen methods of interactions with customers.

Accordingly, what need to be examined are the different types of each of the above relational concepts, as well as how each of these is related to voluntary disclosure. This section is composed of three subsections with the first focusing on the concepts of relationships and intimacy, their constructs and influences, as well as their link to information revelation. The second subsection reviews the concept of trust and its importance regarding information divulgence. Finally, the third sub-section focuses on a specific type of trust, *impersonal trust,* which is utilised in this Thesis' conceptual framework.

2.1.3.2 Relationships and Intimacy

A significant amount of research has focused on the context in which an individual discloses information to another person or entity. Biggemann (2012; p.521), who examined relationships within an organisational setting, mentions that relationship development is subject to "past experiences, perceptions of the present situation and expectations of the future that one party has towards another". Additionally, one party evaluates the other's actions and accordingly acts by either maintaining a relationship or ending it. The three constructs of relationships in organisational settings, as proposed by Biggemann, are: a) Commitment, which is the intangible input of one partner and is described as the psychological attachment or positive attitude between parties; b) Trust, which is the belief that the other party will be reliable and credible, and c) Distance, which is the degree of familiarity with each other's way of working.

Interestingly, Biggemann mentions that the disclosure of meaningful information by one party is appreciated by the other and therefore leads to a reciprocal exchange of information. This arguably explains Zimmer's (2010) *dyadic relationships* and the notion of *disclosure reciprocity (*further analysed in section 2.4.1.4).

Altman and Taylor (1973) mention that an important factor for relationship formation is the satisfaction or dissatisfaction one experiences from an

engagement he/she might have with another individual. This represents a determining factor as to whether the relationship will advance or not. In an attempt to explain how the satisfaction or dissatisfaction levels of individuals are influenced, Falk and Wagner (2001) specify that the notion of *perspective taking* is important. Perspective taking, which is "the process of putting oneself in the place of another and understanding how that person is reacting cognitively and affectively" (Wagner, 2001; p.559), increases the satisfaction levels of individuals when engaging with each other. Furthermore, this maximises the potential for the development of meaningful relationships. Strong and high-quality relationships ultimately increase the possibility of truthful disclosures (Biggemann, 2012).

Still, Phillips et al. (2009) mention that human diversity such as gender, ethnic background, sexual orientation and more, make the disclosure of personal information between individuals even more difficult, which combined with status, can hinder the development of strong and meaningful relationships. In their paper they elaborate that individuals in a workplace may disclose information for two reasons: either to enhance their professional image in the eyes of others by strategically disclosing certain information, or to disclose personal information in order to reduce the status distance[12] that limits the development of strong relationships.

Still, the interesting part of Phillips et al.'s (2009) argument is the fact that preliminary disclosure of information can occur before the establishment of relationships in order to allow their development. This is arguably attributed to the concept of *disclosure reciprocity* (Zimmer et al., 2010). Disclosure reciprocity is the observation that the disclosure of information by the first person encourages disclosures from the second, leading to additional disclosures by the former which are again followed by those of the latter (Green et al., 2006, Zimmer et al., 2010). It is argued that these preliminary disclosures allow the development of intimacy, ultimately leading to the formulation of *intimate relationships* that enhance self-

[12] Status distance, as specified by McPherson and Smith-Lovin (1987), is the different social statuses that individuals might have based on money, job position and more.

disclosure from different parties (Falk and Wagner, 1985; Shelton et al., 2004; Brock and Zhou, 2012).

Intimacy is a well examined topic in the psychology literature. In a framework proposed by Reis and Shaver (1988), and tested by Laurenceau et al., (1998), it was argued that the two major components of intimacy are the interpersonal processes between individuals together with the partner's responsiveness. The underlying notion of the framework, as identified by the author, was that "(...) self-disclosure of information, thoughts and feelings to a partner together with the listening party's interpretation, response, understanding, validation and caring enable individuals to develop intimate relations" (Laurenceau et al., 1998; p.1238).

Another crucial point made by Laurenceau et al. (1998) is that the type of information disclosed by either party matters on the development of intimacy. They distinguish between *factual* and *emotional* disclosures. Factual is the disclosure of raw facts that are uninfluenced by the emotions and personal views of the individual, while emotional disclosure includes the revelation of one's private opinions and judgments. Factual disclosure on its own lacks the ability to instil intimacy while the inclusion of emotional disclosures enables the establishment of strong intimate relationships. In contrast with newer frameworks that put intimacy as the mediator between relationships and self-disclosure (for example, Brock and Zhou, 2012), the above framework proposes that initial disclosures are required in order to instil intimacy which can then lead to further disclosures of personal information by the other party.

When analysing the concept, Brock and Zhou (2012) mention that the development of intimacy between organisations and customers is positively related to disclosures of sensitive information, while mentioning that intimacy shares a common construct with the concept of relationships, that of *trust*. The influence of the concept of trust towards revelations of information by individuals is a well examined topic, with a plethora of literature focusing on its application in different contexts. The following section focuses on the revision of related

literature that utilise the concept of trust as a mediator in the information disclosure process.

2.1.3.3 Trust

In order to examine trust and its influence on voluntary disclosure, it is essential to define the concept in relation to the context in which it is studied. For example trust can be *interpersonal* (Paul and McDaniel, 2004), *impersonal* (Shoenbachler and Gordon, 2002), *relational* (Jarvenpaa et al., 1998), *calculative* (Lewicki and Bunker, 1996), *rational (*Mayer et al., 1995), *affective* (Johnson and Grayson, 2005; Sekhon, Ennew, Kharouf and Devlin, 2014) and more.

From this, Shapiro (1987) acknowledges that trust is an extremely wide and broad concept which in most cases "result(s) in a confusing potpourri of definitions applied to a host of units and levels of analysis" (p.625). She provides a definition of trust identifying it as the "(...) social relationship in which principals invest resources, authority, or responsibility in another to act on their behalf for some uncertain future return" (p.626). On an interpersonal level Culnan and Armstrong (2002; p.6) define trust as "having clear, mutually agreed upon expectations". It was also noted that impersonal relations are also important in enabling the development of trust. Culnan and Armstrong (1999) argue that in most cases consumers are dependent and rely on strangers to act on their behalf as in the case of information disclosure by consumers to commercial organisations. Paul and McDaniel (2004) mention that trust, in an organisational setting, allows the reduction of complexity between relations while maximising the effectiveness of relationships and reducing transaction costs.

Frameworks like the ones of Bart et al. (2005), Norberg, Horne and Horne (2007) and Premazzi et al. (2010), focus on the utilisation of trust as a dominant parameter when it comes to behavioural intentions of individuals in disclosing sensitive information, with risks from a potential disclosure being the other parameter. Trust and risk are treated as positive and negative stimuli respectively

in regard to the intention of the individual to disclose sensitive information. Interestingly, these frameworks share a common idea with Barnett's (2004) Disclosure Management framework, where risks are identified as *perceived disclosure consequences* and trust as *relational depth*.

When examining the impact of trust on consumers' perception of privacy, Milne and Boza (1999) identified that instilling trust is considered to be a superior method when managing consumer data compared to trying to reduce privacy concerns. Trust as a mediating factor for the disclosure of information is a widely explored concept in the literature with the majority of papers identifying a positive relation between trust and voluntary information disclosures (Culnan and Armstrong, 1999; Bart et al., 2005; Schoenbachler and Gordon, 2002; Premazzi et al., 2010). The only two views that contradict with this are those of Horne and Horne (2002) and Norberg, Horne and Horne (2007). More precisely, Norberg, Horne and Horne (2007; p.117) fail to support the hypothesis that trust positively influences intention for disclosure. Still, they acknowledge the fact that their results contradict with previous findings and they attribute this to the design of their scenario which referred to an anonymous organisation; making it difficult to instil trust between the respondent and this unknown firm.

Even though Nohrian and Eccles (1992) embrace the importance of interpersonal relations and face to face interactions that are necessary for instilling trust, more recent papers focus on more impersonal parameters (Culnan and Armstrong, 1999; Shoenbachler and Gordon, 2002; Lee and LaRose, 2011; Motherbaugh et al., 2012). For example Lee and LaRose (2011), mention that intimacy can be developed in impersonal encounters and more precisely, in their case, through human-computer interactions.

Culnan and Armstrong (1999) acknowledge that in online settings, where constant interpersonal interactions are more limited, impersonal trust is vital and more suitable for examination. Even though most of the literature treats both impersonal and interpersonal trust in a similar manner when it comes to disclosure of

information, papers like Calhoun (1992) mention that direct vs indirect social relationships are two fundamentally different types of relations, implying that their treatment as interchangeable concepts is a false approach. Additionally, Pixlet (1999) makes a link between impersonal trust and interpersonal relationships by identifying the first to be an indirect interpersonal relationship, while embracing the suitability of the concept in settings where interpersonal interactions are limited. As information accumulation these days is done primarily through online means (Acquisti et al., 2015), which were also found to be more effective than offline ones in terms of information accumulation (Hanna et al., 2005), the concept of impersonal trust is arguably a promising concept. Based on this the following section reviews the literature that examines both impersonal trust and the importance of Fair Information Practices (FIPs) for its development.

2.1.3.4 Impersonal Trust and its link to FIPs

Impersonal trust is a relatively underexplored concept in the literature with only a handful of papers addressing it directly (Shapiro, 1987; Calhoun, 1992; Pixlet, 1999; Culnan and Armstrong, 1999; Shoenbachler and Gordon 2002; Vanhala et al., 2011), while others referring to it but failing to clearly identify it as impersonal trust (Motherbaugh et al., 2012).

Vanhala et al. (2011) refer to the concept as the trust towards the impersonal organisational factors from vision and strategy to top management, fair processes and structures. Shapiro (1987) specifies that **"**impersonal trust arises when social-control measures, derived from social ties and direct contact between principal and agent, are unavailable when faceless and readily interchangeable individual or organisational agents exercise considerable delegated power and privilege on behalf of principals who can neither specify, scrutinise, evaluate, nor constrain their performance" (p.634). This arguably describes certain organisational settings in which individuals are dependent on practically strangers to act on their behalf.

The suitability for examining impersonal trust in organisational settings is an issue also addressed by Barnes (1997). He specifies that impersonal trust is important in cases where organisations cannot form genuine relationships with their customers, either because of their practical costs, the lack of need by the organisation to develop them, or due to the circumstances surrounding the firm's interaction with customers that are non-conducive.

Culnan and Armstrong (1999), who focus on the examination of how impersonal trust influences disclosure of information, build upon Shapiro's statement by embracing the concept's importance and its link to Fair Information Practices (FIPs). FIPs are identified as the statements and actions of organisations who seek to protect the acquired consumer data from misconduct. FIPs empower consumers by providing them access to their personal information and the option of information withdrawal, and are found to be influential for the development of trust (Lee, Ahn and Bang 2011; Culnan and Armstrong, 1999). FIPs are also linked to the concept of *knowledge* of individuals regarding how their information shall be used by the organisation. This influences positively the consumers' views towards the organisation's credibility and ultimately allows the development of impersonal trust (Schoenbachler and Gordon, 2002). Alternatively lack of FIPs, as well as lack of knowledge by consumers regarding the reasons behind data collection and the processes that follow it, increase perceived risks from disclosure and ultimately reduce the likelihood of information divulgence **(**Rieck, 1999; Nowak and Phelps, 1995). Interestingly Lee, Ahn and Bang (2011) proposed a framework that treats the adoption of FIP's as a strategic decision instead of a moral one. They specify that FIPs seek to empower consumers by forcing organisations to provide access, choice, and security to consumers while letting them know about the use of their information and enforcing any applicable laws and regulations. Interestingly, Thompson, Smith and Winklhofer's (2012) highlight the lack of any ethical dimensions from the side of organisations when acquiring and using customer information, noting also that organisations only abide to certain governmental regulations and legislations while "(...) disregarding the concerns and wishes of the consumer" (p.12).

When it comes to security, Sheehan and Grubbs (2000) mention that organisations must assure individuals that the information being collected is kept safely in order to prevent any kind of fraud or misconduct. Additionally, they mention that the lack of *enforcement mechanisms and government regulations,* which ensure an entity's compliance with fair information practices, could result in an element of insecurity for customers who share their information with organisations which hinders the development of impersonal trust. FIP's arguably alleviate risks (Norberg et al., 2007) and perceived disclosure consequences (Barnett, 2004) from potential disclosures, allowing the respondent to trust the organisation in regard to the use and handling of their information. Finally, the revelation of how the organisation intends to use acquired consumer information, or as Ohnuma et al. (2007) indicate "the self-declaration of sanctions" (p.894), is the best way to instil trust.

From these it is possible to further argue that the disclosure of certain organisational information, such as the intended treatment and protection mechanisms of sensitive consumer information, can improve consumer's trust towards organisations. This increases information disclosure which is also arguably aligned with Zimmer et al.'s (2010) *reasoned dyadic relationships* (introduced in section 2.4.1.4). This Thesis' conceptual framework operationalises the concept of impersonal trust and bases its measurement on the study of Shoenbachler and Gordon (2002), something which is further elaborated in this chapter's conceptual framework section.

Apart from psychological and relational factors that influence information disclosure, more recent papers have also focused on the influence of different methods of data capture as well as factors that influence their effectiveness in the data accumulation process. Due to the identification of online surveys as one of the most effective and widely utilised data accumulation techniques (Zimmer et al., 2010; Hanna et al., 2005; Long et al., 1999), the following section reviews the

literature that examines the factors that influence its effectiveness when it comes to increasing the propensity of information disclosure by individuals.

2.1.4 Instrumental factors that influence voluntary disclosure

2.1.4.1 Introduction

The instrumental factors section focuses on factors that influence voluntary disclosure through the way online data-capturing, self-completed questionnaires are being structured and presented, and summarises parameters that influence the effectiveness of these questionnaires towards information accumulation. These factors derive from different academic disciplines. Starting with Long et al. (1999), when examining the preferences of individuals in regard to different methods of data accumulation[13], self-completed questionnaires were identified as one of the most preferable methods of data capture. Additionally, online data-capturing questionnaires arguably represent one of the most efficient data capturing methods for organisation compared to interviews or monitored conversation per se.

The three main parameters identified by the literature to influence the effectiveness of data-capturing questionnaires are:

a) *Comparative nature* which is based on the notion of social compliance and herding behaviour (Acquisty, John and Lowenstein, 2012).
b) *Question sequence* which is based on question ordering effects (Acquisty, John and Lowenstein, 2012).
c) *Dyadic relationships* which are based on Social Response Theory (SRT) and the notion of disclosure reciprocity (Zimmer, Arsal, Al-Marzouq, Moore and Grover, 2010).

[13] Methods ranged from interviews, monitored conversations, questionnaires completed by another person, self-completed questionnaires and more.

The three following sections review each of these concepts respectively, while a fourth identifies and summarises additional instrumental factors that influence voluntary disclosure of information.

2.1.4.2 Comparative Nature, social compliance and herding behaviour

Herding behaviour and social compliance of individuals are two well explored concepts in both marketing and psychology literature. Herding is defined as the mimicking of behaviours of others by one or more individuals, with some papers attributing this to the need of human beings for social acceptance (Raafat et al., 2009) or compliance with other individuals regarding a specific aspect (Langley et al., 2014). For example, papers like Huang and Chen (2006) and Langley et al. (2014) explored online herding behaviours and patterns for the choosing of products, focusing on the importance of compliance with the masses even when there is no physical influence towards individuals (impersonal setting). Other papers (Baumeister and Leary, 1995) focused on the examination of herding and the factors that fuel it, while Raafat et al. (2009; p.420) took a more generalist approach and supported that herding has a broad and universal application "…from intellectual fashion to mob violence", focusing also on its importance in an "increasingly interconnected world". It is also interesting to note that an increasing amount of papers focus on the influence and power of herding on investment behaviour (see Devenow and Welch, 1996; Seiler et al., 2014; Yao et al., 2014; Lamen and Harison, 2014).

In a recent paper Lowenstein et al. (2014) mention that "playing on the natural human desire to be above average on almost anything that can be measured, social comparison information can potentially establish descriptive norms that often convert into injunctive ones" (p. 408). Acquisti, John and Lowenstein (2012) applied the notions of herding and social compliance within the context of voluntary disclosure of information and examined whether individuals would adopt the disclosing behaviours and patterns of those around them. The study focused on whether the *comparative nature* of individuals would result in either

full, partial or avoidance of disclosure. Comparative nature is based on the basic human instinct of imitation and mimicry, and can be found in many social phenomena. Acquisti et al. (2012) found that individuals feel less uncomfortable to disclose sensitive information when they are led to believe that others have provided the same or similar information. In particular the comparative nature of individuals influences them in believing that there is nothing wrong with disclosing certain information when a large number of other individuals did disclose relatively similar information, thus verifying the application of herding behaviour in the context of information disclosure.

Additionally, one of the main concerns regarding comparative nature was expressed in same paper regarding the fact that individuals might perceive differently the asked questions when the concept of comparative nature is involved. In their study a graphical example was provided of having respondents asked to admit whether they have ever cheated on their wife/husband/partner. Acquisti et al. (2012) believed that when certain respondents were led to believe that the majority of other individuals answered affirmatively to the given question, perceptions regarding the definition of cheating were altered. For example when led to believe that a large percentage of individuals answered affirmatively to the above questions, respondents could have perceived cheating as the act of kissing and flirting with someone else, while individuals who were led to believe that the majority of others answered negatively (haven't cheated) perception regarding cheating could have concentrated on having sexual intercourse with someone else. Interestingly, when testing this, results in their study were non-significant indicating that comparative nature doesn't influence question breadth.

The effect of comparative nature towards voluntary disclosure can be capitalised through its integration in the design of data-capturing questionnaires. More precisely by presenting respondents with truthful information (within the questionnaire) regarding the responses of other individuals they may be induced to follow the same or similar disclosure patterns that they otherwise wouldn't which could enhance the effectiveness and efficiency of data-capturing questionnaires.

Interestingly, comparative nature and social herding extend their reach beyond information disclosure with experimental studies regarding tax compliances indicating that when individuals received letters explaining that their neighbours have paid their taxes, it increased repayment rates by 15% (Behavioural Insights Team, 2011[14]). Nevertheless, it is good to note that that there is recent evidence in the literature where comparative nature was found to have insignificant impact (Beshears et al., 2012) towards information disclosure scenarios, while in other cases adverse effects were recorded (Bhargava and Manoli, 2014). Based on these, verification of the influence of comparative nature towards information disclosure would provide more insight on the applicability of social herding and social compliance within information disclosure processes. These issues are further explored in the conceptual framework and subsequent synthesis of hypotheses section.

2.1.4.3 Question Sequence and question ordering effects

The way that questionnaires are structured in regard to the order of questions that constitute them, influence the acquired responses of individuals (Barnes et al., 1995; Jordan-Zachery and Seltzer; 2012). Prior to papers like McFarland (1981) - which actively examined the effects of different question orders- the structuring of questionnaires was done though logical inferences, similar to the ones made by Bradburn and Mason (1964) and Komhauser and Sheatsley (1976), which indicated that general evaluation questions should precede questions that are more specific to the subject being examined. One of the first papers to examine the impact of ordering questions within a survey was McFarland (1981) who quantitatively verified Komhauser and Sheatsley's (1976) view and found that question ordering influences the respondent's interest in the survey. The effect of question order in surveys was more recently examined by Van De Walle and

[14] Taken from Lowenstein et al. (2014). Original source: www.gov.uk/government/uploads/system/uploads/attachment_data/file/60537/Behaviour-Change-Insight-Team-Annual-Update.acc.pdf

Van Ryzin (2011), who amplified the importance of question sequence by showing the differences in levels of satisfaction by consumers with public services based on differing orders of questions being asked. Interestingly, the growing awareness of the importance of question order effects in questionnaires has also given rise to its triangulation with other concepts like affirmative action (Jordan-Zachery and Seltzer, 2012).

When examining literature that is more directly related to the context of information disclosure, there are some contradicting views regarding question order effects and more precisely the effectiveness of different types of escalations of invasiveness in data-capturing questionnaires. For example Payne (1951) specified that questions that are easier to answer should be presented at the beginning of the questionnaire, something that was also supported by Moon (2000) who specified that early easy-to-answer questions can "warm up" respondents and ultimately result in greater information divulgence. Similarly, Zimmer et al. (2010) propose that questionnaires, in which the escalation of question invasiveness ascends[15], accommodate the development of *dyadic relationships* and the development of reciprocal information exchanges.

Nevertheless, a recent study that examined how the order of questions in privacy capturing questionnaires influences overall disclosure was that of Acquisti, John and Lowenstein (2012) who showed that the order of data-capturing questions affects the perceptions of individuals on how intrusive the overall questionnaire is. Acquisti et al. (2012) shed light on the fact that, when a series of questions were presented in such a way that intrusiveness is decreasing as the questionnaire progresses (most intrusive questions at the beginning), the individuals perceive these questions as less privacy invasive when compared with questionnaires where the intrusiveness increases as they progress (most intrusive questions at the end). Due to the fact that the views of Moon (2000) and Zimmer et al (2010) were more recently contradicted by Acquisti et al (2012), the concept of question sequence, as

[15] Non-invasive questions presented at the beginning of the questionnaire and most privacy invasive at the end.

proposed by Acquisti's et al. (2012), is incorporated in this Thesis' conceptual framework and is further analysed in the corresponding section (2.2.4.3)[16].

2.1.4.4 Social Response Theory and Dyadic Relationships

The third concept included in the instrumental factors section is dyadic relationships, which is linked to Social Response Theory (SRT). SRT, which serves as an extension of the Social Exchange Theory, states that when a party is the recipient of certain information by another party it matches that disclosure by engaging in revelation of similar information. This is denoted as *disclosure reciprocity* (see Gouldner, 1960; Zimmer et al., 2010). Furthermore, Jourard (1964) and Derlega et al. (1973) define this as the "dyadic effect", with the latter paper contradicting with Worthy et al.'s (1969) view that a pre-requisite for disclosure reciprocity is the liking and establishment of trust between the two (or more) parties. More precisely, they specify that disclosure reciprocity can occur even when there is no liking or trust in place for the two parties, implying that this is a universal phenomenon.

SRT, like Social Exchange Theory, is based on the element of reciprocity. Moon (2000) specifies that, for the successful employment of disclosure reciprocity, it is very important for the "pattern of (disclosure) escalation not to be violated" (p.324). What it is meant by this is that the reciprocal progression of disclosures must be followed by all parties, otherwise lack of doing so could lead to the breakdown of the positive relationship between disclosure of information and reciprocity. In earlier papers, both Johnson and Noonan (1972) and Hill and Stull (1982) also acknowledged the importance of balanced exchange of information. This involves the symmetric exchange of information with identical or similar sensitivity that enables the continuation of healthy exchange relationships, while also preventing their dissolution.

[16] A thorough justification of utilising Acquisti et al.'s (2012) view regarding the concept of question sequence can be found in section 2.3.

Interestingly, disclosure reciprocity is found to be influenced by the mood of individuals during the disclosure process in regard to the quality and quantity of information disclosed. When examining the intimacy, variety, abstractness and valence of self-disclosing messages, Forgas (2011) identified that after positively influencing the mood of individuals[17] they produced intimate, positive but abstract disclosures. Individuals with negative moods produced more concrete but less intimate disclosure content. Additionally, mood also influenced the valence of self-disclosure, with happy individuals disclosing more positive details compared to individuals with negative moods. Finally, an interesting observation is that individuals with negative mood matched self-disclosure intimacy more closely than happy individuals.

Moon (2000) mentions that the capitalisation of Social Response Theory can lead to the reciprocal disclosure of information by both parties when the invasiveness of information slowly ascents. Through the employment of this method, relatively sensitive and thus valuable to the individual information can be extracted after a primary disclosure from the party, who seeks to acquire that information, takes place. Interestingly, this was more recently examined by Zimmer et al. (2010) who utilised different types of dyadic relationships for the identification of the most effective relationships regarding the propensity of individuals to disclosure information. Zimmer et al. (2010) focused on *reasoned*, *unreasoned*, and *non-dyadic relationships* and through these, examined how intentions lead to actual disclosure. The reasoned dyadic relationship provided respondents with direct information as to how their acquired data would be used by the organisation prior to each data-capturing question similar to statements that reflect the organisations Fair Information Practises (FIPs). The unreasoned dyadic relationship followed an unreasoned disclosure reciprocity pattern where random information was provided with a weak and indirect link to the information sought to be captured. Finally, the non-dyadic relationship did not offer respondents with any information and proceeded in directly asking for the information sought to be captured. From these

[17] The positive stimulation of the mood of participants was done with the use of episodes from "Faulty Towers" while negative stimulations where done through the film "My life" which dealt with death from cancer.

three dyadic relationships the most effective one, regarding disclosure intention of information, was the reasoned dyadic as it provided assurances and information regarding the uses of acquired information. Interestingly, Singer, Hippler and Schwarz (1992) and, more recently, Acquisti, Brandimarte and Loewenstein (2015) argued that even though logical assurances would be expected to alleviate concerns of individuals and increase information disclosure, these can sometimes have adverse effects. The reason for this is because logical assurances can sometimes elevate respondents' privacy concerns, which without these would have remained dormant (Acquisti et al., 2015; p.510)

Furthermore, an issue identified in the literature in regard to intention of disclosure and actual disclosure that needs to be borne in mind is the *privacy paradox*. Norberg et al. (2007) define the privacy paradox as the phenomenon where consumer intentions towards disclosure of information differ compared to actual disclosures. Surprising is the fact that even though consumers would be expected to be more concerned with their privacy and uses of their information (which inevitably influences their intentions for disclosure), most consumers were found to be disclosing sensitive information for small compensations and benefits (Lee and Larose, 2011; Horne and Horne, 1998). This contradicts with some views in the literature (Culnan, 1993; Culnan and Armstrong, 1999) but complies with others (*Privacy unconcerned* consumer category; Westin, 2003).

In conclusion, *comparative nature*, *dyadic relationships* and *question sequences* are three important concepts that directly influence the effectiveness and efficiency of data-capturing questionnaires. These concepts are incorporated in the instrumental factors dimension of the proposed conceptual framework which is presented in section (2.2.4). The following section discusses additional factors that influence the amount of information divulged by individuals based on the methods used for data accumulation.

2.1.4.5 Additional instrumental factors

This section acknowledges and reviews the related literature of additional factors that influence the methods of data accumulation. These are presented below.

Human-computer interactions and their influence on disclosure of information: Accumulation of information through online data-capturing questionnaires in Human Computer Interactions (HCI) has recently attracted attention in the literature. According to Lee and LaRose (2011), personalised communications in human-computer interactions can evoke feelings of intimacy that influence consumers to disclose information. Both the papers of Lee and Larose (2011) and Motherbaugh (2012) indicate that social cues that are being generated during human-computer interactions like salutation, notification of frequency of visits, responds to consumers' previous requests, and personalised praising when answering questions, can help establish social relationships between human and computer, a term coined as "immediacy"[18].

It is believed that these social cues can provide the necessary incentives to encourage users to engage in social interactions with computers which could then result in information disclosure. Additionally, active or passive customisations of websites can offer more personalised services together with an increase in intimacy, making the visit to these websites more beneficial and time-efficient for consumers whilst maximising the accumulation of data (Motherbaugh, 2012). Furthermore, an interesting point was also made by Reeves and Nass (1996) who mention that individuals tend to treat computers as human beings and as if they had feelings and motivations. Findings of their study indicate that consumers who view websites to have high immediacy are more likely to reveal information compared with websites that are viewed as having low immediacy, even though there is no evidence that immediacy does influence the disclosure of certain types of information (sensitive, non-sensitive). Additional findings verify that

[18] The term *immediacy* originates from Mehrabian (1967).

willingness to reveal information is related to trust regarding the outcomes of disclosure, which refers to the entity's ability to deliver on its promises regarding the uses of the acquired data.

Professional vs. unprofessional looking websites and information disclosure: In a study by John et al. (2011), it has been identified that consumers divulge information when asked in an indirect way in online settings. Paradoxically, the majority of the respondents preferred to provide very sensitive information (questions covered areas from sexual preferences to drug abuse) to unprofessional looking websites instead of professional looking ones, even though the latter are less likely to abuse this information. John et al. (2011) attribute this to the fact that individuals feel more comfortable in disclosing embarrassing information to websites that do not resemble those of official services both public and private (i.e. hospitals, public services, insurance companies etc.).

Another point worth mentioning is that in the same paper, John et al. (2011) assessed the ethical perceptions of individuals towards data-capturing questions based on a given scenario. Their findings indicate that the perceptions of individuals differed depending on whether they had engaged in the action of the scenario or not. For example the ethical evaluation of cheating in a relationship was rated lower by individuals that had already engaged in the act of cheating than those who hadn't.

Physical attractiveness: The final concept analysed in this section is one that influences interpersonal methods of data capture like interviews, questionnaires completed by another person as well as pen and paper questionnaires. This concept is defined as the physical attractiveness of the person requiring private information as identified by Harrell (1978).

In his experiment Harrell showed that physical attractiveness of female individuals asking for information from male ones, did have an influence on the amount of information disclosed. Harrell (1978) defined attractiveness as the dress code, use

of makeup and hair style of the female investigator. In the experiment extensive information was given to attractive individuals compared to unattractive ones. Prior disclosures by the individual who asked for information like her name and the reason why she asked for information, when combined with attractiveness, further boosted the information she acquired from the male individual. Still what needs to be mentioned is that Harrell's experiment did not examine the scenario of a potential increase in the propensity to disclose when men ask for the same information from women.

2.1.5 Summary of Part I

The first part of this chapter provided a review of the current literature that explore different factors that influence voluntary disclosure of information. This includes factors that derive from the disciplines of consumer psychology, consumer behaviour, marketing and HCI. The psychological factors section focused on frameworks that sought to explain the psychological cognitive processes of individuals that lead them to the revelation of information. The underlying theory that fuels each of these frameworks was the SET.

Relational factors were also found to be influential in the information revelation process, with several academics focusing on the concepts of relationships, trust and intimacy. The first part of this chapter provided a review for each of these three concepts while also focusing on *impersonal trust*, as it was identified to be a suitable concept for measuring relational depth in this line of research.

The literature review also included an examination of factors that influence the efficiency and effectiveness of methods of data capture with a more specific focus on online data-capturing questionnaires. Promising concepts like comparative nature, dyadic relationships and question sequence were reviewed, while additional interesting instrumental factors were also examined.

The second part of this chapter provides the conceptualisation of this Thesis' framework which incorporates concepts identified by the literature review to be influential in the information disclosure process.

2.2 PART II- CONCEPTUAL FRAMEWORK

2.2.1 Introduction

The second part of this chapter introduces this Thesis' conceptual framework which categorises the factors identified in the literature to have an influence on voluntary disclosure of information. The section justifies the inclusion of each factor in this conceptual framework; clarifies and better defines the concepts, constructs and variables that constitute it; and specifies the ways in which each of these constructs are being measured based on the work of previous academics.

From the literature review, it is apparent that the disclosure of information by consumers is a widely explored concept, with academics from different fields -like psychology, consumer behaviour, and marketing- identifying factors that influence voluntary divulgence of information. The summarisation of these factors and their inclusion into a unified framework provides an anatomy of what influences voluntary disclosures.

In summary, the framework is based on three core dimensions: a) **Psychological processes** b) **Relational depth** and c) **Instrumental factors**. **Diagram 2.3** provides a visual representation of the three dimensions accompanied by their respective constructs, all of which are analysed in this section.

The conceptual framework serves as the main platform for the examination of how the operationalisation of instrumental factors (in online data-capturing questionnaires) influences the psychological processes of individuals as well as their perceptions of relational depth with the organisation that seeks to acquire that

information. This project extends its reach by identifying whether these interactions have an influence on Overall Actual Disclosure (OAD)[19].

The utilisation of these three dimensions is attributed to the fact that these areas are extensively examined in the literature and serve as the three main convergence points for most academic views regarding their influence on voluntary disclosures of information in organisational settings.

Firstly, the justification for incorporating psychological processes in the proposed framework is that it allows for the examination of psychological factors that influence voluntary disclosures. More specifically, the inclusion of these processes provides more insight on how the psychological behaviour of individuals can be influenced in order to induce them to engage in information divulgence through ethical means.

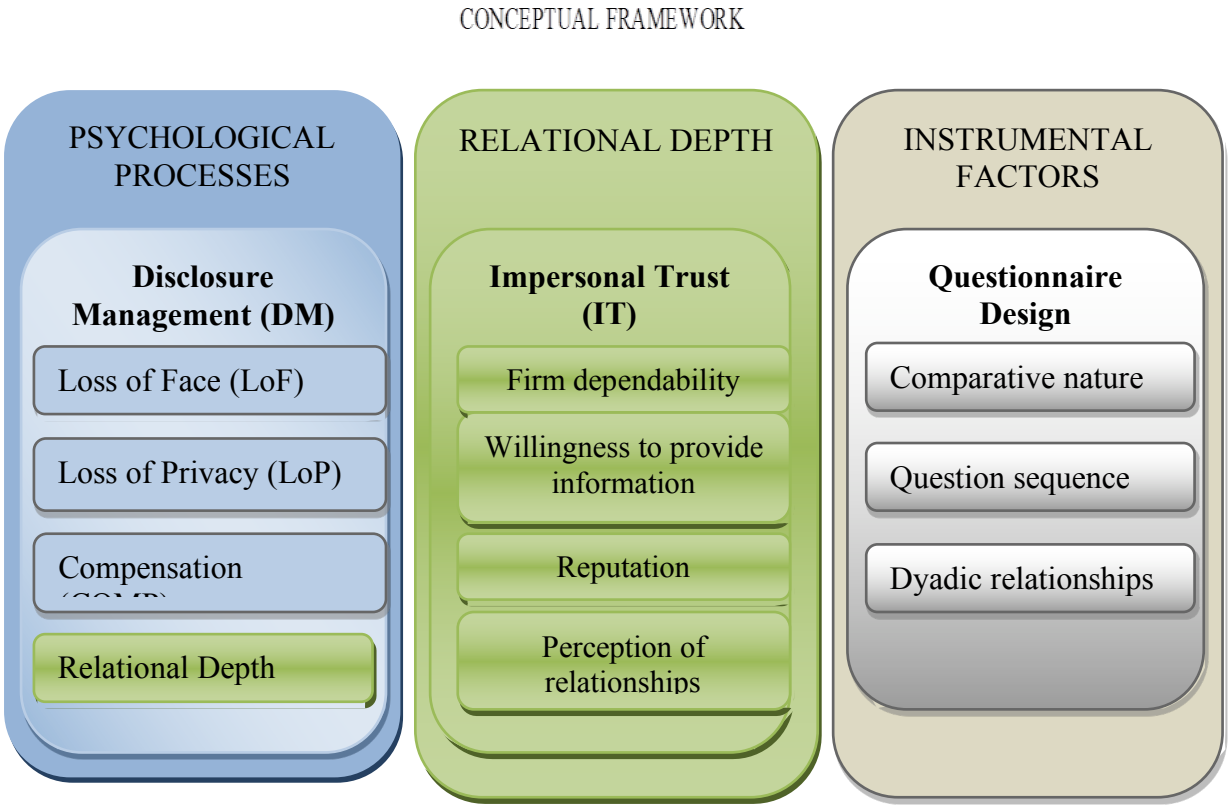

Diagram 2.3: *Visual summarisation of the three dimensions of the proposed conceptual framework*

[19] More information regarding the measurement of OAD can be found in chapter 4.

Furthermore the importance of relationships, or similar to what Barnett (2004) specifies, the *relational depth* between the projector (customer) and the recipient of information (organisation), is widely acknowledged to positively influence propensities of information disclosure (Milne and Boza, 1999; Culnan and Armstrong, 1999; Bart et al., 2005; Premazzi et al., 2010; Biggemann, 2012; Brock and Zhou, 2012) and therefore its inclusion in the proposed framework was essential.

Relational depth, as synthesised in the proposed conceptual framework, included the relational concept of impersonal trust which was more appropriate for examination due to the impersonal setting in which online data-capturing surveys take place. As in this research relational depth followed a different approach to that of Barnett's, it was more suitable to be included as a dimension of its own. Additionally, this was done in order to provide a more accurate definition of the concept within online settings. Furthermore, this allowed a more precise examination of impersonal trust, while simultaneously providing reassurance for its effectiveness on overall actual disclosure. The concept of impersonal trust is justified and analysed in the respective section (2.2.3).

The final dimension focuses on the instrumental factors that influence voluntary disclosure and is arguably the most recent in terms of academic exploration. The instrumental factors dimension includes methods of data capture that can be employed by organisations in order to acquire information. More precisely this dimension is specifically interested in how data-capturing questionnaires can be designed in order to maximise information accumulation while making this method of data capture more effective and efficient. The focus on online privacy capturing questionnaires -instead of information capturing interviews or any other type of privacy capturing method- is attributed to their applicability in real-life organisational situations where organisations seek to acquire large amounts of information from several individuals in an efficient manner. Additionally, from an academic standpoint surveys are considered to be one of the most efficient and effective data-accumulation techniques (see Long et al. 1999; Moon, 2000) with

Hanna et al. (2005) identifying the method to be more effective in terms of information disclosure by individuals compared to any other off-line method. The inclusion of this dimension in the framework provides an applicable and direct example of how factors that influence disclosure can be operationalised by organisations in order to make their data accumulation methods more efficient and effective. Below the concepts included in each dimension of the proposed framework are analysed.

