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Culture, Contraceptive Attitudes and Advertising Perceptions:

The Case of Rural Zimbabwe

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A thesis submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, Johannesburg, South Africa, in fulfilment of the requirements for the degree of the Doctor of Philosophy (PhD) Management

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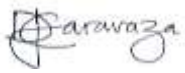
Declaration

I declare that this thesis is my own, unaided work. It is being submitted for the Degree of Doctor of Philosophy at the University of the Witwatersrand, Johannesburg. I am aware of the University's regulations concerning plagiarism, including those regulations concerning disciplinary actions that may result from plagiarism. Any use of the works of any other author, in any form, is properly acknowledged at their point of use. It has not been submitted before for any degree or examination at any other University.



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Abstract

This study examined information processing and behavioural responses to reproductive health advertising in subsistence marketplaces, providing an opportunity to advance marketing science through deepening our understanding of rural consumers' patterns of advertising responses (cognitive and affective) and how they relate to values, social axioms, contraceptive attitudes and socio-demographic factors. Birth control and safe sexual practices are important concerns, but, are least understood in the institutional context of subsistence marketplaces (Burgess & Steenkamp, 2006). Study 1 was on relations between culture and contraceptive attitudes and study 2 was on latent classes of advertisements responses to advertisement stimuli designed for subsistence markets. Study 1 and 2 had 395 and 225 respondents respectively. Measurement scales for study 1 were: the Portrait Values Questionnaire, the Social Axioms Scale, and the Contraceptive Attitude Scale. Study 2 used the same scales which were used in study 1 plus Mitchell and Olson's (2000) Attitudes Towards the Ad Scale items to evaluate four poster advertisements designed through qualitative research in rural Zimbabwe. Structural equation modeling was done using the rigorous two step approach of Anderson and Gerbing (1988), of which study 1 established that resultant self-conservation and religiosity had positive relations to contraceptive attitudes, whilst, fate control had negative relations to contraceptive attitudes. In study 2, the best fitting model, using latent class analysis, identified three segments of subsistence women's cognitive and affective perceptions of poster ads. Rural women's public health poster ads responses have not been previously studied. The four poster ads and the cues designed specifically for the unique context of subsistence markets rural consumers are a contribution to advertising research and practice. Also this study is the first to combine contraceptive attitudes, culture and advertising perceptions. Important lessons on ads design,

measurement properties of scales and constructs relations are outlined.

Keywords: Culture, Social Axioms, Personal Values, Contraceptive Attitudes, Advertising perception, Latent classes, Poster ads, Subsistence Marketplaces.

Dedication

I dedicate this thesis to my late parents; James and Bernadette, my best friend Nomuhle and our children; Valerie, Valentine, Veracious and Valour.

Acknowledgements

My supervisor and mentor, Professor Steve Burgess; I am very grateful for helping me develop the research skills needed to complete this dissertation and achieve success in my academic career. His scholarly prowess and instinct for quality is legendary. Dr Fanny Saruchera, thank you for your expert assistance and promptness to the completion of the thesis. Professor Colleen Wright, your support is greatly treasured. My gratitude will forever flow to my beloved wife, Nomuhle, for the emotional support, which evoked my audacious spirit when chips were down.

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Several other people also deserve my appreciation. Jenny Haysom (Nelson Mandela University) and Mmabatho Leeuw (Wits Business School) made me feel welcome when visiting South Africa. I also want to pass my gratitude to my research assistants, notably More Kashiri for a sterling effort. My colleagues at Bindura University of Science Education (BUSE), especially the Marketing department staff for covering my back and all the support, I thank you! I also appreciate the support and encouragement I received from Bindura University colleagues. So many other people helped me. Sincere thanks to everyone who gave me a hand, including those I cannot mention in such limited space.

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Chapter 1: Introduction

There are many riddles, many stresses and much suffering in our world. And so many of these conditions are instigated or aggravated by consumer behaviours or could be alleviated by new and different consumer behaviours (Mick, 2006, p. 973).

The current research focused on understanding the patterns of heterogeneity of subsistence consumers processing of advertising stimuli (emotional and affective responses to reproductive health poster advertisements) in relation to culture constructs (values and social axioms) together with other covariates, that is, contraceptive attitudes and socio-demographic factors.

The research was structured into two phases: study 1 focused on establishing the relations between culture constructs (values and beliefs) to contraceptive attitudes, whilst, study 2 focused on establishing latent classes arising from subsistence women's heterogeneous patterns in emotional and affective advertising responses on reproductive health posters. Subsistence consumer behaviour has been erroneously assumed to be homogeneous, yet, Viswanathan and his colleagues have repeatedly made calls to explore subsistence marketplace heterogeneity (Viswanathan, 2017, p. 1570; Viswanathan & Rosa, 2010, p. 535; Weidner, Rosa, & Viswanathan, 2010, p. 559). The study provided an opportunity to improve the effectiveness of reproductive health advertising in subsistence marketplaces.

About 60% of the world's population are classified as poor and they live in subsistence marketplaces of developed and developing markets (Prahalad & Hart, 2002; Weidner et al., 2010, p. 559). Research on subsistence markets in developing economies is still scant (Burgess & Steenkamp, 2006, p. 338). The prevailing misconception has been a tendency to expect homogeneity in terms of consumer behaviour in subsistence markets, yet, Viswanathan and his

colleagues (Viswanathan, Rosa, & Harris, 2005; Weidner et al., 2010) noted features of subsistence market consumers such as negotiating social networks and one-to-one interactions that imply within culture differences in their perceptions and behaviour.

It follows therefore that, subsistence consumers may ascribe different meaning to the same poster advertisement which consequently implies that they may respond differently to the same stimuli. Subsistence markets are unique because they have high illiteracy levels and they are resource poor, yet, culturally sensitive (Viswanathan, Sridharan, & Ritchie, 2008; Weidner et al., 2010). The institutional context (Burgess & Steenkamp, 2006) of subsistence markets implies substantial differences in subsistence consumers information processing and their responses to advertising stimuli. Rural consumers in subsistence markets do not have adequate understanding and knowledge of contraceptives which impacts on their evaluation or appraisals of advertising messages.

The research was in two logical parts. Study 1 was on establishing the relations between cultural constructs (values and social axioms) and contraceptive attitudes. The sequel was study 2 which aimed at understanding and determining heterogeneous latent classes of advertising patterns in relation to values, social axioms, contraceptive attitudes and socio-demographic factors. The above was elicited by rural women's responses to cognition source (the person/ model on the ad), cognition message (ad message) and ad affect (feelings about the ad) to four different advertising messages.

The research was motivated by the need to contribute towards reducing the suffering in the world as noted by Mick (2006) in the quote at the beginning of this chapter. The most fundamental problem on earth is to preserve the inviolability of living and the enhancement of the quality of life of people. Non-renewable natural resources are dwindling in alarming

proportions due to climate change and effects of human consumption. Population growth, birth rates, HIV and STIs prevalence are critical to the economic wellbeing of any society; therefore, part of the solution to these problems is to understand contraceptive attitudes, their cultural antecedents and advertising perceptions of consumers towards contraceptive poster advertisements. Public print media, such as poster advertising, are widely used in subsistence markets where there is no electricity, telephone lines and internet which facilitate electronic communication (Weidner et al., 2010, p. 559).

Understanding information processing of contraceptive advertisements by women, in relation to culture and attitudes and the resultant identification of latent groups, would became very handy in improving the designing of effective poster advertisements for different subsistence nominal situations. This would ultimately enhance contraception planning and safe sexual practices in emerging markets.

Culture is studied most often in marketing using the values construct. Personal values refer to a specific kind of generalized belief referring to a person's goals and serving as guiding standards in life (Schwartz, 1992; 2012, p. 3). Burgess (1992) noted the relevance of values in any marketing study seeking deeper insights on consumer behaviour. Recently, social axioms have been identified as another type of general belief, which has relevance in marketing and cross-cultural business. Social axioms "are general beliefs that may be conceptualized as generalized expectancies to characterize locus of control" (Leung et al., 2002, p. 288). The endorsement of social axioms varies across individuals and societies. Social axioms are critical in augmenting and complementing values in predicting human behaviour (Leung et al., 2007). Combined, social axioms and values provide a richer explanation of human behaviour. Several theories allude that values have a direct connection with attitudes (Eccles & Wigfield, 2002;

Feather, 1992; Fishbein & Ajzen, 1980; Rokeach, 1973), and contraceptive attitudes are theorized to be related to contraception behaviour (Black & Pollack, 1987). .

The combination of personal values, social axioms, contraceptive attitudes and attitudes towards the advertisement are expected to culminate into a model of contraceptive information processing suitable in different nominal situations that capture within culture variations in subsistence markets.

Background to the Study

The study is among the first transformative consumer research studies to be conducted in a subsistence marketplace relating to heterogeneous latent classes of advertisements perceptions in terms of values, social axioms, contraceptive attitudes and socio-demographic factors. The transformative consumer research initiative is intended to promote research that enhances the welfare of individuals and society by contributing positively to improving consumers' standard of living and disseminating the findings to relevant stakeholders (Mick, 2006, p. 2).

In general, it is factual to assert that the consumer view in research in terms of welfare of individuals and society has not received adequate attention (Mari, 2008). Consumer contraception behaviour and the processing of marketing messages by consumers are well studied in first world economies. Commenting on the status of the marketing literature, Burgess and Steenkamp (2006, p. 338) note that "existing body research suffers from an important limitation, viz, most of it has been conducted in high income, industrialised countries". There is a welcome increase in marketing research in emerging markets (e.g., Ingenblek, Tessema & van Trijp, (2013). There, however, remains an urgent need for contraceptive transformative consumer research in emerging markets especially in subsistence marketplaces.

The study setting is rural Zimbabwe, which is a typical subsistence market. Zimbabwe

had an estimated population of 15 967 000 in 2016 (Knoema, 2017). The HIV prevalence rate from 1996 to 2015 for the 15 to 49 age group has been declining at a moderate rate (from 26% in 1996 (ZIMSTAT, 2010 - 11) to 14.7% in 2015). Zimbabwe is an emerging consumer market which has not been fortunate enough to attract business and/ or marketing scholars to study especially the sifting sand of contraception adoption and information processing of advertisements. The current study seeks to contribute towards this void by focusing on a real-world phenomenon and problem of contraception attitudes and behaviour and consumer evaluation of public print advertisements.

The focus was on the following constructs: personal values, social axioms, contraceptive attitudes and advertisements perception. The researcher is not aware of any study that combines the mentioned constructs and more so incorporating social axioms in an emerging market on contraception marketing research. Mari (2008, p. 4) argued that the "current heterogeneous society requires a better understanding of culturally diverse and economically disadvantaged population." Mick (2006) goes on to identify specific target populations as vulnerable consumer groups such as rural consumers. Contraceptives are a relevant product in this regard. It follows therefore that, there is need for this study to add to existing knowledge which could help alleviate the 'riddles,' 'stresses,' and 'suffering' referred to by Mick in the statement opening this chapter.

Research Problem Statement

Literature seems to be deficient of a deeper understanding of the heterogeneity of latent classes of subsistence contraceptive consumers' patterns of advertisement perceptions in terms of their culture (values and social axioms), contraceptive attitudes and socio-demographic characteristics. There is a mismatch between the high literacy rate in Zimbabwe (96% according

to the 2012 Zimbabwe Population Census National Report, (ZNFPS, 2016, p. 7) and the Contraception Prevalence Rate, which hovers around 59% (ZNFPS, 2016, p. 7).

Despite incessant advertising efforts by the government, non-profit making organisations, lobbyists and various pressure groups, the Contraception Prevalence Rate in rural areas has not been encouraging. The contraceptives industry has also gobbled millions of dollars in public print media promoting the adoption and use of contraceptives. The Government of Zimbabwe, on average, spends 1.7% of its total national expenditure on contraceptive procurement and advertising (ZNFPS, 2016, p. 10). There is need to improve the effectiveness and efficiency of such contraceptive public print media. Cultural divergence implies the need for context specific models on the influence of culture on the often neglected rural consumers' information processing of public print (pictorial and textual) ads.

Research Objectives and Hypotheses

The key goal of the research is to systematically assess the relations of culture (values and social axioms), and attitudes toward contraception as influences on the processing of contraceptive public print media advertising across segments in subsistence marketplaces e.g. rural Zimbabwe. Table 1 below outlines the research sub-objectives and their corresponding hypotheses.

Brief theoretical framework. There were basically two logical phases of the study;

1) establishing the relations between culture constructs and contraceptive attitudes, and establishing heterogeneous latent classes of subsistence women's perception of the four poster ads in relation to culture constructs and demographic profiles.

Table 1

Research Objectives and their Corresponding Hypotheses

Variable	Research objective		Corresponding hypothesis
Values:	1a	To determine the link between resultant conservation and contraceptive attitudes.	H_{1a}**:** Resultant conservation has a negative connection with contraception attitudes.
	1b	To determine the association between resultant self enhancement and contraceptive attitudes.	H_{1b}**:** Resultant self enhancement has negative association with contraception attitudes.
Social axioms:	2a	To determine the connection between reward for application and contraceptive attitudes.	H_{2a}**:** Reward for application has a positive link with contraceptive attitudes.
	2b	To determine the link between social complexity and contraceptive attitudes.	H_{2b}**:** Social complexity has a negative association with contraceptive attitudes.
	2c	To determine the link between religiosity and contraceptive attitudes.	H_{2c}**:** Religiosity has a negative link with contraception attitudes.
	2d	To determine the connection between fate control and contraceptive attitudes.	H_{2d}**:** fate control has a negative association with contraceptive attitudes.
	2e	To determine the link between social cynicism and contraceptive attitudes.	H_{2e}**:** Social cynicism has a negative association with attitudes towards contraception.
	2f	To determine the link between ancestral relevance and contraceptive attitudes.	H_{2f}**:** Ancestral relevance has a negative connection with contraception attitudes.
	2g	To determine the connection between Ubuntu and contraceptive attitudes.	H_{2g}: Ubuntu has negative link with contraceptive attitudes
Values, social axioms and demographic profiles	3	To examine possible heterogeneity in cognitive and affective responses to contraceptive advertising messages within subsistence marketplaces.	H_3: There are heterogeneous latent classes among rural women on their perceptions of the four poster ads with regards to culture and demographic profiles.

The overarching theory which fastens culture, attitudes and perceptions in a subsistence marketplace is the Cultural Cognitive Affective Process System (C-CAPS) model (Mendoza-Denton & Mischel, 2007). The two phases of this study were anchored by culture, which was operationalized by values and social axioms. Values and social axioms in their original form

were meant to have a direct relationship where the purpose of social axioms was to indicate a person's values (Leung & Bond, 2004). However, the correlations between the two constructs were found to be moderate (Leung et al., 2007), Values are separate from beliefs or social axioms and there is no conflation of the constructs. This assertion and conclusion is backed by empirical evidence (Bond & Leung, 2009, p. 16). Beliefs and values are viewed as pertinent constructs that influence or determine the configuration of attitudes and behaviours (Bond & Leung, 2009). This position was also alluded to in the expectancy value theory (Feather, 1992). Rokeach's belief system theory also reinforces that values and beliefs shape attitudes and behaviour (Rokeach, 1968) as captured on the simplified theorized model shown on figure 1.

Leung and Bond's study noted that beliefs or social axioms can be stimulated in a given situation which in turn would influence attitudes and behaviour or any psychological outcome (Leung & Bond, 2004). Empirical studies on attitudes towards help seeking and paranormal beliefs also confirmed the predictive power of social axioms respectively (Kuo, Kwantes, Towson, & Nanson, 2006; Singelis, Hubbard, Her, & An, 2003). Social axioms were proposed by Leung and Bond to augment values in describing and interpreting culture and the behaviour of individuals socialized into those cultures (Leung & Bond, 2004).

Values and social axioms are generalised beliefs that direct behaviour when activated with a particular situation. Beliefs and other personality constructs are distinguished according to their centrality to personality in the psychology and marketing literature. Marketing scholars have considered values and axioms to be central dispositions. Attitudes and lifestyle, as secondary dispositions in the marketing literature, follow the well-known classification that the psychologist Gordon Allport used to distinguish among levels of personality traits (see Table 2).

Table 2

Three Levels of Dispositions

Level	Dispositions	Description
Highest level	Cardinal dispositions	These are very pervasive in a person's life until death. An example is a trait called 'Machiavellianism.'
Middle level	Central dispositions	These occupy the intermediate level. There are enduring but may change albeit very slowly. An example is *personal values* that are a key construct in this study.
Low level	Secondary dispositions	These are operational on specific situations, settings and objects. They are prevalent within a given consumer behaviour domain context. An example are *attitudes* because they are related to affect and cognition which is particular to a given contraceptive consumer behaviour.

Note. Adapted from Allport (1961).

Values and social axioms as central dispositions are the independent variables in this study which influence contraceptive attitudes as secondary dispositions. Culture is build up by values, beliefs, attitudes and behaviour (Burgess, 2003). Values and social axioms cannot be specific to contraceptives but they influence specific contraceptive attitudes of rural women. Rokeach (1969, p. 550) defined attitudes as an "enduring organization of several beliefs focused on a specific object (physical or social, concrete or abstract) or situation, predisposing one to respond in some preferential manner." Rokeach defined values (1969, p. 550) as "transcending specific situations: Values have to do with modes of conduct and end states of existence." In other words, beliefs (social axioms) and values are not specific or particular to a situation or object, but, they are standards that address the question 'what' and 'how' in terms of goals or aspirations in life. In Allport (1961)'s terms, they are central dispositions (see table 2 above).

An individual in Rokeach's paradigm has a functionally integrated cognitive system

(Rokeach, 1968). Literature supports the inclusion of beliefs in a person's value system. A person's value system has beliefs as the backbone, which is basically a proposition which is implicit in what a person does or says in daily interactions. A person may be aware or not aware of such propositions (Vinson, Munson, & Nakanishi, 1977, p. 247). The belief system theory underpins the relations theorized in study 1.

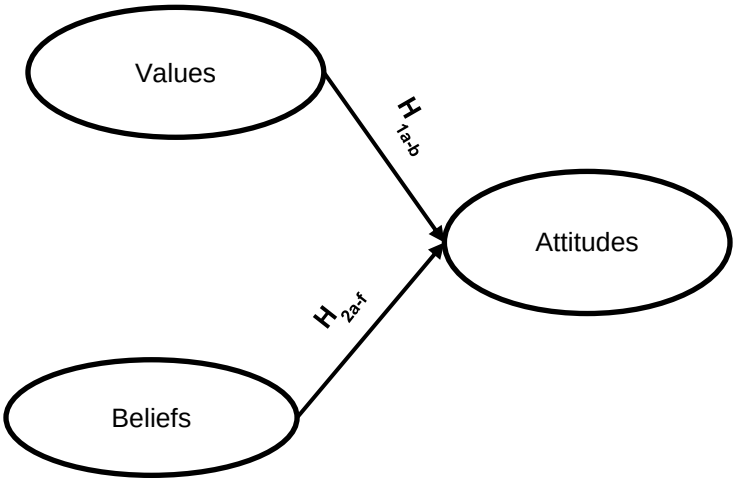


Figure 1. Simplified theorized model on culture and attitudes relations of study 1.

The simplified model clearly shows the centrality of Rokeach's belief system theory with major constructs being values, beliefs and behaviour. Rokeach notes that, a value system for an individual depicts a knowledge inventory learnt over the years which is tapped on when making decisions, engaging in conflict resolution and application of rules in these contexts (Rokeach, 1969, p. 55).

The differences in individual contraception behaviour are kept on the check by homogeneity in culture, social systems, class, occupation, education, sex, religion, institutional factors and various other factors (Rokeach, 1969). Considering that central and secondary dispositions may differ among individuals even in the same locality and context, latent heterogeneous classes are expected to exist whilst homogeneity is also expected among members

of the same group in terms of their responses to exogenous marketing stimuli such as poster advertisements used in study 2 (see figure 2). Lastovicka (1982) concurs with Burgess (2003, p. 30) that values are a core element in a consumer's cognitive system which underlines their essence in understanding consumer behaviour. Value priorities vary among individuals (Schwartz, 2012), therefore heterogeneity of advertisement perceptions are expected given that perceptions are influenced by beliefs and values.

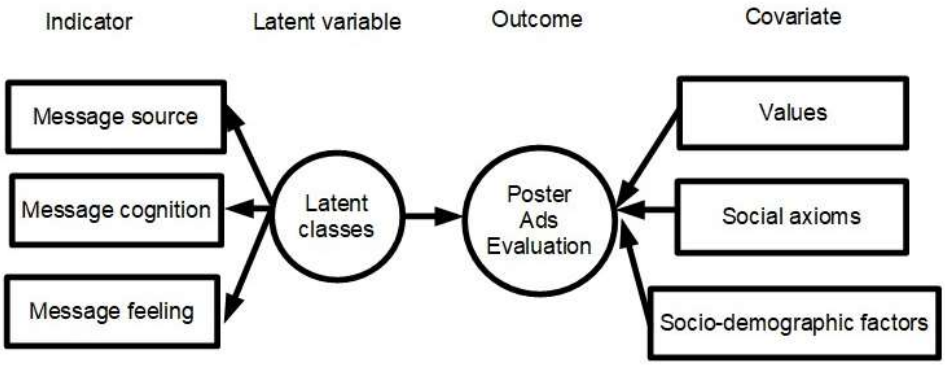


Figure 2.Simplified theorized model on heterogeneous latent classes of rural subsistence consumers' responses to public health poster ads in Study 2.

Contributions of the Study

The current study was on contraception information processing of contraceptive advertisements by rural consumers and the influence of cultural antecedents and consequences namely; values, social axioms, and attitudes. Some studies have been done in high income countries on contraception adoption and how cultural antecedents impact on consumer information processing of print advertisements. Burgess and Steenkamp (2006, p. 341), argued for the need to consider the institutional context as emerging markets provide a unique platform as compared to the highly studied Western context.

Therefore, studying subsistence marketplaces within emerging markets provides

researchers with an opportunity to make theoretical contributions as a consequence of the idiosyncratic nature of the socio-economic, cultural and regulative systems of these markets. We need to understand consumer behaviour in relation to established theories, constructs and relations in this unique context (Burgess & Steenkamp, 2013, p. 1). Furthermore, measurement properties of Social Axioms Scale (SAS) and Contraceptive Attitudes Scale (CAS) largely used in Western markets were validated in subsistence marketplaces.

Conceptually, a combination of the four major constructs in the current study, namely: personal values, social axioms, contraception attitudes, and cognitive and affective advertising perceptions, is unique in advertising and consumer behaviour studies. The current study used social axioms that are actually a novel measure of culture which has not been used previously on contraception information processing studies in a rural subsistence marketplace. Values have been widely used in various studies but operationalizing cultural issues through social axioms will enhance an evaluation of individual contraception behaviour on the basis of non-goal orientation.

The empirical contribution could be the basis of a practical contribution especially the practice of designing effective advertisement messages, content decisions and identification of suitable audience and location of marketer dominated stimuli. Critical lessons were learnt from the design of four advertisements with unique subsistence marketplace advertising cues based on ideas suggested by subsistence consumers through focus groups:

i) a rural woman holding a woman condom on a door step of a traditional hut and there is eye contact,

ii) a woman kneeling on a gravesite and there is no eye contact,

iii) a group of women chatting about contraceptives in a field, and

iv) a group of men chatting about contraceptives on a rural setting (see Appendix 3).

Practically, the research brought social axioms measurement in contraception behaviour that will provide fundamental cues to contraception related organisations and their marketing managers so that they will have a practical understanding of individuals' information processing upon being exposed to a public print advertisement. This will provide a basis for contraception marketing strategies that are meant to break barriers to adoption of modern contraceptives and also promote perpetual use of such contraceptives in emerging markets. Results of this study could be helpful in identifying types of people who can adopt or resist contraceptives (latent classes). This information is critical in contraceptives industry; businesses, non-governmental organisations and governments in emerging markets to refine contraception marketing programmes in terms of segmentation, targeting and positioning.

Scientific enquiry on contraception has been the preserve of scholars from natural sciences; whose focus has been basically descriptive usually in the form of demographic health surveys. This study takes a marketing perspective with a firm base in social psychological constructs that have been used by marketers to analyse and gain insights on consumer behaviour. It is high time that a marketer's voice is heard in this essential field which is at the hub of transformative consumer behaviour. People do not just eat and drink, they also engage in complex sexual practices whose understanding by marketers will go a long way in having a better world for you and for me and the entire human race.