2.2.2 Psychological processes

The first dimension of the proposed conceptual framework focuses on psychological factors that influence voluntary disclosure. More precisely the main focus of this section is on Tiffany Barnett's (2004) Disclosure Management framework, which is based on Social Exchange Theory and seeks to examine how social exchanges influence disclosure of information by individuals. The choice of this model as opposed to Omarzu's (2000) Disclosure Decision Model or Afifi and Steuber's (2009) Revelation Risk Model, is attributed to a series of reasons.

Even though the frameworks of Omarzu and Barnett are based on the individual's cognitive process of balancing the risks and benefits from a potential disclosure in order to decide whether to disclose (or not) personal information, the first fails to take into consideration the concept of embarrassment and benefits offered for disclosure (compensation) which are widely regarded to have an influence on the process. Contrary to this, Barnett's DM provides a direct examination of these concepts. The embarrassment encountered by an individual from a potential disclosure, or what Dahl et al. (2001) define as *loss of face*, is a crucial concept in this line of research as it can hinder disclosure even in the presence of compensation. The examination of loss of face encountered in online and impersonal settings provides an interesting direction for research. Barnett's inclusion of this concept in her framework, accompanied also by the inclusion of relational depth and compensation that serve as positive stimuli towards self-disclosure, are the reasons why the disclosure management framework is chosen

between the two frameworks. Furthermore, the exclusion of Omarzu's model from the proposed framework was attributed to its lack of empirical exploration contrary to Barnett's DM which was both conceptualised and empirically tested by the author. This provided empirical re-assurance that all of DM's constructs were influential in the information disclosure process.

When comparing Barnett's Disclosure Management with Afifi and Streuber's (2009) Revelation Risk Model, the second excludes the organisational side in its analysis and focuses primarily on concepts like catharsis[20] that are more commonly found in interpersonal sociological settings instead of online organisational ones. Because of this, parameters like compensation offered by organisations to consumers in return for disclosure of information are not found in Afifi and Streuber's framework, which in return highlights the suitability of DM in the organisational context that is the main focus of this research.

The inclusion of DM in this conceptual framework is primarily attributed to the fact that, even though it is based on relatively broad theories like *social exchange* and *prospect theory,* it offers a simplified understanding of what influences the decision making of consumers when it comes to divulging information. Both sides of the consumer's mental scale are being examined through the Perceived Disclosure Consequences (PDCs) as well as the benefits offered from organisations. These lead to the development of the concept's four main constructs that have also been subject to investigation by other academics. The constructs are: compensation offered for disclosure of information (Premazzi et al., 2010, Andrade et al., 2002), relational depth (Biggemann, 2012) on the one side of the mental scale and loss of face (Dahl et al., 2001) and loss of privacy (Culnan, 1993; Motherbaugh et al., 2012) on the other.

The present conceptual framework seeks to assimilate the process of disclosure management within an online, impersonal and organisational context. A closer

[20]Stiles et al. (1992) define catharsis as the need of individuals to disclose something in order to get it off their chest, and is linked to certain therapeutic notions in medical psychology.

examination of the concepts that constitute DM, and their measurements, is provided below.

***2.2.2.1 Loss of face*:** Dahl et al. (2001) identify the loss of face to be the potential embarrassment individuals encounter when disclosing sensitive information. As aforementioned in the literature review, the element of familiarity and relational depth that the *projector* of sensitive information has with the *recipient,* results in greater embarrassment and thereby to greater loss of face. In their study, Dahl et al. (2001) followed a series of experiments in order to define the term. The subjects were asked to indicate the level of embarrassment they encountered from purchasing condoms with the use of a three item *seven point embarrassment scale* previously used by Parrot and Smith (1991) and Modigliani (1968)[21]. The items were anchored using the following labels: not embarrassed at all/very embarrassed; not uncomfortable at all/ very uncomfortable; and not awkward at all/very awkward. An exploratory factor analysis was used. Interestingly loss of face was found to be influenced by four factors. The first two were the type of information being asked by the individual to disclose and the relational depth between the projector and recipient of information. Additionally the methods of data capture were found to have an influence on the embarrassment levels of individuals. The fourth and final factor influencing loss of face is social presence (Dahl et al., 2001). Social presence refers to the social environment in which disclosure of information takes place. The social environment is defined as the place in which the act of information disclosure takes place, as well as which individuals are present during that act. Social presence can increase the embarrassment levels of individuals even when disclosing otherwise non-sensitive information (Dahl et al, 2001). Arguably loss of face is minimised in online data-accumulation methods where a physical social presence is absent and can explain the findings of Hanna et al. (2005) who identified that propensities for information disclosure by consumers in online settings are significantly higher compared to

[21] More information regarding the measurement scales and employed items for each of the constructs of the proposed theoretical framework, can be found in the Methodology Chapter, section 3.3.

offline ones. Loss of face and the factors that influence it are summarised in **Diagram 2.4** below.

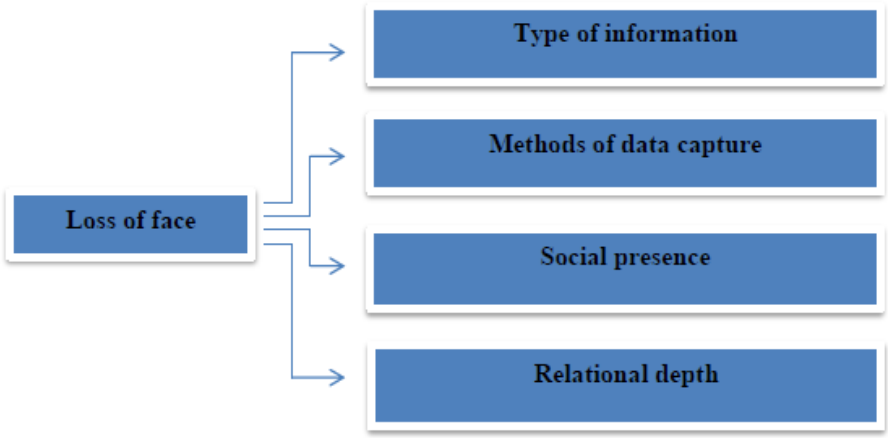

Diagram 2.4: *Factors that influence the loss of face construct.*

For the measurement of the loss of face construct in the main study of this Thesis, four items measured by a 7-point scale were utilised consistent with the measurements of Barnett (2004) and Dahl et al. (2001).

***2.2.2.2 Compensation*:** The offering of compensation that leads to disclosure of information is a widely explored concept. Even though several studies utilised experiments for recording the effects of compensation towards information disclosure, no measurements were identified for measuring specific monetary amounts of compensation required for the divulgence of truthful information. For example, Premazzi et al. (2010) and Deutskens et al. (2004) both focused on the effects of different kinds of compensation like lottery based, charity based and vouchers provided for information disclosure, and both mentioned that individuals showed a stronger preference toward monetary compensation. Nevertheless no actual amounts of compensation required for information disclosure were identified. Similarly, Barnett (2004) also made a distinction between customisable and non-customisable types of compensation offered by organisations to induce individuals to provide sensitive information, but again no real monetary values or different levels of compensation were identified or measured.

The findings from these papers are of particular importance as they explain consumer behaviour when it comes to the offering of compensation in return for information. Yet the measurement of different levels of compensation required for information revelation is relatively underexplored. The present study focuses on the examination of this and the identification of actual monetary amounts of compensation required by individuals for full disclosure of the asked information. In doing so, an open-ended question was included in the main questionnaire which asked individuals to state a real-life monetary figure they would be willing to receive for full information disclosure. Additionally, the research design of the main study required the incorporation of compensation as a comparison mechanism for the efficiency of the 27 conditions. Therefore, another item was employed which asked respondents to rate the level of compensation they would require for full disclosure based a 5-point scale.

***2.2.2.3 Loss of privacy*:** Loss of privacy serves as a negative stimulus to the cognitive process of consumers when disclosing information. A reasonable argument would be that the type of information being disclosed has a direct influence on the amount of privacy being lost, something which is supported by academics like Culnan (1993), Long et al. (1999) and Huang and Lin (2005). From the literature the distinction between sensitive and non-sensitive information is a widely explored concept (Warner, 1965; Woodman, et al., 1982; Stone et al., 1983; Nowak and Phelps, 1995; Barnett 2004, Motherbaugh et al., 2012). This framework matches the views of Barnett (2004) who indicates that greater information sensitivity leads to greater loss of privacy from a potential disclosure, and employs a singular item on a 7-point scale[22] for its measurement as proposed by the author.

[22] Even though the measurement of concepts with singular items is questionable by some academics (see Rossiter 2002) this research employed Barnett's approach, and the measurement of loss of privacy with a single item, primarily for consistency purposes for the measurement of disclosure management as proposed by the author.

2.2.3 Relational depth and Impersonal Trust

This dimension of the conceptual framework incorporates relational factors that influence the voluntary disclosure of information. From the literature review three relational concepts that influence disclosure of information have been identified. These concepts were *relationships, intimacy* and *trust*. Trust is the main focus of this framework, primarily because it was important to avoid an artificial examination of three extremely broad concepts in regard to disclosure of information, an issue identified by Shapiro (1987). The reason why the concept of trust was chosen (rather than the other two), is attributed to the fact that trust serves as a construct for both concepts of relationships and intimacy, while its broad examination in the literature in terms of its forms and different types makes its examination more precise within organisational settings.

When identifying what type of trust needs to be in place between information-seeking organisations and consumers, *impersonal trust* is arguably more suitable for inclusion for different reasons. Contrary to papers that treat interpersonal and impersonal relationships in an interchangeable manner, this framework adopts the view of Calhoun (1992) and embraces the fact that impersonal and interpersonal types of relationships are fundamentally different. As an addition, this framework matches the views of Pixlet (1999) who specified that one type of indirect interpersonal relationship is impersonal trust. This, accompanied by Culnan and Armstrong's (1999) argument that impersonal trust is vital and more suitable for examination in impersonal organisational settings -due to the fact that in most cases individuals rely on strangers to act on their behalf- serve as the main justifications as to why impersonal trust is chosen for inclusion.

Following from the recognition that impersonal trust is highly suited to the context of this research, it becomes important to determine how impersonal trust can be measured. Despite its under-explored nature in the literature, two papers express views over what influences impersonal trust (Culnan and Armstrong, 1999; Shoenbachler and Gordon, 2002), with only one of the two identifying its

constructs (Shoenbachler and Gordon, 2002). More precisely, Culnan and Armstrong (1999) mention that *Fair Information Practices* (FIPs) have a major impact on the development of impersonal trust.

Shoenbachler and Gorgon (2002) considered the constructs of impersonal trust within a database-driven relationship marketing environment in respect to six focus areas. These areas were: The perceived risks of the individual from a potential disclosure; the organisation's credibility; an individual's potential past experiences with the organisation; the reputation of the organisation; the individual's perceptions of the organisation's dependability; and willingness to provide information and perception of a relationship. The areas identified to be significant[23] were: reputation[24], dependability[25], willingness to provide information, and perception of relationships (Shoenbachler and Gorgon, 2002). In alignment with the views of the authors, these four constructs were included in this study for the measurement of impersonal trust, leading to the employment of six items that were measured by a 7-point scale.

2.2.4 Instrumental factors

This dimension explores how different presentation types of data-capturing questionnaires influence information disclosure. In regard to the structure of data capturing questionnaires the focus of the instrumental factors dimension, is on the concepts of question ordering effects and *question sequence* (Acquisti et al., 2012; studies 2a-2d); the incorporation of information that leads to herding behaviour through stimulation of the *comparative nature* of individuals (Acquisti et al., 2012; studies 1a-1c); as well as statements that synthesise disclosure reciprocity

[23] Cronbach alpha above 0.75.
[24] The importance of the organisation's reputation for the development of trust is further supported by Ganesan (1994) and Fombrun (1996) who specify that reputation in the market allows the development of trust with its customers without a substantive physical presence.
[25] Smith and Barclay (1997) define firm dependability as the ability of the organisation to deliver on its promises and claims which ultimately determine its trustworthiness. For a more recent and detailed examination of the antecedents of trustworthiness that lead to the development of trust see Sekhon, Ennew, Kharouf and Devlin (2014).

through different *dyadic relationships* (Zimmer et al. 2010). All three constructs of the instrumental factors dimension are analysed below.

***2.2.4.1 Dyadic Relationships*:** The concept of dyadic relationships is based on Zimmer et al's (2010) work which examined the three types of dyadic conditions and their influence towards actual disclosures. As aforementioned in the literature review the dyadic conditions are categorised into three types; the reasoned dyadic, unreasoned dyadic and non-dyadic relationship. The information provided in the reasoned dyadic relationship directly reflects the potential uses of the requested information. The unreasoned condition provides information that is vaguely and unreasonably associated with the question that follows. The non-dyadic relationship simply provides information of what is to follow in the next question and no dyadic relationship is synthesised. Examples of the three dyadic relationships as used by Zimmer et al. (2009) can be seen below.

Reasoned dyadic condition	Unreasoned dyadic condition	Non-dyadic condition
Question 1 WebMD collects gender information since many medical issues are gender specific. **What is your gender?**	**Question 1** WebMD is a company that is 51% female. **What is your gender?**	**Question 1** The first question concerns gender. **What is your gender?**
Question 2 As we age certain health issues become more common. Our website contains information about many medical conditions that become more common as people age. **When is your birthday?**	**Question 2** WebMD was born in 1996. We have been online for 9 years. **When is your birthday?**	**Question 2** Next is a question about your birthday. **When is your birthday?**
Question 3 We personalise our website for our users. **What is your full name?**	**Question 3** Our CEO is Kevin Cameron **What is your full name?**	**Question 3** The next question concerns your name. **What is your full name?**

Table 2.1: *Examples of the three dyadic conditions (taken from Zimmer et al., 2010; p.404).*

Zimmer et al. (2010) used fifteen discrete pieces of information in order to assess actual disclosures and their findings indicate that the unreasoned dyadic relationship and non-dyadic did not influence intention and probability of disclosure while the reasoned dyadic condition did. The operationalisation of this construct and its incorporation in this project's conceptual framework not only allows the further development of the concept but also enables the evaluation of dyadic relationships in regard to their ability to influence overall actual disclosure when triangulated with other instrumental factors (i.e. comparative nature conditions, different question sequences). Particularly, the inclusion of dyadic relationships allows the identification of which of its conditions are perceived as more comfortable and less invasive for individuals when disclosing information. Interestingly, the reasoned dyadic condition can be identified as a form of Fair Information Practice, as it informs individuals of the purpose of the information acquisition as well as potential use. As FIPs are influential for the development of impersonal trust, the examination of whether dyadic relationships increase perception of impersonal trust, and by extension relational depth, can be very promising.

***2.2.4.2 Comparative Nature*:** The second construct of the instrumental factors dimension derives from the work of Acquisti et al. (2012) who examined the influence of responses of previous individuals on the decision of current individuals to disclose (or not) certain information. Focusing on Acquisti's et al. (2012) experiment, they asked participants to address a series of privacy related questions while allowing them to see the responses of others to the questions given. This served as a manipulation process as the percentages reflecting the responses of other respondents were not real. The privacy-invasive statements were admission-based[26] and were measured with a *four-point* frequency-

[26] Admission-based questions measure disclosures of information through whether or not the respondent admits to having engaged into a specific activity. In Acquisti et al.'s (2012) case these activities were embarrassment-based, i.e. Have you had sex with the current husband, wife or partner of a friend?

measuring scale[27]. Comparative nature's three conditions were the HighCN condition, in which individuals were led to believe that the majority of other respondents responded affirmatively to the given question; the LowCN condition, which led individuals to believe that the majority of other individuals avoided disclosure of that particular information; and lastly in the missing condition (NonCN) individuals were not provided with any information regarding CN. Findings from their study indicated that there was a herding behaviour when it came to admitting to having engaged in an embarrassing act when the individuals were led to believe that the majority of others had done so as well.

Comparative nature is both an interesting and promising concept when it comes to influencing disclosure. The inclusion and cross-examination of comparative nature's conditions with the framework's other instrumental factors allows the identification of factors which influence the concept while providing an assessment as to whether its triangulation with other instrumental factors influences its effectiveness regarding data-accumulation.

***2.2.4.3 Question Sequence*:** The third and final construct of this dimension is the concept of *question sequence,* also examined by Acquisti, John and Lowenstein (2012). The question sequence construct indicates that the way privacy-related questions are presented to individuals, order-wise in regard to their invasiveness, influences overall disclosure. Acquisti et al. (2012) describe three ways that questions within a questionnaire can be presented in terms of the order of question-invasiveness: a) The *ascending* condition, which indicates that the invasiveness of questions should ascend within the questionnaire, meaning that less privacy-invasive questions are presented at the beginning before slowly progressing to the more invasive questions at the end. b) The *descending* condition, which is exactly the opposite of the ascending order where the most invasive questions are presented at the beginning with overall invasiveness

[27] Frequency-measuring scales measure the occurrence of an act. In Acquisti et al.'s (2012) case, scale-points were anchored as "frequently", "sometimes", "at least once", "never".

descending as the questionnaire progresses. c) The *random* order, in which questions are presented in a pseudorandom order of invasiveness.

In each condition participants were asked to rate how intrusive (if at all) the questions were on *a four-point response scale*[28]. The three sequences were compared and results indicated that people's willingness to admit to having engaged in sensitive behaviours is positively influenced in the descending question sequence. Accordingly, question sequence is believed to have a direct influence on how individuals perceive the presented data-capturing questionnaires, and when cross examined with other constructs within this proposed framework, allows for the verification of this construct's effectiveness towards disclosure.

Concluding with the conceptual framework's instrumental factors dimension, it focuses on how online data-capturing questionnaires can be influenced in order to make the accumulation of voluntary information more efficient and effective in organisational settings. As aforementioned, the main objective of this research is to cross examine the conditions of each construct of the instrumental factors dimension and further explore the influence of these combinations with the constructs that constitute the psychological processes and relational depth dimensions. **Figure 2.5** below summarises the instrumental factors dimension accompanied by the three main concepts that constitute it, together with the conditions of each.

[28] The 4-point scale was anchored as *"not at all intrusive", "mildly intrusive", "intrusive", "very intrusive"*.

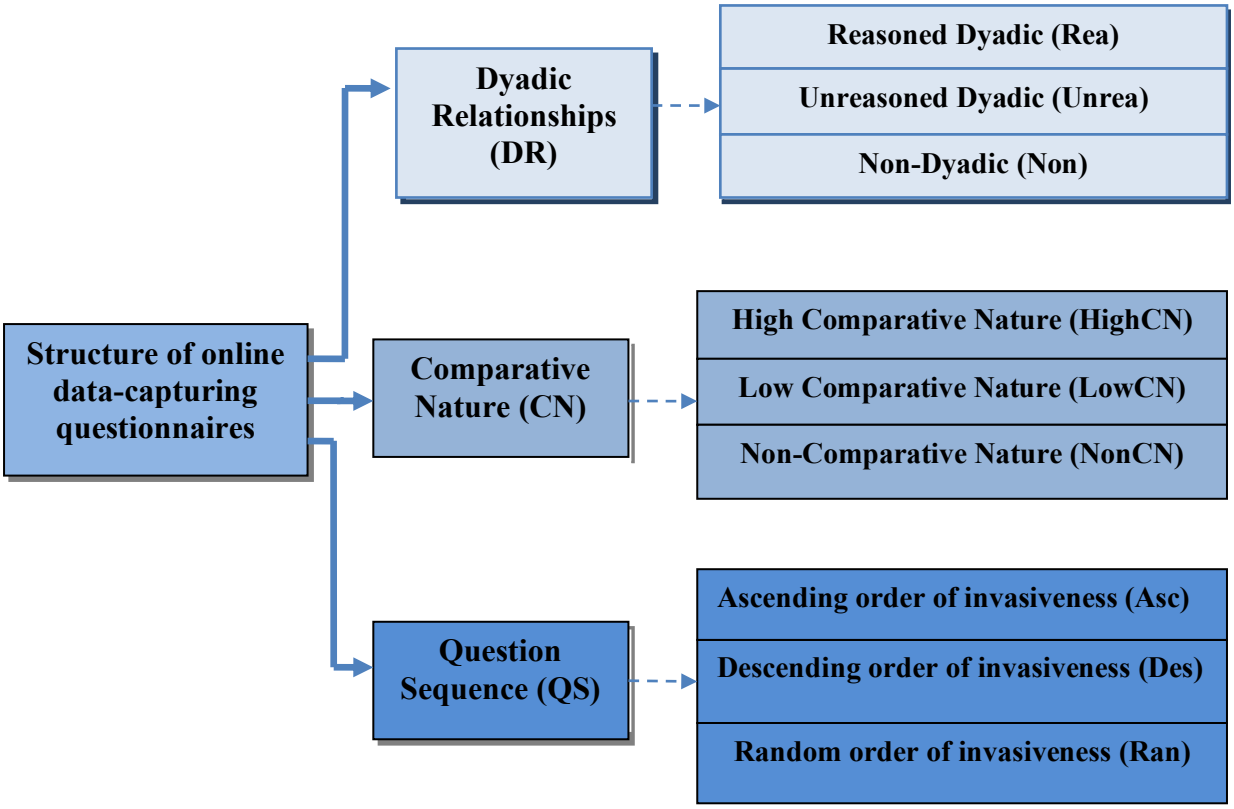

Diagram 2.5: *Visual summarisation of the instrumental factors dimension and its constructs, accompanied by the three conditions of each.*

2.2.5 Summary of Part II

The second part of the literature review introduced this Thesis' conceptual framework. To sum up, this section analyses and justifies the factors that constitute the proposed framework. Following a deductive approach, the framework is built on previous research on how factors from different disciplines influence disclosure of information. The proposed framework, which is constituted by three dimensions, is used for the cross examination of factors that influence voluntary disclosure and the identification of the most effective combination of constructs that maximise accumulation of information.

The next part focuses on the synthesis of this Thesis' main hypotheses that seek to examine the different, previously unexplored, interactions and synergistic behaviours of the factors included in each of the three dimensions of the conceptual framework.

2. 3 PART III- SYNTHESIS OF HYPOTHESES

An important number of studies have investigated different, isolated influences that questionnaire-presentation effects have towards voluntary disclosures. Previous research focused primarily on these singular effects, each of which was examined individually in regard to its impact on the propensity of individuals to disclose information. Consequently, the combinations of factors that influence voluntary disclosure through online data-capturing questionnaires have received very little academic exploration. The positive influence of these instrumental factors (dyadic relationships, question sequence and comparative nature) can be capitalised by combining them in order to increase voluntary information disclosure. This idea was suggested by Zimmer et al. (2010; p.403) who recommended the examination of the synergistic influence of dyadic relationships with other disclosure-influencing concepts that can be incorporated in data-capturing questionnaires in order to further enhance their effectiveness. Moreover, it is evident that the lack of empirical evidence regarding the presence of a contradicting nature between these concepts, when combined, also offers additional cause and need for an examination of the synergistic behaviour of these factors.

This gives rise to the first two sets of hypotheses regarding the comparison of the influence of the individual and combined employment of each instrumental factor towards Overall Actual Disclosure (OAD). H1 addresses this and examines the individual employment of instrumental factors and their influence towards OAD. As part of the literature is divided regarding the respective high-level conditions of each of the three examined concepts H1 provides deductive verification to this and helps identify the high-level conditions of each of the three examined concepts. In regard to the concept of question sequence, since the views of previous academics like Moon (2000) and Zimmer et al. (2010) are being contradicted by the more recent findings of Acquisti et al. (2012), who identified the descending order of invasiveness to increase information disclosure instead of the ascending, it is

hypothesised that the descending order of question invasiveness is the high-level condition of QS when examining its influence towards OAD. For CN and DR their respective high-level conditions (HighCN and Rea) as identified by their respective authors, are utilised.

Findings generated through the examination of H1 are used in order to inform the analysis of the rest of the hypotheses as to which conditions should be treated as the high-level ones of their respective concepts. Therefore H1 is synthesised as:

H1: The individual utilisation of the high-level conditions of the three instrumental factors in the questionnaire (CN,QS,DR) positively influences Overall Actual Disclosure (OAD).

The second set of hypotheses examines the combined employment of instrumental factors and their influence towards OAD. H2a examines the synergistic behaviour of these factors as proposed by Zimmer et al. (2010) and indicates that the combined employment of the high-level conditions of the instrumental factors positively influences OAD. Finally, H2b seeks to provide empirical evidence on the comparison between the synergistic and individualistic behaviour of these concepts while quantitatively examining the presence of any contradicting elements. As the synergistic behaviour of these concepts is expected to have a more positive influence towards OAD compared to the individualistic one, it is hypothesised that the synergistic employment of the high-level conditions would generate a higher amount of actual disclosure (OAD) than the individual employment of the respective conditions. The second set of hypotheses is summarised below.

H2a: The combined utilisation of the high-level conditions of the instrumental factors in the questionnaire positively influences OAD.

H2b: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire has significantly higher positive influence on OAD compared to the individual utilisation of the high-level conditions of instrumental factors.

As part of the testing of these hypotheses a series of additional inductive tests were also conducted in order to help explain certain counterintuitive findings from the main analysis, while enriching the exploration of the influences of instrumental factors towards data-capturing questions with differing levels of privacy invasiveness. Furthermore, the demographic variables of age and gender were also included in the later stages of this analysis for the examination of their influence towards the instrumental factors and OAD.

Following the second set of hypotheses, the third set examines the influence of Disclosure Management factors (LoF, LoP, COMP, IT) towards OAD. As Shoenbachler and Gordon (2002) proposed that impersonal trust (IT) positively influences willingness of disclosure of information, H3a hypothesises that respondents' high perceptions of impersonal trust ultimately results in higher percentages of OAD. Furthermore, H3b and H3c deductively examine the interaction of the remaining three concepts of DM with OAD. Hypotheses H3b and H3c are used to enrich Barnett's (2004) exploration of the three concepts through the measurement of actual disclosure with 18 data-capturing items (having three different levels of privacy invasiveness) instead of the 4 items employed by the author. The third set of hypotheses is summarised below.

H3a: The higher the perceptions of impersonal trust by the respondents the higher the OAD.
H3b: The lower the perceptions of loss of face and loss of privacy during information disclosures by respondents, the higher the OAD.
H3c: The lower the compensation required for full disclosure the higher the OAD.

The fourth set of hypotheses focuses on how the presentation of online data-capturing questionnaires influences the perceptions of individuals regarding loss of face, loss of privacy, compensation required, as well as impersonal trust with the organisation who is asking for information. This examination seeks to provide insight in explaining what mediates the process of the employment of high-level

conditions of instrumental factors and their influence on OAD by identifying patterns as to which conditions reduce concerns regarding information divulgence and enhance the development of impersonal trust.

More precisely, the fourth set of hypotheses focuses on the influence of IF towards the DM. As propensity to disclose increases when potential benefits exceed perceived disclosure consequences, and similarly the employment of high-level conditions of instrumental factors positively influences information disclosure, it is hypothesised that the individual high-level conditions of the instrumental factors will reduce concerns regarding loss of face and loss of privacy while enhancing the positive stimuli of compensation required for disclosure and increasing perception of relational depth. Hypotheses H4a, H4b and H4c seek to examine these interactions and are summarised below:

H4a: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire reduces concerns regarding loss of face and loss of privacy.
H4b: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire reduces compensation required for full disclosure of information.
H4c: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire increases perceptions of impersonal trust.

Still, consistent with the second set of hypotheses (H2a), and based on the same set of arguments regarding the synergistic behaviour of the instrumental factors, H4d, H4e and H4f hypothesise that the synergistic employment of high-level conditions of instrumental factors have a positive influence towards each of the disclosure management factors, as summarised below:

H4d: The combined utilisation of the high-level conditions of the instrumental factors in the questionnaire reduces concerns regarding loss of face and loss of privacy.

H4e: The combined utilisation of the high-level conditions of the instrumental factors in the questionnaire reduces compensation required for full disclosure of information.
H4f: The combined utilisation of the high-level conditions of the instrumental factors in the questionnaire increases perceptions of impersonal trust.

Finally, the synthesis of the last set of hypotheses H5a, H5b, H5c shared the same reasoning with H2b and hypothesise that, the combined employment of instrumental factors would provide higher positive influence towards the factors of disclosure management when compared to the individual employment. These are summarised below:

H5a: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire further reduces concerns regarding loss of privacy and loss of face compared to the individual utilisation of the high-level conditions of instrumental factors.
H5b: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire further reduces the compensation required for full disclosure of information compared to the individual utilisation of the high-level conditions of instrumental factors.
H5c: The combined utilisation of the high-level conditions of instrumental factors in the questionnaire further increases perceptions of impersonal trust compared to the individual utilisation of the high-level conditions of instrumental factors.

2.3.1 Summary of Part III

This final part of the literature review chapter explained how each of the five sets of hypotheses are synthesised. Each set seeks to examine the interaction of the factors included in each of the conceptual frameworks' three dimensions and focus on how different presentation effects of data-capturing questionnaires influence the psychological processes that lead individuals to voluntary disclosures of information.

Both the literature review and framework conceptualisation serve as this Thesis' backbone based on which the following chapter, *Methodology*, seeks to identify and justify the best research design for examining the proposed conceptual framework and the Thesis' hypotheses.

3. METHODOLOGY CHAPTER

Introduction

The third chapter focuses on the philosophical underpinning of this research which ultimately justifies the methodology employed to test this Thesis' hypotheses. This chapter is comprised of three main parts. Part I provides the justification of methods section which introduces the main philosophical theories and concepts incorporated in this Thesis. Additionally, it compares different methods of data capture, and concludes with the philosophical positioning and overview of the pre-test and main study. Part II thoroughly analyses the pre-test study in terms of its reasoning, purpose, objective, design, and steps taken to eliminate potential biases. Part III focuses on the main study and justifies the suitability of the chosen data capture method whilst specifying how each construct of the conceptual framework is operationalised in the questionnaire.

3.1 PART I - JUSTIFICATION OF METHODS

3.1.1 Introduction

This research is fuelled by the notion of post-positivism which led to the employment of a quasi-experimental survey. The synthesis of hypotheses as well as research design, were based primarily on deductive reasoning with some of the hypotheses further incorporating elements of induction. This section provides the philosophical underpinning of this Thesis and justifies the chosen research methods. In doing so, the justification of methods section combines Crotty's (1998) *four-elemental representation of research processes* with Burrell and Morgan's (1979) *representation of subjective-objective dimensions.* This allows the clear understanding and identification of what drives this particular research from a philosophical point of view. The first part of the justification of methods section seeks to introduce a series of related philosophical terms and notions that

derive from the two frameworks. Finally a critical philosophical positioning of this research is provided based on the notions and terms introduced.

Crotty's (1998) four-elemental representation of research processes, begins by defining the term e*pistemology,* then moves to *theoretical perspective* then to *methodology* and finally to *methods* -as mirrored by the structure of this section. The following diagram provides a visual depiction of the flow of Crotty's representation of research processes.

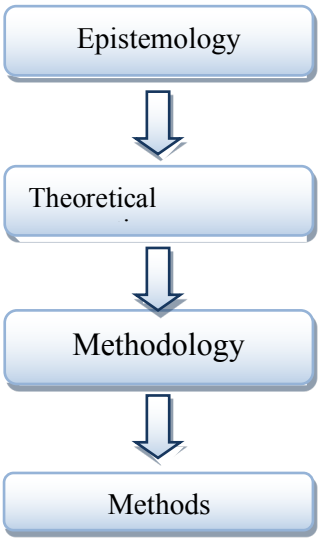

Diagram 3.1: *Crotty's four elemental representation of research processes.*

Burrell and Morgan's (1979) representation of subjective–objective dimensions is also utilised in order to reinforce the initial three elements of Crotty's four elemental representation when analyzing the different philosophical stances. This also enriches the philosophical positioning of this research. Burrell and Morgan's framework is introduced in the epistemology section presented below.

3.1.2 Epistemology

In social sciences particular attention is drawn to the study of knowledge called *epistemology*. Chalmers (1999) defines knowledge as a state of mind, Benton (1977) indicates that epistemology is the philosophical theory of knowledge, whilst Bryman (2008) posits that epistemology is linked to the question of what

we can know about what exists. It is interesting to note that the notion of ontology, which is defined as the nature of *being*, and is concerned with what is or what exists (Bryman, 2008), is regarded to be compatible with epistemology. More precisely, Crotty (1998) specifies that ontology and epistemology share a common link and both inform the theoretical perspective element in his four-elemental approach as illustrated in diagram 3.1.

Hergenhahn (2005) indicates that in answering epistemological questions individuals could postulate a passive or an active mind. A passive mind refers to *empiricists* who believe that knowledge is acquired through sensory experiences while reflecting cognitively to what it is occurring. Social quantitative-based experiments and other censored quantitative methods of data capture, reflect the views of a passive mind (Hergenhahn, 2005). Furthermore, Crotty (1998) defines this notion as *objectivism* meaning that the actual truth lies within entities which are independent of the personal views, experiences or even consciousness of the individual who is researching that particular entity. Truth and actual knowledge can be obtained through scientific research which underpins the positivistic stance.

On the other hand, an active mind postulated by both *nominalists* and *rationalists* is purported to organise, understand and value physical reality. This means that the mind itself adds value to the overall mental experience in contrast with passive minds which focus on more physical and monitored experiences (Hergenhahn, 2005). Again Crotty matches Hergenhahn's views, defining Hergenhahn's nominalistic and rationalistic approach as *subjectivist* and *constructivist* respectively. Both support (to different degrees) that learning is an active process with constructivism, indicating that the researcher's experiences and consciousness help to the construction of knowledge.

Hergenhahn's (2005) argument regarding the postulation of a passive or active mind can arguably be linked to Burrell and Morgan's (1979) representation of *subjective-objective* dimensions in social sciences, showing a heavier focus on the subjective instead of the constructive notion. More precisely, Burrell and Morgan

distinguish between *subjectivist* and *objectivist* researchers in social sciences. The two approaches are summarised in **diagram 3.2** which pinpoints the four main levels of differentiations between the two approaches.

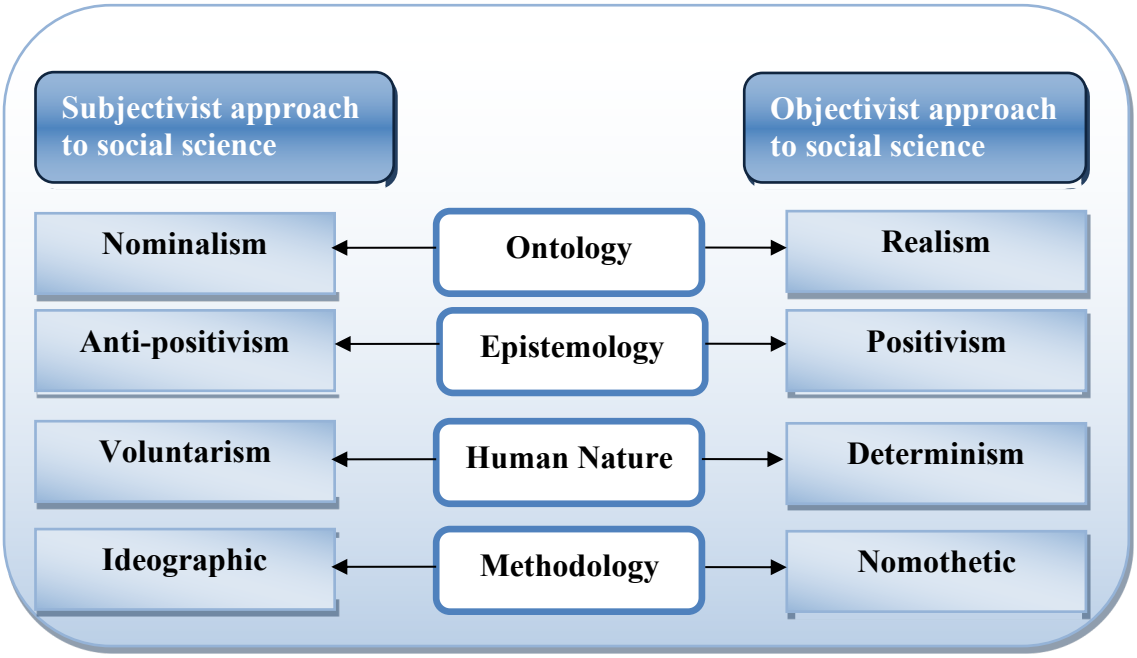

Diagram 3.2: *The subjective-objective dimension diagram (taken from Burrell and Morgan, 1979; p.3)*

Starting with the first level of differentiation, from an ontological perspective, the subjective dimension follows a nominalist approach which supports that "there is no real structure to the world which is made up by concepts and names that are used to structure reality" (Burrell and Morgan, 1979; p.4). The objectivist dimension follows a realistic approach. Realism is an ontological perspective which accepts that reality is independent of the researcher's views and theoretical speculations (Crotty, 1998). The epistemological standpoint of Burrell and Morgan's (1979) subjective-objective dimension splits to anti-positivism and positivism respectively. Positivism, post-positivism and anti-positivism are analysed in the theoretical perspective section (3.1.3) which focuses on the different theoretical stances scientific research can hold.

The third separation of the subjective-objective approach comes at the level of human nature which is simply defined as the relationship between human beings and the environment that surrounds them. *Voluntarism,* which reflects the views of a subjectivist approach, amplifies the fact that humans are autonomous and free willed while its opposite counterpart, *Determinism (*which reflects the spectrum of objectivism), indicates that a human being's activities are determined by the situation in which he/she is located (Burrell and Morgan, 1979; p.6).

The final distinction between the two approaches is made in regard to the employed methodology- more specifically the manner in which the knowledge of what exists can be acquired (Crotty, 1998). The *ideographic* and *nomothetic* notions are explained in detail in the methodology section (3.1.4.2).

3.1.3 Theoretical perspective

Crotty (1998) states that the theoretical perspective describes the theoretical stance that scientific research needs to hold, justifying this way the methodology of choice. This section summarises different philosophies of science including positivism, anti-positivism and post-positivism, with an overview of each provided below.

3.1.3.1 Positivism: A well-defined philosophy of science is *positivism* which in its present form assumes that valid knowledge is the actual truth in our world and can only be found in scientific knowledge. A term coined as *Comte's positivism*[29] implied that laws regarding the regular characterisation of events, phenomena and relationships are established through observation, experimentation and comparison. The notion of *logical positivism* emerged in the early nineties through the Vienna Circle[30]. Logical positivism amplified the importance of science and

[29] The popularisation of the term positivism is linked to Auguste Comte whose envision of the recreation of society through the postulation of a positivistic mind by its members led to the establishment of the foundations of positivism (see Crotty, 1998).
[30] A philosophers' association situated at the University of Vienna.

scientific research, seeing it as the only way for the creation of pure knowledge excluding all speculations from this process (Crotty, 1998).

At present, the current form of *positivism* is linked to empirical science and is based on the fact that the goal of knowledge is simply to describe the phenomena that are being examined and experienced, while the science itself should simply stick to what can be observed and directly measured (William, 2006). As an addition, modern positivistic views indicate that research must be censored by the researcher's own beliefs and influences, with Bryman (2008) mentioning that science must be *value free*.

Positivism is also linked to deductive reasoning which uses existing theories and knowledge as platforms for generating new knowledge, findings and results (William, 2006). The purpose of the theory, through its development and revision, is to predict reality as accurately as possible. Bryman (2008) mentions that positivism is based on three key principles:

a) The theory used must provide testable hypotheses that will allow the researcher to assess different explanations of laws.
b) Knowledge derives through the gathering of facts that provide the basis of laws.
c) Only phenomena and hence knowledge confirmed by the senses can genuinely be warranted as knowledge.

From this, it is clear that modern positivism implies that knowledge must derive from logical mathematical reports and that metaphysical speculations must be avoided (William, 2006).

3.1.3.2 Anti-positivism: Anti-positivism characterises the subjectivist approach of Burrell and Morgan's (1979) framework. Contrary to the positivistic approach, anti-positivism indicates that knowledge in the social world is relativistic and thereby directly linked to the understanding of the individuals involved in its research (Burrell and Morgan, 1979).

Anti-positivism strongly supports the utilisation of qualitative research methods that are based on the individual who is involved in the environment being examined. Still, the underlying notion of anti-positivism is that the researcher's feelings and emotions during scientific research add value to the knowledge-creation process while different perceptions of individuals make actual knowledge more subjective and relative (Crotty, 1998).

The notion of post-positivism which shares characteristics from both positivism and anti-positivism is presented below.

3.1.3.3 Post-positivism: Denzin and Lincoln (2008) maintain that post-positivism[31] assumes that scientific reasoning and common sense are practically the same thing apart from the degree of validation and verification, while scientific reasoning is considered to be more accurate and consistent compared to common sense. Additionally, Howitt and Cramer (2005) mention that post-positivism supports that, no matter which reality is being studied, it is not for certain that our knowledge is exact. Given this, post-positivism indicates that knowledge through scientific investigation can be created but is accompanied with certain levels of ambiguity (Crotty, 1998). Instead, important to the process of creating knowledge is the postulation of an active mind from the researcher instead of a passive one.

Another important fact that led to the development and definition of post-positivism can be found in the work of Karl Popper and his *Principle of Falsification*. Popper mentioned that scientific research follows a loop of conjecture and falsification (see Crotty, 1998). Phillips and Burbules (2000) further indicate that post-positivism challenges the traditional views of positivism, that is of the absolution of truth in regard to truth and knowledge. This imperfect and fallible evidence found in research ultimately led to Popper's loop of conjecture and falsification of scientific research which gives rise to the main

[31] The post-positivistic notion emerged after the Vienna circle and can be traced back to the work of Werner Heisenberg (1901-1976) and Niels Bohr (1885-1962)

difference between positivism and post-positivism. The main difference is that the first seeks to uncover the truth with the use of science while the second is critical as to whether science can uncover the truth with absolute certainty. Phillips and Burbules (2000) mention further that in contrast to positivism, which supports the view that researchers passively acknowledge laws regarding beings and phenomena that surround them, post-positivism projects the fact that knowledge is actively created by the researcher.

Even though post-positivism is often linked to qualitative research, it can be also found in quantitative based research methods. In contrast with seeing reality as a system of causes and effects (which is what can be arguably seen through the eyes of a genuine positivist), Denzin and Lincoln (2008) specify that quantitative methods when combined with qualitative methods, either via method triangulation or mixture of research methods, allow for the more accurate capture of social reality. Finally, it is interesting to note that the employment of quantitative methods in an experimental or quasi-experimental setting, provides ground for the creation of knowledge through social construction (Cook and Campbell, 1979).

3.1.4 Methodology

Methodology is influenced by the different assumptions of epistemology and ontology, leading to multiple ways of use by the researcher in order to gain knowledge (Burrell and Morgan, 1979). Under the spectrum of methodology, research can follow a deductive or inductive approach for the identification of new or examination and revision of existing theories respectively. Deductive and inductive theories are analysed below.

3.1.4.1 Deductive and inductive theory

Both deductive and inductive theories refer to the relationship between theory and social research. Deductive research is based on deductive reasoning, meaning that research begins by revising existing theories. Bryman (2008) indicated that for the revising of related theories, a previously unexamined hypothesis (or hypotheses)

needs to be formed. This hypothesis must then be operationalised into "researchable entities" and "deduced to operational items" (Bryman, 2008; p.8). Then the data collection process follows which leads to findings through which already established hypotheses are confirmed or rejected. The final step of deductive theory is the revision of existing theories based on findings and conclusions.

Deductive theory is primarily linked with positivistic views in scientific research as well as quantitative research methods (Lee, 1989). Still, Bitektine (2007) argues that deductive theories can be also linked to qualitative methods. In particular, he focused on *prospective case study design* in order to test deductive theories, specifying also that the employment of qualitative methods in deductive theory testing is a promising approach.

Even though certain aspects of theories might have already been well examined, others might have received no to little attention thus being worthy of investigation (Howitt and Cramer, 2005). Inductive theory is based on the fact that for the synthesis of a theory, prior generalisable inferences through research must be done (Bryman, 2008). Furthermore, in inductive reasoning, as Bryman (2008) specifies, "theory is the outcome of research" (p.9). Finally, Bernard (2013) mentions that academic research cannot be purely inductive nor purely deductive, adding that explanatory research has a stronger element of inductive research whilst confirmatory research is more likely to be deductive. The positioning of this research in regard to inductive and deductive theories is presented in section 3.1.6 below.

3.1.4.2 Defining methodology

Crotty (1998) mentions that *methodology* is concerned with the way in which the knowledge of what exists can be acquired. Both epistemology and methodology are intimately related: epistemology involves the *philosophy* of how we come to know the world while methodology involves the *practice* (see Trochim, 2006). Additionally, Cormack (1996) and Crotty (1998) make a distinction between

methodology and methods, indicating that methodology is the manner of collecting data while methods are the techniques employed for data collection.

When discussing methodology Burrell and Morgan (1979), mention that the subjective dimension follows an ideographic approach which supports that for an accurate understanding of a phenomenon, one must experience the phenomenon or situation up-close stressing also the importance "of letting one's subject unfold its nature and characteristics during the process of investigation" (Burrell and Morgan, 1979; p.6). Similar to this, Cormack (1996) also supports that in the *subjective/ideographic* notion, interactions and experiences of the researcher are fundamental for the creation of actual knowledge. On the other hand the nomothetic notion, which follows the views of the objectivistic approach in Burrell and Morgan's (1979) framework, focuses on research that is based on the synthesis and testing of hypotheses through what is defined as "systematic protocol techniques" (p.6). Expanding upon this, Cormack (1996) mentions that for the *objective/nomothetic* notion "facts can and should be presented in a manner untamed by the feelings, opinions or biases of the researcher or individuals who is being researched" (p.113).

Arguably the objective approach can be linked to quantitative methods of research, such as surveys and experimental research. In contrast to this, the *subjective* approach is linked to qualitative research and reflexivity which asserts that researchers must reveal emotions that are linked to their experiences when gathering data, reinforcing the subjective nature of this method (Cormack, 1996).

3.1.5 Methods

The last Element in Crotty's four-elemental representation of research process is *Methods*. Crotty defines this element as the set of techniques employed to gather and analyse acquired data. The main differentiation of methods can be seen through the distinction of quantitative (surveys, control experiments etc.) and qualitative methods of research (focus groups, interviews etc.) (see Atkinson and

Silverman, 1997; Bagozzi, 1994). This section expands Crotty's element of *Methods* and provides a brief comparison of the tools and techniques employed by both quantitative and qualitative methods of research.

3.1.5.1 Quantitative and qualitative research methods

When comparing quantitative with qualitative methods, Carr (1994) identified a series of pros and cons that characterise each method. He argued that quantitative research can be seen as more reliable compared to qualitative research due to its more standardised nature of testing. When compared to qualitative research, quantitative analysis lacks the danger of having extensive amounts of data which not only needs to be concentrated to manageable sizes, but could lead to omissions of valuable information and thus to ineffective or biased research. In regard to interviews, which are considered a qualitative research method, Atkinson and Silverman (1997) mention that the main limitation of interviewing is its asymmetric nature. Furthermore they mention that the interviewer's motives, desires and feelings hinder the neutrality of the tool.

In terms of data capture in qualitative research, Carr (1994) argues that having a researcher that might have been influenced by a particular predisposition serves as an immediate danger for the reliability of findings; while for quantitative analysis the researcher's predispositions are minimized due to the lack of direct contact with his/her subjects. This is met with criticism by academics like Spencer (1983) and Cormack (1996) who mention that quantitative research tends to ignore the rationality of individuals. Nevertheless, Bagozzi (1994) argues that quantitative validation is required even when research is conducted qualitatively. Still, he recognises that qualitative research is guided by the thought processes of individuals something which is attributed to the lack of question-fixed answers, which is a common feature of quantitative based methods.

A vital limitation of quantitative methods, as mentioned by Carr (1994), is that the environment in which quantitative research is being conducted is considered to have less resemblance to a real life. In regard to data collection via surveys, Carr

(1994) mentions that in order to ensure objectivity one must use random sampling which even then can still provide scope for opportunistic behaviour.

In general the utilisation of both quantitative and qualitative methods has certain strengths and weaknesses. Before positioning this research and justifying the chosen research methods based on the philosophical concepts introduced above, the following section focuses on the preferences of other academics situated within the same research field of this Thesis.

3.1.5.2 Preferences of other academics in the field

This section summarises the research methods of choice within key academic papers used in this Thesis. These are summarised in **table 3.1** below in terms of the methods used when collecting and analysing data.

NAME OF PAPER	METHOD(S) USED FOR DATA COLLECTION				METHOD(S) USED FOR DATA ANALYSIS			
	QUANTS	QUALS	MIXED	EXPERIMENT	QUANTS	QUALS	MIXED	CLUSTER ANALYSIS
Barnett (2004)	●	●	●	✓	✓	●	●	●
Dahl et al (2001)	●	●	●	✓	✓	●	●	●
Forgas (2011)	●	●	●	✓	✓	●	●	●
Robertshaw & Marr (2005)	●	✓	●	●	●	●	✓	●
Zimmer et al. (2010)	●	●	●	✓	✓	●	●	●
Sheehan & Crubs (2000)	✓	●	●	●	✓	●	●	●
Motherbaugh et al (2012)	●	●	●	✓	✓	●	●	●
Acquisti et al. (2012)	●	●	●	✓	✓	●	●	●
Culnan (1993)	✓	●	●	●	✓	●	●	●
Premazzi et al. (2010)	●	●	●	✓	✓	●	●	●
Tsarenko & Rooslani (2009)	✓	●	●	●	✓	●	●	✓
Moon (2000)	●	●	●	✓	✓	●	●	●
Lee & Larose (2011)	●	●	●	✓	✓	●	●	●
Norberg et al. (2007)	✓	●	●	●	✓	●	●	●
Jensen et al. (2005)	●	●	●	✓	✓	●	●	●
Shoenbachler & Gordon (2002)	✓	●	●	●	✓	●	●	●
Horne et al. (2007)	●	●	●	✓	✓	●	●	●

Table 3.1: *Methods followed by other academics in the field for the collection and analysis of data.*

As evident from the table, the majority of studies employed an experimental or quasi-experimental design in order to relate their respective examined factor(s) to information disclosure. In the majority of cases where an experiment was conducted, the nature of data acquisition was either surveys or questionnaires-wherein certain manipulations were made in key points in order to capture respondents' behaviours and feelings through their interaction.

In terms of data analysis, almost all papers used quantitative techniques even the ones that used qualitative methods for acquisition of data. Only the paper by Robertshaw and Marr (2005) employed a combination of quantitative and qualitative methods for data analysis. Finally, from all these related studies only Tsarenko and Rooslani's (2009) performed cluster analysis for the categorisation of consumers based on privacy perceptions.

This research matched the views of the majority of examined marketing and consumer behaviour papers, and employed a quasi-experimental survey. This enabled the examination of multiple factors from different disciplines regarding their association to voluntary disclosure, with the use of questionnaires. The data collection method used in this Thesis' main study was a survey primarily because it enabled the better reflection of the proposed framework's factors in an effective, efficient and non-ultra-complicated fashion.

3.1.6 Positioning the present research

Having previously introduced and analysed the concepts of epistemology, theoretical perspective, methodology and methods, this section presents the positioning of the Thesis in regard to the four-elemental representation of research processes.

Epistemology and theoretical perspective: In terms of epistemological underpinning, this research follows an empiricist-driven approach, primarily due to the fact that it focuses on a conceptual framework which is constituted by well

established theories and experiments developed and designed by other academics. These strong elements of deduction lead to arguably defining the views presented in this Thesis as positivistic, however it is vital to explain a key element that arguably positions this research in the spectrum of post-positivism. As aforementioned, post-positivism is critical as to whether the knowledge that is created through science can describe a universal truth in complete accuracy. This research thus matches the views of Popper and his principle of falsification, meaning that through examining existing theories it was the intention to capture elements of voluntary disclosure of information that have not been captured by previous research. Even though this research is built upon the work of other academics in regard to factors that influence voluntary disclosure, it seeks to combine factors from different disciplines, and include them in a unified framework, while examining how they behave under different conditions of cross examination. Arguably, this research is driven by deductive reasoning for the examination of factors that influence voluntary disclosure based on existing literature while also including some strong elements of induction regarding the previously unexplored synergistic behaviour of instrumental factors. The latter is attributed to the fact that the proposed conceptual framework allows the cross examination of factors that were previously only individually examined by other academics. This provided ground for further exploration and examination of the factors that influence voluntary disclosure and represents one of the main rationales of the present research.

Ontology: From an ontological standpoint, this research follows a realistic instead of nominalistic approach due to the fact that the view that the world has a real structure which can be found through scientific knowledge is matched. Realism is an ontological perspective according to Crotty (considered epistemological by some; see Bryman, 2008) which accepts that reality is independent of the researcher's views and theoretical speculations. More precisely this research can be more clearly described as following the views of realism within the post-positivistic spectrum and assumes that a reality exists independently of our thinking (Crotty, 1998). Realism places its foundations on the fact that science can

study reality but all observations have errors which lead to the constant methodological revision of theories (Denzin and Lincoln, 2008). This arguably mirrors Popper's falsification principle which fuels this Thesis.

Methodology: In regards to Crotty's third level of research processes, methodology, this research can be described as more subjective/nomothetic which is attributed to the fact that this research's *conceptual priority*[32] (Morgan, 1998) is the acquisition of data in a quantitative instead of a qualitative manner. When it comes to identifying the methodological reasoning followed for each of the two studies, it can be argued that the pre-test study follows the view of the *Baconian science*[33] and a combination of the Baconian and *Galilean science*[34] for the main study.

The reason for not labelling the main study as either of the two is because it does include strong elements of both. For the main study, the introduction of the conceptual framework, which served as the platform for pinpointing correlations between the framework's variables, follows a more deductive reasoning. This is due to the fact that the framework is based on solid theories identified in the literature, where some of the variables and their associations with disclosure of information are known a priori. The combination of these variables and their examination through the online survey enabled the further exploration of interrelations between different variables and the identification of more efficient and effective conditions towards the capturing of personal information, something that was not previously examined.

Methods: In terms of methods, which as defined by Crotty (1998) are the techniques used for the gathering and analysis of data, the preferences of the majority of academics in this research field (as presented in **table 3.1**) were

[32] Conceptual priority is a term used by Morgan (1998) to explain the main or primary technique employed for data collection in a particular research.
[33] Baconian science is another term used to describe the deductive reasoning where one proceeds from a general law to the prediction of the specific (Hergenhahn,2005)
[34] Galilean science characterises the inductive reasoning where one proceeds from observation to generalisation. (Hergenhahn,2005)

followed. More precisely this study employed a quantitative offline survey for the pre-test study as well as a quasi-experimental online survey for the main study which were also in further aligning with the philosophical stance adopted by this Thesis.

The nature of the survey employed in the pre-test study was a self-completion pen and paper questionnaire which, when compared to face-to-face questions between research investigator and respondent, have lower costs, are considered to be less biased and enable subjects to be from a wider geographical area (May, 2011). Still what needs to be clarified is that for the pre-test study, the survey was conducted with the principal investigator explaining how the questionnaire worked, answering initial questions and then proceeding to exit the room to allow the participant to complete the survey. When justifying the utilisation of pen and paper and not online questionnaires, it was primarily due to the fact that the first provided more scope for stratified sampling in order to ensure that participants where UK adult citizens, their gender split had no significant differences and age had a healthy range coverage. Furthermore, the pre-test study followed a similar design to the pre-tests of the experiments conducted by Acquisti, John and Lowenstein (2012) and Zimmer et al. (2010) who also captured responses through offline questionnaires in order to pre-test the privacy-invasiveness of certain questions regardless of the fact that their main experiments were based on online data accumulation methods.

The main study used a quasi-experimental survey due to its suitability for reflecting and examining the constructs of the conceptual framework while examining their interaction. The choice of an online questionnaire was attributed to the fact that due to the complexity of the experiment's design and the generation of 27 distinct conditions, it was deemed necessary to recruit more than 1400 respondents making pen and paper questionnaires an unviable and inefficient option. Additionally, by having an online survey, its promotion was done more easily while the chosen survey-design software ensured untraceability of answers

and provided full anonymity for respondents- thereby assisting with the elimination of social desirability bias.

For the sake of clarity the following section provides a clear overview of the research design of pre-test and main studies.

3.1.7 Pre-test study overview

The pre-test study followed a deductive, offline survey–based approach that examined consumers' perceptions regarding privacy invasiveness of privacy capturing questionnaires. In particular respondents were provided with a pen and paper questionnaire and were asked to rate the invasiveness of eighteen privacy-related questions.

The main objective of the study was to pre-test these eighteen privacy-related items which were synthesised based on what was identified in the literature to be of high, medium and low invasiveness. The pre-test study allowed: i) the distinction of questions that were perceived as more privacy invasive than others; and ii) the creation of an ascending, descending and random order of the eighteen questions (with regard to their invasiveness) which informed one of the constructs employed in the main study. More precisely the generated order of these questions was used to inform the *question sequence* construct of the instrumental factors dimension, something analysed in the research design section of the main study.

3.1.8 Main study overview

The main study focused on the examination of this Thesis' conceptual framework and the proposed hypotheses. As seen in the literature review chapter, the conceptual framework was synthesised by incorporating important key literature that tackled with the issue of which factors influence voluntary disclosure. The main study focused on deductive reasoning for hypotheses H1 and H3 since they were directly related to the work of previous academics. Still, H2, H4 and H5 examined the behaviour of the combination of instrumental factors towards

psychological and relational factors as well as towards overall actual disclosure. This was previously unexplored by the literature with academics examining the effects of individual concepts on voluntary disclosure. Therefore, hypotheses H2, H4 and H5 followed a more exploratory approach while elements of deduction were present as well. A 3x3x3 matrix was synthesised that reflected the three conditions of *dyadic relationships, question sequences* and *comparative nature* respectively. This generated 27 distinct conditions with each respondent being assigned to a single condition (between subjects design).

The initial section asked individuals to answer the eighteen privacy related items, recording this way their percentage of Overall Actual Disclosure (OAD). This served as the primary manipulation process for the main study as the privacy capturing questions were presented in accordance to the assigned condition. Each condition led to either the generation of a different order of questions and/or the inclusion of extensive/minimal/no information accompanying each question. The questionnaire's second section sought to capture feelings and perceptions from this interaction including the measurement of embarrassment levels (loss of face), perceptions of loss of privacy (loss of privacy), perceptions of compensation required in return for disclosure (compensation) as well as perceptions of relational depth (impersonal trust) with the fictional organisation incorporated in the scenario.

The main aim of the study was the examination of the conceptual framework and the operationalisation of the constructs that constitute it. The cross examination of the framework's constructs and the creation of the 27 conditions enabled the identification of which combination of concepts made the accumulation of information through the data-capturing questionnaire more effective, while minimizing the discomfort levels of the individuals when disclosing personal information. Furthermore, the study enabled the assessment of the efficiency of these conditions through the inclusion and examination of the compensation construct. Finally, the relatively underexplored construct of *impersonal trust* was also investigated allowing its further exploration and development.

3.1.9 Summary of Part I

The first part of the methodology chapter presented a series of different philosophical principles, accompanied by their respective concepts, and examined their link to different research methods. The objective of this was to present the philosophical positioning of this Thesis and therein provide justifications for the chosen research methods. Post-positivistic views were adopted and justified while the strong positivistic elements of this thesis were acknowledged, ultimately leading to the employment of surveys for both studies.

Next Parts II and III of this chapter are presented, each of which provides a thorough analysis regarding the two studies (pre-test and main) in terms of pilot studies, section design, operationalisation of constructs and scales, as well as precautions taken to minimize of potential biases.

3.2 PART II - RESEARCH DESIGN OF PRE-TEST STUDY

3.2.1 Introduction-Objective

The pre-test study followed a deductive questionnaire based approach that examined the consumers' perceptions towards privacy-invasive questions. The study also enabled the pre-testing of the eighteen data-capturing questions prior to their utilization in this Thesis' main study. This was to ensure that the invasiveness of the chosen questions- as perceived by adult UK citizens- was aligned with what was identified by the literature to be questions of high, medium and low invasiveness.

This section thoroughly analyses how the questionnaire for the pre-test study was designed and structured, while explaining what precautions were taken for the minimisation of potential biases.

3.2.2 Data-capturing questions

In order to examine how voluntary disclosure of individuals is influenced by the different factors that comprise the conceptual framework for the main study, a set of privacy capturing questions was formulated. More precisely, eighteen questions with differing privacy-invasiveness where synthesised which served as the backbone for the examination of voluntary disclosure of information. The synthesis of these eighteen data-capturing questions was based primarily on the work of Zimmer et al. (2010) and Acquisti, John and Lowenstein (2012) while additional literature was used for its enrichment. The covered areas involved financial, medical, habitual, employment, drug use, criminality, sex and travelling information. These questionnaires were primarily synthesised to capture actual information and did not solely focus on admission-based questions as was the case with Acquisti et al.'s (2012) study. Instead, data-capturing questions showed diversity of the privacy-related areas being examined, and did not solely focus on the disclosure of embarrassing information. This was to create a simulation of the online environment in which organisations seek to capture information from individuals.

Additionally, the synthesis of the eighteen data-capturing questions used for the pre-test study followed three conditions each of which reflected a different level of invasiveness. These conditions were:

High condition*:* The high condition included questions that covered areas generally perceived as very sensitive by individuals. Examples of this condition were questions that asked for information regarding medical conditions (*Have you suffered from cancer of any kind?*), criminal activity (*Have you ever been arrested?),*and sexual preferences (*How many sexual partners have you had since you became sexually active?*). This condition was based on what was identified by Robertshaw and Marr (2005), Nowak and Phelps (1995), Motherbaugh et al, (2012) and Acquisti et al. (2012) as very sensitive information. Additionally, the information sought to be captured by the questions included in this condition is

considered to be among the most difficult for organisations to extract (Huang and Lin, 2005).

Low condition*:* The low condition focused on information that was perceived by individuals to have mild invasiveness towards their privacy. Compared to the other two conditions, the information sought to be captured here was the easiest to extract, thereby requiring the minimal input of organisations. More precisely the low condition focused on simple habitual (*How many times do you go to a restaurant in an average week?*) and non-invasive consumption information (*For which stores do you currently have loyalty cards?*) and was in alignement with the work of Long et al. (1999) and Horne and Horne (1998).

Medium condition*:* The Medium condition included questions that mostly covered embarrassing situations (Have you ever looked at pornographic material?) as well as minor misdemeanours (Have you ever downloaded pirated songs from the internet?). The design of this condition was based on the work of Horne and Horne (1998) and Acquisti et al. (2012) in regard to what information was perceived to have medium invasiveness towards the privacy of the individual. In terms of extraction, the information sought to be captured by this condition requires less input by organisations compared to the input required in the high condition, but more compared to the input required for information extraction in the low condition (Appendix 4 includes a sample of the questionnaire utilised for the pre-test study and summarises the eighteen privacy related question).

After the synthesis of these eighteen privacy-capturing questions, respondents were then asked to rate the invasiveness of each question towards their privacy. The research design of the pre-test allowed the inclusion of 124 participants in the survey, compared to the sample size of 25 used by Acquisti et al. (2012), which improved both the reliability and validity of results. Adding on to this, the extensive pilot studies allowed the number of questions to be reduced from thirty to eighteen. To this end all three of the conditions mentioned above were thoroughly covered through these data-capturing questions (six questions for each

condition) without causing any implications to potential findings while allowing the simplification of both the pre-test and main study. This was also used in order to reduce the survey completion times required for both studies.

3.2.3 Pilot study and identification of potential validation issues

Through the pilot study of the pre-test, three key issues were identified that could potentially influence the validity of results. This section is dedicated to the examination of these issues and specifies the steps that were taken when designing the questionnaire in order to minimise them. The issues identified by the pilot study are listed below.

Issue 1: Due to the generality of the questions in terms of who is asking for this information (i.e. the principal investigator, an organisation, a friend etc.), individuals found it hard to rate the invasiveness of the provided questions, with a respondent specifying that his responses might have been different if a friend or a family member was asking him for that information. In order to provide a clear context based on which answers would be recorded, a purposely minimalistic scenario was included in the study. This scenario asked individuals to provide their answers as if the asked questions were made by an organisation whose main activities revolve around data collection, storing and profiling. Also it was mentioned that the organisation would not be sharing any information with 3rd parties.

This description was purposely vague in order to ensure that general perceptions would be captured regarding the intrusiveness and privacy sensitivity of the questions asked. This was to avoid a purposeful reduction and minimisation of caution used by individuals when rating data-capturing questions by providing extensive information in the scenario regarding the organisation's activities and the way in which the acquired information would have been used. The extensive disclosure of how acquired information would be used, stored and analysed, by the organisation, could reduce the concerns of individuals as specified by academics

like Culnan (1993), Nowak and Phelps (1995), Culnan and Armstrong (1999) making this method unable to capture general, uninfluenced and thus unbiased perceptions of participants regarding privacy invasiveness and information revelation.

Issue 2: Through the pilot study an additional issue was discovered. When individuals haven't experienced what the given question asked, they tended to rate it as less privacy invasive even if the asked question covered very privacy-sensitive areas in accordance to the literature. Examples of this were questions that sought to capture information regarding serious medical conditions where people who have experienced and/or continue to experience them considered this information as very sensitive, while those who haven't rated these questions as non-invasive. A perfect example of this was recorded when respondents were asked to rate the invasiveness of the question *"Have you ever suffered/ have been suffering from cancer of any kind?"* Most respondents rated this question with scale points ranging from 1 to 3 (on a 10-point scale, 10 being very privacy invasive) while those who have experienced/continue to experience it chose to rate it as very invasive with scale points ranging from 9 to 10. This tendency by respondents to rate lower the invasiveness of questions that do not apply to them can be linked to an experiment conducted by John et al. (2011) where respondents were asked to rate how ethically correct certain statements/scenarios were. Respondents' ratings were influenced by whether the scenario applied to them (in this case the asked questions) and whether or not they have engaged in that activity, rating the activities in which they have engaged as less unethical. Since this could compromise the validity and reliability of this study's results, it was highlighted in the initial description of the questionnaire that respondents were asked to rate the invasiveness for each question whether it was applicable or not to them.

Issue 3: Another interesting finding which derived from the pilot study was that in certain questions that theoretically should have been in the high-level condition of privacy invasiveness, individuals rated them as very low. After engaging with

them in order to identify the reasons why this occurred, it was mentioned by many respondents that a potential disclosure of specific questions could work to the benefit of the individual. This was clearly reflected in the case where the asked question was "*Have you ever been arrested?"* Respondents indicated that if they were asked by an organisation to disclose this information a potential disclosure of a non-affirmative answer would indicate that they are obedient citizens, which leads to the creation and projection of a better image of the individual towards the principal investigator. Of course, in the pilot study all of those respondents who have been arrested at least once rated the invasiveness of the question extremely high which, in a way, was expected. This led to the incorporation of an example at the beginning of the questionnaire which guided individuals in regard to the rating of the invasiveness of questions. Additionally, further examination verified that issue 3 was also linked, in some cases, to social desirability bias and certain precautions were taken to minimise this effect. The section below addresses this particular issue.

3.2.4 Social Desirability Bias for pre-test and main study

Social Desirability Bias (SDB) has proven to be a major issue in marketing and social science research. De Jong et al. (2010; p.14) define SDB as the "participants' tendency to describe themselves in favourable terms by adhering to socio-cultural sanctioned norms (.)" which arguably hinders measurement validity of acquired data. A well-established topic in academic research, Lee and Sargeant (2011; p.704) refer to it as "one of the most common and pervasive sources of bias". SDB is linked to many different concepts and theories for example *face management theory* (Oetzel et al., 2001) and *impression management* (Paulhus and Reid, 1991), and it is often related to self-repost measures like self-completed questionnaires (Bernardi and Adamaitis, 2006). Still, it's worth mentioning that SDB can still affect methods of interviewing (Crane, 1999).

As with other issues that draw significant attention in academia, there are several proposed methods that one can employ to identify and reduce SDB. In particular,

after-data-collection methods include the use of SDB scales, like the Marlowe-Crowne multi-item scale or Paulhus' fourty-item instrument of *balanced inventory of desirable responding* both of which can detect and mitigate SDB (for practical applications see Steenkamp, De Jong and Baumgartner, 2010).

Indirect Questioning is one of the most well examined and heavily supported methods in minimizing SDB (Fisher, 1993; Keillor et al., 2001), while certain papers urge to its combination with other techniques like *implicit association test* (Slabbinck and Jenhove, 2010), *direct questioning* (Jo et al, 1997) and *bogus pipeline* (Roese and Jamieson, 1993).

For the sake of clarity, the SDB issues for both the pre-test and main study are addressed here. For both studies the employment of SDB scales was avoided with the main reason being their length and almost restricting multi-item nature as well due to their difficulty to measure validly the personality content (De Jong et al., 2010).

Indirect questioning was also excluded due to the fact that even through its combination with direct questioning, attitude-irrelevant variances could be introduced making the measurement unbiased on the one hand but also invalid on the other (Fisher and Tellis, 1998). Bogus pipeline was also avoided due to both its expensive implementation (requires a lie detector) and several ethical implications that arise from its use.

Instead, in order to minimize SDB the research design was based on Randomised Response methodologies (RR) that prevent SDB in surveys (De Jong et al., 2010). In particular since the pre-test was a self-completed pen and paper survey, the primary step in reducing SDB was to ensure full anonymity for all respondents. As an addition once the principal investigator finished with the briefing process he exited the room in order to allow the respondent to freely answer what he/she wanted. After the completion of the questionnaire the principal investigator mixed the questionnaire in a pile of other questionnaires in order to avoid traceability of

results, something of which the respondent was informed in the briefing process prior to completing the questionnaire. Participants were free to discuss any points they wanted regarding the survey if and only if they wanted to. Additionally, they were informed that they could drop out of the survey at any point and without giving a reason.

For the main study three steps were taken in order to prevent SDB bias. This time the survey was conducted in an online setting and as with the pre-test study, it ensured full anonymity of all respondents. Since the main survey asked respondents to disclose sensitive information, an option of non-disclosure was offered throughout the questionnaire to avoid both lying and SDB. Furthermore the software used for the accumulation of data (Qualtrics) used a randomised generating system which ensured that answers were untraceable to the original respondent. Respondents were clearly informed of all three of these points through the initial page of the questionnaire, while two statements that directed them to answering with honesty were found in the questionnaire's pages 1 and 2. Assurance of anonymity was also repeated and found in pages 1 and 12 of the questionnaire. Statements mentioning the untraceability of answers were also found in the initial page of the questionnaire as well as in the email used for promoting the survey.

3.2.5 Employed measurement scales

The scales employed in the questionnaire and through which respondents rated the invasiveness of the privacy-related questions was the 10-point semantic differential scale.

Even though Acquisti, John and Lowenstein (2012) employed a 4-point scale, in this research response categories were increased from 4 to 10 due to the suitability of the 10-point scale to questions that require ratings. Another reason why the 10-point semantic scale was employed, was because of its performance regarding ease of use, speed of use and allowance of adequate expression when compared to

scales of differing response categories as identified by the scale comparison study of Preston and Colman (2000).

Order-wise, questions were presented in triplets in what was identified by the pilot study, and in accordance to literature, to be low, medium and high sensitivity of required information by each question. In order to avoid order-of-presentation effects through a simple random order of presentation, questionnaires were presented in a multi-random order without deconstructing the triplets.

3.2.6 Sample size

For the pre-test study snowball sampling was employed and a total of 124 adult UK citizens were recruited of which 92 were Caucasians. Gender wise there was a perfect split between 62 male and 62 female respondents with a mean age of M=32.68 (SD=10,813). Respondents were contacted through promotional emails regarding the survey designed by the principal investigator. In all cases the questionnaire was completed once the principal investigator had briefed the individual regarding the correct way in which the questionnaire needed to be answered to ensure the limitations of the three issues identified in the pilot study, while also ensuring full compliance with the questionnaire's requirements.

3.2.7 Ethics

Essential to the accumulation of primary data for this research was the approval of the questionnaire by the ethics committee of The University of Nottingham, Business School. As this research centres on the rating of sensitive private information it was vital for the questionnaire to ensure full respondent anonymity.

All acquired data was accessed only by the principal investigator. All soft and hard copies of the data were safely stored and protected. Soft copies of the data were held in password protected documents while all hard copies were held in locked cabinets at the principal investigator's office. All documents are scheduled to be

discarded 5 years after the date of the initial data collection. The questionnaire was granted approval from the Nottingham University Business School Research Ethics Committee (March 2013) as it abided with the University's Code of Research Conduct and Research Ethics.

3.2.8 Pre-test study analysis and findings

3.2.8.1 Introduction

As aforementioned, the pre-test sought to generate an order for the eighteen privacy-related questions being examined in terms of perceived privacy invasiveness by respondents. The pre-test was used in order inform this Thesis' main study, and in particular the *question sequence* construct of the examined conceptual framework. The objective of this construct was the examination of how different orders of privacy related questions can influence information disclosure.

Below the analysis and findings of the pre-test are presented accompanied by a closer examination of which of these findings inform the quasi-experimental, survey employed in the main study.

3.2.8.2 Question invasiveness analysis

In regard to the generated order of questions in terms of invasiveness (which was the main objective of the pre-test study) **table 3.2** below summarises the mean values and standard deviations for each question starting with questions that scored the highest means meaning they were found to be the most invasive and moving to questions that were perceived as less invasive by respondents.

From the above table, the first sextuplet of questions (1-6) that were rated as the most privacy invasive ones, included three questions that involved a public offence (use of illegal drugs, lying to an official service, being arrested), two that had to do with very embarrassing, non-criminal situations (number of sexual

partners, interaction with pornographic material), and one that asked for the disclosure of sensitive financial information (total of household savings).

Question description	Mean	SD
1. How many sexual partners have you had since you became sexually active?	7.920	2.286
2. What is the amount of your household savings?	7.556	2.359
3. Have you ever been arrested?	6.926	2.630
4. Have you ever looked at pornographic material?	6.630	2.467
5. Have you ever tried illegal drugs like marijuana?	6.482	2.578
6. Have you lied about your income to an official service?	6.370	2.404
7. Have you ever suffered from cancer of any kind?	5.963	3.192
8. Have you downloaded illegally obtained pirated songs and/or movies from the internet?	5.778	1.340
9. Have you witnessed a serious crime and failed to report it or stop it?	5.333	2.935
10. Have you called in sick when you were not sick either in your workplace, university, etc.?	4.519	2.940
11. How much alcohol do you consume on average per week?	4.074	2.745
12. Have you lied about your age to someone you were attracted to?	3.926	2.448
13. Have you claimed to have education that you didn't actually have(either on your CV or in person)	3.888	2.391
14. For which stores do you currently have loyalty cards?	3.037	2.473
15. Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?	2.444	2.486
16. Which mobile carrier do you currently use?	2.440	1.826
17. How often do you travel abroad either for holidays or business?	2.148	1.562
18. How many times do you go to a restaurant in an average week?	1.741	0.903

Table 3.2: *Generated order of data-capturing questions in terms of their privacy invasiveness. Most invasive questions are presented first. Note: Mean scores can take a MAX value of 10.*

The next sextuplet (7-12) included two questions linked to non-criminal yet embarrassing situations (called in sick when not sick, lied about your age to someone you were attracted to, consumption of alcohol in an average week), two public offence questions (illegal downloads, failure to report a witnessed serious crime) and one question related to medical conditions (suffered from cancer). What needs to be clarified is that even though the question regarding consumption of alcohol in an average week can be labelled as consumption information, due to the nature of the covered subject as well as criminal consequences of extensive consumption, it was categorised as a medium embarrassment data-capturing question.