Structure of the Research

The research is made up of five chapters, and their contents are briefly highlighted below:

Chapter one is the current introductory chapter which has the background to the study, research objectives, research hypothesis, and a brief theoretical framework with simplified theoretical models of the study and contributions of the study.

Chapter two positions the current study in terms of intellectual genealogy as a transformative consumer research and the unique context of rural Zimbabwe as an emerging market being authenticated by the institutions theory. The chapter then dwells on related theoretical and empirical literature on culture operationalized by values and social axioms and their link with attitudes, consumer information processing, and ads evaluations and ultimately within culture variations as the basis of consumer heterogeneity of advertising perceptions leading to latent classes and consumer segmentation.

Chapter three is a discussion of methodological strategies and tactics applied in the study. Issues on the research plan, philosophy, approach and sampling techniques are discussed. Data collection procedures and data analysis using structural equation modeling and latent class modeling are explained.

Chapter four gives research findings of the study in two parts; culture-attitudes relations and latent classes emerging from the study.

The fifth chapter, which is actually the last, outlines summary of the study, conclusions, contributions, research recommendations, limitations and areas that need further research in future.

Chapter Summary

This is the introductory chapter to the study where the background to the study was explained, the main objective and sub-objectives with their corresponding hypothesis were given. A brief

theoretical framework together with two simplified theorized models was presented. The rationale and contributions of the research were given. The next chapter is on literature review.

Chapter 2: Research domain and overarching theories

There is a converging viewpoint among many leaders in our field that we have an historical opportunity to make the nexus of consumption ideology and existence in the market world our encompassing substantive focus because of its wide scale and profound effects across the entire natural environment, hundreds of societies, and millions of individual lives. For those who are compelled by this agenda, there is a need to move quickly to address the momentous questions of consumers in our time. If we do so in the most rigorous and representative manner possible the future and fortune of our field will be a legacy that we will be proud to have borne. (Mick, 2003, p. 462)

The literature chapter lays the research domain of this study as transformative consumer research of which the heterogeneity of subsistence consumers' affective and cognition perceptions to reproductive health poster ads was studied in relation to culture (values and social axioms), contraceptive attitudes and socio-demographic factors. The institutions theory provides the rationale of studying constructs in subsistence marketplace which have been studied in western markets taking a marketing perspective. Contraception theories and contraception practices in Zimbabwe were discussed to reflect existing knowledge in the focal product and market. The C-CAPS model (Mendoza-Denton & Mischel, 2007) and expectancy-value theory as the overarching theories that explain the relations of values, social axioms, attitudes and behaviours within the context principle, culture and the complementary theories on cognitive consistence were discussed.

A Background to Transformative Consumer Research

David Glen Mick, the former editor of the *Journal of Consumer Research*, is among several leading marketing scholars recently calling for researchers to move from the relative security of

familiar Westernised contexts to focus on real world problems affecting people in emerging markets. Among these voices, Mick is particularly interesting because of his seminal work to carve out a new theme for research in marketing, transformative consumer research (Mick, 2006) .

Transformative consumer research (TCR) refers to a specific kind of research emphasizing studies that are aimed at solving real life problems affecting consumers without compromising rigorous methodology (Mick, 2006, p.2). Figure 3 outlines the core qualities and commitments of TCR. TCR is envisioned to make theoretical contributions, empower social change agents, identify alternative communication strategies and add to practical wisdom. Its mission is to make a positive impact on the quality of life of people from the present to the future through action research which should not be encapsulated in academic institutions but should be widely disseminated and applied in affected communities (Mick, 2005, p.1). TCR potentially assists in developing new holistic insights, which lead to theory and practice advances in emerging markets and subsistence contexts. This adds value over and above research focusing narrowly on managerial issues (Mari, 2008) and helps transform consumer lifestyles and choices about purchase and consumption.

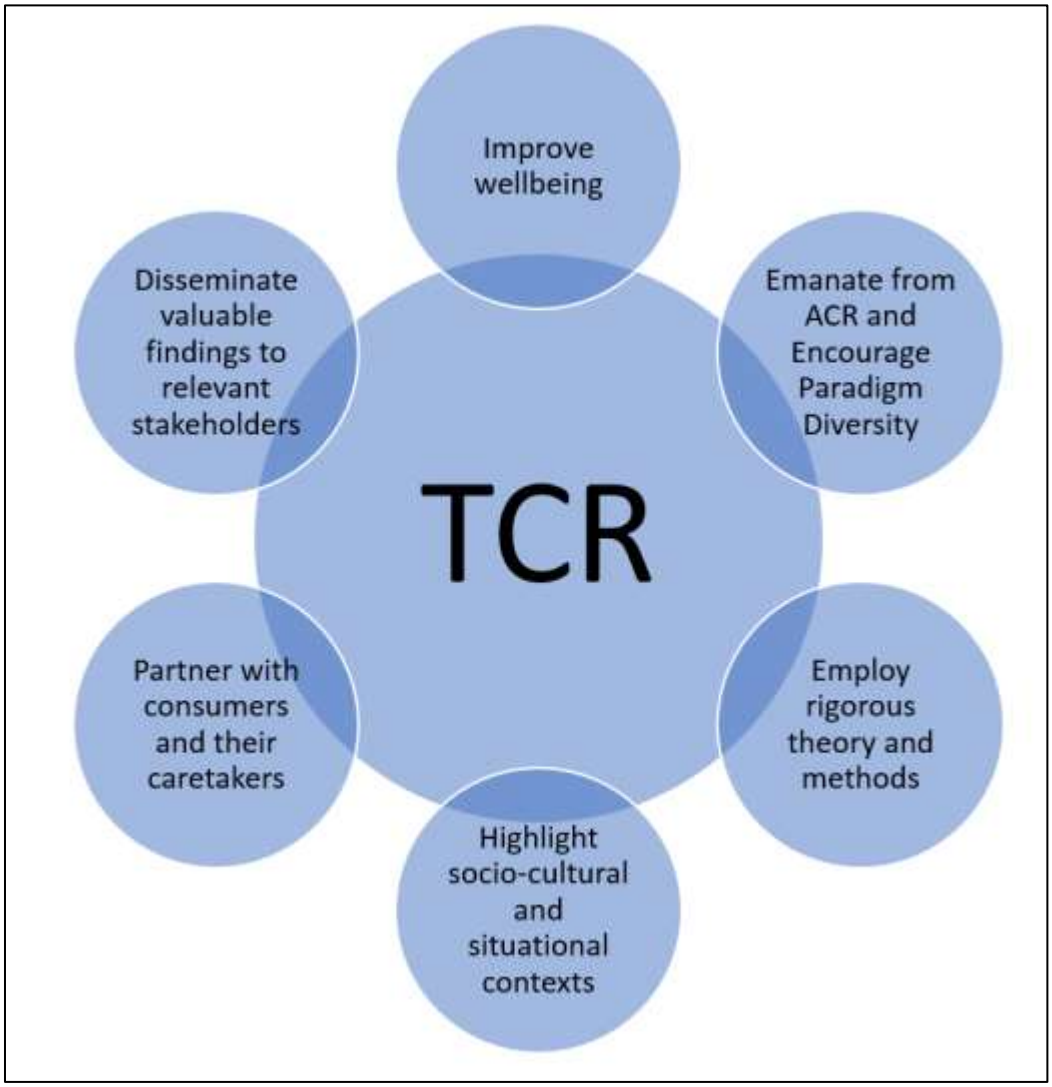


Figure 3. The six core qualities and commitments of transformative consumer research (Mick, Pettigrew, Pechmann, & Ozanne, 2012,p.6).

TCR builds on the stream of social marketing research that began in the 1970s (Kotler & Zaltman, 1971). Andreasen (1994, p. 110) defines *social marketing* as, the application and transfer of marketing techniques used in commercial marketing to effect behaviour change of the target market so as to improve their wellbeing. Social marketing's bottom line, according to Andreasen (1994) is its emphasis on pro-social behaviour; and it seeks to benefit consumers rather than the marketer. These broad objectives are in line with TCR (Mick, 2006) and they are

also consistent with Mari's (2008) call for more PHD programs to focus on real world phenomena and problems.

Mick (2006, p. 2) argues that consuming and living are closely intertwined, hence consumption of contraceptives and living move together. Social marketing provides the foundation for the more holistic approach of TCR, which seeks to identify and remedy negative effects of marketing programmes (i.e., marketing's dark side) as well as marketing opportunities to improve consumers' quality of life and the social world in which marketers conduct their activities (Andreasen, Goldberg, & Sirgy, 2012). TCR encourages researchers to make socioeconomic, cultural and regulative institutions explicit in their research (Davis & Ozanne, 2019). These two trajectories share the explicit emphasis on understanding consumer behaviour purchase and consumption behaviours across institutional contexts, with the goal of understanding convergence and divergence across contexts.

A Neglected TCR Opportunity: Contraception and Safe Sexual Practices

An important but neglected opportunity for TCR concerns the relations of institutional context, attitudes toward contraception and safe sexual practices, contraception behaviour and evaluation of public print messages. Sexual behaviour in a society is a fundamental aspect of life that is instigated by basic human needs for survival and "expressing cultural beliefs about the supposed traits of males and females, their roles in society, and even their relative worth" (Baron, 1989, p. 257). Social discourse about population growth and birth rates are complex and value-laden, especially in formerly colonized countries. That noted, differences in population growth have individual and societal impacts on economic well-being can be illustrated, without making value judgments. Adopting contraception and safe sexual practices within a society has health benefits, such as slowing the rate of sexually-transmitted infections, which helps increase

consumer well-being and lower demands on healthcare infrastructure and costs. Population growth also is reduced, which can lead to substantial increases in economic well-being over time.

The case of two similarly-sized former British colonies: Botswana and New Zealand, albeit, with the comparison limited by the assumption that the higher economic growth rates could be sustained by a smaller population. Given the relatively large levels of unemployment, using the comparison to highlight the practical implications of the adoption of lower birth rates seems reasonable.

Botswana and New Zealand differ considerably in birth rates, which fuels population growth over the 1960 to 2015 periods. Botswana's birth rate has declined recently but was much higher than New Zealand over the period. In 2012, Botswana had 2.66 births per woman, falling from more than 6 births per woman in the 70s. New Zealand's birth rate of 2.05 per woman (2012) has been relatively more constant over the period, accounting for the lower population growth. Botswana's economy was ranked among fastest growing markets in the world. GDP (10%) grew at nearly twice the pace of NZ (5.5%). Botswana's population also grew more rapidly. Botswana (2.3%) more than doubled New Zealand's yearly population growth rate of 1.02%. Comparative population and GDP statistics and annual growth rates are summarized in Table 1 (World Bank, 2016).

What would be the case if population growth in Botswana had been at the lower pace of New Zealand over the period? The effects are striking, albeit given the limitations mentioned earlier. Botswana's GDP PPP would place Botswana among the top 35 countries in the world, in a position approximately equivalent to New Zealand, Spain, Portugal, Greece, Israel and Italy. However, low population growth may not always bring positive benefits (Peterson, 2017). Low

population growth brings challenges relating to social cohesion and these challenges are prevalent in developing countries due to low populations.

Table 3

Botswana and New Zealand Population and Economic Growth Rates

	New Zealand	Botswana	Botswana: lower growth scenario
Population (000000s)			
1960	2.372	0.524	0.524
2015	4.596	2.262	1.013
Annual growth rate (mean)	1.02	2.28	1.02
GDP (000000s)			
1960	5486	30	30
2015	173754	14391	14391
Annual growth rate (mean)	5.46	9.96	9.96
2015 GDP (per capita)	$37805	$6362	$14206
2015 GDP (per capita, PPP)	$34762	$14876	$33217

Note. World Bank (2016)

The HIV/AIDS pandemic illustrates another example. In 2014, 36.9 million people were living with HIV the world over. Among those people living with HIV 22 million are deprived of access to antiretroviral treatment of which 17.1 million are not aware of their HIV status. According to UNAIDS (2015a), there is a financial shortfall of US$9 billion and these costs may increase to US$31.1 billion in 2020. In 2014, 2 million people were infected with HIV and 1.2 million perished due to AIDS related diseases. According to UNAIDS (2015b), the survival of humanity is hitched of a total behaviuoral change and holt the escalating deaths. Emerging and low income economies are hard hit and their positive response could save the lives of 28 million people who could have contracted HIV. This could also save 21 million AIDS-related deaths estimated to occur between 2015 and 2030. There are also monetary benefits, as there is a saving of an estimated US$24 billion annually which are the costs of additional HIV treatment costs (HIV/AIDS, 2015a, p. 3). What is frightening is UNAIDS prediction that if the world is passive

in acting to curb the pandemic, the deaths could revert to the numbers recorded in the past decade (HIV/AIDS, 2015a, p. 5). The case for Sub Saharan Africa is compelling, with 790,000 AIDS-related deaths in 2014 as compared to 26,000, deaths for Europe and North America.

The costs of the HIV/AIDS pandemic are extreme, with sobering effects on the family unit and the well-being of family members. The loss of human life also means the loss of human capital which is detrimental to economic growth. There are additional costs of HIV/AIDS and sexually transmitted disease treatment, which gobbles up government funds that could have been used elsewhere.

Although sub-Saharan Africa comprises of just 13% of the world population, its citizens account for nearly 70% of the world's HIV positive population. Zimbabwe has a 14.9% prevalence rate between the ages of 14 to 49 years (WHO, 2012) and more recently it was 12.8% in 2019,being among the highest in Sub-Saharan Africa (UNAIDS, 2019). In 2006, the United Nations Development Program estimated that HIV/AIDS has negatively impacted on life expectancy in sub-Saharan Africa by 20 years on average. Antiretroviral treatment has led to a 5.5 years increase in life expectancy in sub-Saharan Africa (UNDP, 2013). Antiretroviral therapy (ART) adds further high costs. In 2006, the annual cost of ART per patient was estimated at US$1.700 in South Africa and $850 elsewhere in sub Saharan Africa (Rosen & Long, 2010).

These examples demonstrate the importance of studying contraception and safe sexual practices as transformative consumer research phenomena. The current research thus responds to the historical opportunity for TCR outlined by David Glen Mick in the quotation opening this chapter. More of the money devoted to combatting the HIV/AIDS pandemic could be channeled into infrastructure building, healthcare, education and other urgent initiatives, if research on

consumer behaviour can provide more knowledge and education (Ozanne et al., 2011). Naturally, a more general social benefit would accrue from the relative productive capacity of a healthier society. TCR emphasizes that one way to achieve meet these targets is to align research to the exigencies of a particular place and time. In this vein, Blocker et al. (2011, p. 3) contend that consumer research has the potential to change marketing practice and policy and invigorate our theoretical understanding for the benefit of consumers' wellbeing. The most important way to understand time, place and context is the institutions theory, which is discussed in the section below.

Institutions Theory

Several international business scholars have argued that institutions theory should occupy a prominent place in our research. In strategy, the highly-cited scholar, Mike Peng and his associates argue that the "institutions-based view" compliments the prevailing industry-based (Porter, 1980) and resource-based (Barney, 1991) views of the firm, adding "a third leg of the strategy tripod" . The institutions-based view is most relevant in the study of emerging economies and provides the prevailing explanation for differences between emerging economies and high-income western countries that provide a rich platform for international business research (Peng, Wang, & Jiang, 2008; Wright, Filatotchev, Hoskisson, & Peng, 2005).

Attempts to understand the emerging markets context in marketing traditionally focus on consumer spending power or levels of socioeconomic development. Several influential scholars call on marketing scholars to move beyond this limiting viewpoint. Meyer and Peng (2016, p. 6) noted that business environments in emerging economies are diversified and unstable. They warned against researchers conducting research in low income societies on the fallacy of 'over-generalizations', rather meaningful research should be context- specific. Actually, Peng and

Meyer (2016, p. 14) argue that the institutions based view is shaping in to a 'paradigm' since it is an integration of several disciplines notably new institutional economics, neo-institutional theory in sociology, and so on. Institutions based view has both novelty, continuity and a wide scope (McKinley, Mone, & Moon, 1999).

Moreso, the case for African markets has more prerequisites for the institutions based view to be the undisputed view. African markets have dual economies, Lewis, (1954) cited in Zoogah, Peng and Woldu (2015, p. 9); the urban economy that constitutes the affluent of the market with access to global marketing and the customary system that is in rural areas with poor infrastructural development, road network, communication systems and a rigid sociocultural framework. This study is therefore focused on rural subsistence markets and solely collecting data from the often marginalized rural women. Whilst there has been a shift in research focus from Western developed economies to developing economies outside United States of America and Western Europe, Africa has remained a grey area being off researchers' radar (Zoogah et al., 2015, p. 7).

Institutions theory is an important influence on the current research. The framework is anchored on advancing marketing science and practice by conducting research in emerging markets (Burgess & Steenkamp, 2006). The institutional based view provides an opportunity to investigate unique contexts that are completely different from previous research (Burgess & Steenkamp, 2006, p. 341). This position had been taken by North in his Nobel Prize speech when he stated, "When it is costly to transact then institutions matter. And it is costly to transact" (North, 1993, p. 4). What follows is an account of the intellectual genealogy and legacy of the institutions theory from scholars in sociology, economics and marketing.

Institutions theory has benefited from contributions across the behavioural sciences, especially from sociologists and economists such as Scott, DiMaggio and Powell, Giddens, North and their associates among many scholars that shape our current understanding. According to the Institutions theory, the world is a social phenomenon which comprises of unique institutions. These institutions have enduring rules, practices, structures and agents (Lawrence & Shadnam, 2008, p. 2289). The uniqueness of institutions or institutional context make institutional research more interesting and novel since each institutional context has its own constraints and rules that imply different actions from participants. My focus in this section is on the role of sociologists in the development of the institutions theory, whose considerable contributions were at group level.

Early traces of the theory were noted in Max Weber and Emile Durkheim's works. Neo-institutional theory was initiated by Meyer and Rowan (1977) and DiMaggio and Powell (1983). The highly cited seminal work by DiMaggio and Powell's (1983) 'iron cage revisited' with 34,679 citations (Google scholar, 2016), presented a compelling argument on institutional isomorphism and collective rationality. The three isomorphic processes namely; coercive, mimetic and normative make rational actors' behaviour and choice to converge towards homogeneity.

Giddens' structuration theory. Giddens' structuration theory brings in the 'duality' of structure and agents. Giddens (1991) argues that agents choose their actions deliberately and can make decisions in defiance of prevailing rules and powers, yet the need for ontological security may compel agents to follow routine so that structures are reproduced. The strategic lifestyle planning arises from personal agents (Giddens, 1991). The theory was based on the interrelationship between structures and agents such that their operations could not be separated

(Stones, 2005, p. 20). The theory is an eclectic of interactionism, dramaturgy, phenomenology, ethnomethodology, structuralism and psychoanalytic theory (Turner, 1986, p. 970).

Giddens (1984, p. 24) noted that institutions have core features which are enduring they define its social system over time. Structure provides rules and resources that guide actors in social interactions (Turner, 1986). Rules and resources may change, but are relatively enduring aspects of daily life that are learned by individuals and groups over time within a society.

There are structural principles that should be adhered to and these are formulated from rules and resources. There can be structural contradiction and conflict where structural principles may be violated by agents. For instance, contraception use and natural contraception cause a conflict in a social system where some individuals basing on their beliefs and values may shun traditional or natural contraception whilst others view modern contraceptives as unreligious or against their customs. Giddens reinforces the institutional context by referring to regionalization and locales which are geographical concepts that indicates expected differences in marketplaces, in which the agent acts. The differences in behaviour of people in the same locale justify the need for segments on women perceptions of ads.

Duree. The institutional context is also bound by time. In this regard, the term 'duree', implies time in context of an institution. It is not just the place but also the time in history which regulates consumer behaviour. Focusing on the concept of duree, Giddens viewed institutions in terms of time and history. Following a philosophical tradition of Heidegger, Giddens included time and space or the 'St Augustine's problem' to the structuration theory. Giddens based the duree on the concept of 'time reversibility' by Levi-Strauss. According to Giddens, the duree of daily life, which are the day to day experiences follow a repetitive cycle, i.e. there are daily routines that are 'recursive' or they socially reproduce themselves. Days of the week follow a

seven day cycle and seasons are continually returning. However, a person's life is not repetitive but it is a journey towards death (what Lowell cited in Giddens (1984) referred to as the 'black widow'). Hence, to an individual time is 'irreversible.'

For institutions, Giddens argues that there is 'longue duree', which is also 'reversible time.' Time for institutions is a cycle of institutional time that indicates the succession of generations. Giddens argues that the daily routines of individuals are not necessarily the threshold of institutional systems but there is a duality of structure. The duree of daily life, (reversible time), life span of an individual (irreversible time) and longue duree of institutions (reversible time) are intertwined such that each influences the other. The self can be understood in terms of 'history' and complex interpolation of the three dimensions.

Scott's theory on institutions and organisations. The sociologists, W. Richard Scott (2001), made a tremendous interdisciplinary effort to structure and conceptualize the institutional context. Scott (2001) contributed immensely to institutions literature by presenting an analytical framework. Scott (2001) concurs with Douglas North that for institutions history matters where he states that, "To an institutionalist, knowledge of what has gone before is vital information" (Scott, 2001, p. 20). This position is pivotal in understanding the Zimbabwean institutional context given its historical background. A transition from pre-colonial times, during periods of British Colonization and the post-independence period from 1980 to date might have influenced what Scott (2001) referred to as, 'The three pillars of institutions:' To what extend has change and stability affected the current state of Zimbabwean institutional context in terms of contraceptive adoption and use in rural Zimbabwe? However, Scott (2001) argues that norms and rules operating in an institution emanate from interactions and are applied in human

behaviour. These rules may be preserved and changed through behaviour (Scott, 2001, p. 49). Geertz (1973) alluded to the need to avoid making the error of excluding cultural analysis in our study of behaviour. Social behaviour requires to examined with precision and exactness, so as to provide a foundation for the development culture as a radar for social action (Geertz, 1973). The thrust of the current study is on analyzing the effects of culture on contraception behaviour, therefore the capacity of institutions to control and constrain behaviour in this regard is central. Institutions give cultural boundaries or parameters defining legitimate and illegitimate contraceptive behaviour.

The three pillars of institutions. The three pillars of institutions according to the sociologist, Scott (2001) comprise of cultural - cognitive pillar, regulative system and normative pillar. The regulatory processes and norms are important but not central to this study whilst the cultural pillar forms the basis of this study.

The regulative pillar. Scholars acknowledge the existence of regulatory processes in institutions that are meant to constrain and direct behaviour. North (1990) also includes unwritten codes of conduct that are meant to support formal rules. Sanctions are also established to punish non – conformists. The use of force, fear and expedience is central to the regulative pillar (Scott, 2001, p.53). In Zimbabwe it is a crime to intentionally spread HIV/AIDS.

The normative pillar. Stinchcompe (1997) states that institutions have moral roots. Norms stipulate how things should be done to achieve set goals (Scott, 2001, p.55). However, the procedures to be followed direct or provide actors in a contraceptive social interaction context how to behave. Hence Scott states, "Normative systems are typically viewed as imposing constraints on social behaviour, and so they do. But, at the same time they empower and enable social action. They confer rights as well as responsibilities, privileges as well as duties, licenses as well as mandates" (Scott, 2001, p.55). The normative conception of institutions is relevant in transformative consumer research due to its emphasis on the influence of social beliefs, norms and values in having social order (Scott, 2001, p.56).

Neo institutionalism. Sociologists identify the cultural cognitive pillar as the key component of neo-institutionalism. The nature of social reality and how meaning is ascribed to symbols, words, signs, gestures, objects and activities have a bearing on the meaning that is given to behaviour. Meaning implies the cognitive part which relates to human beings' internal interpretation of the physical environment. Such thinking processes are influenced by the external cultural framework (Scott, 2001).

North's (1990) "rules of the game," imply that institutions may experience homogenization. Following the work of DiMaggio and Powell (1983, p. 149) institutional isomorphism can be described as a process which compels an individual to emulate or copy what

others in the same locality are doing. Hence, a contraceptive consumer may be compelled to behave like others in the same institutional context, justifying within group homogeneity with regards to subsistence consumers' ads perceptions.

DiMaggio and Powell (1983, p. 150) introduced the concept of "coercive isomorphism" from an organizational perspective. I take coercive isomorphism in the context of consumer behavior as emanating from formal and informal pressures that are piled on an individual by other individuals in the institutional context and cultural expectations in the society. Such coercion can be brute force, religious persuasion and group sanctions. Equally important in institutional isomorphism, according to DiMaggio and Powell (1983) is the mimetic process. The term refers to uncertainty created by the environment which compels individuals and organizations to model their behavior in relation to others. Fear of the unknown may make individuals imitate others in terms of their contraceptive behavior. Normative pressures are a third source of isomorphism behavior, and it emanates from what Scott (Scott, 2001, p. 55) refers to as "how things should be done here!"