The final sextuplet (13-18) included two low-sensitivity habitual information questions (times travelled abroad, average number of visits to a restaurant), two questions for the capture of minor embarrassing situations (knowingly wasting energy, lying about education) and two consumption related questions (loyalty cards, mobile phone carriers).

In the first sextuplet, which included questions with the highest invasiveness to the privacy of respondents, all questions behaved consistently apart from the question related to interaction with pornographic material. Instead we expected the question regarding cancer to be included within the first sextuplet due the sensitive nature of medical information as indicated by Robertshaw and Marr (2005) and Nowak and Phelps (1995). Still the question regarding cancer was ranked seventh and barely didn't make it in the first sextuplet with a mean difference from the sixth question of Md=0.403. The second sextuplet showed a consistent behaviour in regard to questions with medium sensitivity, with questions regarding embarrassment and minor misdemeanour being correctly included in the sextuplet. Again the only exception to this was the question regarding the suffering from cancer. The third and final sextuplet behaved exactly as expected with all six questions coming from areas that were previously reported to have minimum to low privacy invasiveness (Long, Hogg, Hartley and Angold, 1999). These questions included primarily habitual and consumption information.

From these, the ranking of questions regarding their privacy invasiveness (as summarised in **table 3.2** above) was utilised and informed the design of the main study. Appendix 7 includes an additional (indirectly related to this thesis) analysis conducted for the examination of the triplet consistency of the eighteen questions employed in the pre-test study.

3.2.9 Summary of Part II

This second part of the methodology chapter explained, analysed and justified the research design of the pre-test study the findings of which were used to inform the main study of this Thesis. The generated order of the eighteen privacy capturing questions was the pre-tests' main objective as it was used to inform the question sequence construct. Part III of the methodology chapter regarding the research design of this Thesis' main study is provided below.

3.3 PART III - RESEARCH DESIGN OF MAIN STUDY

3.3.1 Introduction

Following the pre-test study which allowed the pre-testing of the eighteen data-capturing questions, this Thesis' main study was based on an online quasi-experimental survey. This section clarifies and justifies the design of the main study.

The generated order of the eighteen pre-tested questions was used as a platform based on which the concepts of the conceptual framework were utilised and examined. More precisely, the three concepts included in the instrumental factors dimension together with their respective conditions (CN, DR, QS), were included in a 3X3X3 matrix that led to the generation of 27 conditions. Each of these conditions was reflected through the order of each data-capturing question included in the questionnaire along with the information accompanied by each. The following figure (**diagram 3.3**) provides a visual summarisation of the 3X3X3 matrix and the generation of the 27 conditions. Each condition incorporated a different presentation of the questionnaire and each participant was assigned to no more than one condition.

This section provides information regarding how each of the three Instrumental Factors (IF) was operationalised in the questionnaire which led to the 27 different

ways of its presentation. These were reflected in the first section of the questionnaire, denoted as section A. Additionally, here it is clarified how the measurement items of LoF, LoP, IT and COMP were utilised in the questionnaire's section B. Finally the chapter finishes with ethical implications.

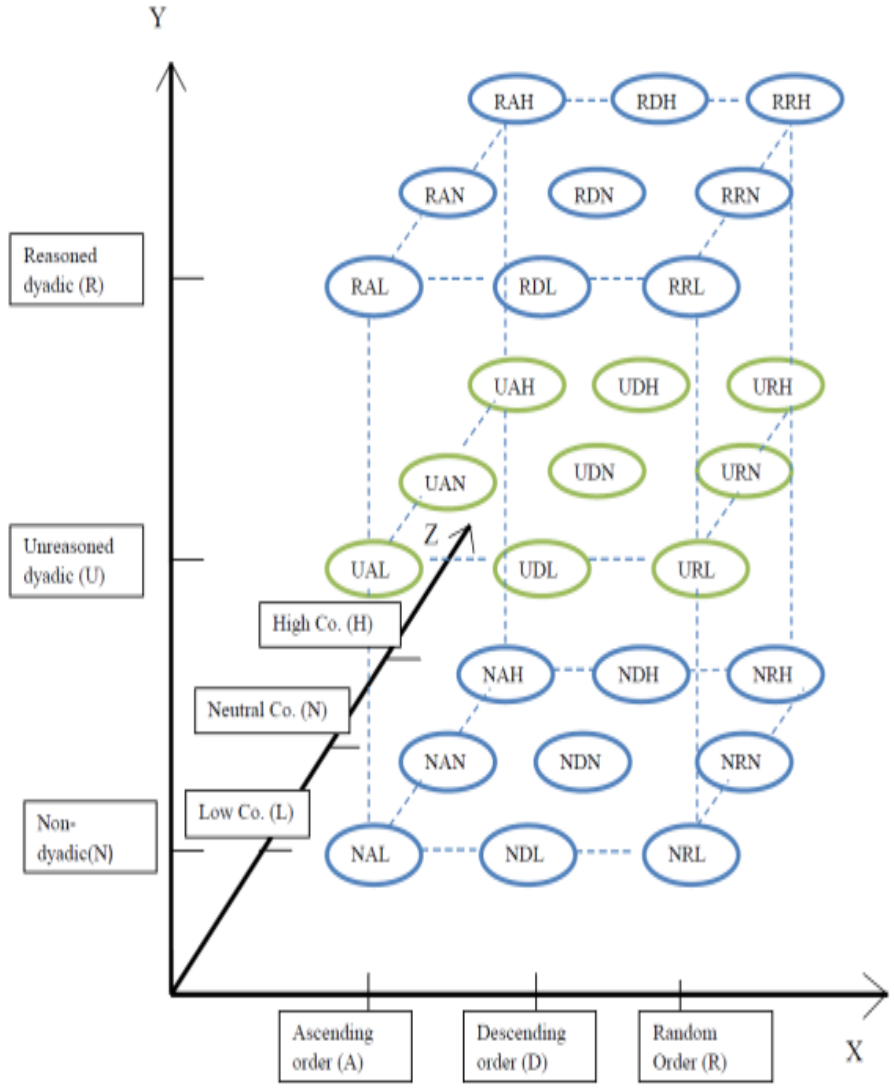

Diagram 3.3:*Visual summarisation of the 27 different conditions being examined; the first letter of each condition states the type of dyadic relationship (Y-axis), the second letter reflects the type of question Sequence (X-axis) and the final letter the comparative nature condition (Z-axis).*

3.3.2 Section structure of the main questionnaire

As aforementioned, all 27 questionnaires were comprised by three sections (A,B,C) with the latter two being identical for all conditions. Each condition was

reflected through the questionnaire's section A. Section A introduced the individual to the scenario based on which the respondent was asked to answer eighteen privacy-related questions. The questions were presented in a way that reflected the condition to which each respondent was assigned. The incorporation of a scenario was necessary, as highlighted by the respective pilot study. The pilot study was also responsible for the identification of potential validation issues, all of which were addressed before data collection. More precisely, due to the general nature of the asked questions (in terms of who is asking for this information) it was essential for a scenario to be included in order to channel the respondents' attention to the fact that an organisation is asking for this particular information and not another entity (i.e. friend, colleague, family etc.). The incorporated scenario was again purposely minimalistic in order to provide a clear context based on which answers were recorded. The scenario indicated:

"DataACC, an organisation whose main activities revolve around the acquisition of consumer information, seeks to capture personal information from consumers. In order to do so DataACC asks you to answer the following eighteen privacy-related questions."

The importance of the context in which information disclosures take place is a well explored area in the literature and therefore when synthesising the main study's scenario, certain steps were taken to ensure validity of responses. Culnan (1993) for example specifies that statements regarding the uses, storing and security process of the acquired information, can have an impact on the amount of information disclosures. More recent papers highlight even more the importance of the context in which information disclosures take place (Nissenbaum 2009; Acquisti, Brandimarte and Loewenstein, 2015) with Acquisti et al. (2015; p.511) specifying that "The theory of contextual 'integrity' posits that social expectations affect our beliefs regarding what is private and what is public, and that such expectations vary with specific contexts".

Based on these, the scenario's description was purposely vague in order to ensure that only general perceptions regarding the organisation were synthesised by the respondents. As this study was based on the examination of the framework's constructs, it was of great importance to minimise influences that could arise by providing extensive information regarding the organisation's activities, storing and protection procedures of acquired data as well as the ways in which information would have been used. These were identified in the literature to influence information disclosure (see Nowak and Phelps, 1995; Culnan and Armstrong, 1999). Instead the objective of this study was to monitor these factors in order to ensure that engagement or abstention from information disclosure was attributed solely to the condition each respondent was assigned to, making sure that only condition-based effects were recorded.

The second section of the questionnaire (section B) focused on the framework's dimensions of psychological processes and relational factors. After the initial part of the questionnaire and the interaction of the individuals with the privacy-related questions, questions that sought to capture the respondents' feelings -evoked from this interaction- were included. The main focus of this section was to capture the levels of discomfort, embarrassment and awkwardness all of which measured the Loss of Face (LoF) construct. Additionally, items measuring Loss of Privacy (LoP), Impersonal Trusts (IT) and Compensation (COMP) were utilised. These measurements were based on the work of previous academics.

The third and final section included questions regarding the respondents' demographics. This section captured information regarding the gender, highest level of education, age, ethnic origin and marital status of individuals. The main objective of this section was to ensure the consistency of demographics between respondents assigned to different conditions. This was done in order assure us that results for all 27 conditions were not subject to significant demographic differences of participants as this would make the comparability of conditions, in the later stages of the analysis, invalid. Appendix 5 includes a sample of the questionnaire utilised for the main study.

The following section focuses on the operationalisation of all of the conceptual framework's constructs as well as the scales employed for their measurement.

3.3.3 Operationalisation of the framework's instrumental factors dimension

3.3.3.1 Dyadic Relationships

The theory behind dyadic relationships indicates that individuals can provide information if they are first recipients of similar information from the person (entity) who is asking for it, something which is linked to the concept of disclosure reciprocity (see Zimmer et al., 2010; Moon, 2000; Cohn and Strassberg, 1983). Briefly reiterating what was analysed in the literature review, the three forms of dyadic relationships are: a) reasoned dyadic relationship, b) unreasoned dyadic relationship, c) non-dyadic relationship.

When employing the concept of Dyadic Relationships (DR) in this research, each data-capturing question in the questionnaire was followed by certain information provided by the fictional organisation DataACC. In the reasoned dyadic condition small paragraphs were designed to provide direct and detailed explanations to respondents as to how the acquired information would be used by the organisation. In the unreasoned dyadic condition information that had a more indirect and weak link to the information sought to be captured and the purpose of the data accumulation, was provided. Finally, in the non-dyadic relationship no information linked to DR was provided to the respondent by the organisation. The operationalisation of these three conditions was based on the design of Zimmer et al. (2010). **Table 3.3** below provides examples of the three conditions as employed in the actual questionnaire. This particular example is related to the question "Have you downloaded illegally obtained songs from the internet?"

Out of the questionnaire's 27 conditions, 9 reflected the dyadic relationships' reasoned condition, 9 reflected the unreasoned condition and 9 the non-dyadic

one, all of which were combined by the three conditions of comparative nature and question sequence respectively.

Have you downloaded illegaly obtained songs from the interenet?
Reasoned Dyadic relationship "The objective of this question is to assess the preferences of individuals when it comes to illegally downloading or buying the original songs from online sources like iTunes for profiling purposes."
Unreasoned Dyadic relationship "DataACC's central processing system was humorously named "Hal 9056" which serves as a reference to Stanley Kubrick's '2001: Space Odyssey' movie in which the spacecraft's main supercomputer was called 'Hal 9000'. The number 56 was the year its main designer (John Stavrinides) was born
Non- Dyadic Relationship In the Non-Dyadic relationship respondents were not presented with any information prior to the asked question.

Table 3.3: *Example of the three conditions of the dyadic relationships construct as employed in this study's questionnaire.*

Appendix 1 provides exact examples as to how each of the three dyadic relationships influenced the presentation of the eighteen privacy capturing questions.

3.3.3.2 Comparative Nature

In the literature review it is mentioned that Comparative Nature (CN) refers to the examination of the behaviour of individuals when it comes to revealing information when they are led to believe that others disclosed (or not) certain information.

As aforementioned, comparative nature's three conditions according to Acquisti, John and Lowenstein (2012) are: The high-level condition, in which individuals are led to believe that the majority of other participants responded affirmatively to the given question (denoted as HighCN). The low-level condition, in which individuals are led to believe that the majority of other participants responded non-affirmatively (denoted as LowCN), and lastly, the neutral or non-comparative nature condition in which no information related to CN is provided to the respondent (denoted as NonCN).

Applying the CN concept in this line of research, each of the three conditions were reflected in this study's questionnaire in the following manner: In the initial section of the questionnaire which explained how the questionnaire worked, respondents were presented with the following statement which served as the main manipulation process for this condition:

"This questionnaire has already been tested on 512 respondents. Percentages in brackets indicate the percentage of respondents who provided that information or preferred not to disclose it."

The respondent number in the above statement was purposely high in order to clearly reflect the scale of the present study while minimising the use of caution by individuals in respect to the significance and importance of the provided percentages. **Table 3.4** below provides a visual example of how the comparative nature percentages were used.

In the LowCN condition respondents were presented with percentages indicating that more than half of the respondents did not disclose the asked information. The objective of the low-level condition was to examine the herding behaviour of individuals when they were led to believe that there was an avoidance of disclosure by the majority of participants. For the manipulation process to be successful and well received by respondents, actual disclosure percentages ranged between 36-43% throughout the eighteen data-capturing questions, similar to the experiment of Acquisti, John and Lowenstein (2012). Major fluctuations of these percentages were avoided as it could influence the perceptions of respondents regarding specific questions -drawing unnecessary attention which could then lead to unnecessary use of caution (an issue identified in the pilot of the main study).

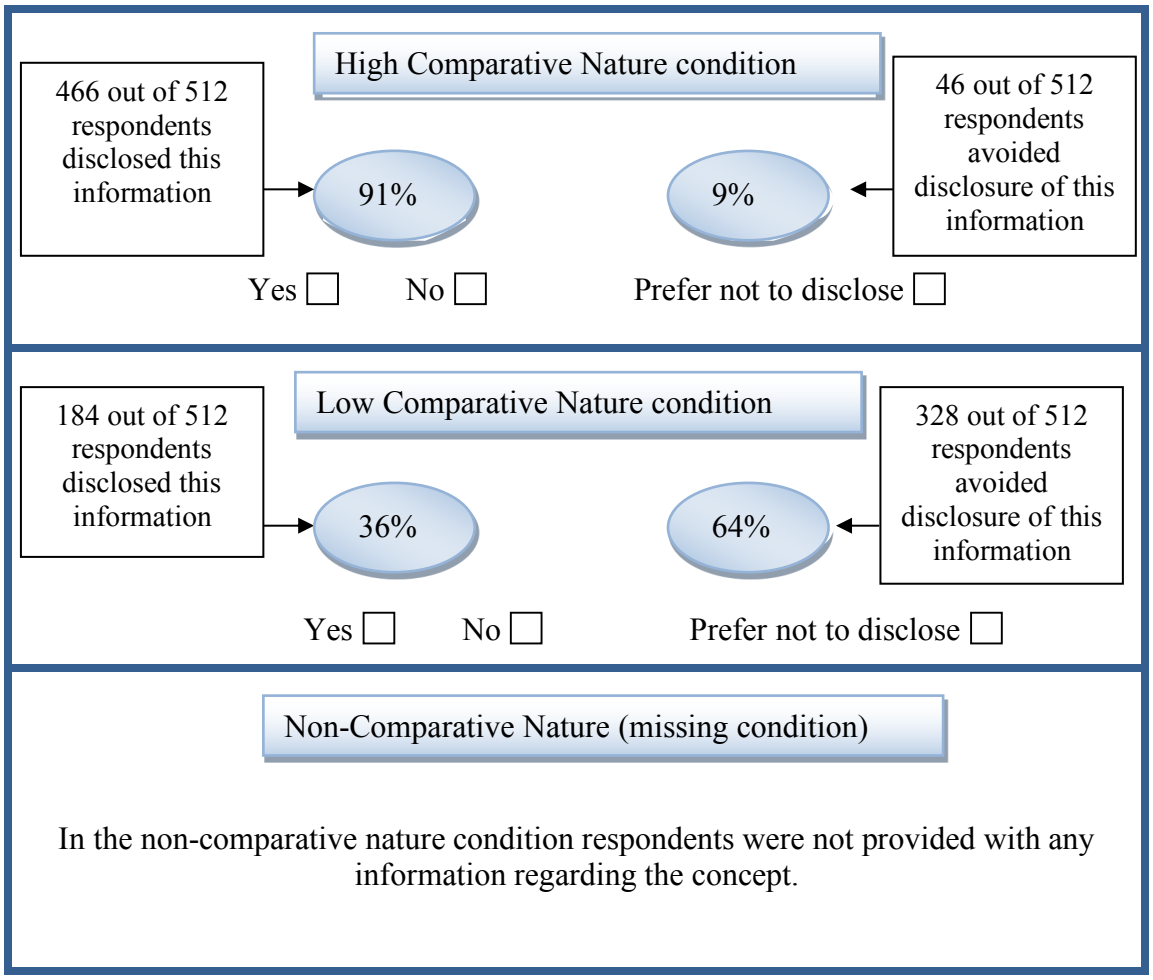

Table 3.4: *An example of the three conditions of the comparative nature construct as employed in this study's questionnaire.*

The HighCN condition allowed the individual to once again see the responses of other participants, but this time they were led to believe that the majority disclosed the information that the question required. Percentages of actual disclosure ranged from 96-88% which were significantly greater compared to the respective percentages of the low-level condition. This allowed the examination of the individual's disclosure behaviour when he/she was led to believe that the vast majority of respondents disclosed the asked information.

In the missing condition (NonCN), respondents were not provided with the initial statement regarding the responses of previous respondents nor any percentages to accompany their options for disclosure (or avoidance) for each question. This allowed the examination of the respondent's behaviour when there was a complete absence of the CN concept.

Out of the questionnaire's 27 conditions, 9 reflected the HighCN condition, 9 reflected the LowCN and finally 9 the NonCN one, all of which were combined by the three conditions of dyadic relationships and question sequences respectively. Appendix 3 summarises how each of the three conditions of comparative nature influenced the presentation of the eighteen privacy-capturing questions.

3.3.3.3 Question Sequences

The Question Sequence (QS) concept was also based on the experiment of Acquisti, John and Lowenstein (2012) and indicated that the order in which privacy-related questions are presented to individuals influences overall disclosure. Acquisti et al. (2012) measured disclosure with a series of admission-based questions and describe three ways that questions within a questionnaire can be presented: a) the *ascending* order, which indicates that the invasiveness of questions should ascend within the questionnaire, meaning that less privacy-invasive questions are presented at the beginning of the questionnaire (before slowly progressing to more invasive questions), b) the *descending* condition which

is exactly the opposite to the ascending order, and the most invasive questions are presented at the beginning of the questionnaire (with overall invasiveness descending as the questionnaire progresses), c) the *random* order where questions are presented in a mixed pseudorandom order of invasiveness.

The operationalisation of this particular construct was the primary reason that led to the pre-testing of the eighteen data-capturing questions in the first study. The generated order from the pre-test was used to synthesise these three conditions.

The QS construct was presented in the questionnaire in all of its three forms and was combined with the three conditions of the dyadic relationships and the three of the comparative nature concept. Appendix 2 summarises the three presentation orders of the eighteen privacy-capturing questions based on the three conditions of QS.

3.3.4 Operationalisation of the framework's psychological processes

3.3.4.1 Disclosure Management

Based on this Thesis' conceptual framework, Disclosure Management (DM) is constituted by three main constructs with a fourth construct, relational depth, being expanded to represent the framework's third dimension. These three constructs are *Loss of Privacy* (LoP; Huan and Lin, 2005; Culnan, 1993), *Loss of Face* (LoF; Dahl, Manchanda and Argo, 2001) and *Compensation* (COMP; Andrade, Kaltcheva and Weitz, 2002; Premazzi et al., 2010; Deutskens, et al., 2004).

All three of these constructs were operationalised through the questionnaire's section B and after the individuals' interaction with the privacy related questions found in section A. The LoF construct was measured through the inclusion of four items, similar to the work of Barnett (2004) and Dahl et al. (2001). Each of these items employed a 7-point Likert scale for its measurement. The covered areas

were *embarrassment*, *awkwardness* and *discomfort* felt by the individual as well as the examination of potential *negative evaluation by others* attributed to the particular disclosure of information.

Loss of privacy was measured with the use of a singular item similar to what was employed by Barnett (2004) with a 7-point Likert scale used for its measurement. The item asked individuals directly, to express whether by being asked to reveal this particular information, could result in a loss of control over who knows what about themselves potentially resulting in misconduct of private information and ultimately loss of privacy.

The compensation construct centred on two key items which were based on the concept of monetary compensation provided in return for disclosure of personal information. The first item was based on a five-point scale asking respondents to rate the level of compensation they were willing to receive in return for the full disclosure of all the eighteen privacy capturing questions included in the questionnaire. The second item was tailored to the design of this research and asked individuals to state an actual monetary amount of compensation they were willing to receive for full information disclosure, while allowing the individual to express his/her feelings towards compensation provided in return for disclosure of information. This allowed the triangulation of the two items in the respective analysis and the identification of actual amounts of monetary compensation associated with each level of the 5-point scale. This approach enabled the minimisation of what Andrade et al. (2002) identified to be the treatment of compensation as a "decoy" by respondents. Instead, by incorporating the construct and asking respondents to choose real-life compensation amounts, it allowed more direct measurement in regard to compensation offered for the revelation of private sensitive information.

3.3.5 Operationalisation of the framework's relational factors dimension

3.3.5.1 Impersonal Trust

As mentioned, *impersonal trust* comprises the relational factors dimension and serves as an extension of the relational depth construct found in the concept of disclosure management. Impersonal trust is defined as a specific type of trust characterised by its impersonal instead of interpersonal nature (Shapiro, 1987). The operationalisation of Impersonal trust in this research was in line with the work of Schoenbachler and Gordon (2002). Once again the measurement of this particular construct was done after the interaction of the respondents with the condition they were assigned to in the survey.

The impersonal trust measurement was based on six items. The items covered the areas of reputation, dependability, willingness to provide additional information apart from the information being asked, and perception of a relationship based on which there is a willingness to provide information in real life conditions to the organisation as proposed by the author.

The employed scale for measuring impersonal trust was a seven-point Likert scale. The avoidance of following Shoenbachler and Gordon's 6 point scale, was attributed to two main points. The first one had to do with consistency, and more precisely the consistent number of response categories in this particular section of the questionnaire. As the scales employed for the measurement of disclosure management were all 7-point it was deemed necessary to employ the same scale for the measurement of impersonal trust in order to avoid any respondent confusion. (The single question of compensation mentioned earlier that employed a 5-point scale was presented at the very end of the questionnaire in a different section separating it from the rest questions that employed a 7-point scale). The second reason was to allow the capturing of neutral responses with the inclusion of a 7^{th} response category thus making the respective number an odd one.

In regard to manipulation tests, similar to the work of Acquisti et al. (2012) and Zimmer et al. (2010) the manipulation in this study was not dependent on a certain sentence or paragraph in the questionnaire but through its presentation. In line with the research design of the experiments mentioned above, manipulation checks were unnecessary and therefore were not conducted.

3.3.6 Compensation

The promotion of the survey was based on promotional emails as well as the utilisation of a survey promotion website of a UK based organisation. A total of 1415 respondents were recruited (valid responses totalled 1286) all of whom were UK citizens.

In order to induce individuals in completing the questionnaire, lottery based compensation was offered with three main prizes. As Howitt and Cramer (2005) indicate compensation was in reasonable levels and neither unreasonably large, which could make the survey coercive, neither too little meaning that compensation could fail to provide the appropriate inducement for participation.

Three main Amazon coupon prizes were included: 1st prize £150, 2nd prize £100, 3rd £50. Due to large number of responses needed for this research, an additional 10 runner up prizes were included at £5 voucher price each. The choice of lottery based coupons was attributed to Deutskens et al.'s (2004) survey findings that lottery based vouchers yield the highest response rates compared to any other form of non-monetary compensation (i.e. charity based compensation).

In order for respondents to enter the competition, the very last question in the questionnaire asked individuals to provide their email address. Prior to this, respondents were notified that this final question was kept separately from all other responses and explained that its sole purpose was for the respondent to enter the lottery and to be contacted in case he/she won one of the prizes. This was done to ensure anonymity and untraceability of respondents based on their provided

email addresses. As an addition the question also indicated that the respondent could skip this question if they felt uncomfortable or unsure about it but this would prevent them from entering the lottery.

3.3.7 Ethics

As with the pre-test study, it was essential to receive approval from the ethics Committee of The University of Nottingham, Business School regarding the online experiment survey of the main study. In contrast with the pre-test study, the main one was based on actual accumulation of sensitive personal information. This made respondents vulnerable and it was vital for the questionnaire to ensure full anonymity and untraceability of answers.

Due to its unique features when it comes to data storing, questionnaire design and survey distribution mechanisms, *Qualtrics* was the software of choice. Additionally, the software ensured untraceability of answers back to their respective respondents.

All acquired data were accessed only by the principal investigator. All soft and hard copies of the data were safely stored and protected. More precisely, soft copies of the data were held in password protected documents while all hard copies are held in locked cabinets at the principal investigator's office for a period of five years.

3.3.8 Summary of Part III

The third and final part of the methodology chapter provided the research design of this Thesis' main study. The quasi-experimental survey that was employed was deemed appropriate in order to explore the proposed conceptual framework and the constructs that constitute it. The following chapter provides the data analysis for this Thesis' main study.

4. DATA ANALYSIS CHAPTER

Introduction

This chapter focuses on the preliminary and main analyses of the data accumulated through the quasi-experimental survey of the main study, and tests this Thesis' main hypotheses. The chapter is divided into three main parts. The first part provides information regarding the sampling, screening and data management processes that were followed while specifying the first set of consistency checks that were conducted. The second part thoroughly explains the preliminary analysis undertaken. Finally, the third part includes the main analysis of the accumulated data for the testing of this Thesis' hypotheses.

4.1 PART I-DATA MANAGEMENT AND CONSISTENCY CHECKS

4.1.1 Screening processes and outliers

The data collection and screening processes for this study followed two stages. The first stage included the recruitment of **1355** respondents each of which was assigned to a single condition in the experimental survey. The survey was promoted through a combination of promotional emails sent to different individuals that met the required criteria for their incorporation in the study. Additionally, a survey-promotion website of a UK based organisation named Prolific Academic[35] was utilised. The Amazon vouchers lottery, which served as the main compensation for participants, also assisted the recruitment process.

Each of the 27 conditions included 35-65 participants while the mean number of participants included in each of the 27 conditions was M=48.22 (SD=6.52). The choice of this range was attributed to the fact that it is considered to be a desirable

[35] The organisation is trusted by several UK universities, including the University of Nottingham. Their survey mechanisms ensured both validity and precision in screening processes for participant eligibility (for more information see https://prolificacademic.co.uk/).

amount of observations when it comes to regression modelling strategies and well above the minimum number of observations as suggested by Harrell (2001)[36]. This also widened the spectrum of other types of multivariate analysis that were undertaken in the later stages of data analysis, thus improving validity and reliability of results.

Out of the 1355 responses 103 cases were found to be missing or were deemed to be unsuitable for inclusion in the study. Reasons for exclusion were identical IP address for more than one response, univariate or multivariate outliers, very short (below three minutes) or very long (above forty minutes) completion times as well as responses that had overall poor quality (extensive repetition of measurement scale's midpoint). These cases were excluded from the analysis, giving a total number of 1252 responses.

Due to this initial process, the number of reliable responses for four of the conditions dropped significantly compared to the rest of the conditions. This led to a second round of data collection followed again by the appropriate screening processes. This ensured that all conditions had a similar number of reliable responses and shared demographic consistency in regard to gender and age of participants (UK nationality was a pre-requisite for all participants). The final number of responses was 1415 with a total of 129 missing cases giving a total number of 1286 reliable responses (**N=1286**).

4.1.2 Sampling and demographic consistency between conditions

Based on the research design of the main study it was expected that different conditions would need to be compared in regard to the influence of each towards both voluntary disclosure and the different constructs that comprise the conceptual framework. Therefore, in order to ensure the comparability of different conditions

[36] Harrell (2001) specified that each experimental condition requires a minimum of 20 observations for regression modelling strategies. The present study aimed to include a minimum number of 35 observations per condition almost doubling Harrell's suggested minimum. After the final data collection and data management process the lowest number of observations per condition was 37 (Ran/NonCN/Non).

it was deemed necessary to employ a combination of snowball sampling in the first round of data collection and stratified sampling in the second. This was done in order to monitor the demographics of participants with the intention being to ensure the demographic consistency of individuals included in each condition. Conditions were ensured to have a similar number of observations, while the two main demographic variables that ensured the uniformity of participant demographics between the 27 different conditions were *gender* and *age*. Additionally prior-to-completion screening ensured that all participants were UK citizens.

More precisely, the study included 664 male and 622 female respondents generating an almost perfect score of 51.63% and 48.37% respectively, in regard to gender split. The average gender split between conditions followed a similar pattern with 51% (SD=5.56) male participants and 49% (SD=5.50) female.

In terms of age, participants were all adults with ages ranging from 18 to 67. The total age average was 26.67 with SD=8.747. **Table 4.1** below reflects the number of respondents included in each condition together with mean ages and gender split.

The statistical exploration of the demographic consistency of participants in each condition was based on two consistency checks; a *1-way between subjects ANOVA* for the checking of consistency of respondents in each condition in respect to *age***,** and *cross tabulation* analysis for the consistency of *gender split* in each condition. As age was measured with continuous numerical values and not categorical ones, it was treated as a continuous dependent variable while the variable that categorically distinguished each of the 27 conditions was included in the ANOVA as the independent one.

Conditions No	Condition Type QS/CN/DR	Participants No	Male (%)	Female (%)	Age (mean)	Age (SD)
1	Des/NonCN/Non	53	46%	54%	27.11	10.175
2	Des/NonCN/Unrea	43	41%	59%	26.98	10.324
3	Des/NonCN/Rea	46	59%	41%	27.78	9.013
4	Des/LowCN/Non	65	58%	42%	25.20	10.092
5	Des/LowCN/Unrea	44	58%	42%	26.41	6.777
6	Des/LowCN/Rea	54	47%	53%	26.15	10.252
7	Des/HighCN/Non	49	44%	56%	27.92	10.394
8	Des/HighCN/Unrea	39	58%	42%	27.85	8.021
9	Des/HighCN/Rea	44	51%	49%	26.41	7.531
10	Asc/NonCN/Non	43	47%	53%	28.88	8.843
11	Asc/NonCN/Unrea	45	58%	42%	24.67	7.456
12	Asc/NonCN/Rea	47	49%	51%	25.04	6.433
13	Asc/LowCN/Non	48	52%	48%	26.33	8.373
14	Asc/LowCN/Unrea	48	54%	46%	24.83	6.505
15	Asc/LowCN/Rea	49	50%	50%	26.94	9.234
16	Asc/HighCN/Non	45	51%	49%	27.09	9.601
17	Asc/HighCN/Unrea	67	53%	47%	27.48	8.123
18	Asc/HighCN/Rea	49	56%	44%	24.22	6.820
19	Ran/NonCN/Non	37	51%	49%	29.11	10.469
20	Ran/NonCN/Unrea	54	50%	50%	28.22	10.099
21	Ran/NonCN/Rea	41	47%	53%	25.34	7.371
22	Ran/LowCN/Non	40	51%	49%	24.78	5.851
23	Ran/LowCN/Unrea	49	46%	54%	27.98	10.162
24	Ran/LowCN/Rea	47	38%	62%	27.91	9.908
25	Ran/HighCN/Non	49	52%	48%	25.18	6.999
26	Ran/HighCN/Unrea	46	56%	44%	26.89	8.942
27	Ran/HighCN/Rea	45	57%	43%	29.16	9.415
Total		**1286**	**51.63%**	**48.37%**	**26.67**	**8.747**

Table 4.1: *Descriptive statistics of gender and age for all 27 conditions.*

Results showed that inconsistencies between age and the different conditions were statistically insignificant $F(26,1286)= 1.243$ with $P>0.05$ ($P= .186$) . Levene's test of homogeneity of variances was found significant which accompanied by the different number of observations in each condition, it was required to calculate both Welch and Brown-Forsythe tests of robustness of equality of means. Both of these were found to be insignificant ($p=.122$ and $p= .290$ respectively) thus ensuring the validity of the ANOVA results. From this initial test it was concluded that age differences of respondents in different conditions were statistically

insignificant ensuring the demographic consistency of participants included in each condition in terms of age.

Similarly, for *gender*, the respective categorical variable was included in the cross tabulation as the dependent variable while the variable that categorically distinguished each of the 27 conditions was included as the independent one. Pearson's chi-square was found to be $\chi^2(26) = 23.255$, $p>0.05$, ($p=.603$) indicating a statistically insignificant association between the experiment's 27 conditions and gender.

Additionally, in regard to the ethnic diversity of participants included in this survey and the UK population, **table 4.2** below compares the ethnic diversity of participants incorporated in this study with the ethnic diversity of UK citizens based on the 2011 Census[37].

	Ethnic diversity of UK participant in the Thesis's main study	**Ethnic diversity of UK citizens based on UK office's for National Statistics 2011 Census**
Whites (Caucasians)	86.71%	87%
Asians (including Indians)	6.45%	6.9%
Blacks	2.23%	3%
Hispanic	0.54%	<1%
Other	4.07%	3.1%

Table 4.2: *Comparison of the ethnic diversity of respondents in the main study with the UK Office for National Statistics' Census 2011*[38].

Based on the comparison presented above it can be argued that the percentages of ethnic diversity in this study were generally consistent with the ethnic diversity of the UK population as of 2011.

[37] Census is reproduced by the UK Office for National Statistics every 10 years.
[38] The 2011 Census of the UK Office for National Statistics regarding ethnic diversity can be found at *http://www.ons.gov.uk/ons/guidemethod/census/2011/index.html?utm_source=twitterfeed&utm_medium=twitter).*

To conclude, the above consistency checks regarding gender and age proved the demographic consistency of participants included in this study's conditions, thereby ensuring their comparability, and by extension, the validity and reliability of results. Additionally, the healthy percentages, in regard to gender split and ethnic diversity together with the wide age range of participants ensured that this study's sample provided a reliable representation of the UK adult population.

4.2 PART II-PRELIMINARY CHECKS AND ANALYSIS

4.2.1 Aggregated percentages and univariate statistics for OAD

Prior to the main analysis and after the examination of the demographic consistency of conditions, certain preliminary checks were conducted in order to examine the consistency of the measurement items employed in the survey. This process allowed the better handling of data-capturing questions and the calculation of the Overall Actual Disclosure (OAD) variable, which included the actual disclosure percentages of respondents.

More precisely, when it came to the measurement of OAD and its inclusion in the analysis as a single variable, the first step of this process included the discard of actual information provided by respondents and the incorporation of numerical values "1" and "0" whenever a disclosure occurred or not (respectively), leading to the operationalisation of OAD as a dichotomous variable. The second step included the transformation of OAD to an aggregate percentage of actual disclosure, making it a continuous variable. Univariate statistics were calculated for the aggregated percentages of OAD, with the table below summarising them for all 1286 responses.

Univariate statistics for OAD	
Valid (N)	**1286**
Missing	**0**
Mean	**91.71%**
Std. Deviation	**14.327**
Skewness	**-3.596**
Kurtosis	**16.862**
Condition Min. Value	**83.333%**
Condition Max. Value	**96.270%**

Table 4.3: *Descriptive statistics for overall actual disclosure.*

From the table it can be seen that there was a tendency for actual disclosure by respondents, something denoted by the mean number of 91.71% for responses that were affirmative in regard to information disclosures. This, accompanied by the negative skewness, provided a preliminary indication that the majority of conditions were expected to reflect respondents' tendencies to engage in actual disclosures.

Univariate statistics were also calculated for the measurement items employed in section B of the questionnaire. In total twelve measurement items were employed for the measurement of certain constructs. These measurements were based on the work of previous academics. The constructs were loss of face (four items); loss of privacy (one item); impersonal trust (six items); compensation required for full disclosure (two items; the second item having an open ended format). **Table 4.4** summarises the univariate statistics for these items**.**

	LoF 1.1	**LoF 1.2**	**LoF 1.3**	**LoF 1.4**	**LoP .2.1**	**IT .3.1**	**IT. 3.2**	**IT .3.3**	**IT. 3.4**	**IT .3.5**	**IT .3.6**	**COM P 4.1**
Valid (N)	1286	1286	1286	1286	1286	1286	1286	1286	1286	1286	1286	1286
Mean	3.36	3.61	3.53	4.61	4.49	4.38	4.59	4.42	4.40	4.34	3.70	3.28
Median	3.00	4.00	3.00	5.00	5.00	4.00	5.00	4.00	4.00	4.00	4.00	3.00
Mode	5	5	5	5	5	4	5	4	4	4	4	3
Std. Dev.	1.67	1.74	1.76	1.68	1.76	1.57	1.53	1.20	1.10	1.08	1.81	.929
Skewness	.168	.031	.086	-.635	-.450	-.230	-.418	.027	.182	.179	.133	-.182
Kurtosis	-1.20	-1.26	-1.28	-.475	-.818	-.422	-.281	.681	.989	1.57	-.956	.213

Table 4.4: *Descriptive statistics for the items of LoF, LoP, IT, COMP*

From the table, based on the mean values of the four items employed for the measurement of Loss of Face (LoF), the fourth item (LoF 1.4**)** showed a larger mean value compared to the other three followed by negative skewness. This signalled that a significant difference between this item and the other three might be in place. Similarly, for the six items of Impersonal Trust (IT) their mean values were relatively close with the only exception being item IT 3.6. Additionally, there were small fluctuations of the skewness values for each of the six items of IT.

Based on these initial observations, accompanied by the need for checking for correlations between items measuring different constructs in order to avoid multicollinearity issues later on (Field and Hole 2003), it was deemed necessary to employ factor analysis for all twelve items. The generated component matrix is presented below.

Component Matrix[a]			
	Component		
	1	2	3
LoF_1.1	-	**.628**	-
LoF_1.2	-	**.601**	-
LoF_1.3	-	**.626**	-
LoF_1.4	-	**.466**	-
LoP_2.1	-	**.415**	-
IT_3.1	**.749**	-	
IT_3.2	**.652**	-	-
IT_3.3	**.716**	-	-
IT_3.4	**.701**	-	-
IT_3.5	**.669**	-	-
IT_3.6	**.722**	-	-
COMP_4.1	-	-	**.561**
Extraction Method: Principal Component Analysis.			

Table 4.5: *Component Matrix of the LoF, LoP, IT, COMP factor analysis*

The factor analysis that included all 12 items identified 3 instead of 4 expected components. More precisely, items IT3.1, IT3.2, IT3.3, IT3.4, IT3.5, and IT3.6 all

of which measured the construct of impersonal trust, were included in the same factor (1st component) as expected. Similarly item COMP_4.1, which was the singular scale-measured item employed for the measurement of compensation, was included in another factor (3rd component) again as expected.

Nevertheless, the four items measuring loss of face (LoF1.1, LoF1.2, Lof1.3, Lof1.4) together with the single item measuring loss of privacy (LoP2.1) were included in the same factor (2nd component). Item LoP2.1 indicated that "Being asked to reveal the above information you felt that in case of disclosure this could result in a loss of control over who knows what about you". Contrary to the literature identifying these items to measure two different constructs, in this case these items showed a strong correlation that if ignored could result in multicollinearity issues in the later stages of the analysis. A possible explanation for the failure of this item to be included in a different factor on its own could potentially be the similarity of this question with item LoF_1.4 with which it had a strong correlation (r=.674). Both questions referred to how individuals perceived the views of others in regard to their disclosures of personal information, providing a small overlap in this particular privacy-related area. Still, as all five items measured the two concepts that served as the negative stimuli of disclosure management (Barnett, 2004), it was decided to treat them as a single construct and include all five items for the measurement of a new variable named Loss of Face and Privacy (LoFP) serving as a combination of the two constructs (LoF and LoP). Additional statistics from the factor analysis included the, Kaiser-Meyer-Olkin measure of sampling adequacy, which was found to be .852, well above the recommended value of .500 (Hutcheson and Sofroniou, 1999), and Bartlett's test of sphericity which was found to be significant χ^2 (66) = 9343.613, $p < .05$. The diagonals of the anti-image correlation matrix were all over .500, supporting the inclusion of each item in the factor analysis. Finally, the communalities were all above .400 further confirming that each item shared some common variance with other items (please see Appendix 6 for the communalities table). **Table 4.6** reflects the correlation matrix of Component 2 which included the two constructs of loss of face and loss of privacy.

Loss of Face and loss of Privacy Correlation Matrix					
	LoF_1.1	LoF_1.2	LoF_1. 3	LoF_1.4	LoP_2.1
LoF_1.1	-				
LoF_1.2	.777	-			
LoF_1.3	.764	.825	-		
LoF_1.4	.443	.476	.475	-	
LoP_2.1	.451	.522	.491	.674	-
Mean	3.36	3.61	3.53	4.61	4.49
Std Deviation	1.668	1.744	1.760	1.675	1.759
Valid N (listwise) = 1286					

Table 4.6: *Correlation Matrix of LoF and LoP* **(***Component 2)*

Item Lof_1.1 "Being asked to reveal the above information was embarrassing" was found to be strongly correlated with item LoF_1.2 "You felt discomfort being asked to disclose the above information" as well as item Lof_1.3 "Having to answer the above information made you feel awkward" with correlation coefficients being r=.773 and r=.766 respectively. This verified that a healthy correlation between the two items was in place. Items LoF_1.2 and LoF_1.3 were also strongly correlated (r=.820). Item LoF_1.4 "Being asked to reveal the above information could make others evaluate you negatively" was found to have moderate correlations (.4<r<.5) with the rest items. This moderate correlation of LoF_1.4 can most likely be attributed to the different nature of this question compared to the other three items that required individuals to agree or disagree on the experience of certain feelings. Contrary to this, item LoF_1.4 required respondents to evaluate their own perception of how others might evaluate them and agree or disagree with this statement. This could explain the higher mean value and negative skewness of this particular item. Nevertheless, due to its moderate correlation with the rest of the items accompanied by its inclusion for the measurement of loss of face by Barnett (2004) and Dahl et al. (2001), it was decided not to be excluded from the analysis. For impersonal trust the factor analysis incorporated all 6 items. The generated correlation matrix of impersonal trust is reflected in **table 4.7** below.

Impersonal Trust Correlation Matrix						
	IT_3.1	IT_3. 2	IT_3.3	IT_3.4	IT_3. 5	IT_3.6
IT_3.1	-					
IT_3.2	.748	-				
IT_3.3	.564	.502	-			
IT_3. 4	.547	.471	.747	-		
IT_3. 5	.516	.463	.703	.704	-	
IT_3. 6	.657	.588	.525	.533	.509	-
Mean	4.38	4.59	4.42	4.40	4.34	3.70
Std Dev.	1.572	1.529	1.203	1.104	1.080	1.806
Valid N (listwise)= 1286						

Table 4.7: *Correlation Matrix of IT (Component 1)*

Through the factor analysis it was ensured that none of the items for the measurement of impersonal trust was non-correlated with the rest, and all explained a healthy percentage of the variance. As no major inconsistencies were in place it was decided for all 6 items to be included in the analysis for the measurement of impersonal trust similar to the work of Shoenbachler and Gordon (2002). In regard to compensation, since the construct was measured by a single item and identified through the factor analysis to be a factor on its own, it behaved consistently with what was expected and therefore was included in the main analysis as it was.

To conclude, all employed items were utilised in the main analysis while the items of loss of face and loss of privacy were included in a singular factor which led to the construction of a new variable named Loss of Face and Privacy (LoFP).

4.2.2 Analysis of the open-ended question measuring compensation.

As aforementioned in the methodology chapter, compensation required for full disclosure (COMP) was measured with the use of a single 5-point scale item which was complemented with an open-ended question where individuals were

asked to provide a real amount of monetary compensation they would require in order to disclose all of the asked information from the questionnaire. Even though the main analysis incorporated only the scale-measured item, the utilisation of an open-ended question widened the spectrum of available analyses in regard to compensation, and provided the preliminary findings regarding the interaction of COMP and the three instrumental factors which were further examined in the main analysis later on. This allowed the generation of real prices of monetary compensation required for each of the 27 conditions while identifying conditions that were more efficient than others (required lower compensation by respondents for full disclosure). The analysis of the data obtained through the open ended question followed three stages.

The first stage included the identification and exclusion of extreme outliers from the analysis. 81 additional outliers[39] were identified and excluded from the 1286 reliable responses identified earlier[40], resulting in 1205 observation that were included in this particular analysis. The second stage focused on the triangulation of the 5-point scale with the numerical responses of individuals that were recorded through the open-ended question. This was done through the generation of a custom table which utilised the five points of the scale-measured item as its row and the numerical values of the open-ended item as its column. **Table 4.8** below depicts the numerical values of monetary compensation that were assigned to each of the five levels.

Level of compensation	**Numerical value (£)**
Very low compensation	15
Low compensation	30
Average compensation	50
High compensation	157
Very high compensation	292

Table 4.8: *Triangulation of the five levels of compensation with the actual monetary values of compensation required for full information disclosure.*

[39] Outliers included responses that specified extremely high amounts of compensation like "19000000000" and "100000000" that distorted the mean values of COMP per condition.
[40] The main analysis included all 1286 responses.

This step provided an indication as to whether the numerical values behaved consistently with the five different levels of compensation. As the escalation of numerical values was in alignment with the five levels of compensation, the final step included the utilisation of a 3-way ANOVA where the variable reflecting the continuous numerical values of compensation, (denoted as actual compensation) was included as the dependent variable, and the three variables of QS, CN and DR as the independent ones. **Table 4.9** reflects the descriptive statistics generated from the analysis for each of the 27 conditions.

Condition type QS/CN/DR	**Mean (£)**	**Standard Deviation**	**N**
Des/HighCN/Non	56.29	153.566	51
Des/HighCN/Unrea	167.03	242.040	38
Des/HighCN/Rea	112.55	257.733	44
Des/LowCN/Non	76.75	159.252	61
Des/LowCN/Unrea	132.02	247.025	42
Des/LowCN/Rea	119.02	231.115	49
Des/NonCN/Non	47.82	80.754	45
Des/NonCN/Unrea	207.61	307.967	28
Des/NonCN/Rea	124.22	278.912	37
Descending order	**107.19**	**221.365**	**395**
Asc/HighCN/Rea	58.00	148.624	48
Asc/HighCN/Unrea	42.62	139.308	66
Asc/HighCN/Non	106.07	231.304	43
Asc/LowCN/Rea	57.91	161.909	47
Asc/LowCN/Unrea	54.98	106.445	45
Asc/LowCN/Non	47.17	84.855	48
Asc/NonCN/Rea	97.72	185.689	46
Asc/NonCN/Unrea	66.79	161.545	43
Asc/NonCN/Non	94.45	220.676	42
Ascending order	**67.64**	**163.729**	**428**
Ran/HighCN/Rea	85.09	256.678	43
Ran/HighCN/Unrea	109.24	183.781	46
Ran/HighCN/Non	74.59	283.109	44
Ran/LowCN/Rea	131.28	217.085	46
Ran/LowCN/Unrea	96.33	285.991	45
Ran/LowCN/Non	124.94	121.161	35
Ran/NonCN/Rea	65.85	304.062	39
Ran/NonCN/Unrea	145.54	282.864	50
Ran/NonCN/Non	122.85	212.007	34
Random order	**106.64**	**245.360**	**382**

Table 4.9: *Descriptive statistics of actual monetary compensation for all 27 conditions.*

From the table it can be seen that the conditions that utilised the ascending order of question invasiveness, were found to require lower actual amounts of compensation compared to those who employed the descending or random order. Results from the 3-way ANOVA showed that significant differences were in place between QS and actual compensation with table 4.10 summarising all significant interactions. Generated post-hoc tests verified that the ascending order was significantly lower in terms of actual compensation compared to the random and descending order respectively. This meant that conditions incorporating the ascending order of invasiveness were more efficient for the accumulation of information.

Furthermore, the interaction of QS-DR also generated significant differences. A closer examination of the respective post-hoc tests indicated that the conditions of Asc-Rea, Asc-Unrea, Asc-Non and Des-Non were significantly lower than the Des-Unrea with p=.016 (SE=26.284), p=.001 (26.388), p=.061 (SE=27.234) and p=.002 (SE=26.284) respectively. This showcased that certain conditions synthesised from the triangulation of different concepts, required significantly lower actual compensation compared to others.

3-WAY ANOVA			
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**
Corrected Model	Actual compensation	F(26,1205)=1.529: p<0.05 (p=0.04)	.033
QS	Actual compensation	F(2, 1205)=10.267: p<0.01 (p=0.005)	.009
QS-DR	Actual compensation	F(4,1205)=4.054: p<0.01 (p=0.003)	.014

Table 4.10: *Summarisation of significant results from the 3-way ANOVA for the examination of the influence of IF towards actual compensation.*

These preliminary findings indicate that the ascending question sequence generates significantly lower amounts of actual monetary compensation compared to the other two question sequences. Additionally, the triangulation of QS with DR

generated certain conditions that required significantly lower actual compensation compared to others. Interestingly CN failed to generate any significant differences, hinting its lack of influence towards actual compensation. Preliminary findings here provide the initial indications on how the three instrumental factors (QS, DR, CN) interact with COMP. These interactions are further investigated in the main analysis for the testing of H4, which is presented in the following section.

4.3 PART III-MAIN ANALYSIS

4.3.1 H1: Influence of individual employment of IF towards OAD

The first set of analyses which focused on the examination of the influence of Instrumental Factors (IF), namely Dyadic Relationships (DR), Comparative Nature (CN) and Question Sequence (QS) towards Overall Actual Disclosure (OAD) is summarised below:

H1: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire positively influences OAD.

Analysis and testing of H1: In order to test H1, the first round of analysis included a 3-way ANOVA with the aggregated percentages of OAD as the dependent variable and DR,CN and QS as the three independent variables[41].The between subjects analysis tested whether there was a significant influence towards OAD by the three factors individually. Results from the corrected model indicated that there was a statistically significant difference between OAD and the three independent factors; $F(26,1286)= 3.161$, $P<0.05$ ($P= .000$). **Table 4.7** includes the test scores identified to be significant by the 3-way ANOVA. The table also summarises the scores of the 3X3 MANOVA which served as the second round of analysis, as well as the two complementary analyses that incorporated demographic variables.

[41] Each of these variables denoted the three conditions of the respective instrumental factor i.e. for dyadic relationships, the reasoned dyadic was denoted as "1", unreasoned dyadic as "2" and non-dyadic as "3".

1st ROUND OF ANALYSIS FOR H1				
3-WAY ANOVA				
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**	
Corrected Model	OAD	F(26,1286)=3.161: p<0.000*	.057	
CN	OAD	F(2, 1286)=10.267: p<0.000*	.016	
QS	OAD	F(2,1286)=9.193: p<0.000*	.014	
DR	OAD	F(2, 1286)=3.768: p<0.05**	.006	
2ND ROUND OF ANALYSIS FOR H1				
3X3 MANOVA				
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**	**Wilk's λ**
Corrected Model	OAD in Questions with Low invas.	F(26,1286)=2.982: p<0.000*	.058	-
	OAD in Questions with Medium invas.	F(26,1286)=2.326: p<0.000*	.046	-
	OAD in Questions with High invas.	F(26,1286)=2.677: p<0.000*	.052	-
QS	OAD in Questions with Low invas	F(2,1286)=6.589: p<0.000*	.001	.981
	OAD in Questions with Medium invas.	F(2,1286)=4.593: p<0.000*	.010	.981
	OAD in Questions with High invas.	F(2,1286)=7.241: p<0.000*	.001	.981
CN	OAD in Questions with Low invas	F(2,1286)=11.482: p<0.000*	.000	.980
	OAD in Questions with Medium invas.	F(2,1286)=4.267: p<0.000*	.014	.980
	OAD in Questions with High invas.	F(2,1286)=4.891: p<0.000*	.008	.980
DR	OAD in Questions with Low invas.	F(2,1286)=4.107: p<0.05**	.017	.984
	OAD in Questions with Medium invas.	F(2,1286)=4.215: p<0.05**	.015	.984
	OAD in Questions with High invas.	F(2,1286)=4.624: p<0.05**	.010	.984
COMPLEMETNARY ANALYSES FOR H1				
4-way ANOVA for gender				
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**	
Gender	OAD	F(53, 1286)=2.194 p>0.10 **(insignificant)**	.002	
3X1 ANCOVA for Age				
Age (covariate)	OAD	F(27, 1286)=1.444 p>0.10**(insignificant)**	.001	
*** Significance at 0.01. **Significance at 0.05**				

Table 4.11: *Summarisation of significant results from the 1st and 2nd round of analysis for the testing of H1a.*

The first round of analyses identified a series of significant differences between all three examined IF and OAD. Still, in order to identify whether the significant differences identified above were linked to positive or negative influences, estimated marginal means tables (**Table 4.12**) as well as post-hoc[42] tests were calculated and consulted.

	Condition type/Estimated marginal mean percentage of Overall Actual Disclosure	**Standard Deviation (SE)**
	HighCN = **93.681**	.682
Comparative Nature (CN)	LowCN = **89.358**	.672
	NonCN = **91.820**	.699
	Reasoned dyadic=**93.142**	.682
Dyadic Relationships (DR)	Unreasoned dyadic=**90.689**	.672
	Non-Dyadic dyadic=**91.028**	.699
	Descending Order=**89.713**	.679
Question Sequence (QS)	Ascending Order=**93.790**	.674
	Random Order=**91.356**	.700

Table 4.12: *Table of estimated marginal means of overall actual disclosure for each condition of the three instrumental factors*

Starting with the individual examination of the three instrumental factors, as seen in **table 4.12**, for CN, estimated aggregated means of OAD showed that the HighCN generated an OAD of 93.681%, which was higher compared to both the LowCN condition and NonCN. Post-hoc tests verified that these differences were statistically significant with p=.000 (SE=.969) and p=.058 (SE=.949) respectively, and by extension supported the claims of Acquisti, John and Lowenstein (2012) regarding the influence of comparative nature towards actual disclosure -ensuring that the high-level condition of this concept, as proposed by the authors, had a positive influence towards OAD. Regarding the dyadic relationships, the high condition (reasoned dyadic) behaved in accordance to the findings of Zimmer et

[42] Throughout this Thesis' analysis the post-hoc test of choice was the Tukey HSD due to its robustness and wide utilisation by other academics and statisticians (Field, 2013). In this study all of Tukey test's assumptions (independence of observations, homogeneity of variance and equality of distributed means) were met.

al. (2010) and provided the highest percentage of OAD with 93.142%. The unreasoned dyadic relationship generated the lowest percentage of OAD, while the non-dyadic relationship was in-between the other two conditions. Again post-hoc tests verified that the reasoned dyadic condition was significantly higher than the non-dyadic and unreasoned dyadic respectively (p=.058 SE=.963; p=.073, SE=.960). This verified the claims of Zimmer et al. (2010) who identified the reasoned dyadic condition to be the high-level condition of the DR concept.

Interestingly, Question Sequence (QS) behaved inconsistently with what was reported by Acquisti et al. (2012). In particular findings from their research indicated that " The study (2a) shows that people are less likely to admit to having engaged in sensitive behaviours when the questions are presented in an escalating (ascending) order of sensitivity than when questions are presented in a descending order" (p.172). Contrary to this, findings from the present study indicate that the ascending order had the highest percentage of OAD compared to both the descending and random order of question invasiveness. Post hoc tests showed this difference to be statistically significant with p=.000 (SE=.949) and p=.028 (SE=.965) respectively, indicating that respondents perceived sequences where a slow escalation of invasiveness of questions was present, to be less privacy invasive compared to sequences that followed a decreasing order of question invasiveness. This ultimately resulted in the ascending order generating significantly higher OAD compared to the descending order which was in contradiction with the findings of Acquisti et al. (2012).

In an attempt to explain this, the demographic variables of gender and age were incorporated in the analysis. For gender, the respective variable was included in the same analysis as an additional independent numeric variable resulting in a 4-way ANOVA. Gender was found not to be statistically significant in regard to its influence towards OAD with $F(1,27)= 2.194$ and $P>0.05$ ($P= .139$). For age the respective factor was added as a covariate accompanying the three fixed factors mentioned earlier which resulted in the employment of a 1-way ANCOVA. Again age was not found to have statistical significance in this analysis $F(1,27)= 1.444$

with P>0.05 (P= .230), meaning that in this study disclosure or avoidance of disclosure of information based on the three IF, was identical regardless of the respondents' age and gender (test scores from both supplementary tests are summarised in **Table 4.11**). Even though both of these demographic variables were found to be statistically insignificant, it is worth noting that certain demographic inconsistencies were in place in this study when compared to the one of Acquisti et al. (2012). More precisely their study was based on US respondents with Mage = 38 and a gender split of 65% males compared to the UK sample of this research with Mage = 26.67 and a gender split of 51.63% males**.** The sample employed in this study reflected an overall younger, and was more equally split in terms of gender. Furthermore, the present findings verified the claims of another stream of literature regarding question order effects (i.e. Payne, 1951; Moon 2000) which support that the ascending escalation of invasiveness and difficulty of questions should be preferred in order to maximise accumulation of information. A thorough discussion is provided in chapter 5 which further explains this counterintuitive information.

The second round of analysis included an additional multivariate test for each of the three levels of invasiveness with a 3X3 between subjects MANOVA. As mentioned, OAD was measured by 18 privacy invasive questions from which 6 questions had low privacy-invasiveness, 6 medium privacy-invasiveness and 6 high privacy-invasiveness. These three levels of invasiveness were transformed into three individual continuous variables in a process that was identical to the transformation of OAD from a dichotomous variable to a continuous one (please see section 4.3.1). This allowed a more detailed examination of the influence of the individual employment of DR, CN and QS towards the three levels of invasiveness that comprise OAD. Here the three levels of invasiveness were the dependent variables while DR, CN, QS were the three independent ones. **Table 4.11** summarises the significant differences from the 3X3 MANOVA in the second round of analysis.

Findings from the 3X3 MANOVA indicated that the concepts of CN, QS and DR generated significant differences with all three levels of privacy invasiveness behaving consistently with expectation. Post-hoc tests verified that in all three cases, the disclosure percentages for all three levels of invasiveness were significantly higher in the respective high-level conditions of each of the three concepts. The exception to this was again the descending order for QS which for all three levels of invasiveness it was found to be statistically lower than the ascending order. The ascending order condition was also found to be significantly higher than both the descending and random order. Findings from the second round of analysis were in alignment with the findings of the first round, identifying the ascending order to be the respective high-level condition for QS.

Decision for H1: Based on these analyses results indicate that H1was partially supported as the high-level conditions for DR and CN behaved consistently with the literature. Still, findings from this study identified the high-level condition of QS to be the ascending order of question invasiveness contrary to the findings of Acquisti, John and Lowenstein (2012) who identified the descending order to be more influential in information disclosure scenarios. Furthermore, findings here were consistent with the claims of Moon (2000), Zimmer (2010) and the earlier views of Payne (1951) who proposed that the ascending order of question invasiveness and difficulty is more likely to induce disclosure of information.

As H1 served as a verification process of the high-level conditions for each of the three IF concepts, based on these findings the three respective high-level conditions for DR, QS and CN that informed the rest of the analysis were the *reasoned* dyadic relationship (Rea), the *high* comparative nature (HighCN) and the *ascending* order of privacy invasiveness (Asc) respectively.

4.3.2 H2: Influence of combined employment of IF towards OAD

The second set of hypotheses examined the synergistic employment of the three instrumental factors (QS, DR, and CN) and their influence towards OAD. The two hypotheses are presented below:

H2a: The combined utilisation of the high-level conditions of the instrumental factors positively influences overall actual disclosure.
H2b: The combined utilisation of the high-level conditions of instrumental factors has significantly higher positive influence on overall actual disclosure compared to the individual employment of the high-level conditions of instrumental factors.

Analysis and testing of H2a: Results from the 3-way ANOVA conducted for H1, combined the conditions of QS, CN, and DR, generating 3 pair-wise and a triple comparison which served as the first round of analysis for H2a. Results indicate that there were no significant differences between the triple combination of the three IF and OAD. Still, the pair-wise combination of **CN-DR** generated significant differences *with OAD* $F(4,1286)=2.346$: $p<0.05$, while for **QS-DR** a very strong tendency towards significance was recorded $F(4,1286)=2.244$: $p=.062$. Both of these combinations were investigated further. Significant results from the 3-Way ANOVA (1st round of analysis), the two individual 1-way ANOVAs (2nd round of analysis) and the 1X1 ANCOVA (3rd round of analysis) are shown in **table 4.13** below.

1st ROUND OF ANALYSIS FOR H2a			
3-Way ANOVA			
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**
Corrected Model	OAD	F(26,1286)= 2.943: p<0.05**	.057
CN-DR	OAD	F(4,1286)=2.346: p<0.05**	.007
QS-DR	OAD	F(4,1286)=2.244: p=0.062***	.007
2nd ROUND OF ANALYSIS for H2a			
1-Way ANOVA			
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**
QS-DR	OAD	F(8,1286)=4.242: p<0.05**	.026
1-Way ANOVA			
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**
CN-DR	OAD	F(8,1286)=4.620: p<0.05**	.028
3nd ROUND OF ANALYSIS for H2a			
1X1 ANCOVA			
Independent	**Dependent**	**F(df):Sig**	**Partial η^2**
Corrected Model	OAD	F(9,1286)=16.367: p<0.000*	.103
QS-DR	OAD	F(8,1286)=2.306: p<0.05**	**.**014
IT (Covariate)	OAD	F(9,1286)=110.456: p<0.000*	.080
*** Significant at 0.01 **Significant at 0.05 ***Significance at 0.10**			

Table 4.13: *Summarisation of significant results from the 1st and 2nd round of analysis for the testing of H2a.*

Starting with the QS-DR combination, the estimated marginal means table was generated in order to identify the general motif of this interaction. **Table 4.14** summarises the estimated marginal means of the QS-DR combination. From the table, the respective high-level conditions of the QS-DR combination, ascending question sequence-reasoned dyadic relationship (Asc-Rea), scored the highest mean in regard to OAD (M=94.823, SE=1.169).

Conditions of Question sequence	Conditions of Dyadic relationships	Mean	Std. Error
Descending	Reasoned	91,671	1.185
	Unreasoned	86.455	1.314
	Non-Dyadic	90.552	1.104
Ascending	Reasoned	**94.823**	1.169
	Unreasoned	94.482	1.136
	Non-Dyadic	92.050	1.209
Random	Reasoned	92.686	1.223
	Unreasoned	90.830	1.158
	Non-Dyadic	89.943	1.280

Table 4.14: *Table of estimated marginal means of OAD for the combination of the conditions of question sequence (QS) and dyadic relationships (DR).*

Similarly, for the CN-DR combination the respective estimated marginal means table is reflected in **table 4.15** below.

Conditions of Comparative nature	Conditions of Dyadic relationships	Mean (M)	Std. Error(SE)
HighCN	Reasoned	**94.408**	1.203
	Unreasoned	92.071	1.183
	Non-Dyadic	94.351	1.184
LowCN	Reasoned	92.407	1.154
	Unreasoned	88.445	1.242
	Non-Dyadic	86.002	1.177
NonCN	Reasoned	92.364	1.220
	Unreasoned	91.391	1.191
	Non-Dyadic	91.885	1.239

Table 4.15: *Table of estimated marginal means of OAD for the combination of the conditions of comparative nature (CN) and dyadic relationships (DR)*

For CN-DR the respective high-level conditions, high comparative nature-reasoned dyadic relationship (HighCN-Rea), provided the highest mean of OAD with M=94.823 (SE=1.185). In order to shed more light on the statistical significance of these differences the second round of testing included two additional 1-way ANOVAs in order to generate related post-hoc tests for the 9

conditions of each of the two combinations[43]. This allowed more precision in the examination of these interactions. The first 1-way ANOVA utilised OAD as the dependent variable while the variable that categorically distinguished the 9 conditions of the QS-DR combination was included as the independent variable. The second 1-way ANOVA followed the same process and reasoning as the first, with the only difference being the independent variable which included the variable that categorically distinguished the 9 conditions of the CN-DR combination. Results of the two corrected models of the respective 1-way ANOVAs verified that significant differences were in place between OAD and the two combinations QS-DR and CN-DR respectively, with significant test scores summarised in **table 4.13** (2nd round of analysis).

Post-hoc tests of the QS-DR combination indicated that there were no significant differences between conditions on the high end of estimated marginal means for OAD but significant differences were present on the respective lower end. More precisely the expected high-level condition from the QS-DR interaction (Asc-Rea; M=94.408, SE=1.203) was significantly higher than three other conditions. These were: The Des-Unrea condition (M=86.455, SE=1.314) which was also found to be significantly lower than the other eight conditions; the Ran-Non (M=89.943, SE=1.280) which was also found to be significantly lower than four other conditions; Des-Non (M=90.552, SE=1.104) which was only found to be significantly lower only than the Asc-Rea and Asc-Unrea conditions.

Similarly, respective post-hoc tests of the CN-DR combination indicated that the expected high level condition (HighCN-Rea) was significantly higher than the LowCN-Non (M=86.002, SE=1.177) and LowCN-Unrea (M=88.445, SE=1.242) conditions which were also found to be significantly lower than the rest of the conditions.

[43] QS-DR: (Ascending/Descending/Random)x(Reasoned/Unreasoned/Non-dyadic)= 9conditions. CN-DR: (HighCN/LowCN/NonCN)x(Reasoned/Unreasoned/Non-dyadic)= 9conditions.

Further analysis of H2a: Based on these findings an interesting pattern was identified when comparing the Asc-Unrea with the Des-Unrea from the QS-DR combination. The Asc-Unrea generated the second highest percentage of OAD while the Des-Unrea the lowest. A closer examination of the post-hoc tests indicated that significant differences were in place, with the Asc-Unrea combination found to be significantly higher than the Des-Unrea ($p<0.000$, SE=1.689). When reviewing the underlying notion that fuels the unreasoned dyadic relationship it indicates that in return for information disclosures the condition provides respondents with unreasonably related facts about the organisation in order to synthesise a reciprocal information exchange. Zimmer et al. (2010) specify that asking more intimate questions at the end of the questionnaire provides time for the DR to take its effect. Still, it was suspected that the unreasoned dyadic statements when followed by non-invasive questions at the beginning of the questionnaire (ascending order), allowed the better development of relational depth between the respondent and the organisation when compared to the triangulation of the concept with the descending order condition. This is attributed to the fact that interesting (yet unreasonably related to the purpose of the information acquisition) organisational facts that precede non-invasive questions, provide individuals with information that allows them to know more about the organisation itself, something that accommodates the development of trust and relationships (Biggemann, 2012). This observation was decided to be investigated further and a 1x1 ANCOVA was conducted where OAD was utilised as the dependent variable, the variable that categorically distinguished the 9 conditions of the QS-DR combination as the independent one, and impersonal trust (IT) that measured relational depth as the covariate (**Table 4.13**, 3rd round of analysis, summarises the test scores of the 1X1 ANCOVA). The covariate of IT was indeed found to be significant with $F(9,1286)=110.456$: $p<0.000$ while comparison of main effects[44] indicated that IT was significantly higher in the Asc-Unrea condition compared to the Des-Unrea ($p=.011$; SE=1.634) which verified this claim. Findings here indicate that the ascending order of invasiveness, when triangulated with the unreasoned dyadic condition, positively influences

[44] Calculation was based on the *Bonferroni* statistic.

perception of impersonal trust and relational depth that ultimately significantly increases OAD compared to the Des-Unrea combination.

Decision for H2a: Based on these findings H2a was partially supported. Even though the high level conditions of QS-DR and CN-DR produced the highest percentages of OAD, evidence from the post-hoc tests indicate that no statistical differences were in place when compared to all of the other examined conditions. These significant differences, if present, would have allowed the distinction of the combinations of high level-conditions from the rest in regard to the generation of significantly higher OAD. Nevertheless, significant differences were present between the high-level conditions of QS-DR and certain other conditions. The consistency of certain conditions to generate significantly lower percentages of OAD compared to the rest, points to different interesting directions of findings and discussions; the identification of combinations of conditions that can hinder actual voluntary disclosure. These findings are of particular value to organisations that seek to employ different combinations of the concepts of DR, CN and QS and are further explored in the main discussions (chapter 5).

Analysis and testing of H2b: When examining H2b, it was imperative to compare the combined employment of the high-level conditions of the QS-DR combination (Asc-Rea) with the individual employment of the high-level conditions for QS (Asc) and DR (Rea) respectively, and verify whether the first provided significantly higher percentages of OAD compared to the latter two. In doing so, two independent t-tests were conducted in order to provide a direct comparison of OAD of the Asc-Rea (M=94.833, SD=7.793) combination and the two individual high-level conditions, Asc (M=93.90/SD=10.288) and Rea (M=93.15 /SD=11.253), respectively. Estimated marginal mean and standard deviation of OAD as well as the number of observations for each of the three conditions were entered in a t-test calculator. Results from the respective test indicated that significant differences were present in the comparisons of the Asc-Rea with the Rea condition with $t(565)=1.6653$, $p=0.090$, while the comparison of

the Asc-Rea with the Asc condition yielded non-significant differences; t(584)=0.9982, p=0.318.

The same process was carried out for the high-level condition of the CN-DR (HighCN-Rea) (M=94.85/SD=10.056) combination and the individual high-level conditions of CN (HighCN) (M=94.15 /SD=11.428) and DR (Rea) (M=93.36 /SD=11.286). The two additional t-tests indicated that there was no statistical difference between the HighCN-Rea and HighCN condition with t(569)=0.484, p=0.629), with a very weak tendency towards significance being recorded between the HighCN-Rea and Rea t(574)=1.2587, p=0.192.

Decision for H2b: Results from the unpaired t-tests provided partial support for Hypothesis 2b with the HighCN-Rea failing to generate statistically significant differences with the individual conditions regardless of the fact that the first recorded a higher percentage of OAD compared to the latter two. Nevertheless the Asc-Rea provided significantly higher mean percentages for OAD compared to the individual employment of the DR (Rea) condition, while also recording the highest percentage of OAD compared to its two individual counterparts.

4.3.3 H3: Influence of psychological processes and relational depth factors towards OAD

The third set of hypotheses was based on the examination of the influence of psychological processes and relational depth factors (LoFP, COMP, IT) towards overall actual disclosure (OAD). This examination served as a deductive verification process for previous research (Dahl et al., 2002; Barnett, 2004) while investigating in an inductive fashion the influence of impersonal trust (IT) towards OAD, building upon the work of Schoenbachler and Gordon (2002) who proposed of the influence of the concept towards willingness of disclosure but not actual

disclosure[45]. More precisely the third set of hypotheses examines the individual influence of each these concepts towards OAD and are summarised below:

H3a: The higher the perceptions of impersonal trust by the respondents towards the organisation, the higher the OAD.
H3b: The lower the perceptions of loss of face and loss of privacy by respondents, the higher the OAD.
H3c: The lower the compensation required for full disclosure the higher the OAD.

Analysis and testing of H3a, H3b and H3c: For the examination of these three hypotheses a Multiple Linear Regression (MLR) analysis was conducted. OAD was treated as the dependent variable while IT, LoFP and COMP were incorporated as the three independent variables for the prediction of the first. This served as the first round of analysis for H3.

Here it is worth mentioning that the initial design for this particular analysis was to employ a 3X3 between subjects ANCOVA with overall disclosure as the dependent variable, DR, CN and QS as the three independent variables and IT, LoFP and COMP as the three covariates. This would have allowed the incorporation of instrumental factors in the analysis, potentially generating different types of relationships between the examined concepts. Still, during the verification process for the assumptions of ANCOVA to hold, the homogeneity of regression slopes assumption was not met, with the custom model being found significant. As this rendered the results of the ANCOVA unreliable, it was decided to exclude all covariates from the analysis and proceed with running a multiple regression in order to identify whether IT, LoFP and COMP were predictors of OAD.

[45] Willingness of disclosure represents an attitude while actual disclosure a behaviour. There are doubts in the literature regarding the strength of attitudinal scales for the measurement of actual behaviour. This discrepancy between intention (willingness) of disclosure and actual disclosure is known as the privacy paradox (Acquisti et al., 2015; Lee and Larose, 2011, Horne and Horne, 1998).

After running the MLR, IT, LoFP and COMP were found to be statistically significant to the prediction of overall actual disclosure, F (3, 1286) =59.745, p<.0005, R^2 =17.5%, with all three variables adding statistical significance to the predictor. This indicated that a relationship was in place between OAD and each of the three independent variables. As predictors of OAD, the variables of LoFP, IT and COMP generated a relatively moderate R^2 (17.5%), but due to the nature of this research which focuses on consumer psychology followed by an experimental, manipulation-based research design, where the dependent variable undertook extensive transformation, moderate R^2 results were justifiable (Montgomery and Vining, 2012). For the identification of the type of relationship, the unstandardised coefficients were generated and consulted. These are reflected in the **table 4.16** below.

	1ST ROUND OF ANALYSIS FOR H3		
Dependent	**Overall Actual Disclosure (OAD)**		
Independent	**LoFP**	**IT**	**Comp**
B	-1.677	3.013	-.994
Standard Error	.284	.352	.415
t-value	-5.912	8.563	-2.398
Sig.	.000*	.000*	.017**
R^2	17.5%		
	***Significance at 0.01 **Significance at 0.05**		

Table 4.16: *Test scores from the Multiple Linear Regression (MLR1) for the testing of H3a, H3b and H3c*

From the table, for LoFP, B was found to be -1.677 indicating that higher levels of LoFP resulted in less OAD. In regard to COMP, B was -0.994 which in this line of research made sense as requiring higher levels of compensation would lead to less OAD. Finally, for IT, the B coefficient was +3.013 indicating that higher levels of impersonal trust resulted in a higher percentage of OAD.