The three pillars and legitimacy. Legitimacy is defined by Suchman (1995, p. 574) as a view that the actions of an institution are acceptable within the established system of values, beliefs and norms. Legitimacy is relevant in transformative consumer research especially contraceptive behaviour because contraceptive behaviour constitutes institutionalized activities that are derived from repeated patterns where actors have a shared meaning (Scott, 2001).

Legitimation involves ascribing behaviour to a cultural framework. Meyer and Scott, (1983a, p.201) put the cultural cognitive dimension as key to legitimation. In the same vein, I propose 'individual legitimacy' which is implies that an individual's behaviour is perceived to be in tandem with the institutional cultural framework and shared values. This can further cascade

into individual contraception legitimacy in which contraception behaviour of a person is justified by cultural support and value orientation of the immediate society or institution.

New institutional economics. North conceptualized institutions as 'rules of the game.' These rules can be divided into formal and informal rules. Formal rules are constitutional rules (rights), property rights and contractual rules. Informal rules are largely norms and customs. Whilst formal rules can be imported or borrowed from the admired institutions especially Western Institutions, acceptance and enforcement of such rules will remain elusive such that rules may not be functional. Human society is characterized by more or less complex and overlapping networks of regular social interactions and practices (Leftwich, 2006, p. 1).

Whilst sociologists and economists have taken a group view of the institutions theory, individuals are pertinent in the marketing context. Burgess and Steenkamp (2006) highlighted the importance of the socio-economic system in marketing.

The Burgess and Steenkamp institutions-based view in marketing. In what Sheth (2011, p. 166) calls "a thoughtful paper", Burgess and Steenkamp (2006, p. 341) propose that the institutional context is indispensable in any study, especially when the research context is completely novel or unique as compared to the previous research context. Synthesizing prior work in economics and sociology, Burgess and Steenkamp (2006) proposed a framework which presents the institutions based view and the three pillars of institutions that are relevant in marketing research. They identified typical characteristics of emerging markets institutions and the four processes by which marketing scholars can advance our understanding of marketing in emerging markets. Given the importance of emerging markets and subsistence marketplaces,

they argue that the contribution to the growth of marketing as a science and practical discipline depends on more research in emerging markets.

Institutions are primary factors underlying exchange. Burgess and Steenkamp (2006) taking a marketing perspective excluded the largely sociological normative pillar and substituted it with the "socio-economic system" whose relevance in emerging markets is beyond doubt.

These pillars according to Burgess and Steenkamp (2006) with an added column on implications to contraception behavior are shown are summarized on table 4.:

Table 4

Comparison of Institutional Sub-Systems

Institutional subsystems	Emerging Markets	High income markets	Implications to contraception behaviour
Socioeconomic	Rapid social, political, and economic change	Moderate political and socio-economic change	The rapid social and economic change may affect consistency or stability in terms of contraception advertising perceptions. The World Bank (1997) noted that low income markets (subsistence markets) have unequal wealth distribution and high HIV/AIDS prevalence.
Demographics	Young, growing, large pool of undereducated	Older, stagnant well educated	The younger population in emerging markets is sexually more active than the older and well educated population in high income markets. The young and uneducated may engage in contraception behavior that is not well informed and their ads perceptions may differ depending on their age, income, level of education and marital status. Some people in emerging markets maybe too traditional and may shun modern contraceptives.
Diversity	Extreme differences in	Smaller differences in	The household sizes may actually be a result of high birth rates that

Institutional subsystems	Emerging Markets	High income markets	Implications to contraception behaviour
	household size and income, living standards, access to human development resources	household size and income, living standards, access to human development resources	are caused by non-use of contraceptives. Little contraception education would further complicate the situation in emerging markets.
Cultural			
Hierarchy vs. egalitarianism	Hierarchy emphasized	Egalitarianism emphasized	Hierarchy entails less freedom of contraceptive choice in most households especially in rural areas in Sub-Saharan Africa.
Embeddedness vs. autonomy	Embeddedness emphasize	Autonomy emphasized	Lack of autonomy in emerging markets may compel young people to follow traditional contraception behavior and choice.
Regulative			
Rule of law	Abuse of public office by individuals, low to moderate reliance on legal rights which may be enforceable in courts of law hence legal outcomes more unlikely	Low abuse of public office by individuals, high reliance on legal rights enforceable in courts of law, legal outcomes more likely	Most sub-Saharan societies are patriarchal (masculinity) such that women do not have freedom of choice in terms of contraception choice. There is no legal enforcement of contraceptives related laws.
Interested parties' role on corporate governance	There is a high influence by Governments and civil society including, supply chain stakeholders	There is moderate influence of Governments and, civil society. Also, supply chain stakeholders have minimum influence	Supply of contraceptives is largely controlled by the Government and there is no consideration of corporate governance but political expedience.

Note. Adapted from Burgess and Steenkamp (Burgess & Steenkamp, 2006, p. 342).

The socioeconomic system is made up of the of the various PEST environments. The Political, social and economic change that may obtain in the environment brings the dynamics of the socioeconomic subsystems of the institution. The political dynamics in Zimbabwe as an emerging market brings in a historical perspective which has had an impact on people's social life. Zimbabwe was a British colony for almost a century up to 1980 when it attained independence. However, those years spend under the British rule brought in a concoction of social cultural mix which brings diversity in terms of lifestyles.

There are overbearing effects on people's social identities, values and consumer behavior, (Burgess & Harris, 1999). Demographics also affect the adoption and use of contraceptives and also rural women's perceptions of poster ads. The majority of populations in Zimbabwe, given the low life expectancy which is lower than 50 years, are young and 25% to 45% of the population may be below 15 years (Burgess & Steenkamp, 2006, p. 342).

The so-called 'elite' in emerging markets have high income and their lifestyles are typically a carbon copy of Western life (Burgess & Steenkamp, 2006). This group is excluded from the current research since the thrust is on rural Zimbabwe. It is what Burgess and Steenkamp, (2006) refer to as 'mass market segment,' that is the target of this research. The mass market segment is "fundamentally poor by High Income Countries Standards" (Burgess & Steenkamp, 2006, p. 342). The segment has low education, is resource poor and is hugely active in the informal market (Burgess & Steenkamp, 2006, p. 342). It follows therefore that, demographic variables such as age, level of education, marital status, level of income etc. are presumed to reflect heterogeneous latent classes of rural women in terms of their ads perceptions.

Low-Income Markets

The growth of interest in lower income markets was stimulated by market-place globalization, market saturation and low growth in traditional markets. Scholars in strategy and marketing noted the growing importance in interest in emerging markets (e.g., Burgess & Steenkamp, 2006; Peng et al., 2008; Prahalad & Hart, 2002; Viswanathan & Rosa, 2007). Low-income markets occupy the fourth tier according to the World Economic Pyramid.

The tier 4 is made up of 4 billion people who are at the bottom of the pyramid. According to Prahalad and Hart(2002), over a billion people, in other words about one sixth of humanity survives on a per capita income of less than $1 per day. These tier 4 people mostly live in rural areas and they have very poor education with poor transport and communication network (Prahalad & Hart, 2002, p. 3). Public health poster advertisements become very crucial in such markets because other forms of communication require electricity which is not available in such markets. As a result consumers in subsistence marketplaces may develop their own cultural framework in unique institutional contexts which needs to be investigated. Whilst Prahalad and other scholars focused on this market, their aim was to indicate how lucrative subsistence marketplaces can be providing organisations with an opportunity to grow sales and profits while creating employment and benefiting the poor.

The focus of this study was to understand how culture influences rural consumers' information processing of pictorial and textual marketer dominated stimuli (public print advertisements), and attitudes. Genuine concern on subsistence market place should focus first at understanding the dignity, preferences, range of choices and culture of subsistence consumers (Viswanathan & Rosa, 2007). Hence, Viswanathan and Rosa (2007) states that their approach to

understanding subsistence market places is bottom up, that is focusing on consumer behaviour as a starting point. A deeper discussion on subsistence marketplaces is given below.

Subsistence marketplaces. Within emerging markets, a special domain for research concerns subsistence marketplaces, also called 'bottom of the pyramid' and 'base of the pyramid' markets (Prahalad & Hart, 2002).. According to Viswanathan and Rosa (2007), *'subsistence',* means being resource poor. These consumers may have low per capita income but maybe rich in terms of social relations. The term 'market places' is defined by Viswanathan and Rosa (2007) as the contexts of exchange that are culture specific. This definition goes hand in glove with the institutional context.

Earlier studies have focused on Western consumers who are largely literate and resource rich. Viswanathan (2011, p. 109) states that their focus was to study consumer behaviour cutting across all literacy and resource settings. Viswanathan and his colleagues took a micro level approach which sought to start from the individual consumer and their immediate communities. This approach is different from the macro level economic approaches or the mid-level business strategy approaches that were introduced by Prahalad and Hart as the Bottom of the Pyramid Model.

Subsistence markets are not just markets to exploit from a multinational capitalist perspective, but they are pre-existing market places in their own right, that scholars should focus on as individuals and communities to learn from (Viswanathan & Rosa, 2007). Sustainability of subsistence market places such as rural Zimbabwe can be enhanced by studying multiple dimensions such as economic, ecological and social (Viswanathan & Rosa, 2007). This study starts at one of the most crucial dimensions-contraceptive consumer behaviour in rural

Zimbabwe at individual level. In line with Viswanathan and Rosa (2007), the focus of this study is an understanding of consumer behaviour under extreme economic constraints.

There has been a shift in research focus from the traditional Western thrust on highly literate consumers in high-income countries to low literate consumers but still in developed economies and currently to low-literate consumers in subsistence marketplaces (Viswanathan, Gajendiran, & Venkatesan, 2008a). These directions of research focus are illustrated on fig 5 below.

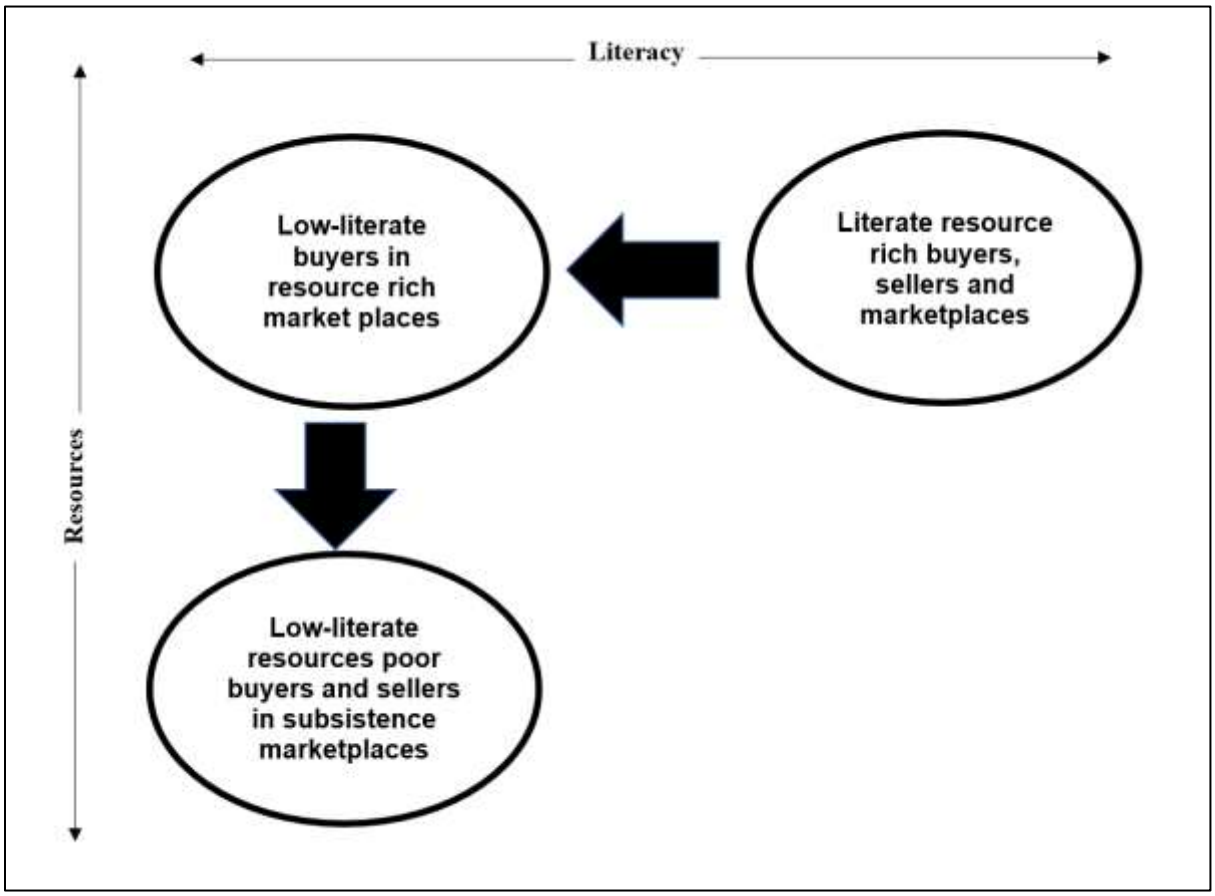


Figure 4. New directions of research program on low literate buyers, sellers and market places. (Viswanathan, Gajendiran, et al., 2008a, p. 210).

Characteristics of subsistence marketplaces. The following features are highlighted by Viswanathan and Rosa (2007). According to Viswanathan and Rosa (2007), consumers do not

have control over a lot of aspects of their life. There is uncertainty which may have some connotation on the degree of fate control of contraceptive consumers. The characteristics, which can be classified into marketplace level and individual level, are the differentiating elements when compared with resource–rich markets. These are summarized in Table 5.

- There is 'high social one on one relationship' in these low income settings. Interdependence is strengthened by low or fluctuating income levels, low literacy and the village system which may imply that people have been together for years if not decades. Contraceptive behaviour and ads perceptions may be heavily influenced by the village system which fosters homogeneity in behaviour.
- Social relationships are community-owned resources central to market exchanges.
- In subsistence market places, communication is often through word of mouth (Weidner et al., 2010). This is completely different from developed markets or urban markets in a developing economy.
- Social capital exists in subsistence market places. Social capital is an asset to individual participants in a subsistence market which gives individuals benefits of being members of a social network.
- Low literacy is also a typical characteristic of individuals in a subsistence market. Low literacy compromise consumers' ability to assess or evaluate the quality of a contraceptive product or method. Hence, Viswanathan (2007) include elements such as very low incomes, high illiteracy and inability to comprehend abstraction which usually impacts on the consumer in terms of future planning. The consumer may be short-sighted in planning and this may include family planning.

- Viswanathan and Gau (2005) identified concrete thinking and pictographic thinking as relevant in subsistence markets because consumers have low levels of literacy. Consumers master product brand names and prices as images that are pictured into their memory (Viswanathan, Gajendiran, & Venkatesan, 2008b).
- Rural or subsistence consumers who have a low literacy level develop copying mechanisms as a panacea to their shortcomings. Some individuals will enlist help from others through social interactions whilst some individuals may shun interactions so as to avoid being exposed through questions that may arise from conservations. Consumers may then avoid unknown products. Some individuals may resort to using 'trial and error' on products.

Table 5

Characteristics of Subsistence Markets

Characteristics of subsistence markets
• Talking to individual face to face on the marketplace • Importance attached to verbal communication • More importance attached to social networking • Working with others at Individual level • Using concerete objects in thinking • Pictorial thinking • Need to preserve dignity • Copying Mechanisms

Note. Viswanathan et al. (2008, p. 5).

Adkins and Ozanne (2005, p. 154) defined consumer literacy as "the ability to find and manipulate text and numbers to accomplish consumption related tasks within a specific market

context in which other skills and knowledge are also employed". Features of subsistence markets such as concrete and pictographic thinking might have a bearing on how rural consumers evaluate pictorial and textual messages on advertisements which is the dependent variable of this study.

A social practice perspective to consumer literacy is inclusive of the fundamental constructs that are prevalent in contraceptive social marketing context. Fingeret and Drennon (1997, p. 64) in Adkins and Ozanne (2005, p. 154) conceptualizes adults, reacting to external advertising stimuli after taking into account the '*situation*' in other words considering other people, social and cultural aspects, individual experience and the efficacy to comprehend the ad pictorial and textual message. The relationship between features of subsistence markets and contraception adoption and use are summarized in Table 6 below.

Table 6

Pragmatic Categories of Subsistence Marketplaces and their Link to Contraception

Category	Features	Link to contraception
Resource scarcity	Individuals live at subsistence level, (Viswanathan & Rosa, 2007), may not have adequate medical care, food and shelter.	Lack of resources may influence the type of contraception adopted or continual use and how consumers evaluate public print advertisements.
Adaptation through networking	One – to –one relationship is central to market places. Culture of the market place can emerge within that institutional context (Burgess & Steenkamp, 2006). There is "Cultural Capital" (Shultz et al., 2002) and "Social Capital" (Viswanathan et al., 2007)	Individuals who are not knowledgeable can get advice on contraception and ad evaluation from social relations and are guided by established norms and values. Culture has an influence on individual and family norms and the 'way we do things here' in terms of contraception
Specialization in social structures	Knowledge and skills are passed from one generation to another. There is specialization and traditional social structures are maintained.	Some people may be known as contraception 'experts' in rural communities. Traditional contraceptives may also be marketed through 'elders' in the community due to mistrust of modern contraceptives.

External interventions	The Government and NGO's may intervene to provide information, training and basic products at subsidized prices or for free (Weidner, Rosa & Viswanathan, 2010)	Considering the centrality of contraceptives in societal well-being, the Government and Non-Governmental Organizations may intervene (Burgess & Steenkamp, 2006) and they rely on already existing social systems and culture (Ingenbleek, 2014, p. 5).

Note. Based on characteristics of subsistence marketplaces (Ingenbleek, 2014).

Institutions and subsistence markets. Following the work of Rivera-Santos, Rufin and Kolk, (2012), a synthesis of the instructional divide between subsistence markets and non-subsistence markets is shown below:

Table 7

Institutions and Subsistence Markets

Non-subsistence markets	Subsistence markets specific institutions
Institutional characteristics: • Regulative pillar is central to institutional operations. • Institutions specialize in particular activities/ products. • Relationships are transactional and arm's length. Source of Authority: • Power is derived from the state. • Misbehavior is punished through formal courts.	Institutional characteristics: • Normative and cultural cognitive pillars are predominant. • Institutions do not specialize in activities/ products. • Personal relationships are fundamental in exchange. Source of Authority: • There are loose structures of authority. In some instances, a chief (King/ Queen) or a group of people such as a council of elders have authority. The most important source of authority is social capital. • Deviance is punished through social sanctions such as being chased away from the community. • The Chief, King, Queen or a group may have judicial powers based on tradition and customs.

Note. Rivera-Santos, Rufin and Kolk (2012, p. 4)

Given the differences in institutional characteristics of subsistence markets, marketers should first aim at understanding consumer behaviour rather than assuming that what happens in non-subsistence markets will hold in subsistence markets. Hence Craig and Douglas (2011, p. 385) argued that researchers should aim to broaden our understanding of emerging markets consumers' beliefs, values , style of life, existing infrastructure and social contexts which underlie their buying and consumption decisions.

My focus in this study was to have a pragmatic appreciation of Zimbabwe rural consumers' culture and its effects on contraceptive attitudes and advertising perceptions, so as to craft action based contraceptive marketing strategies that are applicable to the market. The institutional context in a subsistence market with peculiar cultural beliefs, and values are incorporated (see figure 5).

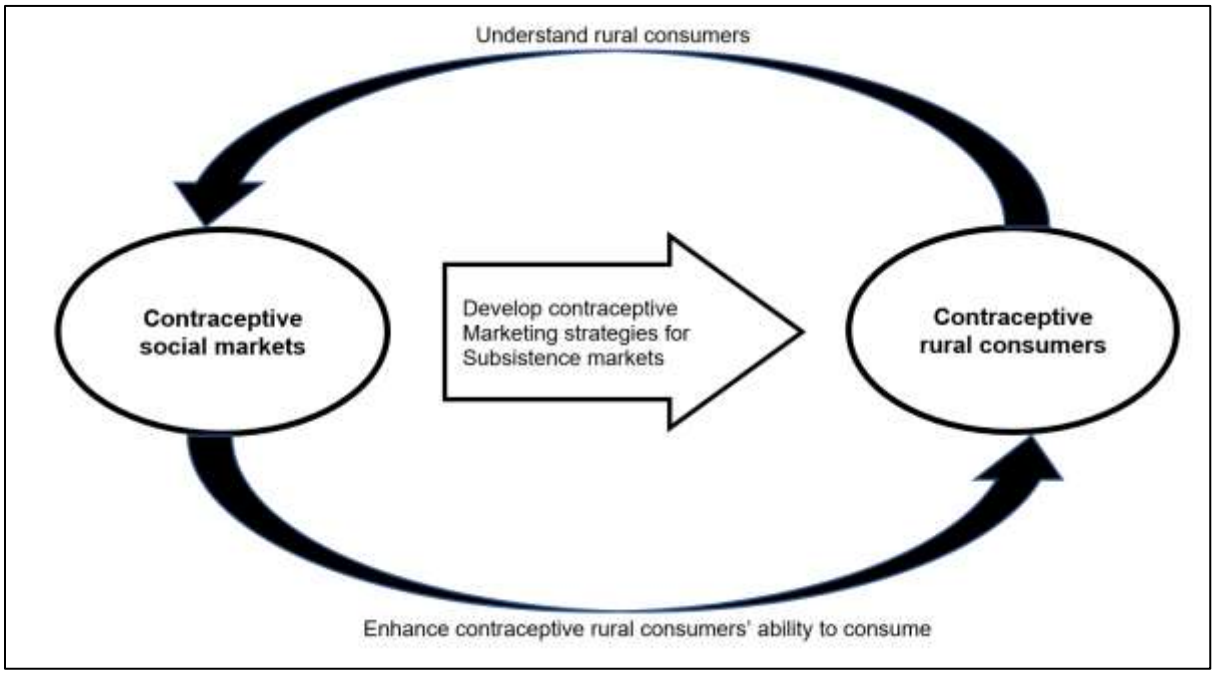


Figure 5. Contraceptive Social Marketing and Rural Consumers.

Adapted from Craig and Douglas (2011, p. 385).

Why study contraception behaviour as if there are no commercial products? According to Viswanathan, Shultz II and Sridharan (2014, p. 119), the most critical perspective is understanding subsistence marketplaces in terms of their people, contexts and cultures so as to sustain life. Contraception has a direct bearing on average household income per capita and ultimately affect consumers' standard of living. Moreso, millions of dollars are invested in contraceptive advertising by Governments, Non-governmental organisations and private sector organisations. Sustainability and quality of life are first and foremost advanced by understanding contraception behaviour.

Understanding Consumer Contraception Choices

In this study, the researcher interrogated the effects of culture on subsistence women's contraception attitudes and their advertisement perceptions. Women are vulnerable especially in patriarchal subsistence societies where they are relegated to child bearing and expected to be submissive even in matters of contraception and safe sexual practices. However, subsistence women have sublime coping mechanisms with regards to contraception choices. Women make choices at clinics on their own away from men. Women can exert contraception control without discussing with men or deliberately flouting men's preferences. Some contraceptives used by women can be inserted for a long time e.g. hormonal contraceptive implant.

It is acknowledged that there are a plethora of variables that affect consumer behaviour in contraception. In any study, meaningful solutions are suggested by zeroing on limited variables not everything. This scenario was described by Sheth (1967) as resembling seven blind men who were touching different parts of an elephant and trying to describe the animal depending on the part they were touching. They came up with completely different inferences that actually contradicted. It is acknowledged that contraception and safe sexual practices as a consumer

behaviour domain is so broad and cannot be covered in a single study. The thrust of this study had to be delimited to culture (values and beliefs), contraception attitudes and ad evaluation. Having laid a clear argument that the current study is a business, marketing and transformative consumer research, variables that are building blocks of the theorized model are reviewed in the next sections. The relationship between culture and institutions is interrogated bearing in mind that culture is a 'substratum of institutional arrangements,' (Hofstede, Van Deusen, Mueller, Charles, & Network, 2002, p. 800). The overarching theory of this study which holistically ties all the constructs in this study is discussed in the forthcoming section.