The second round of analysis included the running of multiple linear regressions with the three levels of privacy invasiveness as the dependent variable and LoFP, IT and COMP as their predictors. The reasoning behind this was to record the effects of the independent variables towards each of the three levels of

invasiveness that comprise the OAD variable, also ensuring the validity of results from the first round. Results from the three additional linear regressions are reflected **table 4.17** below.

From the table, for LoFP, all three Bs were found to be negative for LoFP verifying that the concept was a negative predictor of all three levels of privacy invasiveness. Similarly COMP generated negative B coefficients for all three levels indicating that the more compensation required for disclosure the lower the actual disclosure at the three levels of invasiveness. Finally, IT was found to positively influence the three levels of invasiveness with coefficients indicating that increased IT is linked to higher OAD.

	2nd ROUND OF ANALYSIS FOR H3		
Independent	Dependent		
LoFP	**Low Invasiveness (MLR2)**	**Medium Invasiveness (MLR3)**	**High Invasiveness (MLR4)**
B	-1.631	-2.003	-3.904
Standard Error	.312	.296	.360
t-value	-5.219	-6.767	-10.848
Sig.	.000*	.000*	.000*
COMP			
B	-.982	-2.013	-3.257
Standard Error	.477	.452	.561
t-value	-2.060	-4.453	-5.802
Sig.	.040**	.000*	.000*
IT			
B	2.683	3.076	5.566
Standard Error	.387	.228	.444
t-value	6.927	8.394	12.522
Sig.	.000*	.000*	.000*
R^2	4.5%	13.6%	19.7%
***Significance at 0,01 **Significance at 0,05**			

Table 4.17: *Test scores from the multiple linear regressions (MLR2, MLR3, MLR4) for the testing of H3a, H3b and H3c.*

Decision for H3a, H3b and H3c: Based on the second round of analysis, H3b was supported verifying the claims of Barnett (2004) and Dahl et al (2001) that the greater the perceptions of loss of face and loss of privacy the lower the divulgence

of information by respondents. For COMP, B coefficients were again found to be negative for all three levels of privacy invasiveness providing support for H3c. Finally, for impersonal trust, B coefficients were positive for the three levels of invasiveness providing empirical verification of Shoenbachler and Gordon's (2002) claims with findings supporting H3a. The third set of hypotheses was fully supported and was consistent with claims of previous academics. The general discussions chapter discusses the importance of these findings and their contribution to knowledge.

4.3.4 H4: Influence of the individual and combined utilisation of IF towards psychological processes and relational depth factors

The fourth set of hypotheses examined the interaction between the three instrumental factors (QS, DR, CN) and the factors that comprise the psychological processes and relational depth dimensions (LoFP, COMP, IT). This fourth set of hypotheses followed a more inductive approach as the cross examination of the interactive behaviour of these concepts was previously unexplored. More precisely, the analysis performed here sought to identify how the structure and presentation of data-capturing questionnaires can increase or decrease concerns regarding loss of face and privacy, whether they can accommodate the development of impersonal trust, while influencing the amount of desired compensation required for full disclosure of asked information. Following the same reasoning of the first set of hypotheses, both the individual and synergistic behaviour of the instrumental factors were examined. The fourth set of hypotheses is presented below:

H4a: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire reduces concerns regarding loss of face and loss of privacy.
H4b: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire reduces compensation required for full disclosure of information.

H4c: The individual utilisation of the high-level conditions of instrumental factors in the questionnaire increases perceptions of impersonal trust.
H4d: The combined utilisation of the high-level conditions of the instrumental factors in the survey reduces concerns regarding loss of face and loss of privacy.
H4e: The combined utilisation of the high-level conditions of the instrumental factors in the survey reduces compensation required for full disclosure of information.
H4f: The combined utilisation of the high-level conditions of the instrumental factors in the survey increases perceptions of impersonal trust.

Analysis for H4a, H4b and H4c: When testing H4a, H4b and H4c a 3X3 multiple analysis of variance (3X3 between subjects MANOVA) was conducted with three independent (categorical) variables and three dependent (continuous) ones. The three instrumental factors (DR,CN,QS) were incorporated as the independent variables and the three factors of psychological processes and relational depth (LoFP, IT, COMP) as the dependent ones. Results from the corrected model indicate that there were significant differences in place for all three dependent variables with values F (26, 1286) = 2.135, $p < .01$ (p=0,000) for IT; F (26, 1286) = 2.836, $p < .01$ (p=.001) for COMP; F (26, 1286) = 1.822, $p < .01$ (p=,007) for LoFP. The results of the 3-way MANOVA are summarised in **table 4.18** below.

Starting with the QS concept, it was identified to have significant differences with all three variables (LoFP, IT, COMP). For the identification of the type of the influence as well as the condition responsible for the highest positive influence towards the three dependent variables, estimated marginal means tables as well as post-hoc tests were consulted. Estimated marginal means showed that LoFP (negative stimulus) was found to be lowest in the ascending order of invasiveness with an estimated marginal mean of 3,732 (SE=0.067), the descending order was slightly higher with M=4.008 (SE=0.068), and finally the question order that yielded the highest LoFP mean was the random order with M=4.023 (SE=0.069).

1ST ROUND OF ANALYSIS FOR H4a, H4b, H4c				
3X3 MANOVA				
Independent	**Dependent**	**F(df);Sig.**	**Partial η^2**	**Wilk's Λ**
	LoFP	F(26,1286)= 1.822, p<.007*	.36	-
Corrected Model	**IT**	F(26,1286)= 2.135, p<.000*	.42	-
	COMP	F(26,1286)= 2.836, p<.000*	.55	-
	LoFP	F(26,1286)= 5.727, p<.000*	.003	.972
QS	**IT**	F(26,1286)= 15.177, p<.000*	.024	.972
	COMP	F(26,1286)= 3.087, p<.000*	.046	.972
DR	**IT**	F(26,1286)= 3.012, p=.05**	.005	.990
***Significance at 0,01 **Significance at 0,05**				

Table 4.18: *Test scores from the 3-way MANOVA (B) for H4a, H4b and H4c.*

Post hoc tests indicated that for LoFP the ascending order was significantly lower than both the descending and random order with p=.013 (SE=.094) and p=.010 (SE=.096) respectively. No significant differences between the descending and random order were recorded; p=.987 (SE=.096).

Next, in respect to impersonal trust and similar to the process followed above, for the identification of the QS condition that generated the highest mean for IT (positive stimulus), the respective estimated marginal means table and post hoc tests were once again consulted. For IT the highest marginal mean was generated again by the ascending order with M=4.535 (SE=.053), while the random order yielded the second highest marginal mean, M=4.249 (SE=.055) and the descending order generated the lowest mean of IT with M=4.130 (SE=.054), Post hoc tests showed that the ascending order was significantly higher than both the descending and random order with p=.000 (SE=.075) and p=.001 (SE=.076) respectively. There were no significant differences between the descending and random order conditions (p=.283; SE=.076).

For compensation (negative stimulus) the ascending order generated the lowest required compensation for full disclosure of information with estimated marginal mean M=3.205 (SE=.044), followed by the random order generating a slightly higher mean M=3.285 (SE=.046) of COMP, and finally the descending order which yielded the highest, M=3.361 (SE=.045). Post-hoc tests verified that COMP in the ascending order was significantly lower (p=.066, SE=.062) when compared to COMP required in the descending order, while no significant differences were recorded between the ascending and random order p=.314 (SE=.063).

The cross examination of the DM factors and the concept of QS generated some interesting findings. QS had an influence on the concepts of DM with the presentation of questions in an ascending order significantly reducing concerns regarding loss of privacy and face while enhancing the development of impersonal trust between the respondent and the involved organisation in an online setting. In regard to the level of compensation required for full disclosure, the ascending order was distinguished as being more effective in decreasing COMP compared to the descending condition. No significant differences were present in the comparison of the ascending and random order condition in respect to COMP. As DM posits that the decision making of individuals depends on positive and negative stimuli and the balance between the two, the present study showcases that the ascending order of invasiveness increases perceptions of relational depth, and reduces concerns regarding loss of face and privacy, hence shifting the mental balance of individuals in favour of information disclosure even when compensation required is not significantly changed. We elaborate more on this in the discussions chapter.

Dyadic relationships were also found to be significant (p=.050) in regard to their influence towards IT and this interaction was further investigated. After consulting the estimated marginal means table, the high condition of the concept, (reasoned dyadic relationship), generated the highest marginal mean of IT meaning that perceptions of a deeper relationship between the respondent and the organisation were synthesised in this condition. More precisely, the reasoned dyadic condition

generated an estimated marginal mean of M=4.404 (SE=.054) compared to the generated mean of IT by the non-dyadic (M=4.291, SE=.054) and unreasoned dyadic (M=4.218; SE=.054) conditions. Post-hoc tests verified that the reasoned dyadic condition generated significantly higher IT (p=.067; SE=.076) compared to the unreasoned dyadic condition while no significant differences were present when compared to non-dyadic (p=.302; SE=.076). Interestingly, dyadic relationships failed to significantly influence loss of face and privacy or the compensation variable. As the reasoned dyadic relationship is designed to reflect fair information practises by directly informing the individuals of how the acquired information would be used, it was expected to comply with the respective views of Zimmer et al. (2012) and Culnan (1993) who specify that respondents who are well informed of the use of their information perceive loss of privacy on a minimum scale. Still a more recent argument was expressed by Acquisti, Brandimarte and Lowenstein (2015) who mention that statements regarding the uses of information by organisations can sometimes raise concerns that would have otherwise remained dormant. These arguments are further expanded upon in the discussion section.

Decision of H4a, H4b and H4c: These findings provide partial support for the three hypotheses H4a,H4b and H4c, as only the high-level conditions of QS and DR significantly reduced LoFP, increased IT and reduced COMP simultaneously. CN was not found to generate significant differences with any of dependent variables. Finally, it is important to note that none of the high-level conditions of CN and QS provided reverse effects of what was expected, an issue discussed further in the managerial implications section of chapter 5.

Analysis of H4d, H4e and H4f: Following the influence of each instrumental factor individually, the 3-way MANOVA generated significant differences between the dependent factors and different combinations of the QS, CN and DR. Consistent with the view of Huberty and Morris (1989), the significant differences of independent outcome variables included in the MANOVA led to their individual examination with multiple 1-way ANOVAs in order to generate more

interpretable composites and enhance findings. This served as the second round of analysis and significant results from the two rounds are summarised in **table 4.19** below.

1ST ROUND OF ANALYSIS FOR H4d, H4e, H4f				
3X3 MANOVA				
Independent	**Dependent**	**F(df); Sig**	**Partial η^2**	**Wilk's Λ**
QS-CN	IT	*F* (4, 1286) =2.720; *p* < .05**	.009	.981
QS -DR	IT	*F* (4, 1286) = 2.309; *p* < .05**	.007	.976
	COMP	*F* (4, 1286) = 5.557; *p* < .000*	.017	.976
QS-CN-DR	IT	*F* (8, 1286) = 2.248; *p*= .068***	.012	.972
2ND ROUND OF ANALYSIS FOR H4d, H4e, H4f				
1-way ANOVA				
Independent	**Dependent**	**F(df); Sig**	**Partial η^2**	
QS-CN	**IT**	F(8,1286)=4,949; p<0.05**	.030	
2-way ANOVA				
Independent	**Dependent**	**F(df); Sig**	**Partial η^2**	
QS-DR	**IT**	F(8,1286)=5.265; p<0.05**	.032	
	COMP	F(8,1286)=3.748; p<0.05**	.023	
1-Way ANOVA				
Independent	**Dependent**	**F(df); Sig**	**Partial η^2**	
QS-CN-DR	**IT**	F(26, 1286)=2.836; p=0.05**	.055	
***Significance at 0.01 **Significance at 0.05 ***Significance at 0.10**				

Table 4.19: *Test scores from the 3-way MANOVA (B) and individual 1-way ANOVAs for the examination of H4d, H4e and H4f.*

Starting with the combination of the question sequence and comparative nature (QS-CN), significant differences were present for the prediction of IT. Estimated marginal means from the respective 1-way ANOVA indicated that the highest perception of IT was achieved in the Asc-HighCN, Asc-LowCN, and Asc-NonCN combinations. Still post-hoc tests showed that for the ascending order and its combination with the three conditions of CN no statistically significant differences were in place. Nevertheless, the combinations of conditions that were found to be significantly lower than these three were Des-HighCN, Des-LowCN, Des-NonCN and Ran-LowCN. The ascending order through its combination with the three

different conditions of the comparative nature behaved consistently with what was expected generating three of the highest marginal means for IT. These findings indicate that at the high end of the estimated marginal means of IT there were no significant differences, signalling that there wasn't a clear distinction of the high level conditions that generated a significantly higher mean of IT compared to the rest of the conditions. Still findings pinpoint to combinations of conditions between QS-CN that generate significantly lower perceptions of IT compared to the rest. This signalled that the employment of certain combinations could reduce the development of IT and by extension relational depth.

Next, regarding the QS-DR combination, results from the 3-way MANOVA indicated that there were statistically significant difference with IT and COMP. Findings from the second round of analysis, and the respective 1-way ANOVAs (**table 4.19**), showed that the Asc order and its three combinations with the conditions of DR generated the three highest marginal means of IT while the expected high-level condition (Asc-Rea) generated the highest marginal mean. Post-hoc tests verified that the Asc-Rea condition was higher than all the combination of conditions that utilised the descending and random order. Even though the Asc-Rea generated higher marginal means in respect to Asc-Unrea and Asc-Non the difference was reportedly not statistically significant. For the impact of the combination of QS-DR on COMP, the respective 1-way ANOVA as well as generated post-hoc tests, showed the Asc-Unrea to generate the lowest marginal mean for COMP with the conditions of Asc-Non, Asc-Rea and Ran-Unrea being the other three. The inconsistency of having the Ran-Unrea condition being included in the top 4 conditions in terms of generating the lowest mean for compensation was found not to be statistically significant with the other three combinations and further investigation was dropped. Nevertheless the respective analysis showed that the condition of Des-Unrea generated significantly higher COMP, indicating that the particular condition was more inefficient compared to the rest. As Des-Unrea generated one of the lowest percentages of OAD it was expected that more monetary compensation would need to be provided. Therefore

perceptions of individuals regarding the compensation required for full disclosure in the Des-Unrea condition were justifiable.

Lastly, the combination of all three constructs showed very strong tendency towards statistical significance in the case of IT ($p=.055$, $p<.10$) and was further investigated. A 1-way ANOVA with IT as the dependent variable and the variable representing the QS-CN-DR combination as the independent one was carried out (**table 4.19**). 6 out of the 9 combinations of the ascending order were included in the top 9 conditions that generated the highest mean of IT behaving consistently with previous findings. Still none of these conditions was significantly higher or lower compared to the other 8 included in this top 9 ranking. Nevertheless post-hoc tests identified certain conditions that were significantly lower than the rest. These were the conditions of Des-NonCN-Unrea, Des-HighCN-Unrea and Ran-LowCN-Rea. This again showcased of certain combination that hinder the development of IT which are further discussed in the following chapter.

Decision for H4d, H4e and H4f: Based on all of the above findings H4d, H4 and H4f were partially supported as not all combinations of IF generated significant differences with all of the DM factors.

4.3.5 H5: Comparing the influence of individual and combined utilisation of IF towards psychological processes and relational depth factors

The fifth set of hypotheses compared the influence of the combined and individual utilisation of instrumental factors in the questionnaire towards psychological processes (LoFP, COMP) and relational depth (IT). These three hypotheses are presented below.

H5a: The combined utilisation of the high-level conditions of instrumental factors further reduces concerns regarding loss of face and privacy compared to the individual utilisation of instrumental factors.

H5b: The combined utilisation of the high-level conditions of instrumental factors further reduces the compensation required for full disclosure of information compared to the individual utilisation of instrumental factors.
H5c: The combined utilisation of the high-level conditions of instrumental factors further increases perceptions of impersonal trust compared to the individual utilisation of instrumental factors.

Based on H4b, as no combination of the instrumental factors generated any significant results regarding LoFP (please see **table 4.19**) no leverage was provided in examining the influence of the high-level condition of the synergistic behaviour of IF towards LoFP, and therefore **H5a was not supported**.

Analysis for H5b: For H5b multiple unpaired t-tests were employed in order to examine whether compensation required for full disclosure was significantly lower when CN,QS and DR were combined compared to their individual employment. From the 3-way MANOVA, QS-DR generated statistically significant differences when predicting both IT and COMP variables (**table 4.19**). Therefore, for COMP, two unpaired t-tests were conducted. The reasoning of this process was identical to the one followed for the examination of H2b. The first two t-tests compared the high-level condition of QS-DR (Asc-Rea) with the individual high-level conditions of QS (Asc) and DR (Rea) respectively in regard to generated means of COMP. Results indicated that there were no statistically significant difference in the scores of COMP in the Asc-Rea (M=3.23, SD=.874) and Asc level (M=3.20, SD=0.942) condition; $t(58)=0.338$, $p = 0.735$, nor in the Rea level (M=3.27, SD=0.930); $t(560)=0.453$, $p = 0.651$.

Decision for H5b: Based on the above findings **H5b was not supported** as compensation was not found to be significantly lower in the combination of high-level conditions of QS-DR compared to the individual high-level conditions QS and DR.

Analysis for H5c: For H5c, which tested whether the combined employment of the high-level conditions of instrumental factors further increases perceptions of IT compared to the individual employment of instrumental factors, three combination of IF were detected through the 3-way MANOVA; QS-CN; QS-DR; QS-CN-DR. Again 7 more unpaired t-tests were utilised to compare the generated means of IT based on the high-level conditions of the three different combinations of IF and the high-level conditions of each IF individually. Starting with QS-CN and the respective high-level condition (Asc-HighCN; M=4.379, SD=1.238), no significant differences were present when compared to Asc (M=4.5296, SD=1.2177) with t(598)=1.3363, p=.182, neither with the HighCN condition M=4.324, SD=1.105); t(588)=.5169, p=.6054.

For the generated mean of IT, the high-level condition of QS-DR (Asc-Rea; M=4.694, SD=1.252) when compared to the respective IT mean of the high level-condition of QS (Asc; M=4.529, SD=1.218) regardless of the higher marginal mean of IT generated in the Asc-Rea condition, found no significant difference, t(599)=1.399, p= .1621. Nevertheless the comparison with the high-level condition of DR (Rea; M=4.411, SD=1.113) showed that the Asc-Rea condition yielded significantly higher marginal means for IT with t(560)=2.520, p = .01 ($p<.05$). This verified that the combination of high-level conditions of QS-DR significantly increases the perceptions of impersonal trust compared to the individual employment of the two concepts.

Lastly, the triple combination of QS-DR-CN (Asc-Rea-HighCN; M=4.5816, SD=1.2356) and the generated means of IT in the Asc-Rea-HighCN condition were compared with the generated IT means of Asc, Rea and HighCN individually. For the comparison of the Asc-Rea-HighCN condition with the Asc condition, results from the unpaired t-tests showed no significant difference with t(486)=.2853, p = .7756. Comparison with the Rea condition showed a stronger tendency towards significance with t(464)=.9906, p = .3224 but was still found not to be statistically significant. Finally, the comparison with the HighCN condition showed the strongest tendency towards significance with t(475)=1.5263, p= .113.

Decision for H5c: H5c was partially supported as not all of the high level conditions of the QS-CN, QS-DR and QS-DR-CN combinations were significantly higher in terms of generated means of IT compared to their individual counterparts. Nevertheless the high-level condition of the QS-DR combination recorded significantly higher results when compared with the high-level condition of DR, while the high-level condition of the QS-DR-CN combination showed a moderate tendency towards significance when compared with the individual high level condition of CN in regard to IT.

4.4 Summary

The data analysis chapter provided the main analysis of the data accumulated through the main study and tested this Thesis' five main sets of hypotheses. In sum H1 was partially supported. From the second set of hypotheses both H2a and H2b were again partially supported. All hypotheses from the third set were met and fully supported (H3a, H3b, H3c). From the fourth set of hypotheses all six were partially supported (H4a, H4b, H4c, H4d, H4e, H4f) while from the fifth and last set H5a, H5b were not supported and H5c was partially supported.

The next chapter reconsiders findings in light of previous studies, discusses managerial, theoretical and practical implications, acknowledges limitations of the current research and recommends avenues for future research.

5. GENERAL DISCUSSIONS CHAPTER

Introduction

Even though the examined hypotheses were not supported exactly as predicted, the data and findings obtained by the main study offer valuable insight regarding the factors and parameters that influence voluntary disclosure of information. The story unveiled by the obtained data is presented in this section while discussions that aim to link the generated findings with previous literature in an attempt to explain counterintuitive information are provided. More precisely, in Part I, results from the examination of the five sets of hypotheses are brought together with different streams of existing literature, in order to formulate reasonable arguments for the explanation of voluntary disclosure and the factors that influence it within organisational settings. Part II includes the managerial, theoretical and practical implications, while elaborating on how organisations can capitalise on this Thesis' findings. The "limitations and future research" section is included in Part III and acknowledges certain limitations of this Thesis that open new pathways for future research. Finally, this chapter and Thesis end with the summary and concluding words sections respectively.

5.1 PART I-LINKING FINDINGS TO LITERATURE

5.1.1 H1: The influence of the individual utilisation of IF towards OAD

The Thesis' first hypothesis (H1) examined how the individual employment of instrumental factors (DR, QS, CN) influences overall actual disclosure (OAD). Literature-review-based expectations indicate that the respective high-level conditions of each of the three examined instrumental factors- namely reasoned dyadic relationship, descending order of question sequence and high comparative

nature- would generate higher percentages of OAD compared to their individual low-level condition counterparts.

Consistent with the findings of Zimmer et al. (2010), the concept of dyadic relationships proved to be influential in inducing individuals to engage in actual disclosures as it was found to generate significantly higher OAD compared to the unreasoned-dyadic and non-dyadic condition respectively. This verified the applicability of social response theory and the notion of disclosure reciprocity in impersonal organisational settings for the inducement of information disclosure (Worthy et al., 1969; Zimmer et al., 2010). Furthermore, the reasoned-dyadic relationship, which provided information regarding the potential uses of the acquired consumer data, can also be linked to fair information practises (FIPs) employed by organisations which are considered to positively influence individuals to engage in information disclosures (Culnan, 1993). This also enhances the ethical aspect of the reasoned-dyadic condition since through its employment organisations can make the implicit aspects of data collection processes explicit; primarily by explaining to individuals the reasons behind data accumulation as well as the potential uses of acquired information in a more direct and straightforward manner.

The examination of the concept of comparative nature in this research further reinforced the view of Acquisti, John and Lowenstein (2012; studies 1a-1c) who stated that individuals follow certain herding patterns based on their comparisons with other individuals in regard to information disclosure or abstention from it. CN's high-level condition (HighCN) assisted in the accumulation of information while the respective low-level condition showcased a significant negative effect towards disclosure compared to its other two counterparts. Primarily, these findings provide proof of the applicability of social compliance and herding behaviour effects in information disclosure scenarios by consumers to organisations. Additionally, this provides empirical application and verification (within an organisational information-disclosure environment) of Huang and Chen's (2006) and Langley et al.'s (2014) work which embraced the importance

of compliance of individuals with the masses. In the present study this was found to be influential when examined in an impersonal setting and at the absence of actual physical presence by the organisation (Shoenbachler and Gordon, 2002).

From the above, the utilisation of the individual high-level conditions of dyadic relationships and comparative nature in the questionnaire were found to be influential towards the increase of OAD compared to questionnaires where the two concepts were absent or when their respective low-level conditions were employed.

Still, the examination of the third instrumental factor in this study, question sequence, revealed some inconsistencies regarding the views of Acquisti, John and Lowenstein (2012; studies 2a-2d). The ascending order of privacy invasiveness proved to generate significantly higher percentages of OAD compared to the descending order contrary to what was proposed by the authors – "Study 2b shows that question order affects perceptions of the intrusiveness of the questions: When the questions are presented in decreasing (descending) order of intrusiveness, they are judged to be less intrusive than when they are presented in an increasing (ascending) order" (Acquisti et al., 2012; p.172).

There are at least two explanations for this inconsistent finding. Primarily, even though the demographic variables of gender and age were not found to be statistically significant[46] when included as covariates in this study's examination of QS, it is worth noting that certain demographic inconsistencies were present both in this research and that of Acquisti et al. (2012). The sample employed in this study was based on the UK adult population and reflected an overall younger and more equal sample, in terms of gender split, compared to the study of Acquisti et al. Still, these demographic inconsistencies can provide only partial explanation to the above disagreement of findings and thus further investigation was conducted.

[46] This non-significance was also consistent with McFarland's (1981) findings regarding question order effects and the demographic background of respondents.

More in-depth examination led to the second, more robust, explanation regarding this inconsistency which was found in a comparison of the disclosure measurement items employed in Acquisti et al.'s study and the present one. Acquisti et al. (2012) focused on admission-based questions regarding whether or not individuals have engaged in certain embarrassing activities (i.e. Q.2: Have you had sex with the current husband, wife or partner of a friend?) measured by a fixed 4-point frequency-measuring scale (frequently, sometimes, at least once, never). The authors indicate that "(...) Because most of the behaviours were of a sensitive nature, admitting to having engaged in them carried potential costs, whether subjective (embarrassment) or objective (incrimination)" (p.136). Contrary to this, the present study was based on the measurement of actual disclosures that included, but were not restricted to, admission-based questions while avoiding the use of a pre-fixed scale to enhance actual-disclosure measurements. This reflected a more realistic organisational setting where information disclosures by consumers take place (i.e. What is the total amount of your household savings? Please provide a numerical value below -Which mobile carrier do you currently use? Please state the name of the company below). The privacy capturing questions employed here were designed in order to accumulate raw, real-life information similar to the work of Zimmer et al. (2010), and potential losses for consumers were not limited to embarrassment (loss of face; Dahl et al., 2001) and incrimination but also to direct material losses, for example the direct loss of privacy regarding sensitive financial information (see Robertshaw and Marr, 2005; Nowak and Phelps, 1995; Mothersbaugh et al., 2012). Acquisti John and Lowenstein (2012) acknowledge this limitation in their study and they specify that "(...), our studies were not designed to establish "true" prevalence estimates of the behaviours in question and were limited to a specific type of information that consumers may feel uncomfortable divulging (engagement in embarrassing or sensitive behaviours) as opposed to other types of information, such as Social Security numbers" (p.172).

This argument is further supported by the fact that findings from this study - regarding the positive effects of the ascending order of invasiveness in

questionnaires towards actual disclosures- are consistent with another stream of literature. Being more precise, older papers like Payne (1951; p34) indicated that "initial questions need to be relevant and easy while questions that are potentially objectionable need to be at the end of the questionnaire". The principle described here is clearly reflected in the ascending order of question sequence. More importantly, recent papers like Moon (2000) who, similar to the present study, focused on questionnaires measuring actual disclosures of information in Human Computer Interactions (HCI), specified that easy, warm-up questions increase the probability of disclosure compared to the case of having participants interact with the most invasive and difficult questions at the very beginning of the questionnaire. Furthermore, Zimmer et al. (2010) identified the ascending order of question sequence to be more accommodating for the disclosure of actual information in a study where disclosure measurements were of an identical nature to the disclosure measurements employed in the present study.

These papers argue in favour of the ascending presentation of questions regarding privacy invasiveness. Consistent with this stream of literature, findings from this research identified the high-level condition of question sequence to be the ascending instead of the descending order when it comes to privacy-related questions -with the second arguably being more effective when employed in solely admission-based questionnaires as proposed by Acquisti et al. (2012).

These findings are of particular importance since the utilisation of the ascending or descending order of privacy invasiveness in questionnaires can provide strategic opportunities for organisations depending on the structure of their data-capturing questionnaires during data-accumulation processes. The managerial implications section (5.3) elaborates more on this issue.

5.1.2 H2a: The influence of the combined utilisation of IF factors towards OAD

The second hypothesis, H2a, indicated that the combination of the high-level conditions of the three instrumental factors significantly increases OAD. This served as a more in-depth investigation of the synergistic behaviour of all the conditions, including the high-level ones, of each instrumental factor. No previous research has examined the synergistic behaviour of different concepts regarding the presentation of data-capturing questionnaires. This represented one of the unique aspects of this research as well as one of its more inductive-oriented elements.

Even though the triple combination of the high-level conditions of the three examined IF (Asc-Rea-HighCN) was not found to generate significant differences, certain pair-wise combinations were found to do so. These combinations were the CN-DR and QS-DR. Starting with the QS-DR combination and its respective high-level condition (Asc-Rea), the Asc-Rea was found to generate the highest OAD. Interestingly, an explanation to this finding can be found in a statement made by Zimmer et al. (2010) regarding dyadic relationships and the notion of disclosure reciprocity. In particular they indicate that "The principle of reciprocity posits that the queries for information need to follow the flow of a normal conversation, starting with innocuous general things and moving to more invasive items as the relationship develops" (p.400). What Zimmer et al. (2010) propose here, is that for dyadic relationships to be effective, questions need to be presented in an ascending order of invasiveness since the latter accommodates reciprocal information exchanges. Since the question sequence construct was combined with dyadic relationships, through this combination, the ascending order worked in alignment with the reasoned dyadic condition and consequently increased OAD. This argument is further supported through a closer examination of the respective estimated marginal means table for QS-DR (please see **table 4.10**, chapter 4) which indicates that the ascending condition of question sequence, when

combined with the reasoned and unreasoned dyadic conditions respectively, generated the two highest aggregated percentages of OAD.

Even though the combinations of the Asc-Rea did not generate statistically significant differences with all of the conditions, differences were present with three specific ones; Des-Unrea; Des-Non; Ran-Non. These three conditions showcased significantly lower percentages of OAD compared to the majority of the rest of the conditions. Findings here pinpoint to certain combinations where information disclosure is hindered and therefore synthesis and employment of these combinations of conditions should be avoided by organisations. This behaviour can be attributed to two reasons. Either a) one or both conditions that synthesise the pair-wise combination represent the low-level conditions of their respective concepts or b) a contradicting nature between particular combinations might be in place.

A closer examination of the findings showed that the Des-Non condition was synthesised by utilising the descending question sequence order and the non-dyadic relationship[47], both of which were identified in H1 to be low-level conditions of their respective concepts. Therefore the generation of significantly lower percentages of OAD by the Des-Non was justified. Similarly, the Ran-Non condition utilised the random order sequence, which was again identified to be the low-level condition for QS[48], and the respective low-level condition of dyadic relationships. Again the combination itself provided enough justification as to why it generated one of the lowest percentages of OAD. These findings provide clear evidence that certain low-level conditions hinder information disclosure. Findings here are in alignment with the views of Moon (2000) and Acquisty et al. (2012) regarding the adverse effects of the low-level conditions of QS and CN respectively.

[47] In the non-dyadic condition, the concept of dyadic relationships was completely absent in the presentation of the questionnaire.

[48] Based on the results of the 3-way ANOVA for the examination of H1, no significant differences were present between the descending and random order and both were treated as low-level conditions.

Lastly the Des-Unrea condition was synthesised by combining the descending order condition (identified to be a low-level condition) with the unreasoned dyadic relationship. The unreasoned dyadic was not found to be statistically different to the non-dyadic and both were treated as low-level conditions, again justifying the low percentage of OAD being generated. Nevertheless, an interesting point emerged from this analysis. The Des-Unrea combination generated the lowest percentage of OAD while the Asc-Unrea generated the second highest from all conditions, surpassed only by the high-level conditions of Asc-Rea. Post-hoc tests verified that the difference of OAD between the Des-Unrea and Asc-Unrea was statistically significant. Based on the third round of analysis for H2a, additional light was shed as to why this major discrepancy of OAD occurred for the unreasoned condition when combined with the descending and ascending conditions respectively. As the unreasoned dyadic condition provided respondents with statements regarding interesting facts about the organisation's activities, in order to synthesise a reciprocal information exchange, it was suspected that the triangulation of this condition with the ascending order of question invasiveness allowed the synthesis of favourable perception of trust and relationships (Hakanson and Snehota, 1995; Biggemann, 2012). Findings from the respective 1x1 ANCOVA[49] supported this argument as impersonal trust was significantly higher in the Asc-Unrea condition compared to the Des-Unrea.

It is supported that in the Des-Unrea condition, individuals perceived the unreasoned statements which preceded very privacy-invasive questions at the beginning of the questionnaire, as decoys for inducing them to disclose sensitive information. This accompanied by the lack of allowance of "space" for the dyadic relationships to come to effect, as proposed by Zimmer et al. (2010), can explain the significantly lower scores of IT. Related findings were reported by Andrade, Kaltcheva and Weitz (2002) who identified that in online settings, data-capturing websites that did not incorporate elements that sought to reduce concerns and set the foundations for the development of trust between the respondents and the organisation, made individuals perceive monetary compensations as *decoys* that

[49] Impersonal trust (IT) was utilised as a covariate.

did not justify the divulgence of information. In this case, the statements of the unreasoned condition in the descending order might not have convinced individuals to trust this study's organisation thus explaining the significantly lower percentages of IT.

This finding is very important as it provides further support to the claim that the ascending question sequence is more accommodating for the development of disclosure reciprocity even in the low-level unreasoned-dyadic condition, and leads to increased perceptions of IT and, by extension, increased OAD by respondents.

For the CN-DR combination, which was also found to generate significant differences in OAD, the combination of the two respective high-level conditions of HighCN-Rea generated the highest percentage of OAD which was significantly higher than the LowCN-Non and LowCN-Unrea conditions. The latter two provided significantly lower percentages of OAD compared to the rest of the conditions. A closer examination verified that both of these combinations utilised low-level conditions. The low comparative nature condition which was expected to have a negative effect on disclosure did so as proposed by Acquisty et al. (2012), and when combined with the non-dyadic relationship, which signified the absence of dyadic relationships, generated the lowest OAD which was in alignment with what was proposed by Zimmer et al. (2010). This was consistent with expectations as this particular combination was synthesised by two low-level conditions.

Nevertheless, a closer examination of this finding revealed an interesting pattern of OAD in the CN-DR combination. An escalation of OAD was recorded when the low comparative nature condition was triangulated with the non-dyadic, unreasoned and then reasoned dyadic conditions; LowCN-Non (M=86,820, SD=18,752); LowCN-Unrea (M=89,150, SD=18,752); LowCN-Rea (M=92,480, SD=10,220). Post-hoc tests verified that the LowCN-Rea condition was significantly higher than the LowCN-Non; $p<0,05$ (SE=1,628). Findings from this

previously unexplored area, showcase that in scenarios where the majority of individuals avoided information disclosure and new respondents were aware of this tendency by others, the incorporation of statements of how the organisation intends to use the acquired information (reasoned dyadic) significantly increased information disclosure. In these scenarios triangulation of the low comparative nature condition with the reasoned dyadic condition should be preferred by organisation.

Interestingly, in the combinations of the high-level condition of comparative nature with dyadic relationships the motif of findings was slightly different. The combination of HighCN-Rea generated the highest OAD (M=94,520, SD=10,613) but was followed by the HighCN-Non (M=94,351, SD=10,485) and HighCN-Unrea (M=92,840, SD=13,467), where differences were not found to be statistically significantly. This indicates that the escalation of DR conditions, when combined with the high-level condition of CN, does not provide reciprocal increases of OAD as opposed to the case where the LowCN condition was combined with DR. Instead, triangulation of the concept with the reasoned dyadic and non-dyadic generated identical results of OAD, with the HighCN-Rea being marginally higher.

This finding provides evidence that when complimenting the high-level condition of CN with the reasoned or unreasoned conditions of DR, it does not generate significantly higher OAD compared to the complete absence of the DR concept (HighCN-Non). This indicates that in scenarios where individuals are led to believe that others have disclosed the information that they are currently being asked to provide, the incorporation of statements by the organisation in an attempt to facilitate a reciprocal exchange does not provide further increase of voluntary disclosure. Interestingly, this showcases that certain conditions are as effective on their own as when triangulated with other conditions. The following sections further examine these interactions and further discussions are provided in the managerial implications section.

5.1.3 H2b: Comparing the influence of individual and combined utilisation of IF towards OAD

H2b focused on the comparison of percentages of OAD generated by the high-level conditions of the individual and combined employment of DR, CN and QS which was previously unexplored in the literature. As aforementioned, based on H2a the two combinations of instrumental factors that generated significant differences were the QS-DR and CN-DR, thus their respective high-level conditions were utilised (Asc-Rea; HighCN-Rea). The two were compared with the respective high-level conditions of each individual concept. As comparisons between the individual and combined employments of DR, CN and QS were not previously conducted, this represented another unique feature of this research. The importance of this hypothesis lies with the fact that identifications of effective combinations of concepts that further increase OAD, compared to the individual employment of the concepts, would open new paths on how to make the formulation and design of data-capturing questionnaires more effective and efficient.

The Asc-Rea condition generated the highest percentage of OAD compared to Asc and Rea individually, and the difference reached statistical significance only when combined to the Rea condition. This showcases that when reasoned dyadic relationships are combined with questionnaires in which questions follow an ascending order of invasiveness, this makes the questionnaire more effective than the individual utilisation and unstructured presentation of the reasoned dyadic condition. This finding is also relevant to the notion of disclosure reciprocity and the ascending order as a prerequisite for its development, as indicated by Zimmer et al. (2010), Derlega et al. (1973), Johnson and Noonan (1972) and Hill and Stull (1982).