The Cultural Cognitive-Affective Processing System (C-CAPS) model. People are not the same. Moreso, the same person can behave differently on varying circumstances. The view that people are the same everywhere has been proven empirically to be fallacious. Markus and Hamedani (2007) dispelled the view as 'cultural universalistic fallacy'. Social psychologists also grappled with the notion of 'national character' in terms of culture (Mendoza-Denton & Mischel, 2007). Earlier on Mischel (Mischel, 2009) in 1968 provided evidence against the unrealistic perspective that the mind and the person are divorced from the situation, literally leading to 'platonic blindness' (Dunham & Banaji, 2010) because the decontextualized view is pragmatically untenable.

Research has moved beyond this limiting point, by incorporating culturally influenced cognitive-affective processing system (Mendoza-Denton & Mischel, 2007). Angela Leung and Cohen (2011) argue for the CuPs approach (Culture x Person x Situation) which echoes the C-CAPS (Cultural Cognitive –Affective Processing System) framework by Mendoza-Denton and Mischel.

The theorized relations of culture and contraceptive attitudes and the existence of heterogeneous segments of subsistence women are underpinned by the Cultural Cognitive-Affective Processing System (Mendoza-Denton & Mischel, 2007). The premise of the model is what Mesquita, Barrett and Smith (2010,p.5) call "the context principle". The components of the model and the rationale shall be explained in the context of culture and contraception consumer behaviour in a subsistence marketplace. The moment-by-moment situation sensitive contraception episodes are influenced by context. Context in this study implies the subsistence marketplace (environment) and any advertising stimuli on which women make contraception choices and make up their perceptions of contraceptive advertisements. Contraceptive behaviour and perceptions of ads are not static entities but events or processes (Mesquita et al., 2010). In this study, in accordance with the C-CAPS model, the components are defined as follows;

1. Subjective culture in the form of beliefs (social axioms) and values.
2. Physical culture in the form of contraception institutions and practices of subsistence women.
3. Contraception nominal situations such as sexual intercourse and family planning.
4. Features of situations are characteristics of a particular contraception situation e.g. having sex out of the wedlock as compared to in marriage.
5. Situated person is a subsistence woman in a subsistence marketplace.
6. If……then……contraception profiles. *See figure 5*.

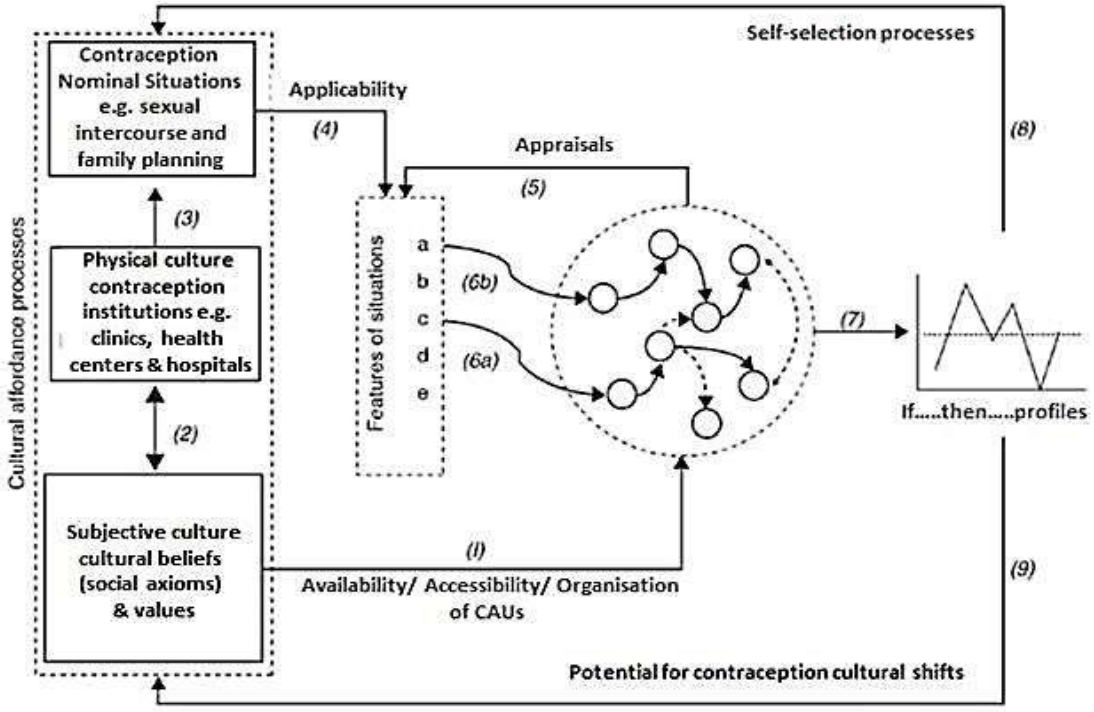


Figure 6. Cultural Cognitive-Affective Processing System in a contraception context. Adapted from Mendoza-Denton and Mischel (2007, p.184).

Subjective and physical culture and contraception nominal situations influence a person in a given situation. The response of a person to a situation depends on appraisals, applicability, availability and accessibility of cognitive affective units. Behaviour is determined by the degree of activation or inhibition of cognitive affective units such that the, *if.....then* ….profiles are noted ((Mendoza-Denton & Mischel, 2007; Mischel & Shoda, 2010). The C-CAPS model is shown on fig 5, exemplifying contraception behaviour aspects of this study.

People differ in their reaction to the same stimuli in the same context because of differences in accessibility. These individual differences explain why it is expected to have heterogeneous segments of subsistence women in contraception behaviour. Accessibility in contraception behaviour refers to how easy it is for a person to use the cultural set and contraception

knowledge. The contraception consumer responds to a contraception event taking cognizance of applicability of what North (1995) called the rules of the game in a cultural context. The *if…..then*…..signatures may also influence a cultural shift over time. A detailed discussion of culture as the pillar of the current study is given below.

Culture as an environmental influence on contraception consumer decisions.

Culture is a central construct in the current study. Culture does not exist in a vacuum but it is context specific (Berry, 1976). Cultural tendencies are situational (Leung & Morris, 2015, p. 3) in terms of environmental factors that may influence consumer decisions about contraception, safe sexual practices and information processing of marketer crafted stimuli. To avoid 'onomastic fallacy' i.e. giving a name to a culture without explaining the details of relevant cultural variables (Georgas, Van De Vijver, & Berry, 2004, p. 74), in this study culture is operationalized by values and social axioms.

There are many definitions of culture as they are scholars conducting research in culture. Kroeber and Kluckhohn (1952) compiled and discussed 164 definitions of culture up to 1951. Interest in socio-cultural psychology has been based on what Markus and Hamedani (2010) refer to as 'thinking beyond the person'. In other words, a person`s behaviour in terms of product adoption and continual use is not just influenced by the mind internally but also by the outside world.

Kroeber and Kluckhohn (1952) gave a definition of culture that easily connects with institutions and the relevance of a society`s historical background. However, Bond (2005) `s definition of culture is more inclusive of the constructs that I decided to use in this study. Bond (2005) in Burgess and Keegan (2012, p.105) defines culture as an integrative system of values,

beliefs and behavioural script which accumulates over time within a group of people so as to sustain life, eliminate ambiguity in terms of behaviour and enhance communication.

The dimensional approach with its specific dimensions, where culture is operationalized through beliefs (social axioms), values, attitudes on contraceptive adoption and continual use, fits perfectly for this study. Researchers in cross-cultural studies (e.g., Hofstede, 1980, 1991; Leung, 1987; Schwartz, 1990; Triandis, 1990) concur that the dimensional approach is ideal where context may differ and culture can be better understood through multidimensional structure. Triandis (1989, p. 407) coined the term cultural syndromes to mean beliefs, values, attitudes, norms and self-definitions. These are the key constructs in this study. Hence Markus and Hamedani in Kitayama and Cohen (2010) noted that, "the dimensional approach is very important where culture elements have to be measured and compared. However, the dimensional approach does not examine the process of converting values and attitudes into social institutions. These issues are dealt with in the other approaches such as the cognitive toolkit which will not be considered in this study.

Cultural convergence has been perpetrated through the process of integration or assimilation (Triandis, 1994). Triandis (1994) refers to such a development as subtractive multiculturalism. The eco-cultural model (Berry, 2002) notes that culture adapts to external factors mainly the ecological, social and political environment. The systems model (Kitayama, 2002) views culture as a constant sifting sand that is not static. The individual is influenced by the cultural system that a person lives in and constantly compares with the in-group systems. This argument confirms the influence of environmental factors on individual behaviour as captured on the EBM model (Engel, Blackwell, & Miniard, 1995).

This notion is supported by empirical evidence especially studies by Inglehart and Baker (2000) which involved 65 communities and three quarters of the world population. They sought to establish the link between cultural change (as shown by changes in values) and economic change. They noted that values respond positively to changes in economic development, with economic growth being associated with change of values from traditional to modern values. However religion was noted to be resistant to modernization.

The general model of multi-level analysis of culture. The general model of multi-level analysis of culture by Klein and Kozlowski (2000) provide systematic breakdown of culture (see figure 7). The breakdown of culture into global culture, national culture, organizational culture, group culture and individual behaviour, values and assumptions are the basis of my delimitation in this study.

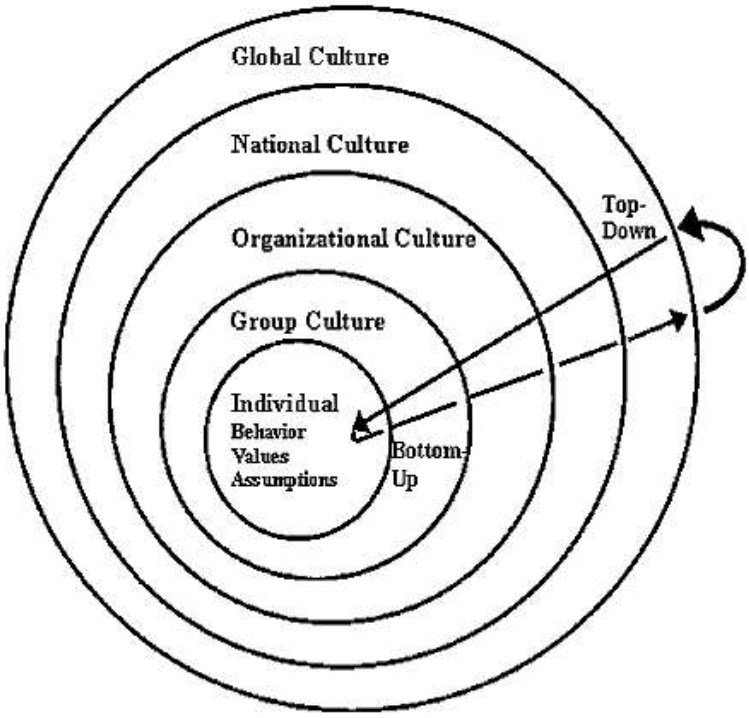


Figure 7. Multi-Level Analysis of Culture.

(Leung, Bhagat, Buchan, Erez, & Gibson, 2005, p. 363).

The model is a top-down and bottom-up which shows the complexities and dynamism of cultural influences. A focus on individual level would greatly add value to existing literature considering the essence of individual local identity and culture depending on a person's socialization in a given geographical context (Leung et al., 2005, p. 365). At the same time, individuals are also influenced even by globalization and national culture.

Universalistic fallacies. The focus of this study is on culture in a given institutional context. Burgess and Steenkamp (2006) argued that the institutional context implies that findings in another institutional context cannot be generalized to be universal. Markus and Hamedani (2007, p.16) in Kitayama and Cohen (2010) refer to such instances as universalistic fallacies in other words the error of blanketing people as psychologically homogeneous despite divergent socio-cultural circumstances and history. The anthropological perspective to culture, that culture is specific to a given group of people or society and also that a change in one aspect of culture would transfigure the whole, reiterate the significance of the institutional context which is key in this study. Burgess and Keegan (2014, p. 106) note that culture is made up of repetitive responses to similar situations. They clearly show the centrality of culture in understanding contraceptive ad evaluation and adoption and use since contraception is a daily recurring situation where people`s responses accumulate over time to become a contraception culture. Cole (1995), conclude that culture, is basically history being relived in the present. In this study culture was studied in the context of contraception behaviour, hence the need to discuss theories on contraception and safe sexual practices in the next section.

Theories on contraception and safe sexual practices. More than 200 million women in the world do not use any contraception and do not contemplate of any safe sexual practice (Chitereka & Nduna, 2010). Developing economies, that is Latin America, the Caribbean, North

Africa, West Asia, Southeast Asia and Sub-Saharan Africa has the bulk of non-use of contraception and neglect of any safe sexual practices.

According to Chitereka and Nduna (2010) 51 million pregnancies are unplanned and are usually caused by non-use of contraception. Westoff (1988) estimated that 25 million pregnancies are caused by failure to follow correct procedures in using contraception or total failure by the method to prevent pregnancy and/ or protect against sexually transmitted diseases.

Sexual health model. Safe sexual practices are only possible if people are sexually literate. Unsafe sexual behaviour may be a tip of the iceberg for a myriad of concealed psychological and social factors triggering such behaviour. Robinson, Bockting, Simon Rosser, Miner, and Coleman (2002) suggested anxiety, anger, hostility, confusion and total dysphoric mood as causes of unsafe sexual practices (see figure 8). Basically, these issues boil back to the need for sound sexual health. Robinson et al. (2002, p. 45), define sexual health as the knowledge a person has that enables sexual communication, intimacy and acceptance of sexual diversity. This will enhance sexual satisfaction, sexual self-esteem and being safe from STIs. This definition reinforces the centrality of cultural diversity, values, beliefs and attitudes in contraception. The difference among different groups of people is also highlighted in the context of diversity in sexual practices. It is this diversity and dynamism in sexual health which also points to the possibility of latent classes of subsistence women in terms of the contraception ads perceptions and cultural variables. The wheel shown below has 10 components of sexual health.

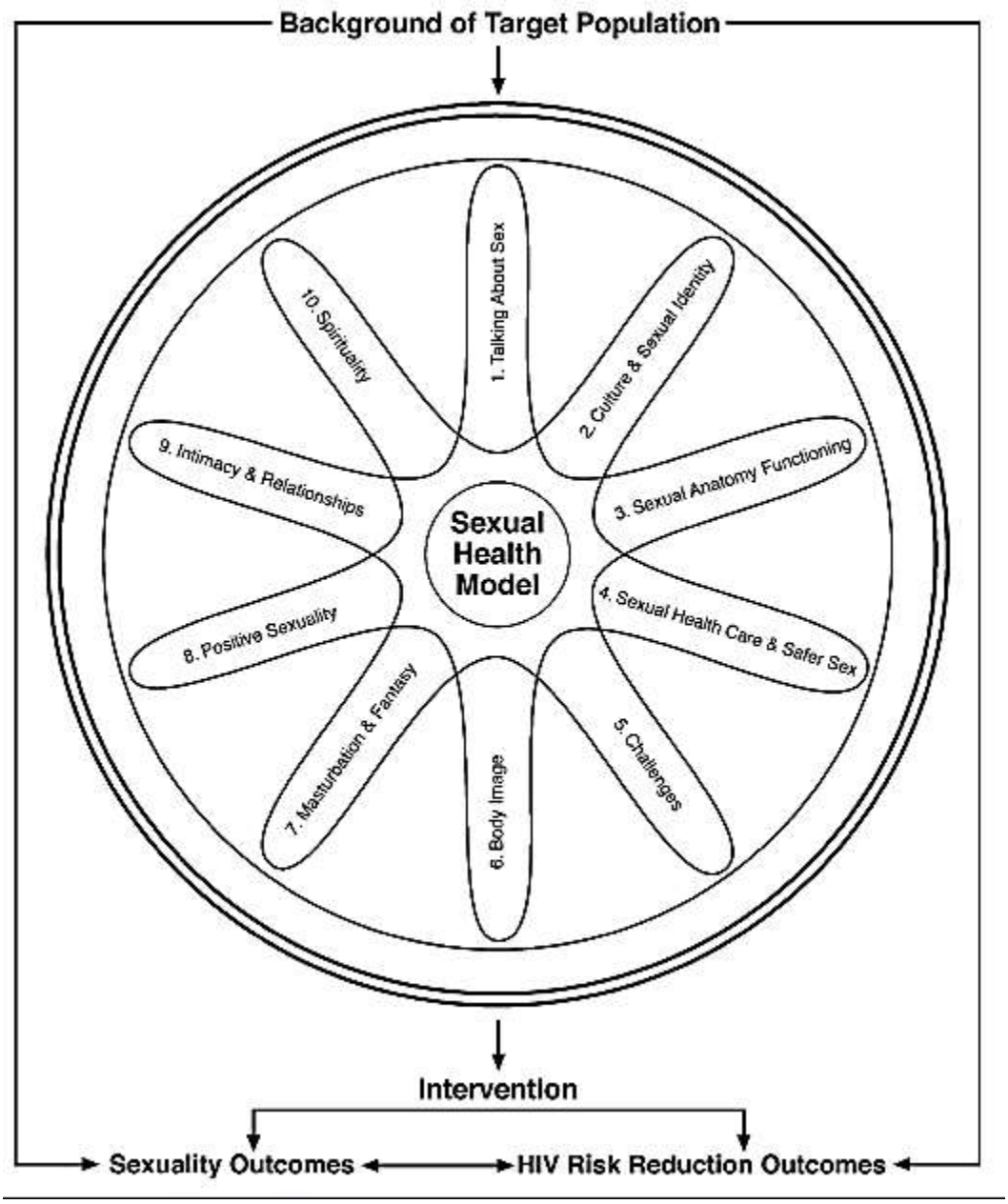


Figure 8. Sexual Health Model

(Robinson et al., 2002, p. 47).

Relationship between EBM model and the sexual health model. Robinson et al. (2002, p. 45)'s definition of sexual health highlight the importance of individual differences. Individual differences have a direct effect on consumers' need recognition, purchase and consumption

according to the EBM model. Sexual health has been noted to be founded on 'accurate knowledge', personal awareness and respect and appreciation for individual differences and diversity.

Robinson et al. (2002) explicitly acknowledge the inclusion of cultural diversity and uniqueness in sexual health, and these are EBM's environment influences. The EBM model includes culture, personal influences, family and situation. It is clear that sexual health is culture specific. Literature can only be moved forward if unique settings of different communities are studied and more specialized marketing strategies in terms of culture will be relevant and effective to subsistence marketplace consumers (Robinson et al., 2002, p. 46). Reiss and Reiss (1997) cited in Robinson et al. (2002, p. 46) refer to sexual pluralism where people have a right to be different in terms of their sexual beliefs and choices. Therefore, the existence of heterogeneous latent classes on contraception ads perceptions, and cultural variables has been laid bare.

The following issues raised by the sexual health model are relevant to the current study:

Talking about sex-contraception choice is usually a negotiated choice between partners or couples. The ability of partners to negotiate contraception has a major bearing on contraception adoption and use.

Culture and sexual identity-Robinson et al. (2002, p. 48) noted that culture has a bearing on a person's contraception behaviour. This assertion reinforces the centrality of culture in understanding contraception adoption, use and ads perceptions in rural Zimbabwe.

Sexual health care and safer sex – these issues relate to access to contraception or unmet need for family planning in rural Zimbabwe. Barriers to sexual health and contraception are also critical.

Intimacy and relationships - the existence of intimate relationships have a bearing on the ability of partners to determine their contraceptive choice in the long run.

Spirituality - these components relates to the congruence between beliefs and sexual health. In this study, respondent's social axioms are measured so as to assess the relationship between beliefs and contraceptive attitudes. Data for this study was collected in Zimbabwe, a typical subsistence marketplace. Therefore the next section focuses on contraception and safe sexual practices in Zimbabwe.

Contraception and safe sexual practices in Zimbabwe. Zimbabwe's unmet need for contraception and safe sexual practices can be attributed to a plethora of factors. Some of these factors are derived from the pillars of the institutions based view in marketing (see., Burgess & Steenkamp, 2006) and background factors such as demographic variables. Hence, Bhushan (1997) give demographic variables, socio-economic variables and cultural variables as background factors in contraception adoption and use.

Determinants of contraceptive adoption and continual use have been divided into background factors and proximate determinants by Bhushan (1997).

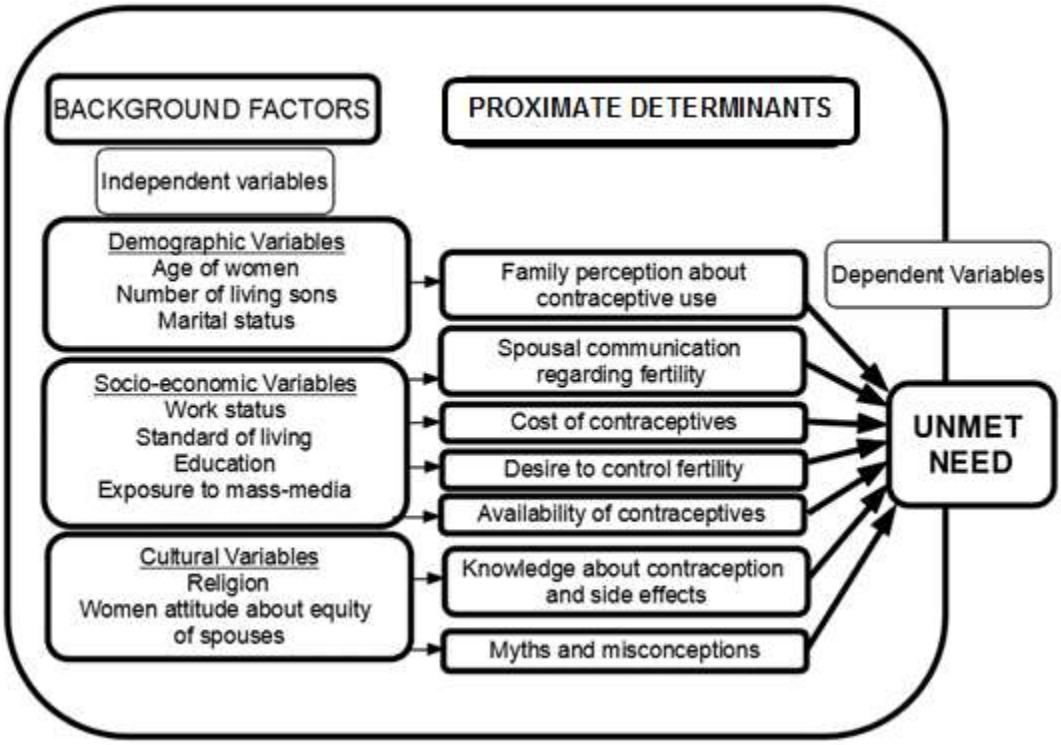


Figure 9. Determinants of Contraception Adoption and Continual Use.

(Chitereka & Nduna, 2010, p. 13).

The model shown on figure 9 assumes that background factors are demographic variables, socio-economic variables and cultural variables. These have a direct effect on proximate determinants such as attitude towards contraceptive use, communication, and cost of contraceptives, availability of contraceptives, knowledge, myths and misconceptions.

The model also echoes components of the sexual health model b The model also echoes components of the sexual health model by Robinson et al. (2002) such as talking about sex (and contraception), culture and sexual identity challenges (which incorporates non-availability, misconceptions etc.) and spirituality.

Chitereka and Nduna (2010, p. 10) argue that in Zimbabwe unmet needs may be prevalent despite excellent contraception knowledge. Wonder why the current study needs to

unravel the effects of culture in terms of values and beliefs on contraception attitudes and advertising perceptions of subsistence women.

According to Chitereka and Nduna (2010), focus group discussions conducted in four provinces in Zimbabwe revealed that some participants were not aware of any contraceptive methods or any safe sexual practices. Some respondents thought that condoms were only used to protect against STIs, HIV and AIDS but not for family planning purposes. In Manicaland Province, women from apostolic sects indicated that they used 'holy water' and withdrawal as contraceptive methods only. Ethnocentric sentiments were also aired by some respondents. Chitereka and Nduna (2010) noted that some traditional leaders thought that modern contraceptives were a ploy by white colonial settlers to restrict population growth of black people (Chitereka & Nduna, 2010, p. 17).

Respondents in the study done by Chitereka and Nduna (2010) reported that negative attitudes towards contraceptives emanated from associating some contraceptives with promiscuity. Respondents classified some contraceptives as morally acceptable whilst some contraceptives were viewed as immoral because they are largely used by sex workers. Oral contraceptives and injectable were perceived as morally right whilst male and female condoms were condemned as immoral. Interviews conducted by Chitereka and Nduna (2010) revealed that some Apostolic sects and Catholics were against the use of any form of contraception. Some families believed that the purpose of marriage is for women to give birth to as many children as possible.

In Zimbabwe, African families exchange bride wealth. Bride wealth involves exchange of resources between African families as part of a marriage transaction (Wojcicki, van der Straten, & Padian, 2010, p. 705). Bride wealth basically means that the man is charged by the

bride's family for services that will be rendered to the bridegroom's family which includes inter alia:

- Moving from the bride's family to be part of the bridegroom's family.
- Bearing children.
- Serving the bridegroom's family in various ways such as being an advisor on women issues in the family, being a 'wife' for the extended family on traditional ceremonies.

This set up has implications on contraceptive adoption and use. Payment of bride wealth compromises the woman's ability to negotiate contraception and safe sexual practices since it indirectly gives man control over reproduction and unfettered conjugal rights. 'I paid for you to have children and for me to have conjugal rights' (Bawah, Akweongo, Simmons, & Phillips, 1999). Men actually pay for access to conjugal rights.

Basically, this is what we know in terms of contraception adoption and continual use in Zimbabwe. There is a glaring gap in literature or rather marketing researchers' radar screen has omitted this essential market in terms of research on the impact of culture on contraception attitudes and advertising perceptions in rural Zimbabwe which is a typical subsistence marketplace. In study 1, culture constructs were theorized to relate to contraceptive attitudes, and such relations should be based on existing theories. These theories are discussed in the next chapter.

Chapter 3: Theoretical and conceptual framework

A theory is a supposition which we hope to be true; a hypothesis is a supposition which we expect to be useful (G Johnstone Stoney, 1903).

This chapter provides the basis of the theorized relations among culture (values and social axioms), contraception attitudes (study 1), and heterogeneity (existence of latent classes) in advertisement perceptions of subsistence women (study 2). Consistency in cognitive beliefs theories; namely Feather's expectancy-value theory, Rokeach's belief system theory and other foundational theories were discussed. Culture construct of values was discussed basing on Schwartz's (1992) theory of human values and Leung and Bond's (2002) social axioms plus African world views of Ubuntu and ancestral relevance. Attitude-behaviour theories were also considered.

Consistency in cognitive beliefs. The principles of reasoning for the thesis are that culture, which is operationalized by values and social axioms, has a direct effect on contraceptive attitudes, and these attitudes influence behavioural intentions, ultimate behavior and ad-evaluations, is based on consistency in cognitive beliefs of contraception consumers. Such consistency in cognitive beliefs is anchored by Feather's expectancy-value theory and Rokeach's belief system theory. Earlier theories which could have influenced Rokeach and Feather were Festinger's theory of cognitive dissonance (Festinger, 1958) and Heider's balance theory (1958). These theories or warrants (according to the Toulmin model) are discussed briefly below.

Feather's expectancy value theory. The general framework of expectancy-value theory, based on Feather, (1990, p. 163) cited in Feather (1995, p. 1147) is as follows; first, a person acts in a certain manner if he is aware of the aftermaths of his behaviour and the valences associated

with such action. According to Feather's Expectancy Value Theory, behavior is a function of the expectancies that an individual has and the value of the outcome. The theory predicts that, if there is more than one possible behavior, for example contraceptive adoption or non-adoption an individual would choose the behavior with the highest expected success and value.

There are basically two types of expectancies, according to Feather (1992). The efficacy expectations are based on the confidence to execute the desired action successfully (Vansteenkiste, Lens, Witte, & Feather, 2005, p. 270). The outcome expectancies are based on the belief that certain behaviour will lead to a specific outcome (Bandura, 1977, p. 193). For example, an individual with a conviction that he/ she can use condoms in sexual intercourse (efficacy expectation) and will be protected from STIs, HIV/ AIDS and for family planning (outcome expectation) will adopt and continually use condoms. However, Kuhl (1985, 1987) in Feather (1992, p. 120) argued that a person's action tends to be inconsistent in terms of behaviour, but the expectations and valences are maintained as fixed A superordinate control process may uplift a weaker motivational tendency into intention. A contraceptive example based on Kuhl (1987) as cited in Feather (1992, p. 120) gives a situation where a person may not always behave in line with a given order of motivational sequence. A person may have an overwhelming urge to indulge in unprotected sex but may end up using a condom because of the danger of contracting STIs.

Needs and values affect an individual's valence which can either be positive valence (attractive) or negative valence (not attractive). Feather's (1995) empirical findings involving a range of scenarios on values, valences and choice confirmed that values have an important role as variables that influence our cognitive affect appraisal of situations and the choices that follow.

The purpose of the study was to investigate the patterns of heterogeneous emotional and affective responses to reproductive health poster ads and their link to culture constructs at individual level of analysis.

Rokeach's belief system theory. Rokeach (1968) defined values as "modes of conduct and end-states of existence. Values transcend specific objects and specific situations." Values anchor or form the foundation of an individual`s attitudes and how to act in a given situation. Consumer behaviour can actually be notified on the basis of personal values held. The end states of existence and modes of conduct were referred to by Rokeach as terminal values and instrumental values respectively as elaborated on table 8, although such distinction was proven to be a methodological artifact by Schwartz (1992). These are shown in Table 8 below:

Table 8

Rokeach Value Scale

Terminal (desirable end states)	Instrumental (modes of conduct)
A comfortable life	Ambition
An exciting life	Broad – minded
A sense of accomplishment	Capable
A world of beauty	Clean
A world of peace	Cheerful
Equality	Courageous
Family security	Forgiving
Freedom	Helpful
Happiness	Honest
Inner harmony	Imaginative
Mature love	Independent
National security	Intellectual
Pleasure	Logical
Salvation	Loving
Self-respect	Obedient
Social recognition	Polite
True friendship	Responsible
Wisdom	Self- controlled

Note. Engel, Blackwell and Miniard (1986)

The idea of conflicting values was initially explained by Rokeach and Shalom Schwartz further developed it. Rokeach (1968) argued that in a given situation, two or more values may be activated but these may be contradicting or in conflict with each other. A person's value system which is an organization of how choices are made between two or more end-states or two or more modes of conduct. According to Rokeach (1968) peoples` values systems are also influenced by gender, occupation, education, religion and class, justifying the inclusion of socio-demographic factors in determining latent classes of ads perceptions of subsistence market women in this study.

An adult individual's value-attitude system would be as shown on figure 10.

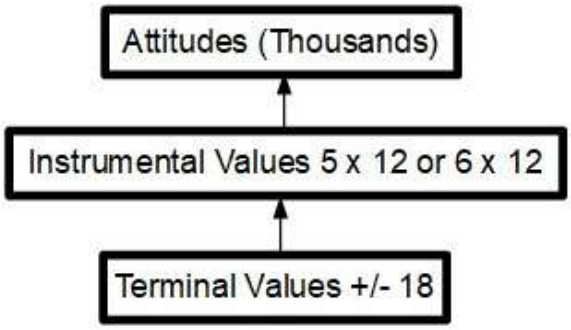


Figure 10. Rokeach's values and attitudes for an adult.

Whilst people have the same values, the order or ranking of those values differ from one individual to the other. Rokeach assumed that human values are influenced by culture, society, institutions and personality (Burgess, 1992). Consumer choice , conflict resolution and decision making are based on a person's value system (Burgess, 1992, p. 50). An adult, according to Rokeach has about 18 terminal values, 60 to 72 instrumental values and thousands of attitudes (see figure 10 above).

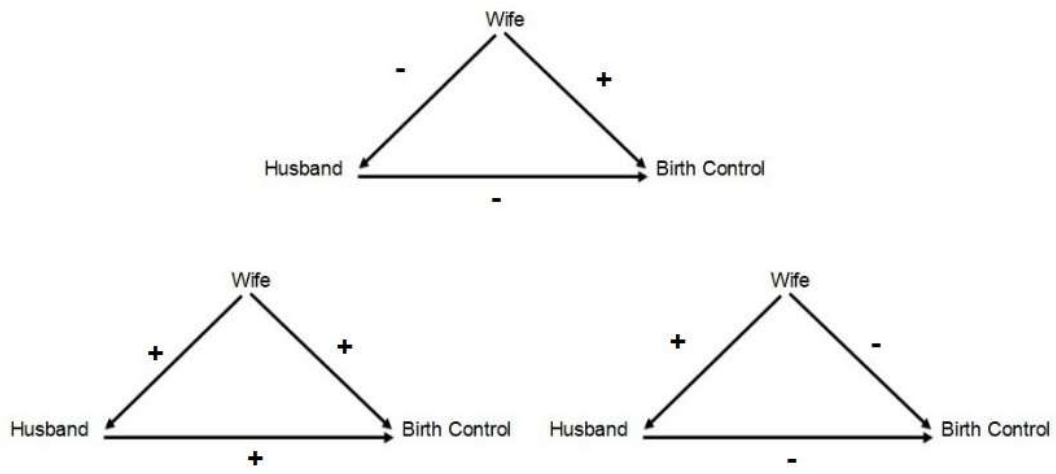
Rokeach assumed a stable system in terms of the broader systems of culture, society and personality. The system would be unstable in terms of value priorities where a small portion is activated to influence behaviour on a given consumer behaviour situation. This is the crux of Rokeach's Belief System Theory. However, Rokeach laid a foundation for Schwartz's Theory of Basic Human Values.

Heider's balance theory. Solomon (1999) and Woodside and Chebat (2001) present a convincing argument that Heider's Balance Theory (Heider, 1958) is very relevant in consumer behaviour research. The central proposition by Heider was that individuals strive to maintain 'balance states' in their day to day interaction. Heider, (1958, p. 201) in Woodside and Chebat (2001, p. 477) noted the existence of a balanced state where there is agreement or harmony and also unbalanced state where disharmony will cause tension which compels participants to work towards eliminating the imbalance.

Such an effort to maintain balanced state in Heider's theory was well presented in the context of consumer transformation by Woodside and Chebat (2001). Story telling was used to illustrate how a Germany couple that had strong psychological and historical view against Germany products (negative) eventually bought a Germany car after moving from the original balanced state (negative sentiment) to a new balanced state (positive sentiment) (see., Woodside & Chebat, 2001, pp. 485-487).

The balance theory focused on maintaining a balance on a series of triads involving attitudes and beliefs about objects and/ or people. For example, a husband, wife and contraceptive method such as birth control pills. The wife loves or does not love her husband and may prefer to or not to take birth control pills. The triads that may come out of this situation are shown on figure 11 and are divided into two parts:

Balanced State Triads.



Unbalanced States Triads.

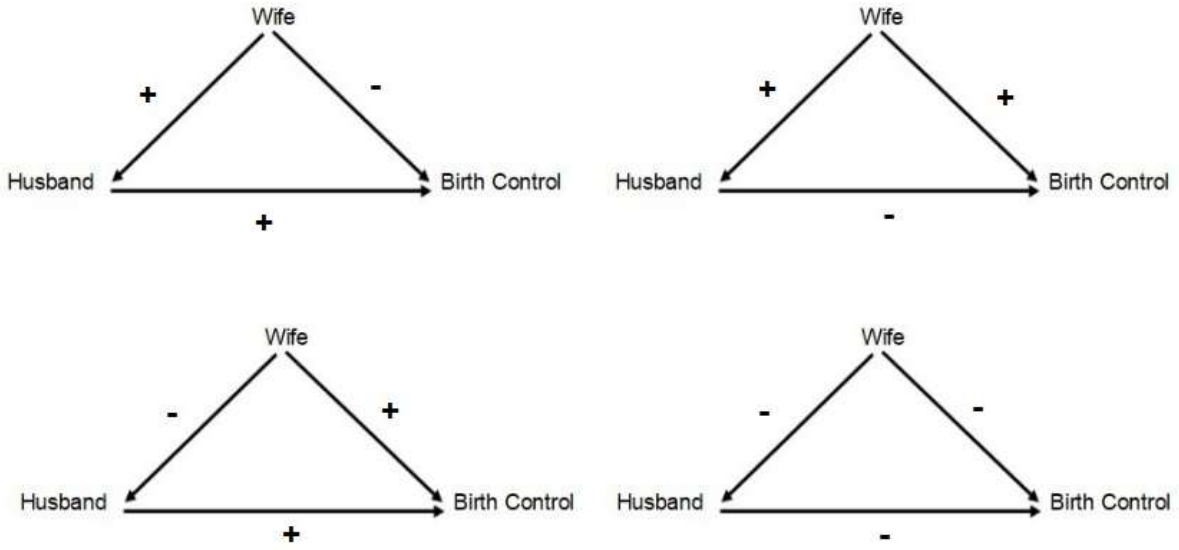


Figure 11. The balanced and Unbalanced States Adapted from Heider (1958).

Balance states are those triads that give a + after multiplying all signs in the triad.

Unbalanced states give an overall negative and cause a dissonant which will compel a person to change attitudes or try to influence the other person to change his beliefs.

According to Heider (1958), attitudes are part of a social relationship. People strive to maintain consistency between their attitudes to other people and their attitudes towards objects/ issues within the triad. People strive to maintain attitudes that are congruent to people they like and have different or conflicting attitudes with people they do not like.

The theory of cognitive dissonance. Festinger's (1957) theory of cognitive dissonance is widely cited in literature relating to attitudes and behavior. The focus of the theory is on cognitive elements which are aspects a person is aware about her behaviour and situation (Festinger, 1957, p. 9). Three different relations can arise from the cognitive elements as illustrated on figure 12.

Consonant	I know that unprotected sex is risky	I always use condoms when having sex
Dissonant	I know that unprotected sex is risky	I enjoy unprotected sex
Unrelated	I know that unprotected sex is risky	I know my student number

Figure 12. Cognitive elements and examples.

The key proposition of the theory of cognitive dissonance was stated by Festinger (1957, p. 3 & 18) as trying to eliminate dissonance and move towards consonance. Hence, appropriate poster ads promoting the use of contraceptives can induce cognitive dissonance on rural women who have not yet adopted contraceptives.

Why individual level of analysis? Data collected for the current study was at individual level. It is acknowledged that there are many levels of culture such as national, group, organizational and also individual level. Whilst there are a plethora of definitions of culture, there is no definition of culture that indicates that every individual has his or her own culture (Smith, 2002, p. 3). Culture is shared among a group of people. However, culture is made up of individuals and individuals are influenced by culture in other words there is reciprocal

interpolation. A deeper understanding of the contraceptive culture of consumers can only start at individual level rather than at any higher level because such levels are an aggregation of individual characteristics. It follows therefore that, psychologists are interested in collecting data from individuals (Smith, 2002, p. 3).

Contraceptive choices are made privately, away from public scrutiny. Leung and Morris (2015, p. 6) noted that the Japanese were more inclined to choose a unique option in private than publicly. It becomes apparent that collecting data at individual level would be more suitable for the current study so as to gain more insights on the topic under investigation.

Guided by a review of the various theoretical conceptions, this study is based on marketing and social psychological concepts and a hypothetical model was constructed basing on relevant literature reviewed. The theorized model for study 1 is illustrated on figure 13.

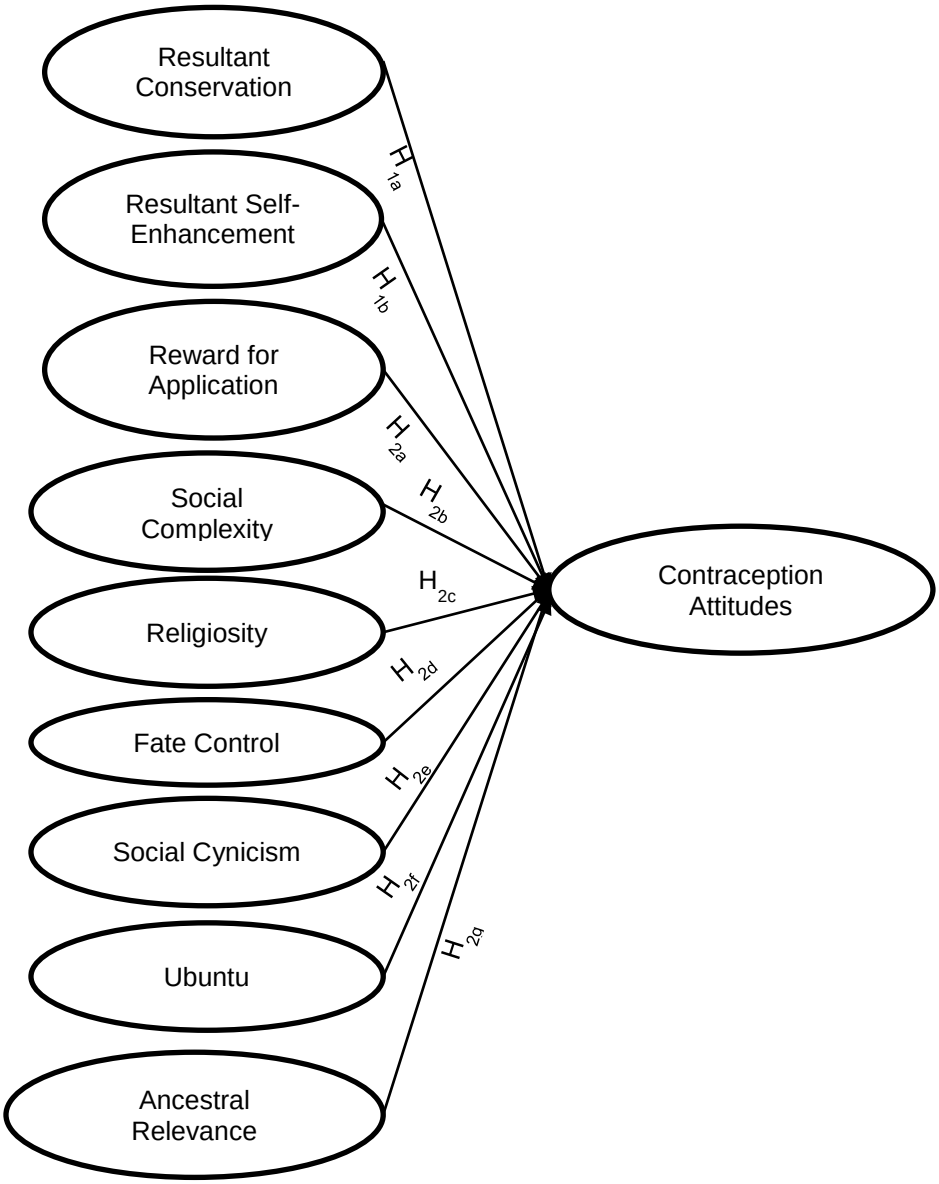


Figure 13. Theorized Model of culture - contraception attitudes structural relations of subsistence women (for study 1).

Researcher's own conceptualization

Values. Consumer behaviour research has incorporated personal values since the 1980s (see., Burgess, 1992). This development has been necessitated by the need to understand individual differences in making choices, decisions and to be able to predict consumer behaviour. Engel, Kollat and Blackwell (1968) indicated the centrality of personal values in consumer behaviour and their sentiments were also acknowledged by other scholars (e.g., Cohen, 1968; Day, 1973; Vinson, Scott, & Lamont, 1977). The development of personal values research in consumer behaviour meant that marketers were to borrow the nature and content of values construct from the behavioural sciences (Burgess, 1992) especially sociology, anthropology and social psychology (Schwartz, 2012).

Values are central to human behavior and have been studied in several disciplines. There has been eclecticism to the concept of values so much that there is no homogeneity in the definition of this central concept (Burgess, 1992). The confusion has, on the extreme made some scholars to advocate its abandonment (see., Maslow, 1968). The clutter in values research has attracted the interests of sociologists who advanced the concept of social values. They viewed social values as social facts that exist separately from the individual (Burgess, 1992). Social anthropologists focused on normative aspects and did not view personal values as central. The sociological perspective to the values concept is amorphous and includes anything considered important to people such as material goods, personality and intangible human states such as happiness (Tumin, 1973). However, similarities have been noted between Rokeach's values concept and William's 1968 definition of the value concept.

The psychological perspective to the values construct provides researchers with a deeper understanding of people's value priorities (Burgess, 1992, p. 39) especially given its focus on the individual. Marketing is heavily reliant on social psychological perspective because of the need

to understand consumers as individuals rather than as aggregates. This study focuses on contraception advertising information processing of individuals in relation to values, social axioms, attitudes and socio-demographic characteristics in a subsistence market.

Schwartz theory of basic values. Engel, Blackwell, Miniard (1986) claim that the work of the Israeli psychologist, Shalom Schwartz has been very influential in values research. Schwartz theory of basic values is the most programmatic in the studies that I have read. Schwartz empirical studies were conducted in 82 countries (Schwartz, 2012) involving more than 100,000 people .

There are interesting similarities between Rokeach and Schwartz theories such as conflict and congruence of some values, stability of values in terms of their aggregation and individual and group uniqueness in terms of their value priorities. However, Schwartz pitched our literature on values to a higher level especially on the nature and circular structure of the ten motivationally different value types at individual level.

Schwartz viewed values as made up of six main characteristics (Schwartz, 1992, 2012). These characteristics were gleaned by Schwartz from earlier studies (e.g., Allport, 1961; Feather, 1995; Kluckhohn, 1951; Rokeach, 1973). Values are beliefs that are intertwined with feelings and they relate to goals that humanity strives for. Values are not specific to particular items, objects, actions or situations. They serve as a guide or a road map of what is considered to be standard. They serve as a compass of what is considered to be standard in terms of consumer behavior. They are arranged in order of priority and a unique priority ranking in a given situation differentiates how a person will respond/behave.

The ten values are stated and explained in table 9.

Table 9

Schwartz Ten Basic Types of Values

Value type	Definition	Exemplary values
Power	Craving to be a person of high social level and prestige, controlling human and material resources.	Social power, authority, wealth.
Achievement	Success exhibited by expertise in line with set standards socially	Successful, capable, ambitious.
Hedonism	Pleasure and sensuous gratification for oneself	Pleasure, enjoying life.
Stimulation	Excitement, novelty, and challenge in life	daring, varied life, an exciting life
Self- direction	Independent thought and action – choosing, creating, exploring	Creativity, curious, freedom
Universalism	Comprehension, protection and appreciation of people's welfare and also preservation of the natural environment.	Broadminded, social justice, equality, protecting the environment
Benevolence	Maintaining and enhancement of the welfare of people with whom one is in frequent personal conduct	helpful, honest, forgiving
Tradition	Embracing traditional culture, customs and religion.	Humble, devout, accepting my portion in life
Conformity	Avoiding actions, inclinations and impulses likely to negatively affect or harm others and violet social expectations or norms	politeness, obedient, honoring one's parents or elders
Security	Safety, harmony and stability of society, of relationships and of self	social order

Note. Schwartz (2012)

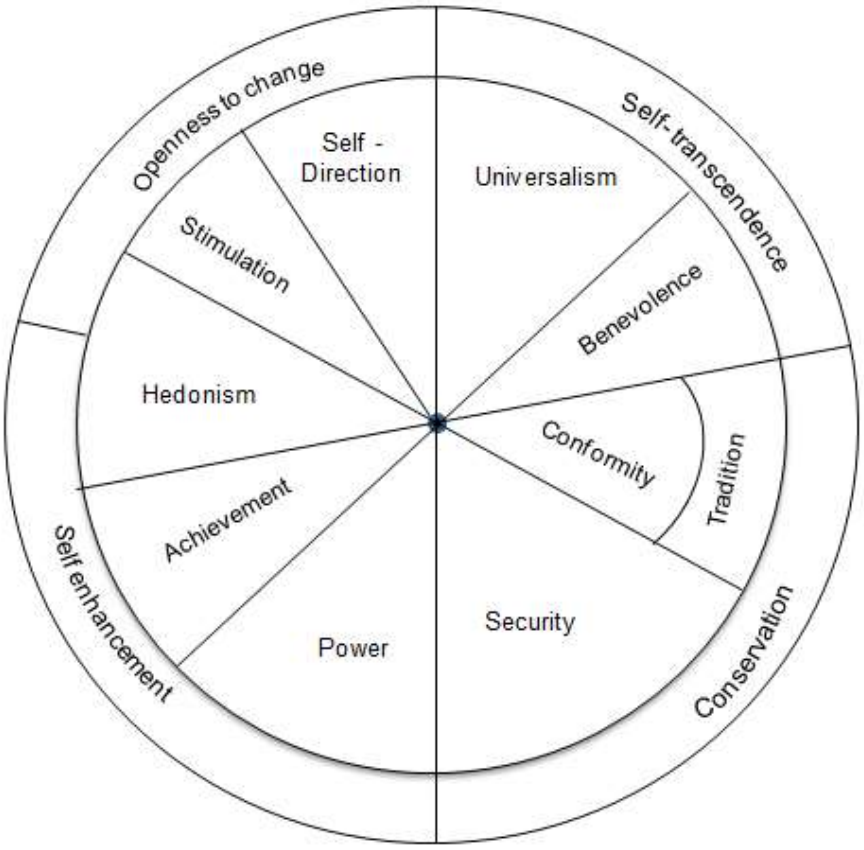


Figure 14. Schwartz Circular Structure of Ten Motivation Types of Values (Schwartz, 2012).