In regard to the comparison of the Asc-Rea with the Asc condition, results show that the latter was found to operate effectively on its own even though its combination with Rea provided a marginal increase of OAD. Interestingly, the

Asc-Rea combination, showed a harmonic interaction between the two individual conditions (Asc and Rea). Even though the Asc-Rea didn't generate significantly higher percentages of OAD and only marginal ones, compared to Asc, it did not decrease OAD either. As there is no evidence of a contradicting nature between the two it is recommended that the utilisation of the Asc-Rea should be preferred compared to the Asc condition on its own, not so much for increasing voluntary disclosures but for ethical reasons. This is due to the fact that Rea is linked to fair information practises that enhance the ethicality of the data collection process (Culnan. 1993). This argument is expanded upon in the managerial implications section.

For CN-DR on the other hand, the respective high-level condition, HighCN-Rea, generated higher percentages of OAD compared to the individual high-level condition of HighCN and Rea but significant differences were not present (even though a moderate tendency towards significance was recorded when comparing HighCN-Rea to Rea). This highlights that combining CN-DR to create the HighCN-Rea condition marginally increases OAD compared to the individual employment of Rea. This was in alignment with the discussions made for H2a (above) regarding the interaction of the high-level condition of CN and DR where the three conditions of DR did not significantly increase OAD when combined with the HighCN condition. Interestingly again no contradicting nature was found to be in place between the two concepts. Results indicate that both high-level conditions of HighCN and Rea are as effective on their own as when combined.

Even though statistically-based findings here are in some cases counterintuitive, the general motif of results shows that the high-level conditions of the DR-QS and CN-DR combinations can benefit data accumulation processes either though incremental or, in some cases, significant increases of OAD. Findings show that certain combinations of conditions should be preferred compared to the individual employment of conditions which gives rise to certain managerial implications that are discussed in the respective section.

5.1.4 H3a, H3b, H3c: The influence of LoFP, COMP and IT towards OAD

The third set of hypotheses (H3a, H3b, H3c) examined how each of the psychological factors (LoFP, COMP) and relational factors (IT) influence OAD. Previous research identified loss of face and loss of privacy to have an influence in the information disclosure process which further enhanced the importance of examining these concepts in more detail. Even though loss of face and privacy were previously explored empirically by both Barnett (2004) and Dahl et al. (2001), deductive verification was provided in this research through H3b. This enriched previous findings through the further examination of the interaction of these concepts with privacy related questions that had various levels of privacy invasiveness (present study incorporated 18 items compared to Barnett's 4). Literature-review-based expectations were that the higher the LoFP, the lower the OAD. The reasoning behind this was that, as perceptions of loss of face and privacy increase[50], OAD percentages significantly drop thereby showcasing an abstention of individuals from disclosure. Through the respective analysis this was verified which further supported the claims of the respective literature (Barnett 2004, Dahl et al., 2001).

Furthermore, the different levels of monetary compensation provided in return for information disclosures were previously unexplored. Contrary to papers that examined the influence of presence, absence and type of compensation provided within information disclosure processes (see for example Premazzi et al., 2010; Deutskens et al., 2004; Barnett, 2004; Andrade, Kaltcheva and Weitz, 2002) this study specialised in the examination of the *different levels of compensation* required for full information disclosure, in an attempt to distinguish between efficient and inefficient compositions of data-capturing questionnaires. This was examined through H3c and served as another unique aspect of this research. Still, the above exploration was based on the logical reasoning that requirements of higher compensation offered for full information disclosure by individuals, would

[50] This is translated as greater embarrassment and greater loss of privacy experienced from a potential disclosure.

have an adverse effect on actual disclosure as requiring higher levels of compensation would signal a tendency towards disclosure abstention (and vice versa) which was not previously covered in the literature. H3c, which explored this aspect, was supported verifying the claim that requiring higher levels of compensation reduces OAD while supporting the above (previously empirically unexplored) reasoning.

The importance of this finding lies with the precision of the different levels of compensation required for respondents to provide certain information and how one can distinguish between these. For example, different levels of compensation required for disclosure can signpost organisations towards efficient and inefficient methods of data capture. This opens venues for future research in identifying different levels of non-monetary types of compensation which were also found to be influential in data accumulation processes (see Deutskens et al., 2004).

Regarding relational depth between individuals and organisations, even though there is a convergence point of most academic views regarding its influential aspect in respect to information disclosure (i.e. Laurenceau et al., 1998; Culnan and Armstrong, 1999; Barnett, 2004; Biggemann, 2012; Brock and Zhou, 2012), precision in defining what constitutes relational depth is often mixed. Attempts were made by other academics in translating relational depth as the sum of trust and relationships, but this arguably situates the concept in a broad and imprecise spectrum which results to inconsistent and sometimes unrelated, context-wise, measurements (Shapiro, 1987). This study which followed Shapiro's (1987) reasoning[51], focused on the examination of trust in organisational online data-base driven marketing settings where accumulation of consumer information is done through impersonal means, namely impersonal trust (Shoenbachler and Gordon, 2002). As online survey data collection methods are more easily utilised by organisations, and are found to induce voluntary disclosures in greater effect than offline ones (Hanna et al., 2005), this further justifies the choice of impersonal

[51] Shapiro (1987) states that trust needs to be specified within its context of examination in order to avoid unrelated and invalid measurements.

trust in this particular context. H3a which examined IT and its interaction with OAD was supported by this research's findings building upon the work of Shoenbachler and Gordon (2002) by examining the influence of IT towards actual disclosure as opposed to willingness of information disclosure that was proposed by the authors. These findings provide evidence that for online accumulation of information where physical presences are absent and impersonal settings are in place, the instilment of impersonal trust between the participants and the organisation can exponentially increase information disclosures.

5.1.5 H4a, H4b, H4c: The influence of the individual utilisation of IF towards LoFP, COMP and IT

The fourth set of hypotheses examined how the instrumental factors (DR,CN,QS) influence each of the concepts of psychological processes (LoFP, COMP) and relational depth (IT). This interaction aimed to identify which conditions of the three IF concepts reduced concerns regarding loss of privacy and face, while increasing perceptions of impersonal trust and reducing compensation required for information disclosure. The reasoning and purpose of this examination was based on the identification of influences of data-capturing questionnaires, and their different ways of presentation, towards mediating factors that lead to divulgence of information and therefore the increase of OAD. Additionally, the incorporation of COMP in the analysis revealed that certain conditions require significantly lower levels of compensation than others, rendering them more efficient during the information accumulation process. As all of these interactions were previously unexplored in the literature, this examination represented another unique aspect of this research and incorporated elements of induction.

H4a, H4b and H4c examined the influence of the individual employment of QS, DR and CN towards LoFP, IT and COMP. Significant differences were recorded by the concepts of QS and DR. For QS, the ascending order of privacy invasiveness generated significantly lower percentages of LoFP, indicating that

perceptions regarding embarrassment and loss of privacy were minimised in this particular sequence. This was in alignment with the findings of H1 and the identification of the ascending order condition as the highest OAD-yielding sequence. This can be linked to Moon's (2000) argument that ascending order of privacy invasiveness offers a more evenly balanced escalation of invasiveness, which is believed to reduce concerns of individuals compared to other sequences. For example in the case of the descending order, perceptions of loss of face and privacy were significantly higher due to the fact that respondents were faced with very invasive questions at the beginning of the questionnaire. This triggered a more defensive behaviour in regard to divulgence of information (as seen in H1), which, based on findings, was attributed to greater concerns regarding loss of face and privacy. In the ascending sequence respondents perceived the loss of privacy and face on a minimum scale compared to questions that were presented in the descending or random order of question sequence. This meant that the slow escalation of privacy invasiveness in the questionnaire reduced the embarrassment levels of individuals as well as concerns regarding loss of privacy (Moon, 2000).

The ascending question sequence was also found to generate significantly higher levels of IT compared to the two other sequences. This indicates that the ascending sequence was more accommodating for the development of perceptions of relational depth between the individuals and the organisation introduced to them in the survey's scenario. Similarly, for COMP, the ascending order significantly reduced compensation required for full disclosure compared to the descending order. As OAD was significantly higher in this sequence, and therefore more questions were answered (and information disclosed), compensation required for full disclosure significantly dropped.

DR on the other hand generated significant differences only with IT. The reasoned dyadic condition generated significantly higher means for IT signalling that it was more accommodating for its development compared to the reasoned and non-dyadic conditions. This can be linked to two streams of literature that have a direct relevance to these findings; that of disclosure reciprocity in information exchanges

and that of information sharing for relationship development. More precisely, Zimmer et al. (2010) complement the reasoned dyadic relationship by indicating that it brings together social actors and gradually follows the view of a normal conversation, attributing this to the fact that "(...) the reasoned dyadic condition creates a pleasant experience for the individual. It simulates politeness, reciprocity, and provides reasoning for the data collection" (p.403). As the principle of DR can be linked to reciprocal information exchanges between the organisation and the individual it is also highly concordant with the literature of information exchanges and relational depth development. Hakanson and Snehota (1995) specify that when two related social actors acquire meaning from their reciprocal acts, relationship bonds begin to form. Reciprocity here is key for the development of impersonal trust and, by extension, relational depth with Green et al. (2006) and Biggemann (2012) positing that for relationships to develop, information exchange and sharing by both parties is essential. Applying these views in this Thesis' findings, the reasoned reciprocity of information exchange that describes the reasoned dyadic relationship allows the development of bonds between individuals and the organisation, which in return stimulates the synthesis of perceptions of impersonal trust by the respondents.

These findings are of particular importance as they reinforce our understanding of how reciprocal information-exchanges in impersonal information-accumulation settings influence disclosure management factors. Perceptions of impersonal trust are more easily synthesised in scenarios where the organisation shares the reasons why it requires that information, as well as specifying the potential uses of the acquired information -this in return allows the development of a reciprocal information exchange, which ultimately leads the development of IT. When IT is in place, this makes the divulgence of information a more logical and sensible option to the individual.

Still, DR failed to generate significant differences with LoFP and COMP. This was in not alignment with our expectations, the reason being that as DR condition were designed to reflect fair information practises it was expected that respondents

would perceive loss of privacy on a minimum scale, when informed of the use of their information (Culnan, 1993). Nevertheless, we link these findings with those of Singer, Hippler, and Schwarz (1992), which were more recently reinforced by the arguments of Acquisti, Brandimarte and Loewenstein (2015) who specified that even though logical assurances would be expected to alleviate concerns and increase divulgence of information, these can sometimes have opposite effects. The reason for this is because these logical assurances can elevate respondents' privacy concerns that would have otherwise remained dormant (Acquisti et al., 2015; p.510). Findings from the present study indicate that DR failed to reduce perception of LoFP but opposite effects (increase of LoFP) were not recorded either. Based on the reasoning of disclosure management, our findings indicate that the DR concept does not necessarily reduce concerns regarding LoFP and COMP required but instead enables the synthesis of perceptions of a stronger IT. This allows individuals to overcome concerns and engage into actual disclosures, which arguably justifies the significantly higher OAD of the reasoned condition identified in H1. In the managerial implication section we propose methods in which organisation can capitalise on this.

5.1.6 H4d, H4e, H4f: The influence of the combined utilisation of IF towards LoFP, COMP and IT

The synergistic behaviour of IF and their effect towards LoFP, IT and COMP was examined through H4d, H4e and H4f. This examination allowed the better understanding of how combinations of IF influence mediating factors of OAD while examining their efficiency during the data accumulation process through the measurement of COMP. Starting with QS-CN, the combination generated statistically significant differences with IT. All combinations made by the triangulation of the ascending order and comparative nature conditions (Asc-HighCN, Asc-LowCN and Asc-NonCN) recorded the three highest aggregated means of IT compared to the rest of the condition without any significant differences being present between the three. The ascending order through its

combination with the three conditions of CN behaved consistently with what was expected based on the views of Green et al. (2006), Zimmer et al. (2010) and Biggemann (2012) .

Still, it was apparent in the QS-CN combination that the concept of CN generated marginal effects as none of its three conditions was found to generate significantly higher results than the rest when combined with the ascending order. Contrary to this, the three combinations were significantly higher than Des-HighCN, Des-LowCN, Des-NonCN and Ran-LowCN which were synthesised by the low-level conditions of QS (descending and random). Furthermore, the Asc-NonCN condition in which CN was completely absent generated results of IT that were identical with the Asc-HighCN condition in which the high-level condition of CN was incorporated. This together with the fact that the influence of CN was found to be insignificant when examining for H3a, H3b and H3c, provided evidence that in the QS-CN combination the concept of QS was responsible for the significantly higher means of IT. In practical terms, findings here build upon Moon's (2000) argument regarding the ascending order of questions which warms up individuals for the divulgence of sensitive information later on in the questionnaire. This verifies that the concept of CN, as proposed by Acquisti et al. (2012), can be significantly increased in terms of its effectiveness in instilling impersonal trust when triangulated with QS.

The QS-DR combination also generated significant differences with both IT and COMP. The expected Asc-Rea condition generated the highest IT and was significantly higher than the rest. This verified the arguments made in H2b based on the work of Biggemann (2012), Zimmer et al. (2010) and Hakanson and Snehota (1995) regarding the influential synergistic behaviour of the Asc-Rea for the development of IT and, by extension, relationship depth. This was attributed to the reciprocal information exchange that the reasoned dyadic condition facilitates, accompanied by the slow escalation of invasiveness in the questionnaire which accommodates the effective utilisation of the first. Regarding COMP, the Asc-Rea condition generated one of the lowest means of compensation required for full

disclosure, showcasing it as one of the most efficient combination for the divulgence of information. Still, the condition was only found to be significantly lower than the Des-Unrea combination which was also significantly higher that most other conditions. As Des-Unrea was synthesised by two low-level conditions, this provided sufficient justification as to why COMP was significantly higher compared to the Asc-Rea.

The examination of the triple combination QS-DR-CN was also found to generate significant differences with IT. Results from the respective analysis showed that the expected high-level combination of Asc-Rea-HighCN, even though it generated one of the highest means of IT, significant differences were recorded with three combinations of conditions; Des-Unrea-NonCN, Des-Unrea-HighCN and Ran-Rea-LowCN. A closer examination showed that the Des-Unrea-NonCN was synthesised by the low-level conditions of the respective concepts which justified this significantly lower mean of IT. In the Des-Unrea-HighCN combination, both the Des and Unrea were low-level conditions while HighCN was comparative nature's high-level condition. Still, as CN was found not to have any influence towards IT, through the respective 3X3 MANOVA, this combination was also justified in terms of its behaviour. Lastly, the Ran-Rea-LowCN combination was synthesised by the low-level conditions of Ran and LowCN while Rea was the respective high-level condition for DR. As DR was found to influence IT, results here slightly distort the expected motif yet showcase that the high-level condition of DR is not sufficient for the increase of IT when combined with the random question sequence and the low comparative nature condition. Findings here are linked to the views of Hakanson and Snehota (1995), Green, Derlega and Matthews (2006) and Zimmer et al., (2010), as they further reinforce the view that the reasoned dyadic relationship requires ascending escalation of invasiveness in order to effectively facilitate disclosure reciprocity for the development of relational depth.

5.1.7 H5a, H5b, H5c: Comparing the influence of the individual and combined utilisation of IF towards LoFP, COMP and IT

Hypotheses H5a, H5b and H5c compared the synergistic behaviour of the high-level conditions of the DR-CN-QS combination with the individual high-level conditions of the three concepts in regard to LoFP, COMP and IT respectively. The objective of this hypothesis was to examine whether the synergistic employment of instrumental factors was more effective in i) reducing concerns of loss of privacy and face, ii) reducing compensation required for disclosure while iii) increasing perceptions of impersonal trust, compared to the individual employment of the instrumental factors. As this was previously unexplored in the literature, it represented another unique aspect of this research and followed a more inductive reasoning.

Results from the respective analysis indicate that the combination of the high-level conditions of QS-DR (Asc-Rea) generated significantly higher IT compared to the individual employment of Rea. This verifies that the Asc-Rea combination further increases impersonal trust of respondents towards the organisation compared to the combination of the reasoned dyadic condition with any other question sequence (descending or random). This once more provides deductive verification of the view expressed by Zimmer et al. (2010) regarding the harmonic interaction of the ascending order of invasiveness and the reasoned dyadic condition as well as the impact of disclosure reciprocity for the development of relational depth (Green et al., 2006; Biggemann, 2012).

Furthermore the Asc-Rea did not generate significant differences with the ascending order condition in regard to IT, indicating that the ascending order was as efficient for synthesising perceptions of IT when employed individually, as when combined with the reasoned dyadic condition. Again here findings are in alignment with the findings of H2b, where the Asc-Rea failed to generate significantly higher OAD compared to Asc. Still, even though Asc-Rea increases IT only marginally compared to the Asc condition, the ethical aspects that

characterise the Rea condition recommend the utilisation of the Asc-Rea combination as it represents a more ethical and practical option compared to the individual utilisation of Asc (Culnan, 1993). The managerial implications and further discussions section reconsiders the findings of the five main sets of hypotheses in light of emerging marketing and organisational practises.

5.2 PART II- RESEARCH IMPLICATIONS

5.2.1 Managerial implications and further discussions

By understanding the information disclosure process of individuals and the factors that influence it, this research offers a blueprint on how organisations can capitalise on consumer behaviour in order to increase the effectiveness and efficiency of their data-capturing processes.

Online survey-based mechanisms are the most common ways for synthesising big datasets. This is attributed to the fact that, contrary to interviewing or providing pen and paper questionnaires, online surveys are considered to be one of the most efficient and widely used data accumulation mechanisms. Furthermore, certain factors can influence the effectiveness and efficiency of online data-capturing questionnaires. The three examined concepts of dyadic relationships, comparative nature and question sequence are identified to enhance the efficiency and effectiveness of this data-capturing method. Findings from this Thesis propose that the respective high-level conditions of these concepts (reasoned-dyadic relationship, high comparative nature and ascending order of question invasiveness) are influential in increasing overall actual disclosure.

The question sequence concept offers organisations with a strategic option regarding the employment of two of its conditions; ascending and descending question sequence. Questionnaires that are constituted by admission-based questions, that cover solely embarrassing and incriminating topics, should be presented in a descending order of privacy invasiveness as proposed by Acquisti,

John and Lowenstein (2012). On the other hand, for questionnaires that incorporate actual-disclosure measurements that are not solely bound to admission-based questions, a slow escalation of invasiveness (ascending order) should be preferred since it can significantly increase disclosures of truthful information. This is due to the fact that the ascending question sequence allows individuals to "warm up" at the beginning of the questionnaire with less privacy invasive questions, while its slower progression to more invasive questions significantly increases OAD.

The reasoned dyadic relationship, which was identified to be the high-level condition of the DR concept, offers additional strategic opportunities to organisations. Even though organisations are slowly becoming more bound by laws and legislations to provide the reasons behind data accumulation in their privacy policies, Jensen et al. (2005) specify that only 3% of consumers read these statements, with Turow et al. (2008) indicating that the majority of individuals believe that privacy policies in online settings imply data protection, while in reality, most of the time, it is the other way around. Lowenstein et al. (2014; p.399) attribute this to the "ubiquity" and lengthy nature of these privacy policies. Taking these arguments into consideration, the reasoned dyadic relationship provides statements to the individuals regarding the potential uses of their acquired information in a more direct, straightforward and simplified manner compared to the more complex and ubiquitous ways that privacy policies are structured. This allows individuals to make more informed decisions regarding engagement in or abstention from information disclosure which is also in alignment with the view of Bhargava and Manoli (2014) who provide evidence for the benefits of simplification. The process of utilising dyadic relationships in questionnaires was also found to increase perceptions of respondents regarding the trustworthiness of the organisation which resulted in greater information divulgence.

Furthermore, the examination of the synergistic behaviour of different factors that affect the presentation of the data capturing questionnaires is also of particular

managerial use and importance. This research identified that the combination of the reasoned dyadic relationship with the ascending order of question invasiveness significantly increased OAD compared to the individual employment of the reasoned dyadic condition. Evidence from this research shows that when the organisation discloses to the individuals the reasons why it requires certain information as well as potential uses of the acquired information, it allows the development of a reciprocal information exchange. Combining this with the ascending question sequence, findings indicate that the latter accommodates the development of this reciprocal relationship more effectively compared to any other question sequence. This is found to further enhance the effectiveness of the reasoned condition due to the fact that the ascending order (contrary to the random or descending order) provides "space" for the development of the reasoned dyadic relationship while allowing the notion of a reciprocal information exchange (disclosure reciprocity) to take its effect. This generates higher perceptions of impersonal trust by the individuals towards the organisation requiring the information, which ultimately results in higher OAD. Therefore, incorporating the most privacy invasive questions at the end of the questionnaire allows individuals to be faced with them when "under the effect" of disclosure reciprocity, ultimately leading to increased information disclosure.

The incorporation of the reasoned dyadic relationship also has certain ethical implications for organisations. As Rea is a concept that in addition to the development of disclosure reciprocity is also very relevant to fair information practises (Culnan 1993), the utilisation of the concept should be preferred even when there is no evidence of a significant increase of actual disclosure. For example when compared to the individual employment of the Asc condition, the Asc-Rea combination was not found to generate significantly higher results of OAD. Nevertheless, Rea was not found in any of its combinations with conditions from other concepts to significantly reduce OAD either. No evidence was provided regarding the existence of a contradicting nature between the QS and DR. Contrary to this the reasoned dyadic only increased OAD in almost all cases either marginally or significantly. Based on this, due to the ethical aspects with

which the reasoned dyadic relationship is bound, its incorporation in questionnaires can be beneficial for both the organisation and potential respondents.

Regarding the utilisation of the comparative nature concept, findings indicate that the HighCN influences OAD. Therefore when organisations have the opportunity to share the disclosure patterns of previous respondents with the new ones, they should do so as long as previous disclosure patterns showcase high percentages of divulgence of information. Still, these statements must be truthful in order to avoid unethical manipulation effects.

Regarding the triangulation of the CN and DR, the expected combination of high-level conditions of the two concepts, HighCN-Rea, failed to generate significant differences with the HighCN-Unrea and HighCN-Non conditions even though the first generated the highest percentage of OAD. Additionally, findings from H2a and H2b indicate that the HighCN condition can be as effective on its own as through its triangulation with Rea, since the latter yielded only marginal increases of OAD when comparative nature was high. Nevertheless, the examination of the HighCN-Rea condition didn't provide evidence of any contradicting behaviour. Again due to the ethical orientation of the reasoned dyadic condition (accompanied by the marginal increases of OAD), it is proposed that the HighCN-Rea condition should be preferred instead of the individual employment of the HighCN condition.

In scenarios where CN is low -that is sharing disclosure patterns of previous respondents with new ones where the information disclosure of previous respondents was minimal- it was identified that the condition hindered the disclosure of information by new respondents and significantly decreased OAD. From a strategic point of view these types of disclosures should be avoided by organisations. Nevertheless, the triangulation of the low comparative nature with the reasoned dyadic condition (LowCN-Rea) showed that OAD would significantly increase compared to the LowCN-Unrea and LowCN-Non

conditions. This is evidence of the influential nature of Rea towards OAD when triangulated with the low comparative nature condition. Therefore, based on these findings, in scenarios where organisations are faced with low comparative nature, the incorporation of the reasoned dyadic condition in the questionnaire can be proven influential for the increase of information disclosure.

5.2.2 Theoretical implications

When it comes to theoretical implication and how the present study expands previous academic arguments, certain points are identified in this section. Starting with relational depth, its examination in organisational settings was essential for the divulgence of non-transactional information by consumers. This expands previous theoretical arguments regarding the role of customer relationship management (CRM) techniques the focus of which were primarily on building customer loyalty and enhancing customer satisfaction. Here we embraced the importance of establishing strong and meaningful relationships between organisations and customers which allows the expansion of the benefits of organisations. That is the more efficient and effective accumulation of customer information. This arguably embraces the importance of CRM techniques within organisational settings.

Additionally, the present theoretical framework and subsequent analysis identified that the instilment of trust, even in impersonal settings, is influential in the information disclosure process. The present framework emphasised the importance of the precise definition of relational depth based on the context in which it was measured. For example the measurement of interpersonal trust within online organisational settings is arguably unsuitable due to the impersonal factor that characterises these environments. Even though part of the literature treats impersonal and interpersonal settings interchangeably, the views reflected in the proposed conceptual framework match the views of Calhoun (1992) who specifies that impersonal and interpersonal types of relationships are fundamentally different. This expands upon previous theoretical frameworks like Barnett's

(2004) disclosure management in regard to the definition of relational depth within online impersonal settings and embraces Shapiro's (1987) argument regarding the suitability of relational concepts based on the context in which they are measured.

Furthermore, regarding benefits provided in return for disclosure, the examination of different levels of compensation in this Thesis reinforces previous arguments regarding the impact of the concept towards information disclosures. The review of different levels of compensation as a means of comparing the efficiency of certain conditions and concepts that influence voluntary disclosures reinforces our understanding as to which factors reduce requirements of compensation for information divulgence, thus making them more efficient to other alternatives.

Finally, the conceptualisation of instrumental factors that influence methods of data capture expanded upon arguments regarding how these factors influence the cognitive processes of individuals, and perceptions of loss of face and loss of privacy that lead them to information disclosure. This arguably provided explanations of how different instrumental factors increase voluntary disclosures. The proposed framework expands previous theoretical arguments that focused on the individual employment of each of these concepts though the examination of their synergistic behaviour and the identification of combinations of conditions that improve the effectiveness and efficiency of data-capturing questionnaires. Additionally, it embraced the importance of data accumulation methods as factors that influence the information disclosure process within organisational settings.

5.2.3 Practical and ethical implications

When it comes to discussing the practical implications of this research, the arguments made here focus on the adverse effects of dyadic relationships and comparative nature. When it comes to clear statements regarding the use of acquired information and assurances regarding the protection of data by organisation to consumers, Acquisti, Brandimarte and Lowenstein (2015) specify

that these logical assurances can sometimes elevate respondents' privacy concerns due to the fact that they become aware of potential risks from information disclosure that would have otherwise remained dormant. An example of this can be found in Mathios (2000) who mention that in the US, salad sellers were previously not legally obligated to summarise the nutritional value of their salad dressings. Nevertheless after certain legislations (Nutritional Labeling and Education Act), organisations were forced to clearly specify dressings with higher fat content which ultimately resulted in the decline of their sales. These provide evidence that extensive disclosures by organisations regarding products, services (and in this case) purpose of information acquisition, can have opposite and adverse effects on information disclosure by individuals. Even though in this research no adverse effects were recorded, in certain cases the reasoned dyadic relationship (which directly specified the purpose of the information accumulation and potential uses) failed to significantly reduce concerns regarding loss of face and privacy compared to the non-dyadic condition where the concept of DR was completely absent in the questionnaire. This shows that even in simplified versions of privacy policies of organisations (reasoned dyadic relationships), effects like the ones proposed by Acquisti et al. (2015) can be recorded.

The main implication of this is that the exact wording of reasoned dyadic conditions can have a significant impact on information divulgence or abstention from it. The answering of questions concerning how much an organisation should disclose regarding potential uses of acquired information in order to facilitate information disclosure, and not force individuals to "clam up" (Acquisti, John and Lowenstein, 2012), is of particular academic and managerial use and importance. This represents an interesting avenue for future research where qualitative means can be employed to empirically investigate the optimal way(s) dyadic relationships can be synthesised, and it is argued that their design should be based on at least three parameters: a) How individuals perceive these statements in terms of their propensity to disclose asked information, b) how much the organisation is legally

obligated to disclose, c) considerations regarding the length of the questionnaire[52]. For example identifying the 'perfect' balance of detail of information in statements regarding information uses can provide organisations with more control over the benefits of statements in privacy policies and more importantly of the benefits of dyadic relationships, avoiding accidental triggering of caution used by respondents during the information disclosure process. Based on this, the reasoned dyadic relationship is considered to represent a promising tool for examination in both academia and the industry due to both its ethical and effectiveness aspects in data accumulation processes.

Regarding comparative nature, Acquirty, John and Lowenstein (2012) identified that capitalisation on herding behaviour allows individuals to feel more comfortable during the process of disclosure which ultimately results to greater divulgence of information. In the present study comparative nature verified the claims of Acquisti et al. (2012) regarding the positive influence of the concept towards OAD while negative effects were recorded only in the low-level condition where respondents were led to believe that others have avoided information divulgence, ultimately leading to greater abstention from disclosure. Additionally, this study provided evidence regarding the synergistic behaviour of the concept with the dyadic relationship and, more precisely, the increase of OAD when the low-level condition of comparative nature was triangulated with the high-level condition of dyadic relationships. Nevertheless, it is important to acknowledge that there is recent evidence in the literature where the concept of comparative nature within information disclosure environments was found to have insignificant impact (Beshears et al. 2012), while in other cases adverse effects were recorded (Bhargava & Manoli 2014). This raises some issues regarding the employability of the concept within practical organisational settings with previous research necessitating the further examination of the concept. Based on this, as comparative

[52] The provision of extensive information by the organisation regarding the purpose of the information accumulation process, protection mechanisms and more can significantly increase the length of a potential questionnaire. Long, Hogg, Hartley and Angold (1999) warn of the negative effects of very long questionnaires in the quality of responses. They specify that consumers may omit information when addressing questions that are either too long to read, difficult to understand, or need long answers.

nature within information disclosure environments is a relatively new concept, it provides new avenues for future qualitative research in order to provide more thorough explanations as to why in certain cases it fails to positively impact information accumulation while in others it doesn't.

As an addition to the ethical implications identified in the "managerial implications" section, another ethical issue needs to be borne in mind especially during the process of information capture. Even though voluntarism represents the ethical cornerstone of information accumulation processes, it is important to note that individuals are still affected by their disclosures. If for example an individual underestimates potential risks from a disclosure, the possibility of (voluntarily) divulging sensitive information to large risky audiences, increases. More precisely Brandimarte, Acquisti and Lowenstein (2012; p.340) identified that individuals with high perceptions of control over their privacy, can sometimes respond by revealing more information to the point where they end up being more vulnerable as a result of measures that were meant to protect them. This can have harmful consequences to the individual, simultaneously showcasing the importance of consumer information management mechanisms by organisations after the accumulation of consumer information. This further reinforces the argument that organisations need to pay the necessary attention on the delicate matter of privacy and prioritise fair information practices and consumer privacy protection policies (Lee, Ahn and Bang, 2011; Culnan, 1993).

5.3 PART III- LIMITATIONS, FUTURE RESEARCH AND CONCLUDING WORDS

5.3.1 Limitations and future research

Despite the above contributions, this research has certain limitations the acknowledgement of which gives rise to future research suggestions. Apart from the aforementioned avenues for future research, the acknowledgment of certain research design restrictions of the present study enriches our recommendations. More precisely, even though the design and complexity of the between-subjects

survey experiment had certain strengths, certain weaknesses and challenges were also present. For example the complexity of the final research design did not allow the incorporation of Westin's categorisation of individuals in the sampling process based on their propensity to disclose. More precisely, identifying respondents as either *fundamentalists*, *pragmatists* or *unconcerned* in the initial process, followed by their assignment to one of the experiment's conditions -in order to ensure that the three clusters are equally represented in all 27 conditions- would have shed light on how data-capturing questionnaires influence each of these groups. The importance of this lies with the fact that data capturing techniques are highly likely to differ in terms of levels of effectiveness when employed for each category. For example techniques that are effective for the accumulation of information from unconcerned individuals are highly unlikely to be sufficient when applied to the more hardcore fundamentalists. This therefore opens new pathways for future research and the examination of effectiveness of different data capturing techniques where participants are categorised based on their propensity to disclose information *a priori*.

The second limitation of this research is the provision of compensation to individuals for participation. Due to the need in this research for a large number of respondents (N>1400) coupled with the sensitive nature of the topic, the lottery-based compensation was essential for maximizing the willingness of participants to take part in the survey experiment (Jobber, Saunders and Mitchel, 2004; Deci, Koestner and Ryan, 1999). As information disclosure is influenced by the provision of compensation, it is believed that this might have led to marginal distortions of OAD percentages towards the higher end. Still, OAD in this research sought to provide a real life indication of actual disclosures while, more importantly, being used as a tool for comparing different concepts and their conditions. Nevertheless, the choice of non-monetary compensation assisted in the minimisation of these distortions due to its less influential nature towards voluntary disclosure compared to the provision of monetary incentives (Deutskens et al., 2004).

The third limitation of this research is again attributed to the complexity of the research design which did not allow for the comparison of the synergistic behaviour of conditions that were of the same concept. For example the two conditions of dyadic relationships, reasoned and unreasoned, showed that when combined with the ascending question sequence generated identical results in regard to OAD. Nevertheless, the design of the present study didn't allow the examination of the synergistic behaviour of the two dyadic conditions. Identification of whether a contradicting nature exists between the two opens new avenues for future research in order to examine whether the incorporation of both conditions can further enhance the effectiveness and efficiency of data-capturing questionnaires.

Finally, apart from the concepts incorporated in the present conceptual framework, additional factors are identified in the literature to have an impact on the propensity of information disclosure by individuals. For example the respondent's mood during information divulgence is found to stimulate (in different ways) the amount and types of information being disclosed (Forgas, 2011); cultural background like ethnic origin and religious beliefs are found to have a direct link to the individual's propensity to divulge information (Moore, 1984); past experiences with information disclosures and exchanges are found to influence future information disclosures of individuals (Rempel, Holmes Zanna, 1985); emotions and heuristics are also believed to moderate divulgence of information (Acquisti, Brandimarte and Loewenstein, 2015). Even though we acknowledge the impact of these factors on voluntary disclosure, due to design and resource constraints the present conceptual framework focused on factors that served as the main convergence points for most academic views and opinions in regard to their direct link with voluntary disclosures by individuals within organisational settings. Nevertheless, the examination of how presentation effects of data-capturing questionnaires influence each of the above factors can yield interesting findings and results, further reinforcing our understanding on how they are being influenced in an attempt to further explain the effectiveness of data-capturing questionnaires in the information disclosure process.

5.3.2 Summary

This chapter discussed findings in light of previous academic research while considering certain managerial, theoretical and practical implications. Furthermore, this chapter reconsidered certain limitations of the present research such as the complexity of the main study, and the utilisation of a between-subjects experimental survey, while acknowledging that additional factors that have an influence on voluntary disclosure were not possible to be examined due to design and resource constraints.

5.3.3 Concluding Words

As privacy is a civil right that clothes every individual and yet great value can be found in its "loss" through the revelation of information, it is important for organisations to pay the necessary attention during the delicate process of information disclosure. Apart from the legal obligations that are slowly binding commercial organisation to engage in explicit instead of implicit ways of data collection, information revelation should be based on voluntarism by individuals who possess it.

As with all psychological behaviours of individuals, specific elements are found to influence the process of voluntary disclosure of information. By taking into consideration certain ethical implications, the present study examined key factors that influence the process of voluntary information disclosure through the incorporation of a three-dimensional framework that categorised relational, psychological and instrumental factors. This approach represents the first attempt at examining the synergistic behaviour of concepts that influence the presentation of data-capturing questionnaires; their comparison with the individual employment of each concept in terms of their influence on overall actual disclosure; as well as the examination of how each of these conditions influences the cognitive processes of individuals that lead them to disclosures of private information. A cross examination of these three dimensions was conducted with our results

introducing a novel scenario as to how certain triangulations of instrumental factors' conditions increase actual disclosure percentages by favourably influencing certain relational and psychological factors.