Schwartz et al. (2001) extended the theory of basic human values Using Portrait Values Questionnaire (PVQ) which is less abstract as compared to the Schwartz Value Survey (SVS). The PVQ analysed data on the 10 value types that had representative samples from emerging markets in Sub-Saharan Africa such as South Africa (n=3210) and Ugandan 13 to 14 year old girls.(n=84). The SVS was not suitable for people whose educational background was non-western and semi-literate. Respondents on the SVS would rate each value out of the 57 single value items "as a guiding principle in my life". The PVQ had verbal portraits of 29 unique individuals and the respondent was asked to rate "how much like you is this person" (Schwartz et

al., 2001, p. 523). It is against this background that I adopted the theory and the PVQ in this study.

Schwartz also pioneered the circular structure of relations among conflicting and congruent values. Figure 14 shows the theoretical model of relations among ten motivational types of values according to Schwartz. Schwartz used data from 82 countries to confirm the universality of the circular structure and the continuum of values. Values closer to each other are more congruent whilst those far from each other have a dissonant relationship. He came up with two bipolar dimensions that enabled us to group the ten values into two conflicting dimensions.

Openness to change vs. conservation. Openness to change includes stimulation, self-direction and some elements of hedonism. These express freedom of thoughts, action and feelings (Schwartz, 2012). These are in direct conflict with conservation values such as security, conformity and tradition. These values concentrate on resistance to change, preserving the past in terms of thought, action and feelings. Resultant conservation will have negative relations to contraception attitudes. Resultant conservation emphasizes tradition, conformity and security. According to the theory (Schwartz, 1992), tradition and conformity emphasize the goal of self-subordination to socially imposed expectations (see table 9). Exemplary values include respect for tradition, humble, devout, accepting my position in life, moderation and spiritual life. Social expectations arise in societies and groups everywhere due to widely shared beliefs about the life and the needs of smooth functioning of individuals and societies. Social expectations are visible in symbols, practices and events and are expressed within cultures through influence on attitudes and beliefs often through religious beliefs and practices. As Christianity is prevalent in Zimbabwe (Chitereka & Nduna, 2010) and several Christian churches (e.g., Roman Catholicism and Apostolic sects) proscribe contraception and as traditional African values often also

proscribe contraception (Chitereka & Nduna, 2010), the study theorizes that resultant conservation will have a negative impact on attitudes toward contraception.

H_{1a}: *Resultant conservation will have negative relations to contraception attitudes.*

Self-enhancement vs. self-transcendence. The second dimension is self-enhancement vs. self-transcended value. Self enhancement includes power, achievement and some elements of hedonism. These values reflect a self-centered person who thinks about himself or herself only. However its contrast is self-transcendence which includes universalism and benevolence. Such individuals think and are concerned about the welfare of others and the world at large. Resultant self enhancement emphasizes achievement, power and hedonism over universalism and benevolence. According to the theory (Schwartz, 1992), achievement will be measured in line with social standards, power is also based on social status and hedonism has a 'selfish' gratification of oneself. In a Traditional African Society, where polygamy is widely accepted as reflecting dominance of man and religious teachings propagating that God said in Genesis, "be fruitful and multiply" (Chitereka & Nduna, 2010, p. 18), the relationship between resultant self enhancement and attitudes towards contraception is hypothesized to be negative. The study therefore proposed that:

H_{1b}: *Resultant self enhancement will have negative relations to contraception attitudes.*

Social axioms. Culture is a very elusive concept. The work of Rokeach and Schwartz has put value dimension, as a dominant construct in most cultural studies (Leung et al., 2002). However, although value studies have not yet reached saturation because most of these studies are yet to be done in emerging markets (Burgess & Steenkamp, 2006) there was need to focus on general beliefs to give a more holistic and more accurate picture of cultural dimensions and

heterogeneity especially from an institutional context. This scenario ushered in social axioms. Social axioms are basically beliefs that are general and may be viewed as generalized expectancies that characterize locus of control, as noted by Rotter, (1966) in Leung et al. (2002). "Those general beliefs are pitched at a high level of abstraction and hence are likely to relate to social behaviour across a variety of contexts, actors, targets and time periods" (Leung et al., 2002, p. 288). This statement justifies the relevance of social axioms in contraception adoption and use research. Leung further contends that social axioms like mathematical axioms are beliefs that are basic so much that people endorse and use them as a guide to their behaviour in different situations.

The commonality of social axioms in different cultures or institutional context does not imply universality of social axiom endorsement to the same extent (Leung et al., 2002). "The extent to which a given dimension of social axioms is endorsed by a people in a given culture, represents the solution of that cultural group to that fundamental issue" (Leung et al., 2002, p. 288). Thus the endorsement of each social axiom dimension in the Zimbabwean context as antecedents of contraception adoption and use was one of the focal objectives of this study.

It is essential at this point to give a formal definition of social axioms. "*Social axioms* are generalized beliefs about oneself, the social and physical environment, or the spiritual world and are in the form of an assertion about the relationship between two entities or concepts" (Leung et al., 2002, p. 289). Social axioms should be statements that spell out the relationship between concrete entities.

At individual level, in which the current study will be based on, people make decisions in their daily business of living by using what they know about the world (Bond, 2009). The knowledge that a person has about the world emanates from life experiences within a given

community or society. Such experience based knowledge helps to restrict and constrain a person's actions and decisions. Therefore the social axioms are essential in augmenting the predictive power of values with regards to consumer behaviour (Bond, Leung, Au, Tong, & Chemonges-Nielson, 2004, p. 178).

It has been noted in literature that values are central to explaining human behaviour and can be used to show uniqueness between individuals and societies (see., Schwartz et al., 2001). However, empirical tendency has shown that values are moderately directly linked to predicting specific behaviour (Leung, Bond, & Schwartz, 1995). Despite these weak-links, culture has been studied in relation to values and helps to reveal differences between individuals (Bond et al., 2004, p. 178).

The weak link provided by values was strengthened by the inclusion in this study of social axioms. Social axioms are "generalized expectancies" in Rotter (1966)`s terminology which reflect an individual world views. These general beliefs "may augment the predictive power of values" (Bond et al., 2004, p. 178). Leung and Bond initiated a programmatic pan cultural study which identified five belief dimensions of an individual`s social context that may influence behaviour: Social cynicism, social complexity, reward for application, religiosity and fate control. The meaning and structure of each of these axioms will be discussed in this section and also two additional social axioms that are outside those identified by Leung and Bond. The rationale of adding Ubuntu and ancestral relevance to this study emanates from the uniqueness of emerging markets (Burgess & Steenkamp, 2006) and the question "why five and why these five?" (see., Bond, 2009; Stankov & Saucier, 2015).

Stankov and Saucier (2015, p. 313) anticipate that there should be additional axioms existing in other societies in the world. In line with this argument, the researcher examined

Ubuntu and ancestral relevance as world views in a resource constrained subsistence marketplace. Social axioms are used by people to guide and confirm the appropriateness of their behavioural response to a given situation (Leung et al., 2002). Social axioms also serve the four functions of attitudes, that is, they are instrumental, ego-defensive, value expressive and provide a knowledge base about the world (Leung et al., 2002).

The structure of an axiom should depict that X is related to Y (Leung et al., 2002). Therefore, merely saying X is good, important, etc. is not an axiom but value. Also, saying we should do Y, is not an axiom but a normative belief.

Leung et al. (2002) introduced the construct of social axioms that, "compliment values in interpreting culture" (Bond & Leung, 2009, p. 12). Social axioms represent "people's cognitive map of their social world" since they are general social beliefs (Bond & Leung, 2009, p. 2) addressing other fundamental question of how people intend to pursue their goals in life, given that values would have answered the 'what' goals a person should pursue in life (Bond & Leung, 2009).

Social axioms can be understood by breaking the term into 'social' and 'axioms.' '*Social* denotes the source of axioms, they are acquired through social experiences and their subject matter concerns social living of social beings. *Axiom* denotes, "general beliefs that people endorse" (Bond & Leung, 2009, p. 2). These are basic beliefs which people embrace and they are not affected by context, in other words they are blind to context (Bond & Leung, 2009).

The initial five-culture study was done at individual level by Leung et al. (2002) with a review of literature on beliefs in the Euro-American region. Hong Kong Chinese and Venezuelan groups were studied as well as data from informants. 182 items were grouped through exploratory factor analysis into social axioms.

Psycho-logic and eco-logic insights from the dimension of social axioms. According to Hofstede (1980, 1991), individual level dimensions are based on psycho-logic whilst culture level dimensions are driven by eco-logic. The error of using psycho-logic whilst studying at culture level is referred to by Hofstede (1980) as, 'reverse ecological fallacy'. A functionalist perspective was proposed as the appropriate approach when studying social axioms at individual level. The psycho-logic approach can be justified on the following premises;

- Psycho-logic is based on individual need for survival.
- Individuals strive to adhere to social groups influence.
- Each of the five social axioms is a strategic approach for an individual to cope with the ordinary business of social living Leung and Bond (2004).

Eco-logic is used at culture level because a person in society will endure the same social problems given the shared social customs, norms, laws, social structures and institutional goals (Leung & Bond, 2004). Social axioms are discussed below:

Reward for application. It is a general belief which indicates a positive correlation between hard work, planning, knowledge and achievement (Leung et al., 2002, p. 292). The nine items that are included on this dimension give an optimistic view to the need for careful planning and diligent human endeavor to be successful in life. Things do not happen by chance, they are well crafted with need for knowledge and understanding on contraception method and safe sexual practices that a person decides to use. People who have a high score on reward for application will be more concerned on contraception method and safe sexual practices specific factors that include some scientific knowledge on contraceptives. Inadequate understanding will hinder individual adoption of a contraception method. Such individuals are likely to be very

careful on their sexual activities; they cannot eventually get carried away by circumstances and engage in unsafe sexual activities. Examples from the PVQ scale are;

"Hard-working people will achieve more in the end." "One will succeed if he/she really tries". There is a positive relationship between reward for application and contraceptive attitudes. According to the theory (Leung et al., 2002), the 9 items on the construct give an optimistic view to careful planning, diligence and being progressive. These indications point at individuals who will consider the advantages of using contraceptives such as prevention from sexually transmitted diseases and family planning. According to Luker's theory (1977) such people will be receptive to contraceptives. It can be thus be hypothesized that:

H_{2a}: *Reward for application has a positive relationship with contraceptive attitudes.*

Social complexity. It is a general belief which indicates that there are several ways of killing a cat and rules are not rigid. Moreso, human behaviour is not cast in concrete but depends on circumstances (Leung et al., 2002, p. 292). The dimension takes a pluralistic perspective to human behaviour. People's preference for contraception will not be consistent overtime and also depends on the context or situation that a person is faced with. Cognitive flexibility is positively related to social complexity. People with a high individual score on social complexity can change their contraception choice preference as a way of compromise or by way of collaboration depending on circumstances. Examples from the PVQ are, "One has to deal with matters according to the specific circumstances." "Human behaviour changes with the social context."

There will be a negative relationship between social complexity and contraceptive attitudes. The theory (Leung et al., 2002) emphasizes 'multiple ways' and 'inconsistency' in the terms of taking a position on contraceptives. Bond et al. (2004), indicates that social complexity serves as a facilitator in problem solving. In the African extended family, contraception can be a

hot issue involving a whole clan, traditional leaders, such as chiefs and headmen are called to resolve these issues (Chitereka & Nduna, 2010). Pressured, people will oblige to stop the use of contraception and later resume using them when they are no longer being coerced. Moreso, contraception and safe sexual practices are done in private away from public glare. The relationship will be negative but weak because of inconsistency. The study hypothesizes that:

***H_{2b}**: Social complexity has negative relationship with contraceptive attitudes.*

Spirituality (religiosity). It is a general belief that the spiritual realm exists with supernatural forces (Leung et al., 2002, p. 292), the existence of a supernatural being referred to in various names depending on religion is one major characteristic of the Zimbabwean society as an emerging market. Religiosity dimension is consistent with 'God.' Hardships are associated with more involvement in churches or some other religious beliefs. This was also noted by Burgess (2003) in SA tribes.

Shared purpose and meaning is strengthened by religion (Solomon, Greenberg, & Pyszczynski, 1991). This also alludes to the Institutions theory because religion defines human interactions in an institution. The uniqueness of Zimbabwe as an institution is clearly defined inter alia by religiosity. The homogeneity in terms of contraception adoption behaviour in Zimbabwean society comes from the agreeableness and endorsement of certain human behaviour that emanates from religiosity (Fu et al., 2004).

Contraception has a greater bearing on religiosity since most religions associate procreation with a supernatural being. More so, most religions do not condone reckless or promiscuous sexual behaviour. Examples from the PVQ are, "Religious people are more likely to maintain moral standards." "There are phenomena in the world that cannot be explained by science". According to the theory (Leung et al., 2002), religiosity refers to the existence of

'supernatural forces' of which in Zimbabwe these supernatural forces are in various versions. Chitereka and Nduna (2010, p. 18), are clear that, the poor uptake of contraceptives in Zimbabwe is positively related to consumers' religious beliefs and affiliation. Group polarization according to the social categorization theory (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) also militates against contraceptive acceptance. The study hypothesizes that:

H_{2c}: *Religiosity has a negative relationship with contraception attitudes.*

Fate control. It is a generalized belief on the predetermination of life events but people may take some measures to influence what will eventually happen (Leung et al., 2002, p. 292). The dimension is centered on a person's belief that events in life happen as they ought to happen. A person's life is predetermined, basically that sounds like 'Calvinism' after John Calvin. However, there are also the contradictions that whilst life events are predetermined there are some actions that can be taken to alter such events. Life outcomes are also predictable hence people believe that prophets, sorcerers, *n'angas*, sangomas, medium spirits and so on, can foresee life events and have power to transform such events. People who have a high belief in 'fate' would not be as diligent in terms of contraception ad evaluation and adoption.

The dimension has a strong legitimation of passivity (Bond et al., 2004). Examples from the PVQ are, "fate determines one`s success and failures". "Individual characteristics, such as appearance and birth affect one`s fate." Fate control has a partial effect on attitudes and also contraceptive ad evaluation. According to Leung et al. (2002) the belief in 'predestination' brings 'passivity' in terms of attitudes and behaviour. The negative relationship is prompted by the general death anxiety, emotional rumination and negative profile for subjective well-being. People will be prone to accepting 'myths and misconceptions' that may be propagated by

prophets, traditional healers and sorcerers (Chitereka & Nduna, 2010). The study thus hypothesizes thus:

H_{2d}: *fate control has a negative relationship with contraceptive attitudes.*

Social cynicism. It is a general belief which pronounces people's lack of trust of social institutions, groups of people and the tendency to use shortcuts which are unethical to achieve the desired outcome (Leung et al., 2002, p. 292). Most of the eleven items under this dimension relate to effects of power or authority. It is a Machiavellian perspective to contraception ad evaluation and adoption especially some mistrust of social institutions. Some people may shun modern contraceptives and their advertisements because they do not have faith in some institutions and therefore would rather do without contraception adoption. This may also be related to ethnocentrism because such cynicism may be towards some groups of people, foreign products and technology. These people are unlikely to adopt modern contraceptives unless some deliberate and appropriate marketer dominated stimuli or some coercive strategy is employed. Examples of social cynicism on the PVQ are," kind hearted people usually suffer losses. It is easier to succeed if one knows how to take shortcuts." It follows therefore that, basing on the literature reviewed; Social cynicism has a partial effect on attitudes and ad evaluation of contraceptives. According to Leung et al. (2002) there is lack of trust of authority and social institutions.

The historical background of Zimbabwe is based on a bitter war of liberation which ended in 1979 and independence was attained in 1980. The rural folks have been brainwashed by politicians to mistrust the 'west' since it has imposed sanctions on the country. Such mistrust was noted by Chitereka and Nduna's study (2010, p. 17) with some respondents arguing that

family planning was something that was imposed by the West and not compatible with African culture. Based on the foregoing, the study therefore, theorize that:

H_{2e}: *Social cynicism has a negative relationship with attitudes towards contraception.*

Ubuntu. The concept of Ubuntu is anchored on collectivist African societies concern for others. Burgess' 2003 study of South African tribes noted the prevalence of the African philosophy of Ubuntu in agrarian societies where food was the most treasured item for survival. Ubuntu was mainly prevalent in rural communities that placed importance in family unity; cohesion and high in-groups bias (see.,Tajfel & Turner, 1979). Considering that Ubuntu philosophy was not prevalent in urban areas where there is a strong influence of Western lifestyles that promote individualism and evidently upheld in rural communities, this study had Ubuntu as an additional social axiom that may influence contraception attitudes as shown on the theorized model.

Historically the term 'Ubuntu' first appeared in written sources from 1846 (Gade, 2011) in the writings of Hare et al. up to the present day. Prior to 1980 the term Ubuntu commonly meant "humanity" (Clarke & Ngobese, 1975, p. 34) and "Humanness" (e.g., Biko, 1979, p. 214; Gade, 2011, p. 307; Samkange, 1975, p. 96). Gade (2011) goes on to produce a long list of over thirty meanings of 'Ubuntu' that has been learned from literature. In Zimbabwe, 'Ubuntu' has been referred to as 'Hunhuism' (from the Shona term 'hunhu') which is the same as ubuntuism. In some cases Samkange (1975) has politicized the meaning of the term 'Ubuntu'.

Augustine Shutte`s description of Ubuntu (1995, p. ix) as connected to the traditional African proverb, *Ubuntu ngumuntu, ngabantu* (a person is a person through persons) captures the interpersonal quality of the term. Desmond Tutu (1999a, p. 34) described Ubuntu as the central feature of the African 'Weltanschanning world view'. McEachern (2002) and Ansell (2007) also

referred to the construct of "Ubuntu "as a worldview. These actually confirm my position in this study that 'Ubuntu' is a social axiom that would be valuable in contraception behaviour in rural Zimbabwe. Since Ubuntu is all about conformity in terms of behaviour to African traditional customs which proscribe modern contraceptives, the study therefore hypothesize that;

H_{2f}: *Ubuntu has a negative relationship with contraception attitudes.*

Ancestor relevance. There is general belief in Zimbabwe or Africa that ancestors are relevant in the life of the living. They can act as a middleman between the Supernatural being (Mwari in Shona or Umkulumukulu in Ndebele) and the living (Smith & Parrinder, 1961). Kwame Gyekye (1996, p. 162)`s view indicates their relevance in consumer behaviour especially in contraception behaviour which is linked to issues of morality.

Awolalu and Dopamu (1979, p. 276) clearly illustrate the influence that ancestors have on consumer moral behavior which can include the adoption and use of modern contraception. Ancestors were viewed as role models of tradition and moral uprightness. This assertion illustrates that a person who is high in ancestor relevance may shun modern contraceptives. Awolalu and Dopamu noted that ancestors are associated with "high respect for traditional law and custom" (1979, p. 276). Disobedience can be punished especially for behaving immorally. However, the growth of Christianity especially in Zimbabwe might have diluted the degree of ancestral relevance in people's` daily life. The study therefore make the proposition that;

H_{2g}: *Ancestral relevance has a negative relationship with contraception attitudes.*

Attitudes. According to Allport (1935, p. 798), the attitude construct is very central and irreplaceable in social psychology. Theory and research in social psychology can hardly circumvent attitudes. Eagly and Chaiken (1993, p. 1) define attitudes as, a view which can be favourable or not, that a person has about an object, person, idea, in other words any tangible or

intangible thing or idea. Bohner and Wanke (2002, p. 5) noted a wide range of objects which are subject to attitudinal evaluation such as items with a physical existence, ideas, speech, a person, a group etc. Hence in this study contraceptive attitudes of subsistence women were determined so as to relate them to contraceptive advertising perceptions of four ads.

Relationship between attitudes, values and beliefs. According to Feather (1992) and Vroom (1964), beliefs and values are considered as two key constructs that jointly shape attitudes and behavior.

A closer analysis of the semantics used in the various definitions review that attitudes are anchored on evaluation of objects and or situations with some degree of favour or disfavour (Eagly & Chaiken, 1993, p. 1) see also (Crano & Prislin, 2006, p. 347; Petty, Wegener, & Fabrigar, 1997, p. 611). It is important to note the relationship between attitudes, values and beliefs since these are key constructs in this study. Consumer behaviour is usually explained by referring to people`s attitudes, beliefs, traits and norms (Schwartz, 2012, p. 16). According Schwartz (2012, p. 16), "attitudes are evaluations of objects as good or bad, desirable or undesirable". Hence people can evaluate public health poster advertisements in terms of cognition source, cognition message and affect in terms of positive and negative emotions.

Values have a direct influence on people's attitudes (Schwartz, 2012, p. 16). A person`s attitude towards contraception can be driven by the prioritized values for example if a person values tradition highly that person may have a negative attitude towards modern contraceptives since they are perceived to be in contravention of our traditional values. Social axioms or general beliefs can also be influential to the attitudes that people have towards an object.

Explicit attitudes that can actually be reported by respondents on the contraceptive attitude scale are the focus of this study rather than implicit attitudes. Usually explicit attitudes also confirm implicit attitude.

Attitude-behaviour relationship.

In the 1920s social psychology was viewed as basically a study of attitudes (e.g., Thomas & Znaniecki, 1918; Watson, 1925). Social psychologists noted a low relationship between attitudes and behaviour (see., Sutton, 1998; Wicker, 1969). A classic study by LaPiere in 1934 provoked debate on the relationship between attitudes and behaviour. LaPiere's (1934) research involved him moving around in hotels in America with 2 Chinese guests. He observed that the Chinese couple received cordial reception in all hotels and restaurants they visited except one hotel. LaPiere was not involved in negotiating for hotel services. During this period there were anti-Chinese sentiments in America. After six months LaPiere wrote to hotel management asking them whether they would accept Chinese guests in their hotel and 90% answered 'no.' LaPiere's study was interpreted to mean that there is no logical relationship between attitudes and behaviour. This is what the novelist, Aldous Huxley meant by saying that consistent people are the dead. Wicker (1969) even called for a total abandonment of the attitude construct.

Fishbein and Ajzen (1980) countered these findings by pointing at flaws in especially LaPiere's study. They explained the anomaly through the correspondent's hypothesis principles of compatibility. They argued that, "because all behaviour is made up of specific time periods and in response to a specific target, attitudinal measures have to reflect this specificity in order to predict relevant behaviours" (Davey, Sterling, & Field, 2014, p. 321). This argument can be illustrated using Davidson and Jaccard's 1979 study of married women's attitude towards birth control (see table 10).

Table 10

Women's Attitudes towards Birth Control

Focus	Correlation
Attitudes of married women towards birth control	r 5.08
Attitudes towards oral contraceptives	r 5.32
Attitudes towards using oral contraceptives	r 5.53
Attitudes towards using Oral contraceptives during the next 2 years	r 5.57

Note. Davidson and Jaccard (1979).

Where object, time and action are provided, there is a closer attitude – behaviour link (Davey et al., 2014). Attitudes behaviour relationship can also be affected by self-awareness, a person who has high self-awareness responds independent of what others feel about the object or person. A person with high public awareness would respond accordingly to how others feel about the object or person (perceived social norms). Accessibility – how much knowledge a person has about an object, person or group?

In 1975, Fishbein and Ajzen noted that some earlier studies that reported inconsistencies between attitudes and behaviour were actually focusing on intention and action. For example LaPiere`s 1934 study that compared restaurant`s intention to accept or not Chinese race guests and what actually happened when the restaurant had Chinese guests.

Theory of reasoned action and planned behaviour. Ajzen and Fishbein (1980) identified the importance of intentions as predictors of specific behaviour (see., Bandura, 1997, 1998; Fisher & Fisher, 2002). Three major factors were noted to influence behaviour:

- The consequences of the behaviour.
- Acceptance of the behaviour of the individuals` significant others.
- Factors that affect performance of behaviour.

(Fishbein & Ajzen, 1980).