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8. APPENDICES SECTION

Appendix 1 : Summarisation of the statements included prior to each data-capturing question based on the three *dyadic relationships* (Reasoned, Unreasoned, Non-Dyadic)

	Reasoned Dyadic Relationship	*Unreasoned Dyadic Relationship*	*Non-Dyadic Relationship*
1.	*The purpose of this question is strictly for confidential medical purposes and the promotion of HIV/AIDS examinations.* **How many sexual partners have you had since you became sexually active?**	*The organisation employs 13000 individuals globally. Once a year all employees go through free medical checks including HIV and venereal diseases checks in order to ensure their health-related wellbeing.* **How many sexual partners have you had since you became sexually active?**	**How many sexual partners have you had since you became sexually active?**
2.	*This question is used for the profiling of respondents based on their income for advertising purposes.* **What is the amount of your household savings?**	*The organisation grossed 89.78 million British Pounds for the year 2012-2013.* **What is the amount of your household saving?**	**What is the amount of your household savings?**
3.	*This question is being asked is in order to assess the overall number of people that have been arrested at least once in their life.* **Have you ever been arrested?**	*DataACC offers equal opportunities for candidates that are interested in working at the organisation without any racial or gender discriminations.* **Have you ever been arrested?**	**Have you ever been arrested?**
4.	*Here we are interested in capturing information for the profiling of how many individuals are introduced to pornographic imagery.* **Have you ever looked at pornographic material?**	*A recent study funded by DataACC indicates that extensive use of pornographic imagery reduces the efforts of finding a long-term partner for both genders.* **Have you ever looked at pornographic material?**	**Have you ever looked at pornographic material?**
5.	*The objective of this question is to capture how many individuals tried at least once soft illegal drug for profiling purposes.* **Have you ever tried illegal drugs like marijuana?**	*In 2012 DataACC funded a project which examined the benefits and implications of soft drugs on the psychological health of UK adults.* **Have you ever tried illegal drugs like marijuana?**	**Have you ever tried illegal drugs like marijuana?**
6.	*The purpose of this question is to generate a percentage of the respondents who for their own reasons lied to an official service.* **Have you lied about your income to an official service?**	*DataACC has a revolving line of credit with well known banks across Europe.* **Have you lied about your income to an official service?**	**Have you lied about your income to an official service?**
7.	*The purpose of this question is strictly for confidential medical profiling purposes and the optional provision of information by our organisation regarding help lines etc.* **Have you ever suffered from cancer of any kind?**	*DataACC donates each year to the Queens Medical School in Nottingham for cancer research.* **Have you ever suffered from cancer of any kind?**	**Have you ever suffered from cancer of any kind?**

8	*The objective of this question is to assess the preference of individuals when it comes to illegally downloading, or buying the original songs from online sources like iTunes etc.* **Have you downloaded illegally obtained pirated song and/or movies from the internet?**	*DataACC's central information processing system was humorously named "Hal 9056" which serves as a reference to Stanley Kubrick's "2001:Space Odyssey" movie in which the spacecraft's main supercomputer was called "Hal 9000". The number 56 was the year its main designer (John Stavrinides) was born.* **Have you downloaded illegally obtained pirated song and/or movies from the internet?**	**Have you downloaded illegally obtained pirated song and/or movies from the internet?**
9	*The objective of this question is to capture how many individuals have failed to report a serious crime that they witnessed.* **Have you witnessed a serious crime and failed to report it or stop it.**	*A recent survey indicates that individuals with high confidence help fight crime more actively.* **Have you witnessed a serious crime and failed to report it or stop it.**	**Have you witnessed a serious crime and failed to report it or stop it.**
10	*The reason for this question is to assess the overall tendency by individuals to excuse themselves from work for no valid reason, and accordingly design a campaign in order to reduce the number of individuals who engage into this activity.* **Have you called in sick when you were not sick either in your workplace, university, etc.?**	*The average annual leave for the organisation's employees is 28 days plus 32 additional days for leave related to medical reasons.* **Have you called in sick when you were not sick either in your workplace, university, etc.?**	**Have you called in sick when you were not sick either in your workplace, university, etc.?**
11	*Here we are interested in profiling individuals according to their consumption of alcohol.* **How much alcohol do you consume on average per week?**	*DataACC was funded by Brent Hinds, born in Atlanta Georgia, when he was 37 years old right, after finishing his second masters' degree at the University of Nottingham. Retired now, at the age of 64, he owns a small wine brewery in Brighton.* **How much alcohol do you consume on average per week?**	**How much alcohol do you consume on average per week?**
12	*Information acquired from this question will be used as part of a research that studies human relationships.* **Have you lied about your age to someone you were attracted to?**	*The overall average age of our employees in the UK is 37.* **Have you lied about your age to someone you were attracted to?**	**Have you lied about your age to someone you were attracted to?**

13	*The reason for this question is to assess the overall tendency by individuals to claim to have education that they don't have.* **Have you claimed to have education that you didn't actually have (either on your CV or in person)**	*The organisation's current CEO is Greek entrepreneur Anastasios Aristidopoulos, PhD.* **Have you claimed to have education that you didn't actually have (either on your CV or in person)**	**Have you claimed to have education that you didn't actually have (either on your CV or in person)**
14	*Here, the objective of this question is to assess the loyalty of consumers to multiple organisations.* **How many loyalty cards do you currently have?**	*DataACC collaborates with several well known UK based grocery shops.* **How many loyalty cards do you currently have?**	**How many loyalty cards do you currently have?**
15	*This question's objective is to assess whether you unnecessarily waste energy and accordingly provide you with guidelines on how to end this habit and save money for yourself and others while preserving the environment.* **Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?**	*DataACC implemented recently the SAVE project in which all company cars are replaced by hybrids and carbon dioxide emissions are reduced to minimum in order to preserve the environment.* **Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?**	**Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?**
16	*Here we are interested in identifying which mobile phone carrier you are using in order to provide you with promotion originating solely from this carrier.* **Which mobile carrier do you currently use?**	*A recent study, conducted in the UK, showed that the UK mobile phone carrier market is one of the 10 largest markets in the country.* **Which mobile phone carrier do you currently use?**	**Which mobile carrier do you currently use?**
17	*The objective of this question is to assess how often you travel abroad and update you with offers and reduced travel prices.* **How many times a year you travel abroad either for holidays or business?**	*DataACC is a multi-national organisation operating in 17 countries including the UK, Greece, Luxemburg, Cyprus, Italy and Spain.* **How many times a year you travel abroad either for holidays or business?**	**How many times a year you travel abroad either for holidays or business?**
18	*This question is asked in order to assess the frequency of your visits to restaurant and provide you with new options of which restaurants you could enjoy.* **How many times do you go to a restaurant in an average week?**	*The organisation is comprised by 56% men and 44% women.* **How many times do you go to a restaurant in an average week?**	**How many times do you go to a restaurant in an average week?**

Appendix 2: Summarisation of the presentation of privacy capturing questions based on the three conditions of *question sequence* (Descending, Ascending, Random)

Descending order of Invasiveness	Ascending order of invasiveness	Random order of invasiveness
1. How many sexual partners have you had since you became sexually active? **2.** What is the amount of your household savings? **3.** Have you ever been arrested? **4.** Have you looked at pornographic material? **5.** Have you ever tried illegal drugs like marijuana? **6.** Have you lied about your income to an official service? **7.** Have you ever suffered from cancer of any kind? **8.** Have you downloaded illegally obtained pirated songs and/or movies from the internet? **9.** Have you witnessed a serious crime and failed to report it or stop it? **10.** Have you called in sick when you were not sick either in your workplace, university, etc.? **11.** How much alcohol do you consume on average per week? **12.** Have you lied about your age to someone you were attracted to? **13.** Have you claimed to have education that you didn't actually have (either on your CV or in person)? **14.** For which stores do you currently have loyalty cards? **15**. Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university? **16.** Which mobile carrier do you currently use? **17.** How often do you travel abroad either for holidays or business? **18.** How many times do you go to a restaurant in an average week?	**1.** How many times do you go to a restaurant in an average week? **2.** How often do you travel abroad either for holidays or business? **3.** Which mobile carrier do you currently use? **4.** Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university? **5.** For which stores do you currently have loyalty cards? **6.** Have you claimed to have education that you didn't actually have (either on your CV or in person)? **7.** Have you lied about your age to someone you were attracted to? **8.** How much alcohol do you consume on average per week? **9.** Have you called in sick when you were not sick either in your workplace, university, etc.? **10.** Have you witnessed a serious crime and failed to report it or stop it? **11.** Have you downloaded illegally obtained pirated songs and/or movies from the internet? **12.** Have you ever suffered from cancer of any kind? **13.** Have you lied about your income to an official service? **14.** Have you ever tried illegal drugs like marijuana? **15.** Have you looked at pornographic material? **16.** Have you ever been arrested? **17.** What is the amount of your household savings? **18.** How many sexual partners have you had since you became sexually active?	**1.** How many sexual partners have you had since you became sexually active? **2.** How many times do you go to a restaurant in an average week? **3.** Have you witnessed a serious crime and failed to report it or stop it? **4.** What is the amount of your household savings? **5.** How often do you travel abroad either for holidays or business? **6.** Have you downloaded illegally obtained pirated songs and/or movies from the internet? **7.** Have you ever been arrested **8.** Which mobile carrier do you currently use? **9.** Have you ever suffered from cancer of any kind? **10.** Have you looked at pornographic material? **11.** Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university? **12.** Have you lied about your income to an official service? **13.** Have you ever tried illegal drugs like marijuana? **14.** For which stores do you currently have loyalty cards? **15.** How much alcohol do you consume on average per week? **16.** Have you claimed to have education that you didn't actually have (either on your CV or in person)? **17.** Have you called in sick when you were not sick either in your workplace, university, etc.? **18.** Have you lied about your age to someone you were attracted to?

Appendix 3: Summarisation of the percentages utilised for the three conditions of *comparative nature* (High Comparative Nature, Low Comparative Nature, Non Comparative Nature)

Question	High Comparative Nature		Low Comparative Nature		Non Comparative nature	
	D*	AD**	D	AD	D	AD
How many sexual partners have you had since you became sexually active?	96%	4%	39%	61%	-	-
What is the amount of your household savings?	89%	11%	43%	57%	-	-
Have you ever been arrested?	91%	9%	38%	62%	-	-
Have you looked at pornographic material?	90%	10%	37%	63%	-	-
Have you ever tried illegal drugs like marijuana?	89%	11%	42%	58%	-	-
Have you lied about your income to an official service?	92%	8%	40%	60%	-	-
Have you ever suffered from cancer of any kind?	90%	10%	42%	58%	-	-
Have you downloaded illegally obtained pirated songs and/or movies from the internet?	89%	11%	39%	61%	-	-
Have you witnessed a serious crime and failed to report it or stop it?	88%	12%	43%	57%	-	-
Have you called in sick when you were not sick either in your workplace, university, etc.?	93%	7%	36%	64%	-	-
How much alcohol do you consume on average per week?	93%	7%	43%	57%	-	-
Have you lied about your age to someone you were attracted to?	89%	11%	40%	60%	-	-
Have you claimed to have education that you didn't actually have(either on your CV or in person)	96%	4%	36%	64%	-	-
For which stores do you currently have loyalty cards?	88%	12%	38%	62%	-	-
Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?	88%	12%	42%	58%	-	-
Which mobile carrier do you currently use?	90%	10%	43%	57%	-	-
How often do you travel abroad either for holidays or business?	93%	7%	41%	59%	-	-
How many times do you go to a restaurant in an average week?	92%	8%	40%	60%	-	-

***D** represents the percentage of previous individuals who Disclosed (D) the asked information.
****AD** represents the percentage of previous individuals who Avoided the Disclosure (AD) of the asked information.

Appendix 4: Sample of the questionnaire used in the pre-test study


The University of
Nottingham
UNITED KINGDOM • CHINA • MALAYSIA

CODE: TYPE 2/ORDINAL

Examining the privacy invasiveness of data-capturing questions through ordinal measurements

Thank you for agreeing to participate in this research project. This research is conducted by Christos Themistocleous (principal investigator) as part of his Ph.D. thesis under the supervision of Andrew Smith, Ph.D., from the division of marketing in the Nottingham University Business School and Christian Wagner, Ph.D., from the School of Computer Science, University of Nottingham. This project is funded by the University of Nottingham and results from this study will be published to academic journals with the primary intention being to inform professionals and other academics on how to acquire consumer information through more efficient and ethically correct data-capturing methods.

In this questionnaire you will be asked to rate a series of privacy related questions in terms of their intrusiveness and the overall process will take approximately 8-10 minutes.

The objective of this study is to assess how adult individuals perceive questions related to their privacy with different levels of privacy invasiveness. Additionally, this research seeks to embrace the importance of voluntary disclosure of information by individuals through explicit means while limiting the use of unethical and implicit oriented data-collection methods.

Your responses will remain anonymous. This questionnaire ensures full anonymity for all the provided information. Your participation is entirely voluntary, and you may change your mind about being involved in the research at any time, and without giving a reason. Only the researcher will have access to all data collected from this research. Additionally, all hard and soft copies of the acquired data will be safely stored and protected. All soft copies of the data will be held in password protected documents while all hard copies shall be held in locked cabinets at the principal investigator's office for a period of 5 years.

The present study is conducted according to the ethical standards of the Nottingham University Business School's Research Ethics Committee which has also granted ethical approval.

If you have any questions about this study please contact the principal investigator Christos Themistocleous- email: lixct3@nottingham.ac.uk, Mobile: 07513248850. If you have any ethical concerns regarding my participation in this study please contact the School's Research Ethics Officer, Adam Goldberg- Email: Adam.Goldberg@nottingham.ac.uk

SCENARIO

An organisation whose main activities revolve around the acquisition of consumer information seeks to capture personal information about consumers based on the following 18 questions. The organisation agreed not to share this data with any 3rd parties. Please rate the following questions based on how privacy invasive you consider them to be.

Please **DO NOT** answer these questions but instead rate them based on how invasive you consider them to be.

NOTE: Please bear in mind that some questions might not apply to you. Still it is vital to rate the invasiveness of the question itself.

Example

Have you ever suffered from a sexually transmitted disease like HIV/AIDS?

How invasive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

Even though you might not have encountered illnesses like HIV or AIDS as indicated in the example above, please make sure that you rate the invasiveness of the question itself to your privacy even when a potential answer is no.

SECTION A

1. **How many times do you go to a restaurant in an average week?**

   How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

2. **Have you claimed to have education that you didn't actually have (either on your CV or in person)?**

   How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

3. **Have you ever suffered from cancer of any kind?**

   How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

4. **How often do you travel abroad either for holidays or business?**

   How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

5. **Have you called in sick when you were not sick either in your workplace, university, etc.?**

   How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

6. **What is the total amount of your household savings?**

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

7. **Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?**

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

8. **Have you downloaded illegally obtained (pirated) songs and/or movies from the internet?**

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

9. **Have you known about or witnessed a serious crime and failed to report it or stop it?**

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

10. **Have you ever lied about your age to someone you were attracted to?**

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

11. Have you ever tried illegal drugs like marijuana?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

12. Have you ever been arrested?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

13. Which mobile phone carrier do you currently use?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

14. Have you ever looked at pornographic material?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

---

15. Have you lied about your income to an official service?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

16. For which stores do you currently have loyalty cards?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

17. How much alcohol do you consume on average per week?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

18. How many sexual partners have you had since you became sexually active?

How invasive/intrusive do you feel this question is?

	1	2	3	4	5	6	7	8	9	10	
Non-Invasive	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	Very invasive

SECTION B

How many questionnaires do you complete on average each year (online, face to face, mail questionnaires etc.)

1-10 ☐

10-20 ☐

20-30 ☐

More than 30 ☐

Below there is a series of examples of different scales used in questionnaires for capturing responses. Please indicate with which of the following scales you are familiar with.

2-point Likert (dichotomy) scale

☐ ☐

Disagree (No) Agree (Yes)

Are you familiar (used/come across) with the 2-point Likert scale? -- Please circle: YES NO

3-point Likert scale

☐ ☐ ☐

Disagree Neutral Agree

Are you familiar with the 3-point Likert scale? -- Please circle: YES NO

5 point Likert scale

☐ ☐ ☐ ☐ ☐

Strongly Disagree Disagree Neutral Agree Strongly Agree

Are you familiar with the 5-point Likert scale? -- Please circle: YES NO

7-point Likert scale

☐	☐	☐	☐	☐	☐	☐
Strongly Disagree	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Strongly Agree

Are you familiar with the 7-point Likert scale? -- Please circle: YES NO

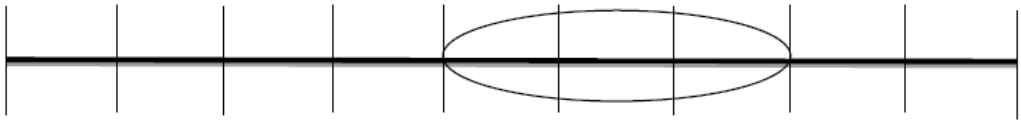
10-point Semantic differential scale

	1	2	3	4	5	6	7	8	9	10	
Agree	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Disagree**

Are you familiar with the 10-point Likert scale? -- Please circle: YES NO

10-point Ellipse-based interval-capturing scale

Disagree **Agree**



Are you familiar with this interval-capturing scale?-- Please circle: YES NO

Please put in order the scales above starting with the one that you are most familiar with (used more often) to the ones that you are least familiar and have have used less frequently or not at all. Please put the appropriate number next to the scales below starting from 1 up to 6 with 1 being the one most frequently used.

2-Point Likert ☐
3-Point Likert ☐
5-Point Likert ☐
7-Point Likert ☐
10-Point Semantic Differential ☐
Interval based scale ☐

Based on the familiarity and previous experiences you had with any of the above scales please answer the following questions regarding the 10-point interval scale you have used in **Section A** of this questionnaire.

How easy did you find the use of the 10-point semantic differential scale when assessing the intrusiveness of the questions above?

	1	2	3	4	5	6	7	8	9	10	
Difficult	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Easy**

How quick did you find the use of the 10-point Semantic differential scale in the above questions?

	1	2	3	4	5	6	7	8	9	10	
Time consuming	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Quick**

The 10-point Semantic differential scale allowed me to be precise with my answers.

	1	2	3	4	5	6	7	8	9	10	
Disagree	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Agree**

The 10-point Semantic differential scale allowed me to be more certain with my answers.

	1	2	3	4	5	6	7	8	9	10	
Disagree	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Agree**

The 10-point Semantic differential scale allowed the expression of my exact thoughts and feelings when answering.

	1	2	3	4	5	6	7	8	9	10	
Disagree	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Agree**

Overall I am satisfied with the use of the 10-point Semantic differential scale for providing my answers in the above questions regarding privacy invasiveness.

	1	2	3	4	5	6	7	8	9	10	
Disagree	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	**Agree**

SECTION C

Demographics

1. *Gender*

   ☐ *Male* ☐ *Female* ☐ *Other*

2. *Age:_____*

3. *Highest Educational background*

   ☐ *Secondary school*
   ☐ *Certificate*
   ☐ *Bachelors degree*
   ☐ *Masters degree*
   ☐ *Member of a certified or chartered association*
   ☐ *PhD*

4. *Ethnical origin*

   ☐ *White*
   ☐ *Hispanic or Latin*
   ☐ *Black*
   ☐ *Native American*
   ☐ *Indian*
   ☐ *Asian*
   ☐ *Other. Please state _____*
   ☐ *Prefer not to disclose*

THANK YOU FOR PARTICIPATING IN THIS RESEARCH

Appendix 5: Sample of the questionnaire used in the main study

Condition No 7- Question sequence: *Descending*
Comparative nature: *High*
Dyadic Relationship: *Reasoned*


The University of
Nottingham
UNITED KINGDOM • CHINA • MALAYSIA

Examining the privacy invasiveness of data-capturing questions through interval based questionnaires

Thank you for agreeing to participate in this research project. This research is conducted by Christos Themistocleous as part of his Ph.D. thesis under the supervision of Professor Andrew Smith, from the division of marketing in the Nottingham University Business School and Christian Wagner, Ph.D., from The Horizon institute, University of Nottingham. This project is funded by the University of Nottingham and Experian plc and results from this study shall be published to academic journals with the primary intention being to inform professionals and other academics on how to acquire consumer information through more efficient and ethically correct data-capturing methods.

In this questionnaire you will be asked to interact with a series of privacy related questions followed by questions that seek to capture the feelings you experienced during this interaction.

The objective of this study is to assess how adult individuals perceive questions in terms of their personal privacy. Additionally this research seeks to embrace the importance of voluntary disclosure of information by individuals through explicit means while limiting the use of unethical and implicit oriented data-collection methods.

Your responses will remain anonymous and will be handled in accordance to data protection legislations. This questionnaire ensures full anonymity for all the provided information. Your participation is entirely voluntary, and you may change your mind about being involved in the research at any time, and without giving a reason. Only the researcher will have access to all data collected from this research. Additionally, all hard and soft copies of the acquired data will be safely stored and protected. All soft copies of the data will be held in password protected documents while all hard copies shall be held in locked cabinets at the principal investigator's office for a period of 5 years.

The present study is conducted according to the ethical standards of the Nottingham University Business School's Research Ethics Committee which has also been granted ethical approval.

If you have any questions about this study please contact the principal investigator Christos Themistocleous- Email: lixct3@nottingham.ac.uk, Mobile: 07513248850. If you have any ethical concerns regarding my participation in this study please contact the School's Research Ethics Officer, Adam Goldberg-
Email: Adam.Goldberg@nottingham.ac.uk

SCENARIO AND GUIDELINES

DataACC, an organisation whose main activities revolve around the acquisition of consumer information seeks to capture personal information about consumers based on the following 18 questions.

The organisation states how it intends to use the acquired information at the end of each question.

This questionnaire has already been tested to 512 respondents. Percentages in brackets indicate the percentage of respondents who provided that information or preferred not to disclose it.

An example of this can be seen below.

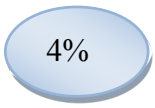
Have you ever suffered from a sexually transmitted disease like HIV/AIDS?

Please note that it is vital to provide only truthful answers. If you do not want to answer certain questions the option of non-disclosure is offered throughout this questionnaire.

SECTION A- Privacy Capturing Questions

The purpose of this question is strictly for confidential medical purposes and the promotion of HIV/AIDS examinations.

1. **How many sexual partners have you had since you became sexually active?**



Please state ☐ Prefer not to disclose ☐

This question is used for the profiling of respondents based on their income for advertising purposes

2. **What is the amount of your household savings?**

Please state ☐ Prefer not to disclose ☐

This question is being asked is in order to assess the overall number of people that have been arrested at least once in their life.

3. **Have you ever been arrested?**

Yes ☐ No ☐ Prefer not to disclose ☐

Here we are interested in capturing and profiling how many individuals are introduced to pornographic imagery.

4. **Have you ever looked at pornographic material?**

Yes ☐ No ☐ Prefer not to disclose ☐

The objective of this question is to capture how many individuals tried at least once soft illegal drug for profiling purposes.

5. **Have you ever tried illegal drugs like marijuana?**

Yes ☐ No ☐ Prefer not to disclose ☐

The purpose of this question is to generate a percentage of the respondents who for their own reasons lied to an official service.

6. **Have you lied about your income to an official service?**

Yes ☐ No ☐ Prefer not to disclose ☐

The purpose of this question is strictly for Confidential Medical profiling purposes and the optional provision of information by our organisation regarding help lines etc.

7. **Have you ever suffered from cancer of any kind?**

Yes ☐ No ☐ Prefer not to disclose ☐

The objective of this question is to assess the preference of individuals when it comes to illegally downloading or buying the original songs from online sources like iTunes etc.

8. **Have you downloaded illegally obtained pirated song and/or movies from the internet?**

Yes ☐ No ☐ Prefer not to disclose ☐

The objective of this question is to capture how many individuals have failed to report a serious crime that they witnessed.

9. **Have you witnessed a serious crime and failed to report it or stop it.**

Yes ☐ No ☐ Prefer not to disclose ☐

The reason for this question is to assess the overall tendency by individuals to excuse themselves from work for no valid reason, and accordingly design a campaign in order to reduce the number of individuals who engage into this activity.

10. **Have you called in sick when you were not sick either in your workplace, university, etc.?**

.

Yes ☐ No ☐ Prefer not to disclose ☐

Here we are interested in profile individuals according to their consumption of alcohol.

11. **How much alcohol do you consume on average per week?**

Please state _____ Prefer not to disclose ☐

Information acquired from this question will be used as part of a research that studies human relationships.

12. **Have you lied about your age to someone you were attracted to?**

Yes ☐ No ☐ Prefer not to disclose ☐

The reason for this question is to assess the overall tendency by individuals to claim to have education that they don't have.

13. Have you claimed to have education that you didn't actually have(either on your CV or in person)

Yes ☐ No ☐ Prefer not to disclose ☐

Here, the objective of this question is to assess the loyalty of consumers to multiple organisations.

14. How many loyalty cards do you currently have?

Please state ☐ Prefer not to disclose ☐

This question's objective is to assess whether you unnecessarily waste energy and accordingly provide you with guidelines on how to end this habit and save money for yourself and others while preserving the environment.

15. Have you knowingly wasted energy, for example by not switching off the lights for convenience at your workplace, school or university?

Yes ☐ No ☐ Prefer not to disclose ☐

Here we are interested in identifying which mobile phone carrier you are using in order to provide you with promotion originating solely from this carrier.

16. Which mobile carrier do you currently use?

Please state ☐ Prefer not to disclose ☐

The objective of this question is to assess how often you travel abroad and update you with offers and reduced travel prices.

17. How many times a year you travel abroad either for holidays or business?

Please state ☐ Prefer not to disclose ☐

This question is asked in order to assess the frequency of your visits to restaurant and provide you with new options of which restaurants you could enjoy.

18. How many times do you go to a restaurant in an average week?

.

Please state ☐ Prefer not to disclose ☐

Section B-Based on the above questionnaire

1. Being asked to reveal the above information was embarrassing.

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

2. Being asked to provide the above information you felt discomfort for disclosing this information.

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

3. Having to answer the above information made you feel awkward.

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

4. Being asked to reveal the above information could make others evaluate you negatively.

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

5. Being asked to reveal the above information you felt that in case of disclosure this could result in a loss of control over who knows what about you.

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

6. Will you be willing to provide DataACC with more information regarding yourself?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

7. Will you willing to provide DataACC with product feedback if it asks you to?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

---

8. Do you consider DataACC to be an honest organisation?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

---

9. Do you consider DataACC to be a trustworthy organisation?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

---

10. Do you believe the DataACC delivers on its promises?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

---

11. Do you think that DataACC has a good reputation in the market?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

---

12. Would you be willing to provide the above information to in real life in order for the organization to create a more accurate profile of yourself which will result to more tailored products and services while being ensured that all information is kept safe and confidential?

	1	2	3	4	5	6	7	
Disagree	☐	☐	☐	☐	☐	☐	☐	**Agree**

---

13. If you were to receive compensation for revealing the above information please state on the scale below the amount of compensation

Low Compensation	**1**	**2**	**3**	**4**	**5**	**High Compensation**
	☐	☐	☐	☐	☐	

14. Please state in the text box below an actual amount that you would be willing to receive in order to provide truthful answers to the above questions asked by the organisation **(**State in a numerical valued in British pounds)

SECTION C- Demographics

Gender

☐ Male ☐ Female

Age _____

Highest Educational background

☐ Secondary school
☐ Certificate
☐ Bachelors degree
☐ Masters degree
☐ Member of a certified or chartered association
☐ PhD

Marital status

☐ Single
☐ In a relationship
☐ Engaged
☐ Married
☐ Divorced
☐ Widowed

Ethnical origin

☐ White
☐ Hispanic or Latin
☐ Black
☐ Native American
☐ Indian
☐ Asian
☐ Other

Current occupation

Appendix 6: Communalities table

Communalities

	Initial	Extraction
Lof_1.1	1,000	,766
Lof_1.2	1,000	,824
Lof_1.3	1,000	,795
Lof_1.4	1,000	,725
LoP_2.1	1,000	,678
IT_3.1	1,000	,743
IT_3.2	1,000	,665
IT_3.3	1,000	,734
IT_3.4	1,000	,743
IT_3.5	1,000	,715
IT_3.6	1,000	,628
Comp_4.1	1,000	,410

Extraction Method: Principal Component Analysis.

Appendix 7: Pre-test study's triplets analysis

Pre-test study's triplets analysis

The six constructed triplets of privacy related questions (for a total of eighteen questions) were examined in terms of their expected consistency. As mentioned each triplet started with the low-invasiveness question then moved to the question with medium invasiveness and finally to the one with high invasiveness. Mean values and standard deviation were calculated for each question which was then compared to the respective values of other question included in the same triplet. Out of six triplets, inconsistencies were found in triplets 3 and 5 in regard to their respective medium and high condition. More precisely in triplet 3, the question with expected high invasiveness was found to be less invasive than the one of the questions included in the medium invasiveness condition. When taking a closer look in triplet 3 the three conditions of the examined privacy-related questions were:

Low invasiveness- Have you knowingly wasted energy for example by not switching off the lights for convenience at your workplace, school or university? (Question 7)

Medium invasiveness- Have you downloaded illegally obtained (pirated) songs and/or movies from the internet? (Question 8)

High invasiveness- Have you known about or witnessed a serious crime and failed to report or stop it? (Question 9)

The Low condition was met as expected. The question regarding failure to report a witnessed crime was included in the high invasiveness condition as the avoidance of disclosure of information linked to a serious crime is considered a serious offense. Even though the downloading of illegally obtained songs is also considered an offense it was categorised as minor misdemeanour and thus included in the medium condition. Even though the two questions had a difference in mean scores of only 0.44 (something which could have been altered in case of a sample size increase), it is expected that the perception of higher invasiveness for questions regarding illegal downloads is attributed to the more common nature of this minor crime (Torrent song downloads in the UK for the first half of 2012 was 43,263,582**;** Source: http://www.bbc.co.uk/news/technology-19599527). Even though the failure of witnessing a serious crime is slowly increasing in the UK (see http://www.bbc.co.uk/news/uk-30081682) it is nowhere near to the number of acts of illegal downloading or the number of individuals who do so. Due to the more "common" nature of illegal downloading compared to the failure of reporting a witnessed crime it is believed that it is more likely for some of this study's participants to have engaged in the first act and less common in the

second. Still, the questionnaire sought to mitigate this prior to the recording of answers by providing examples and specifying to respondents that invasiveness should be rated regardless of the respondent's personal experiences. Nevertheless we believe that John's et al. (2011) similar effect - questions which applied to respondent's personal experience were found to be amplified by the respondent in terms of their importance while influencing his/her perception towards them- to be the case in this particular triplet. Therefore the new order of triplet 3 as ranked by the respondents in the pretest study was incorporated in the main study. The questions included in Triplet 5 where:

Low invasiveness -Which mobile phone carrier do you currently use? (Question 13)

Medium invasiveness -Have you looked at pornographic material? (Question 14)

High invasiveness -Have you lied about your income to an official service? (Question 15)

The low invasiveness condition question was perceived by respondents as expected. The medium invasivenss condition included a question in regard to the participant's interactions with pornographic material which was categorized as an embarrassing situation with no legal implications, while the high condition included a question about lying to an official service which qualifies as a public offense. Even though the mean difference between the two questions was similarly low (0.26) to the respective conditions of triplet 3, we attribute this to the similar reason as to the one identified for the inconsistency in triplet 3. The interaction with pornographic material is most likely something more "common" (based on a survey in Ireland 87% of men and 56% of women have at least once watched porn. Source http://www.independent.ie/irish-news/most-of-us-watch-porn-even-if-we-do-find-it-disturbing-30914713.html) compared to lying to an official offense, and thus respondents who have engaged in the first act perceived it as more invasive compared to the second. Additional explanations as to why someone would perceive the disclosure of an embarrassing act as more sensitive information than disclosure of a public offense could be the religion beliefs of respondents that specifically condemn interactions with pornographic material thus contributing to the overall perception of individuals regarding the invasiveness of this particular question. Based on these the new order of privacy capturing questions of triplet 5 was incorporated in the main study.

Appendix 8: Summarisation of the limitations of the Disclosure Decision Model, Risk Revelation Model and Disclosure Management Framework

Disclosure Decision Model (DDM) limitations	***Risk Revelation Model limitations***	***Disclosure Management's limitations***
Arguably one of the main limitations of Omarzu's (2000) DDM is its lack of empirical exploration making the model simply a concept. This does not allow the empirical verification of the importance of each stage during the disclosure decision process which would have allowed its integration with previous theories something that was also acknowledged by the author. Additionally, even though DDM provides insight as to how individuals derive to the decision to engage in disclosure or not, it does not specify stimuli that can influence this cognitive process. Even though Omarzu argues of the subjective utility and risks influence disclosures, it fails to provide clear examples that can characterize these two constructs. Based on this, DDM excludes in its conceptualisation important aspects that could hinder or induce disclosure of information. For example the embracement experienced from a potential disclosure (Miller and Leary; 1992), the compensation offered in return for disclosure (Premazzi et al., 2010), as well as the impact of relational depth which is believed to alleviate concerns regarding information disclosure (Laurenceau et al. 1998, Biggemann, 2012) all represent important factors that help shift the mental scale of respondents.	Even though Afifi and Streuber's model provide some interesting insights regarding the processes of secret revelation, its application within an organisational environment is questionable for several reasons. For example concepts like *catharsis* are highly unlikely to occur within organisational settings, while processes like *communication efficacy* are arguably much less influential within organisational environments where relationships are more impersonal rather than interpersonal. Due to the model's nature and its application in mostly social and interpersonal settings, it fails to take into consideration parameters that have a greater impact in impersonal organisational ones like the concept of compensation offered for disclosure and its positive influence towards voluntary disclosure of information by consumers to commercial organisations (Andrade, Kaltcheva, Weitz, 2002; Deutskens, et al.,2004) . Finally the discipline that fuels the model is that of psychology communications and not consumer psychology adding on to the previous argument that some of its concepts and constructs are not directly applicable in organisational settings.	Even though Barnett's framework of disclosure management provides a spherical understanding as to what influences self-disclosure it is essential to pinpoint some of its limitations. An arguably important limitation of Barnett's framework is its lack of a precise definition in regard to the framework's relational depth construct. In the empirical exploration of her framework, Barnett bases this particular construct on a scenario that asked individuals to imagine that they had either a shallow relationship (low condition), or deep relationship (high condition) with the organisation. She ensured the effectiveness of this manipulation process in her research design by asking a series of relational depth evaluation questions that covered the concepts of trust, relationships and intimacy (10 items). Still these three concepts are so wide in terms of academic exploration that cannot be so easily measured if not accurately defined. Taking the concept of trust for example, Shapiro (1987) acknowledges that trust is an extremely wide and broad concept which in most cases "result(s) in a confusing potpourri of definitions applied to a host of units and levels of analysis" (pp625). Even though the utilisation of a scenario is arguably an effective way to mitigate the broadness of each of these terms, here is supported that the framework's lack of focus on a specific relational concept (i.e. trust, intimacy, relationships) in terms of accurate measurement and exploration, provides a subjective instead of an objective view of how the relational depth construct influences voluntary disclosure.

Appendix 9: Extended abstract of the pre-test study's scale comparison aspect

Extended abstract of pre-test study's scale comparison aspect

Scale development, appropriateness and utilisation in marketing research are well-established topics in the literature with a plethora of papers examining, debating, and criticizing the suitability of employed scales and response categories when measuring respective items, constructs and concepts (Matell and Jacoby 1971; Hawkins et al. 1974; Hanson and Rethans 1980; Preston and Colman 2000; Hartley and Betts ,2010; Rossiter, 2002,2011; Rocereto et al ,2011). Apart from the well established and widely used single-point capturing scales (i.e. Semantic differential, Likert, Staple scales) recent studies, emerging from the discipline of HCI, propose the use of interval-capturing scales that allow the choice of more than one response category. Certain interval-capturing techniques like the ellipse-based interval-capturing scale introduced by Miller, Wagner and Garibaldi's (2012), provide respondents with the ability to choose an interval of choice depending on their uncertainty to the questions being asked. These *intervals of choice* can include multiple response categories as well as values in-between them. A visual example of the Ellipse-Based Interval-Capturing Scale (EBICS) that measures ease of use can be seen below.

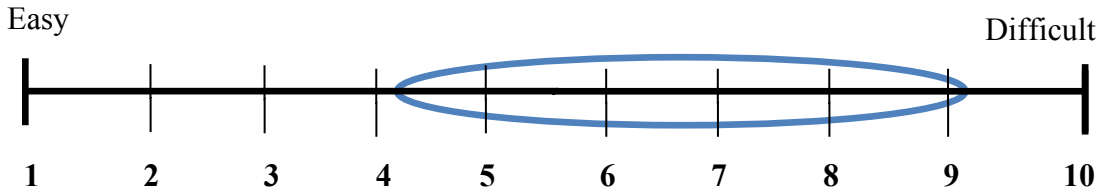


Figure1: *Visual representation of the ellipse-based interval-capturing scale. This particular example reflects a relatively uncertain answer where the width of the ellipse captures a wide interval of choice that ranges from 4.27 to 9.16*

The richness of information acquired though interval capturing scales is believed to widen the spectrum of available analyses one can perform (i.e. employability of type 1 and type 2 fuzzy logic analyses). Through the quantification of the respondent's uncertainty, interval capturing scales can provide significant benefits to marketing researchers while preserving the benefits of single point capturing scales. More precisely, additional benefits include: i) Detailed assessment of test-retest consistency between answers through intervals of choice. ii)Attribution of uncertainty regarding a specific concept to certain respondent demographics i.e. People above the age of seventy might be more uncertain with questions that have to do with the newest apple products compared to the less uncertain responses of younger individuals. iii) Intra- and Inter-respondent uncertainty modelling.

Still, as interval capturing scales are anything but common in marketing research, this study presents the first attempt of employing an ellipse-based interval-capturing scale within a marketing environment with the main objective being the comparison of its consistency with the widely used Semantic Differential Scale (SDS). In doing so a quasi-experimental questionnaire-based approach was utilized. Through the recruitment of 124 UK adult respondents -62 of which were asked in the first part of the pen-and-paper questionnaire to rate the invasiveness of 18 privacy capturing questions with the use of a ten-point semantic differential scale, and the rest 62 with a ten-point ellipse-based interval-capturing scale- comparable data between the two scales were generated. Each respondent was assigned to one scale while the two questionnaires' design ensured that only scale related effects were recorded between the two samples. The study's second section captured respondents' preferences regarding ease of use, speed of use, precision, certainty of answers, adequate expression of views and feelings as well as overall satisfaction with the assigned scale; similar to the work of Preston and Colman (2000) and Matell and Jacob (1972).

Initial findings indicate that the two scales behave consistently. For example the comparison of the ellipse-based interval-capturing scale's *central tendency based on the centroid,* and its counterpart in the single-point capturing scales, *mean*, non-significant differences were recorded. This hinted us of the consistency of the two scales while providing an indication of the interchangeability of these two types of measurement. Regarding respondent preferences, findings indicate that respondents were overall satisfied with the EBICS, in both ease and speed of use. Understandable is the fact that respondents felt less certain with the answers they provided through the EBICS compared to the SDS something which is primarily attributed to the lack of previous encounters and experiences with interval capturing scales, which was found to be significant in the respective analysis. We believe that future employment of this scale in both academic and non-academic research will offer respondents with more opportunities to interact with interval capturing scales which will provide them with the necessary confidence when answering.

The employability of interval capturing scales in marketing research allows the acquisition of richer information that can better explain the examined concept or phenomenon. Through interval capturing scales, and the acquisition of data that reflect the uncertainty of responses, new pathways can be opened for marketing research in terms of both data management and subsequent data analysis.