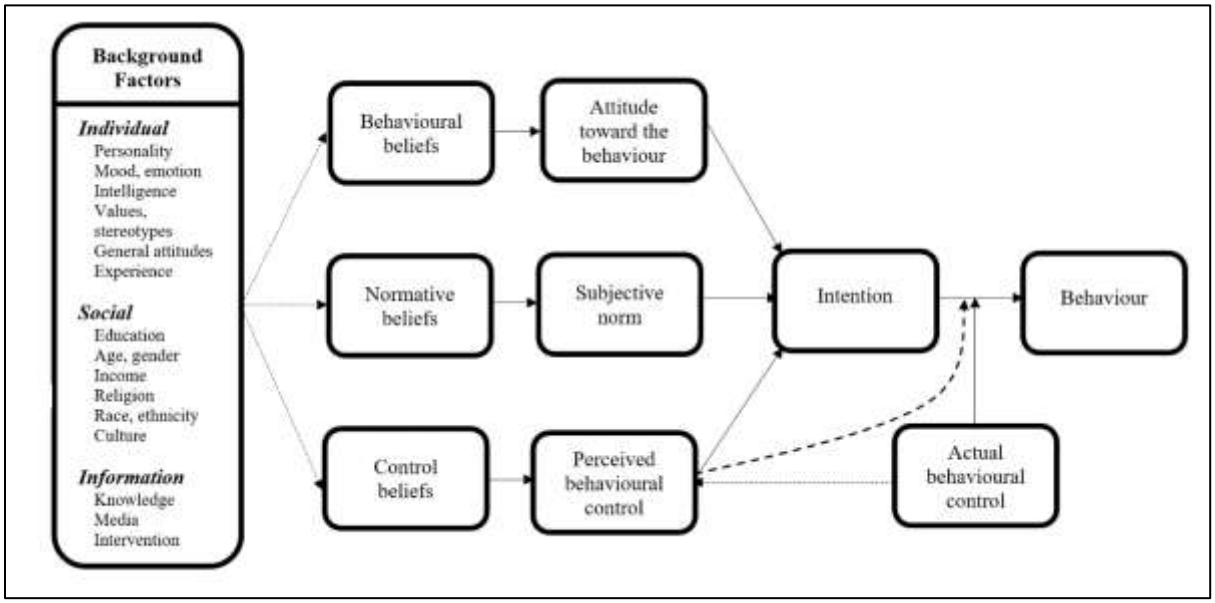


Figure 15. Theory of Reasoned Action and Planned Behaviour

Fishbein and Ajzen (1980) and Ajzen (1991).

Fishbein and Ajzen's theories are shown in fig 15 in their combined form.

The major assumptions of the theories are briefly explained:

- Intention is the immediate antecedent of behaviour.
- Such intentions are influenced by attitude towards the behaviour, subjective norm and perceived behavioural control.
- Attitude towards behaviour is determined by normative beliefs.
- Perceived behavioural control is determined by control beliefs.
- On the background are individual factors, social factors and information factors.

Empirical studies have shown that TRA and TPB predict 40% to 50% of behavioural intentions and 19% to 38% of actual behaviour (Sutton, 1998). Past behaviour has been noted to be an additional factor which directly links to future behaviour (Triandis, 1980).

Dual process model of attitude–behaviour relations. The dual process theories viewed mental processes underlying social judgments and behavior into basically two categories that is automatic operation and controlled operation. Dual process theories focusing on domain-specific phenomena include the attitude-behavior relations which are relevant in the current study. Fazio's (1990) Motivation and Opportunity as Determinants (MODE) model and Wilson, Lindsey and Schooler's (2000) Dual Attitude model are of particular concern on this section.

Fazio (1990) defines attitudes as the mental association between the object such as contraceptives and the individual's evaluation of that object. According to the MODE model, there are two processes by which attitudes would influence behavior depending on a person's motivation and opportunity to be involved in the deliberate processing of information available. The two processes are:

i) The spontaneous attitude- behavior process where there is an automatically induced attitude which arises upon seeing an object and the person will promptly interpret the situation or context in a certain way as a result of the influence of spontaneous attitude. This will ultimately influence behavior.

ii) Deliberate attitude –behavior process where the person intentionally assess some object attributes and the context on condition that the person has both the motivation and opportunity to conduct the information processing in terms of availability of cognitive resources and time (Fazio, 1990).

If motivation (cognitive resources) is low or opportunity is low, then automatically activated attitudes will guide behavior. If motivation is high and opportunity is high automatically activated attitudes may influence behavior depending on; attributes of the current situation, attributes of the objects and salient norms (Fazio, 1990).

Wilson et al. (2000) indicated that there are dual attitudes in other words people may hold two attitudes towards the same object and these attitudes are implicit and explicit attitudes. Implicit attitudes were previously acquired and well mastered such that they are activated automatically. Explicit attitudes are recently acquired usually from counter attitudinal information. Where there is little time or resources (motivation and opportunity) to assess objects and situations the deeply held or internalized implicit attitude will influence behaviour. However, where there is more time and resources to assess objects and situations, the counter attitudinal information may be considered, therefore explicit attitudes may influence behaviour.

Duality may arise in the form of attitudinal ambivalence. A person may have both a positive and a negative attitude towards the same object. Repression may lead to ambivalence being erased out of the mind (Wilson et al., 2000, p. 107). However, if repression is unsuccessful, anxiety and ambivalence may occur. People may also override an attitude by labeling it 'illegitimate' (Wilson et al., 2000, p. 107). These cases may arise from marketing communications messages which may be in conflict with a person's attitudes.

A conflict between religious versus commercial messages on contraception may give rise to dual attitudes and ambivalence. Earlier implicit attitudes towards contraception arising from sources such as religious teachings and customary norms become deeply ingrained. Contraception marketers' initiatives may lead to counter attitudinal information which may lead to explicit attitudes. In some instances a person may enjoy unprotected sex (negative attitude towards condoms) yet appreciates the use of condoms (positive attitudes towards condoms) since they protect people against sexually transmitted diseases. Indeed, as noted by Aldous Huxley (1894/ 1944), the novelist, in the quote opening this section "the only completely consistent persons are dead".

Attitudes, behaviour and advertising perceptions in health. Fisher and Fisher (2002)'s Information –Motivation- Behavioural Skills Model is not necessarily a contraception model but an AIDs prevention behaviour model that is based on rational choices. The safer sex behaviour model is based on three elements (see figure 16):

- Information- the information that an individual has about AIDs and the necessary behaviour required to reduce risks.
- Motivation – the zeal to perform appropriate behaviours that reduce one's exposure to AIDS risk.
- Skills- whether the individual has the requisite skills that are necessary to use contraceptives that prevent AIDs risk. The model is shown in Figure 16 below:

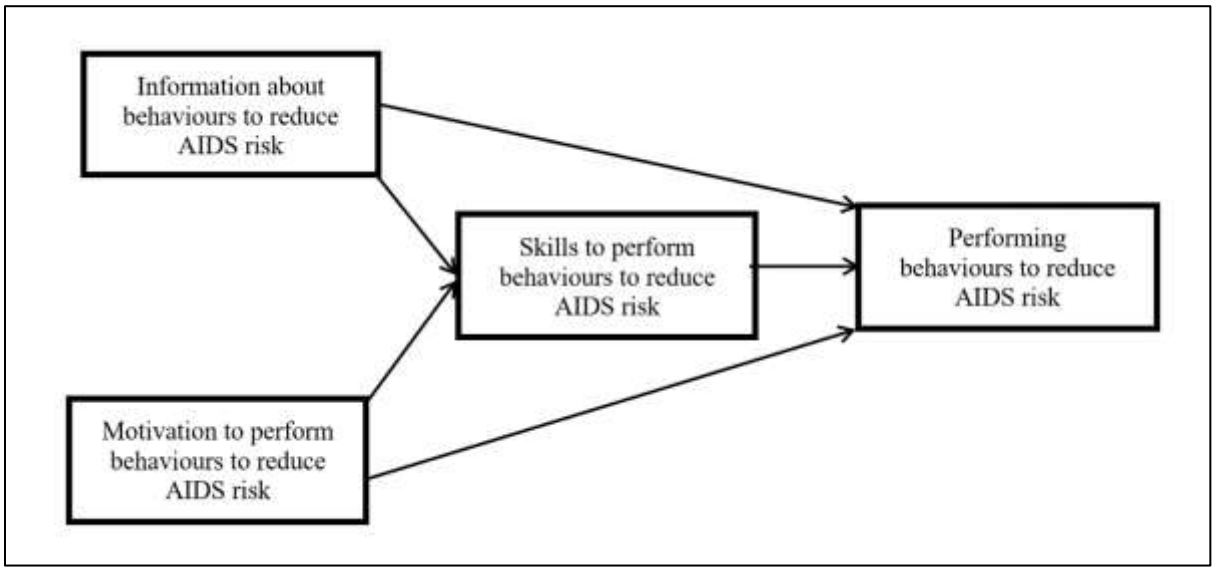


Figure 16. The Information, Motivation, Behavioural Skills Model of Safe Sex Behaviour (Fisher, Fisher, Misovich, Kimble, & Malloy, 1996).

These aspects have a bearing on rural women's perceptions of contraceptive ads.

Advertising evaluation. Attitude towards advertising has been defined by Lutz (1985) as "a learned predisposition to respond in the consistently favorable or unfavorable manner to a

particular advertising stimulus during a particular exposure occasion" (MacKenzie, Lutz, & Belch, 1986, p. 130). Whilst some scholars have identified attitudes towards the ad as a mediator (MacKenzie et al., 1986; Mitchell & Olson, 2000), in this study, attitudes towards the ad was measured in study 2 as the dependent variable in line with the EBM consumer decision process .

Contraceptives fit in the definition of offensive products which have been described as being associated with immoral and indecency connotations (Wilson & West, 1981, p. 92). These products include male and female condoms, tampons and other contraceptives (Barnes Jr & Dotson, 1990). Cultural differences in perception and attitudes are prevalent in such products (see., Waller, Fam, & Zafer Erdogan, 2005).

Ads and structure of attitudes. Attitudes are divided into three components and this division was the basis of dividing attitudes towards the ad in study 2 into two cognition components and a feeling component. The dimensional approach by Petty and Cacioppo, (1981) argues that attitudes just reflect a person's evaluation of an object. However, the multidimensional approach (Eagly & Chaiken, 1993) proposes that there are basically three types of evaluative responses that a person can have (see figure 17).

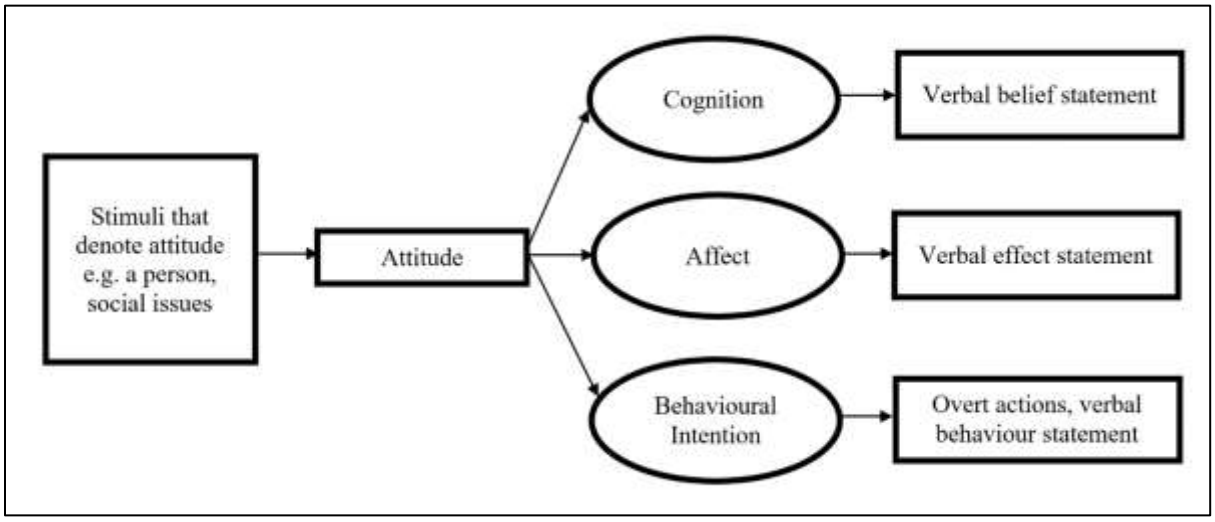


Figure 17. Structure of Attitudes

(Davey et al., 2014, p. 317).

Cognition–these are thoughts that people have about contraception poster ads. In study 2, ad evaluations on cognition were made up of cognition source (what respondents think about the person/ model shown on the ad) and cognition message (what respondents think about the message of the ad).

Affect – (emotional component) – feelings or emotions people have about each contraceptive ad were also examined in study 2. Anastasiei and Chiosa (2014, p.43) noted that emotions affect consumers' information processing and attitudes (Edell & Burke, 1987, Burke & Edell, 1989). In this study emotional responses of subsistence women were examined in study 2 on each of the four ads designed by the researcher providing unique text and imagery ranging from eye contact or lack of it, group or individual models, traditional dress or modern dress, traditional house and field of gravesite.

Behavioural Intention – These were excluded from this study so as to give more focus on cognition source, message and affect. Hence attitudes are made up of our thoughts, feelings and behavioural intentions about an object (Davey et al., 2014). For attitudes towards the ad, the researcher divided them into cognition source, cognition message and affect ad to get a deeper insight on consumer processing of public print ads in subsistence markets.

Issues on information processing became pertinent because they also influence consumption(Engel et al., 1986). Considering the advertisements clutter relating to contraception, the nature of contraceptive consumers' should be matched with certain types of advertisements. Certain cultural features may be related to particular types of adverts so that there won't be unnecessary clutter which restricts retrieval of information according to the interference theory (Engel et al., 1986). Consumption and post-consumption evaluation has an

influence on information processing of marketer dominated stimuli. The link between post-consumption evaluations on ad evaluation was illustrated by the feedback loop shown on the EBM model (Engel et al., 1986, p. 197). An ad can lead to opinion formation. After a consumer has been exposed to a stimulus, information processing that takes place determines whether the ad will influence future behavior positively or negatively, at the same time past experience will influence the consumer's evaluation of the ad.

Information processing of ads. Kelman (1958) noted the three processes or types of opinion change, that is, Compliance, Identification and Internalization. Compliance occurs when an individual does not really think about the message but just complies with orders or instructions given. In some instances, the person may not agree with the behavior but all the same he/ she will perform as instructed. Cognitive dissonance may occur since the individual's behaviour may not be in-line with his beliefs and values. Such contraception behaviour may be expected in subsistence markets especially if people are brainwashed through religion (Chitereka & Nduna, 2010). On contraception ads, compliance may be in the form of rejection of some ads because a church leader or village head has disapproved such ads or contraceptive product being advertised.

Identification occurs where an individual wants to be identified or associated with the influencer so much that they take the speaker's arguments hook, line and sinker without critically evaluating the message (Kelman, 1958). Church leaders, especially the charismatic Pentecostal and Apostolic leaders in Zimbabwe, are viewed by most of their followers as icons (Chitereka & Nduna, 2010). Ad evaluations will be made basing on the congruence of the ad message with the perceived or imagined contraception behaviour of the adored leader.

Internalization involves cognitive processing of the message before acceptance or rejection of the ad. The cognitive process is done at individual level and it is free from any coercive actions (Kelman, 1958). An ad will be considered on its rationality and how it fits in the person's beliefs and values. Internalization is closely linked to Petty and Cacioppo's (1986ba; 1986cb) central route to persuasion. The central route of the Elaboration Likelihood Model (ELM) perceives the receiver of the ad as an active participant in information processing because he/ she has the motivation and ability to analyze the ad message. The alternative to the central route is the peripheral route where the receiver is passive in information processing. The receiver accepts the message basing on the belief that the presenter is an expert in the area or the receiver does not have the motivation and/ or the capacity to analyze the message.

Heterogeneity in advertising perceptions The behaviour of subsistence women in terms of culture, attitudes and advertising perceptions are theoretically anchored on the C-CAPS model (Mendoza-Denton & Mischel, 2007) where *the mind in context* is key in determining behaviour and coupled by the institutions based view in marketing (Burgess & Steenkamp, 2006).

It has already been noted in table 4 that institutional subsystems such as socio-economic dynamism, demographics, diversity and culture clearly imply the existence of latent classes of subsistence women's ads perceptions. The rural survivalists (Burgess, Harris, & Mattes, 2002) are resource poor and were classified by Prahalad and Hart (2002) as tier 4 people. They live in rural areas where there are no conventional marketing communications channels, justifying the choice to focus on poster ads which do not require electricity and can be displayed at various strategic points in rural areas (e.g. at rural clinics and growth points).

Subsistence marketplaces have been noted to be exceptionally high in social capital and the village system also fosters homogeneity in ads perceptions (Viswanathan, Sridharan, et al.,

2008). However, individual differences in level of education may cause differences in ads perceptions. Viswanathan, Gajendiran and Venkatesan (2008a) identified the wide usage of concrete and pictorial thinking among low literate subsistence consumers which could have an influence on ads perceptions. Other demographic elements such as Level of income, age, contraception experiences and efficacy may imply uniqueness in subsistence women's ads perceptions.

The sexual health model (Robinson et al., 2002) clearly illustrates the importance of knowledge in sexual health behaviour and this can be linked with a person's level of education. Sexual pluralism was also indicated as a feature of people's sexual behaviour (Reiss & Reiss, 1997) laying ground for existence of heterogeneous latent classes in rural women's contraception ads perceptions, beliefs and choices.

Subjective culture (such as beliefs), physical culture (such as institutions) and nominal situations are essential aspects on within culture variations among people of the same cultural locality such as rural women and their contraception ads perception differences. The CuPS approach "examines cultural differences showing how culture help define psychological situations and *create different clusters of behaviour according to differing logics*" (italics not original) (Leung & Cohen, 2011,p.507). This argument interests marketers because it is the rationale for market segmentation. In subsistence cultural settings individual women respond differently to exogenous marketing stimuli in the form of public print media. There are grounds for latent classes to emerge as rural women differ in the manner they have internalized cultural variables, (in this study these are values and social axioms), the role of contraception physical culture, nominal situations and the extent to which cognitive affective units (CAUs) are activated depending on situations. These segments are expected to be heterogeneous but members of the

same subgroup are expected to be homogeneous basing on ads perceptions, cultural and demographic profiles collected.

In the light of the foregoing argument the study posit that:

H_3: There are heterogeneous latent classes among rural women on their perceptions of the four poster ads with regards to culture and demographic profiles.

The Current Study

In this study a contraception consumer behaviour knowledge niche in subsistence marketplace was investigated. The situated person argument based on the C-CAPS model (Mendoza-Denton & Mischel, 2007) and the institutions based view in marketing (Burgess & Steenkamp, 2006) underpinned the idiosyncratic nature of subsistence marketplaces and cultural syndromes. The effects of Cultural constructs, viz, values and social axioms to contraception attitudes were interrogated. The ten basic human values were condensed into two bipolar dimensions in line with Shalom Schwartz (1992, 2012). The original five social axioms (Leung et al., 2002) plus two additional axioms prevalent in subsistence marketplace (Burgess, 2003) that is Ubuntu and Ancestral relevance were considered. Information processing of contraception ads by consumers in terms of Compliance, Identification and Internalization (Kelman, 1958) and Petty and Cacioppo's central route to persuasion (1986) was expected to be influenced by these culture constructs so that latent classes of contraception ads perceptions could be identified.

Literature Review Summary

In the two literature review chapters, I argued that the current study is in the Transformative Consumer Research domain responding to Mick (2006)'s call for more research in the domain. The business case of the study was argued. Views of prominent scholars on bottom of the

pyramid (Prahalad & Hart, 2002) , emerging markets (Burgess & Steenkamp, 2006) and subsistence marketplace (Viswanathan, Sridharan, et al., 2008) were discussed to show the uniqueness of the current study as compared to earlier studies done in Western countries. The three legs of the strategy tripod and the predominance of the institutions based view in line with Peng and his associates (2008) and Narayan and Fahey (2005) among others were used as the basis of the institutions theory. Eventually the institutions based view in marketing by Burgess and Steenkamp (2006) captured the pertinent marketing argument informing this study. The C-CAPS model (Mendoza-Denton & Mischel, 2007) was explained as the overarching theory fastening major constructs of this study. A psycho-logic approach at individual level of culture was adapted to avoid universal fallacy. The two major constructs of culture; values and social axioms were discussed as the independent variables. Values were divided into two bipolar dimensions basing on Schwartz's theory of basic human values and the circular structure of values. The five social axioms according to Leung and Bond plus two additional world views (Ubuntu and Ancestral relevance) prevalent in emerging markets comprised the sub-constructs of beliefs. Fishbein and Ajzen's theory of Reasoned Action and Planned behavior, Heider's balanced state theory and Festinger's Cognitive Consistency theory were discussed in terms of their centrality to attitudes and behaviour studies. Attitudes towards a particular advertisement, as a copy-test measure were the dependent variable of this study. Information processing literature especially Kelman (1958) and Petty and Cacioppo (1986a) was discussed in this regard. The inter-linkages and relationships among values, social axioms, contraception attitudes and contraception behaviour were underpinned by Rokeach's Belief System theory and Feather's expectancy value theory. Individual differences in a contextualized environment propelled the within-culture view (Leung & Cohen, 2011; Mendoza-Denton & Mischel, 2007) which formed

the basis of hypothesizing the existence of latent classes when it comes to rural women's perceptions of poster ads. Though there are a plethora of consumer behaviour studies done since its birth in the 1960s, I found no evidence on the existence of a study of contraception consumer behaviour in subsistence markets with a particular focus on the constructs being investigated in this study. A knowledge gap in literature is laid bare.

The next chapter discusses the methodology which was used to test the hypothesized relationships of the study.

Chapter 4: Methodology

The current research comprised of two sequential studies, which shared the common focus of systematic assessment of cultural influences on contraceptive attitudes and advertising perceptions of subsistence women. Study 1 examined the effects of cultural values and social axioms on contraceptive attitudes among a group of 395 subsistence women. Study 2, extended this research by also collecting data from 225 subsistence women on cognitive and affective responses to four advertisements that portray subsistence settings. The structure of this methodology chapter is based on APA reporting standards (Appelbaum et al., 2018; Levitt et al., 2018). The following aspects are reported: research philosophy, approach and strategy, back translation, scale validation, designing the four poster ads, research instruments and their psychometric properties, data collection procedures, confirmatory factor analysis for measurement models of the two studies and ethical considerations.

Research Philosophy

This study sought to establish the impact of cultural influences on contraceptive attitudes and advertising perceptions by subsistence women. Thus, since the research was a cause-effect and latent classification study, this entailed the use of quantitative approaches to the analysis of the results (Creswell, 2014). In this respect, the optimal research philosophy that was best-suited for this study was the positivism research philosophy (Bryman & Bell, 2015). Positivism, according to Creswell (2014), maintains that the only trustworthy knowledge is that which is measured and quantified (Saunders, Lewis, & Thornhill, 2012). Thus, for positivism-related studies, the researcher's main functions include the collection of quantitative data and the use of objective

methods to analyse the data (Leedy & Ormrod, 2013). (Yin, 2018). Cresswell (2014) further adds that a positivism philosophy helps the researcher to answer questions about any relationships among the research variables with the purpose of explaining, predicting or controlling phenomena such as the relationship between cultural influences and contraceptive attitudes and latent classes of contraceptive consumers in subsistence marketplaces of Zimbabwe, which was the study's main objective (Creswell, 2014; Yin, 2018). It is for this reason that the positivism research philosophy was adopted.

Research Approach

Since the study sought to test theory through quantitative techniques, the deductive approach was chosen as being the most ideal. Dudovskiy (2015) and Kothari (2017) argue that the deductive approach applies more to quantitative studies that involve the development and testing of a research hypothesis or testing theory. Three key measurement scales developed from theories were used to measure beliefs, values and contraceptive attitudes these comprised of the Social Axioms Survey (SAS) (Leung *et al*., 2002; Burgess, 2011), the Contraceptive Attitudes Scale (CAS) (Black & Pollack, 1987) as well as the Portrait Value Questionnaire (PVQ) (Schwartz et al., 2001). This is in contrast to the inductive approach that does not seek to test theory, but rather, to establish new theories from the data (Creswell, 2014). According to Yin (2018) and Silverman (2016), the inductive approach seeks to gain knowledge through discovering meaning and this was not the thrust of this study. This study did not seek to develop new theories, but rather, to test theories, but in a different context and setting. Similar studies have been done before by academics such as Schwartz (1992). However, limited studies had been done in the

context of emerging economies, with none having been done in the Zimbabwe setting. For this reason, the deductive approach was adopted (Saunders et al, 2019.

Research strategy

This research focused on the determination or effect of culture (values and social axioms) on contraception attitudes (study 1) and latent classes of subsistence women's contraceptive behaviour in Zimbabwe (study 2). Nevertheless, this study did not focus on all demographic profiles, but only focused on women. This meant that the use of the case study research strategy was optimal for the research as put forward by Creswell (2014). Further, the research did not just focus on all women, but was further delimited to the rural subsistence women. To this effect, the case study research design was considered as being ideal as this facilitated a detailed in-depth investigation of the research problem in a specific subsistence rural setting and in a specific region (Mutare rural District, Manicaland in Zimbabwe) (Creswell, 2014).

Study 1

The first phase (study 1) was meant to examine the structural relations between culture and contraceptive attitudes and also to validate the measurement scales that were used in the studies.

Back translation and scale face validity. Although the study's measurement scales were validated in prior studies in Zimbabwe, South Africa and other emerging markets, the researcher conducted informal assessments of face validity in rural Zimbabwe. Consultations of health practitioners were made and fieldwork advice was sought from various sources in Zimbabwe, including nursing sisters in local clinics. The nursing sisters were interested in administering the

questionnaires and believed that they would get a better response rate and less biased responses than any other trained interviewers.

The researcher is a native Shona speaker but scale items were still back-translated into the Shona language (vernacular language spoken by people in Mutare rural) using accepted cross cultural back-translation procedures (Brislin, 1986). Thirty rural women (these women were different from the poster ads participants), aged between 19 to 59 years, were selected and took part in the focus group at Nyakatsapa clinic, Mutasa District in Manicaland in Zimbabwe in December 2016. All participants signed informed consent documents and were reminded that they could decide against participation at any time before or during the study.

The participants completed the translated questionnaires (Shona version), with items for values, social axioms, contraceptive attitudes, attitudes towards the ad (ads cognition source, message and affect) and demographics working individually. Most participants took approximately 25 to 30 minutes to complete the questionnaire. The focus group then discussed the meaning of all the questions on the questionnaire. All participants answered every question on the survey documents. In the focus group discussion, it was clear that there was universal shared meaning for every scale item. The focus group reached agreement on each question without prompting or assistance from the researchers (women nursing sisters). The results of the research confirmed that the scales had face validity and that the measurement scales were accurately translated into Shona.

Sample.

The sampling frame for the study was lists of rural women who visited the clinics and health centres for contraceptive counselling, treatment and collection of contraceptives. Patient registers

have been used as sampling frames in health research (Callanan, 2020; Schnell & Smid, 2020). The focus age group for the current study was 18-60 years. Whilst the Zimbabwe Demographic Health Survey used ages from 15 years, the researcher considered the rational starting point to be legal age of majority according to Zimbabwe legislation which is 18 years. The selection of rural areas visited was basically determined by considering that they are at least 40 kilometers from the nearest city (Mutare) and convenience sampling due to budget and time constraints. Data was collected from five villages whose women visited five rural clinics and health centers. Research assistants, who were actually women nursing sisters and health officers stationed at the five rural clinics and health centers, were instructed to request every fifth consenting rural woman to complete the questionnaire. Each clinic had a specific day of the week to administer questionnaires.

The participants were rural women staying in targeted villages. Therefore, women in cities and towns were not included as respondents in the study. Only women who were permanent residence of such villages were eligible as respondents. Respondents were screened on the following criteria:

1) subjects should have been staying in a rural area for the past one year. Nursing sisters could easily verify from their medical records.
2) subjects are not within a 40 kilometre radius from the boundary of a city or town. Participants' villages were known by nursing sisters.
3) subjects were not professionals stationed in rural areas, for example, teachers, nurses and agricultural extension officers.

Data was collected from 395 rural women. The number of participants for study 1 was influenced by the need to use structural equation modeling. Scholars in SEM have advocated for

at least a sample size of 200 (Boomsma, 1982; Kline, 2011). Kenny (2014) stipulates that the model fit test (X^2 goodness-of-fit) is sample size dependent and will produce optimum results in the range of 200 to 400.

Data screening. Taking into consideration the high prevalence of response bias and low literacy rate in subsistence marketplace (Burgess & Steenkamp, 2006), data cleaning was done and careless respondents were excluded from the study. The most notorious were cases of incomplete questionnaires, where respondents omitted a whole section on the questionnaire for instance a respondent declining to respond to the whole section on contraceptive attitudes. Such cases were removed from the onset because it was clear that the respondents had aborted the study before completion.

Following Schwartz (1992), responses on values were used to filter respondents. A careless respondent on the 21 PVQ scale was assumed to be so even for the social axioms scale items and worse still contraceptive attitudes items which were deemed to be intrusive. The decision to filter respondents was based on: countmax greater than 14, giving the same response consecutively (maxrep) for more than 11 times and aggregate of countmax for 5 and 6 being greater than 15. In this case, countmax was the maximum number of times any rating was used and if a respondent used a rating for more than 14 times, then the respondent was considered to have been careless or the responses could have been based on acquiescence bias. This was also the case with respondents who gave the same rating consecutively for more than 11 times. Say a respondent ticks 'very much like me' from PVQ 1 to 12, then maxrep is 12 and this was considered as carelessness. Some respondents might have a tendency to be excessively on the affirmative and tick, 'like me' (count 5) and 'very much like me' (count 6) for more than 15 times, then yea-saying bias is clearly exhibited. The filtering formula was: *Compute filter_$=*

((countmax<14|maxrep<11) & count5_6<14). 55 respondents were filtered out of 395, remaining with 340 respondents, on the basis of the criteria described above.

Participant characteristics. After data filtering, the remaining 340 respondents' characteristics were noted. Data for the study was collected from rural women who had very low income, given that 317 of the 340 (93%) had monthly income below US$100. The most prevalent primary methods of contraception were the birth control pill and male condoms which were used by almost 72% of the respondents, given that some respondents used two or more methods concurrently depending on circumstances. It was clear that rural women who used birth control pills were not aiming at curbing sexually transmitted diseases but family planning purposes.

The male condom had 23.8% whilst the female condom was used by 8.5% of the respondents. The combined usage of male and female condoms was 32.5%, being 5% less than birth control pills. The biggest age group was from 21 to 40 comprising of 40.6% of the sample. Most respondents were from Apostolic sects who were 139 (40.9%) followed by Pentecostal Christian denominations who were 95 (27.9%) and 64 Catholics (18.8%). Married women were 70.6%, followed by divorcees who were 14.1%. Literacy rate was high with almost half of the respondents having attended secondary school (47.8%). This generally tallied with the high literacy rate in Zimbabwe. A summary of the demographic profiles are shown on Appendix 9.

Instruments. Study 1 had a questionnaire which comprised of:

1) Social axioms survey (SAS),
2) Portrait value questionnaire,
3) Contraceptive attitudes scale (CAS),

4) Demographics.

These measurement scales had been validated in prior studies and they are explained in the following section.

Social Axiom Survey (SAS).This instrument was developed by Leung et al. (2002) to measure general beliefs. The instrument was designed to measure the five dimensions which have been hypothesized in this study: Social cynicism, social complexity, and reward for application, religiosity and fate control. A shortened version of SAS which comprise of 30 items (Bond et al., 2004) was used with the items being mixed up or randomised. Two additional axioms, Ubuntu and ancestral relevance were included, since they were found to be relevant in emerging markets (Burgess et al., 2002), increasing the items to 37. The scale was translated into Shona, which was the vernacular language of the respondents (see Appendix 2 and 4). A five point likert scale from strongly disbelieve (1) to strongly believe (5) was used in line with the original SAS instrument.

It is standard practice to report Cronbach's alpha coefficient (Cortina, 1993; Cronbach, 1951). The minimum threshold for Cronbach's alpha is 0.7 but such threshold does not take into consideration the inherent nature of subsistence markets, where there is high within country heterogeneity. This heterogeneity naturally leads to low reliabilities since Cronbach's alpha does not take into account such heterogeneity (Burgess & Steenkamp, 2006,p.347). Moreso, research in subsistence markets is still at its infancy and marketing science can only be advanced by accepting reasonably lower reliabilities to those used in high income markets to cater for low levels of literacy, respondents poor research culture and efficacy (Burgess & Steenkamp, 2006). The following reliabilities were obtained for social axioms: fate control 0.621, religiosity 0.641, reward for application 0.594, social cynicism 0.519, social complexity 0.644 and Ubuntu 0.581.

Reliabilities between 0.5 and 0.7 are moderate reliabilities which are acceptable (Taherdoost, 2016). Basing on the foregoing arguments, the reliabilities were within acceptable range.

Portrait value questionnaire (PVQ). Unlike the Schwartz Value Survey instrument (SVS), the Portrait Value Questionnaire is more relevant in emerging markets (Burgess, 2011). The SVS has 57 values that respondents should rate as 'guiding principle of life' on a nine point scale. The instrument has been used in more than 70 countries but it requires abstract thinking since it does not pose specific life situations where values are applied (Batra, 1999, p. 91). It is more suitable to respondents with good western education. Let alone the thrust of this study is Zimbabwe rural areas where people of little or no education stay. Such respondents require an instrument which is less cognitively demanding. The PVQ uses portraits of fictional people to whom a certain value is important. Respondents will indicate on a six point scale ranging from 'very much like me' (1) to 'not like me at all' (6) (see Appendix 1 and 3). Convergent and discriminant validity of Schwartz's values have been supported in several countries.

Contraceptive attitude scale (CAS). Contraceptive attitude scale is a measure of attitudes towards the use of contraceptives in general as opposed to attitudes towards a specific type of contraceptive (Black & Pollack, 1987). The CAS comprises of 17 positively and negatively worded items where respondents will indicate agreement or disagreement. The possible responses are on a 5 point–scale from 5 (strongly agree) to 1 (strongly disagree). The scale can be completed in ten minutes. The reliability of the scale was very good r (166)=88p <001 (Black & Pollack, 1987). In this research, all reverse coded items on the original CAS were dropped because these are notorious in subsistence markets (Steenkamp & Burgess, 2002) and the inherent challenges of having too many items in maintaining unidimensionality (Bagozzi & Yi, 2012,p.16). Moreso, samples would have to be large enough or items are parcelled. The 6

items that captured clearly contraceptive attitudes, basing on qualitative research conducted prior to data collection, were used (see Appendix 1 and 3).

Unidimesionality and internal consistency of the CAS. The essence of validating marketing scales and constructs has been emphasized in literature as a pivot to advancing marketing science (Steenkamp & Van Trijp, 1991, p. 283). It follows therefore that the accuracy of information provided from a study partly relates to the psychometric properties of the instruments which were used. It is the existence of a single construct which is being represented by a number of items, in other words, the items as a set are all focused on the same construct. Unidimesionality for the Contraceptive Attitudes Scale was assessed using item-total correlations (Steenkamp & Van Trijp, 1991, p. 286). The CAS was supposed to measure a single construct; therefore a one factor loading was assessed from the six items that were selected from the original CAS. All six items were retained and the overall Cronbach's alpha was 0.739, which was acceptable.

Data analysis.

Common method variance (CMV).The current study was based on data collected using a questionnaire which was administered to rural women. The variables in the study are basically perceptual measures of ads, beliefs, values and attitudes. The variables were asked for on the same questionnaire. These characteristics, reflect that common method variance may affect results of the study in terms of creating a false internal consistency, measurement errors that are systematic and also understating or overstating relationships between variables (Chang, Van Witteloostuijn, & Eden, 2010, p. 178).

The following strategies, based on Podsakoff, Mackenzie, Lee and Podsakoff (2003), were employed to reduce common method variance in this research:

Ex ante strategies:

a) respondents were told to exclude their identity on the questionnaire and the presence of nursing sisters gave respondents confidence of confidentiality of their responses as earlier discussed. Respondents were informed that there are no right and wrong answers but there is need to just give true and accurate facts. This assurance would minimize respondents' apprehension and they would desist from giving responses that are just a yea say (Podsakoff et al., 2003, p. 888).
b) standard survey practices that reduce CMV were also implemented. The researcher eliminated ambiguity, vagueness and unfamiliar terms from the questionnaire through the preliminary qualitative focus group discussions as already explained (see., Podsakoff et al., 2003).

Ex post strategy:

a) CMV may occur where the model is too simple so much that it fits in the respondent's cognitive map or the respondent's theory in use (Chang et al., 2010, p. 180). The models for study 1 and 2 of this research are complex naturally, with structural relations and latent class model that were not common sense, but, are grounded in theory.

Confirmatory factor analysis.Anderson and Gerbing (1988) recommended a two-step approach to SEM; the measurement model and the structural model. A measurement model shows how the latent constructs are measured in terms of their indicators. Confirmatory factor analysis (CFA) to test the measurement model as well as convergent and discriminant validity

(Anderson & Gerbing, 1988, p. 411) was done for both datasets. This was meant to establish the model fit of the two datasets as a precondition for further analysis.

Fit indices. The degree of agreement between the proposed model and the relationships shown by the data collected reflected the goodness of fit. It is acknowledged that there are several goodness of fit indices and studies should use more than one indicator of goodness of fit (Bentler & Wu, 2002; Hair, Anderson, Tatham, & William, 1998). The plethora of fit indices available in literature are expected to be reported (Crowley & Fan, 1997) so as to produce a comprehensive report that touches on different issues of model fit. There is need to report the extent to which the data collected for a study 'fits' the system or network of relations modeled a priori. In structural equation modeling, Kline (2011) gives a list of indices that should be included and these are: chi square test, the RMSEA, the CFI and SRMR. Hooper, Coughlan and Mullen (2008b, p. 56) prescribe Chi square statistic, with its degrees of freedom and p value, RMSEA with its confidence interval, SRMR, CFI and any fit index that focuses on parsimony. The chi-squared statistic (X^2) is the most common fit index to assess the overall fit of the model. However, the use of the X^2 has a major weakness that it is affected by sample size. It follows therefore that additional fit indices were used in this research. Joreskog and Sorbom (1984)'s goodness of fit (GFI) and adjusted goodness of fit (AGFI) were also incorporated to augment X^2.

Measurement model.The measurement model serves a very important purpose of specifying the constructs and indicators that were eventually retained and used to test the proposed relations among constructs. Confirmatory factor analysis (CFA) becomes critical in determining the Unidimesionality of constructs in measurement scale validation (Anderson & Gerbing, 1988). CFA is also essential in determining the model fit of the measurement model before running the structural model as recommended by Anderson and Gerbing (1988). The first

step was also used to determine construct validity. The original measurement model comprised, a priori, of seven social axioms, which were: reward for application (6 items), social complexity (7 items), religiosity (6 items), social cynicism (4 items), fate control (7 items), Ubuntu (4 items), and ancestral relevance (3 items) and Contraceptive attitudes (6 items).

The results of the initial run of the measurement model were very poor in terms of model fit. All model fit indices were adverse, and modification indices indicated that an improvement to the model required dropping highly correlated items. Ancestral relevance was dropped as a factor on the measurement model due to poor factor loadings of the indicators in relation to the construct (Bagozzi & Yi, 2012,p.14). The final measurement model illustrated on figure 18, from Mplus version 7 postulates, a posteriori, seven factors structure (6 social axioms and contraceptive attitudes): (1) social cynicism (2) reward for application (3) social complexity (4) fate control (5) religiosity (6) Ubuntu (7) con traceptive attitudes. The CFA retained a total of 25 observable indicators.

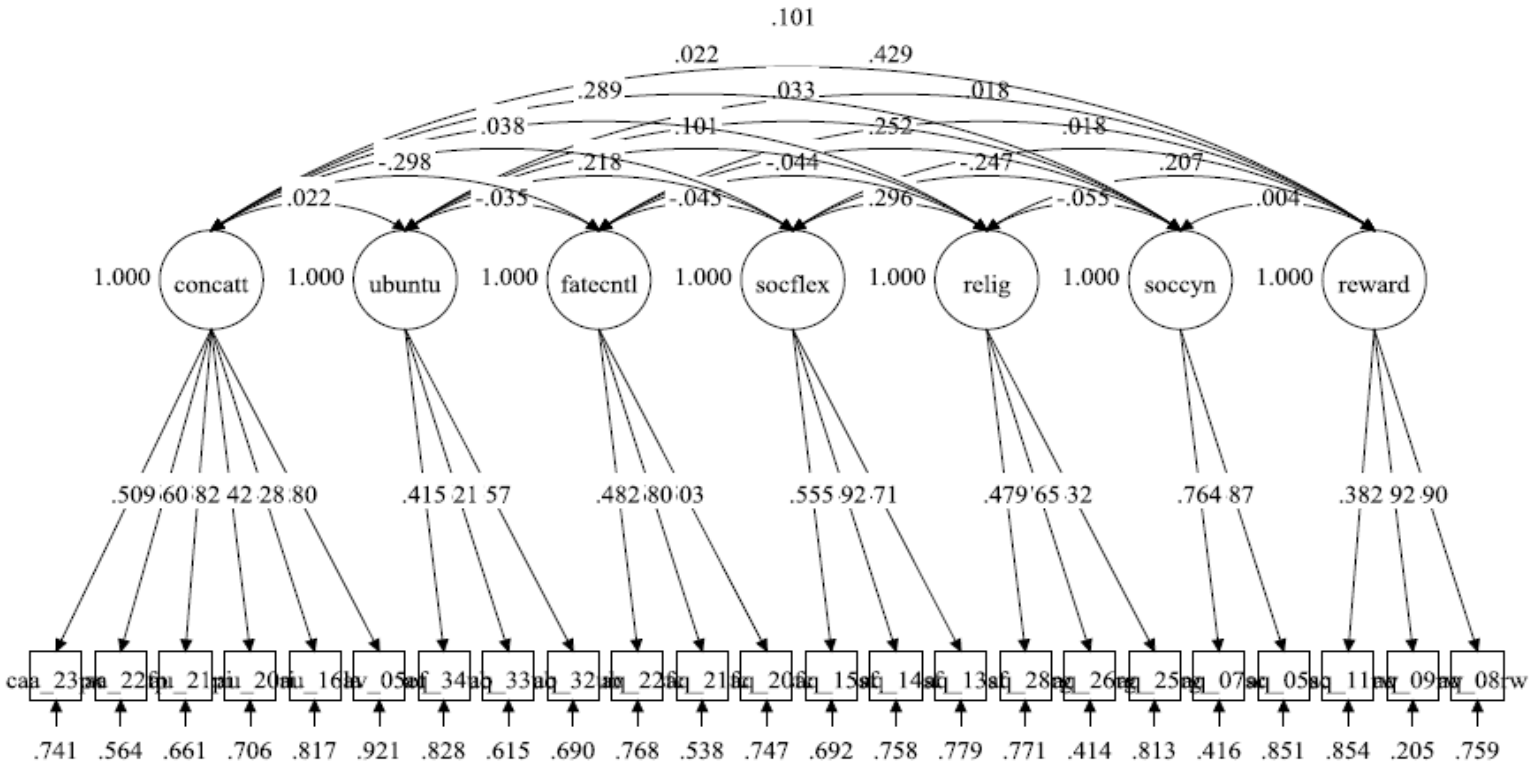


Figure 18. Measurement model for study 1.

Construct validity. Validity shows whether an instrument measures exactly what it purports to measure. As psychometric properties, reliability and validity are not completely independent. If an instrument is not reliable, then it cannot be valid. However, a reliable instrument can still be invalid. Therefore, it was imperative that after testing reliability, construct validity was tested also. Construct validity is in two parts, i.e. convergent and discriminant validity.

*Convergent validity***.**Convergent validity seeks to establish whether the items that were used to measure a construct are related. The items should reflect the construct, say the six items that were measuring contraception attitudes, should closely correlate since they are a family of items measuring attitudes towards contraception, same applies to items measuring Ubuntu and so on. Scholars advocate for higher values (e.g. Liang & Zeger, 1986) with the threshold being 0.7, but in reality, especially in subsistence markets, lower levels of 0.4 are considered adequate for explanatory studies such as the current study (Hulland, 1999). The remaining items had factor loadings above 0.4 (see Appendix 11).

*Discriminant validity.*Discriminant validity seeks to establish the distinctiveness of constructs. Separate constructs should be different from each other. The constructs should have weak correlations as a sign that they are not similar (Bagozzi & Yi, 2012, p. 18). The correlation coefficient should be less than 0.85 (Zainudin, 2012). The low correlations also show that there won't be multi-collinearity problem. The discriminant validity of the final model were within acceptable range and are shown on Appendix 12.

The final measurement model for study 1 is shown on figure 18, with contraception attitudes maintaining six items, Ubuntu three items, fate control three items, social complexity three items, religiosity three items, social cynicism two items and reward for application three items.

*Model fit for measurement model.*Model fit has been considered as a very important step in structural equation modeling (Yuan, 2005). The essence is to show the extent to which the model which has been specified fits the data (Bagozzi & Yi, 1988; Hooper et al., 2008b). Model

fit indices and their cut-off points or thresholds have been subject to conflicting information and debate over the years, with some scholars actually calling for not bothering reporting them (Barrett, 2007; McIntosh, 2007). It follows therefore that, there is no need to impose stringent threshold on such indices (Kenny & McCoach, 2003) especially considering the nature of research in emerging markets (Burgess & Steenkamp, 2006).

The model fit indices for the final model are shown on table 11. Chi-square was not acceptable but was close to the threshold. Chi square is known to be adverse especially where the model is complex and it is sensitive to sample size. Scholars recommend including various fit indices rather than relying on a single fit index (Anderson & Gerbing, 1988). Chi square should have insignificant p value for it to be acceptable. In this case the p value was significant and therefore not acceptable. However, the other fit indices were satisfactory for study 1. CFI and TLI was hovering on average 0.8 which were not exceeding the recommended 0.95 but these are acceptable in subsistence markets given the nature of such markets (Burgess & Steenkamp, 2006). RMSEA was well below 0.07 (Steiger, 2007). SRMR was at 0.055 yet the recommended cut off point is (Bentler & Bonett, 1980) less than 0.08 (see table 11). Therefore the model is acceptable.

Table 11

Model fit for measurement model-study 1

Model Fit Name	Threshold	
Chi Square Test		356.398
Degrees of Freedom		209

P Value	>0.05	0.000
CMIN/df	<3	1.705253585
RMSEA	<0.07	0.054
CFI	>=0.95	0.821
TLI	>=0.95	0.783
SRMR	<0.08	0.055

Improving model fit is always expected as a step which cannot be omitted in SEM because mostly models will be complex. So, having a poor fit is not surprising (Hooper, Coughlan, & Mullen, 2008a,p.56). Literature provides strategies that researchers may employ to try and improve model fit. The researcher also employed these strategies to fix model fit concerns. In this study, modification indices were the basis of the process (Bagozzi & Yi, 2012). Constructs and items were scrutinized and those with excessive modification indices were deleted iteratively checking whether there was an improvement to model fit. The final measurement model is shown on figure 18.

Smallest space analysis. In line with Schwartz (1992, p. 21) values were analyzed using similarity structure analysis (also called Guttman-Lingoes Smallest Space Analysis (SSA). SSA is a nonmetric method of analysis developed by Guttman (1968) and computerized by Lingoes(1965) . The method seeks to answer the question, on the smallest space which depicts the placement of empirical data captured. (Bloombaum, 1970, p. 409). In terms of values analysis using SSA, Schwartz (1992, p. 21) explained that values will be points in multi-dimensional space and the gap among these points shows similarity or difference between values.

The relative usefulness of interpreting SSA using configurational verification was well presented by Schwartz and Bilsky (1990, p. 890). Subsequently, configurational verification was the SSA interpretation approach which was used by Schwartz in his 1992 study which ushered

into literature the theory of human values at individual level of which the current study was anchored on. The configurational verification approach was used in the current study to test the value content and structure hypotheses and to verify whether all value types in Schwartz's theory are present in the rural women of Zimbabwe.

The value of stress for study 1 was a good fit at 0.06 (see table 12). Mair, Borg and Rusch (2016) elaborated that stress should be at the lowest value (0.000 is the perfect stress). The value of stress indices are the measure of goodness of fit statistic for multidimensional scaling. Kruskal (1964) noted the following cut-off guidelines: 0.200 is considered to be poor; 0.100 is considered to be fair; 0.050 is viewed as good; 0.025 is rated as excellent; and 0.000, is perfect. Schwartz (1992) recommended a threshold of 0.14 as indicating good fit.

The normalized raw stress for the dataset was 0.06032 which could be evaluated as acceptable.

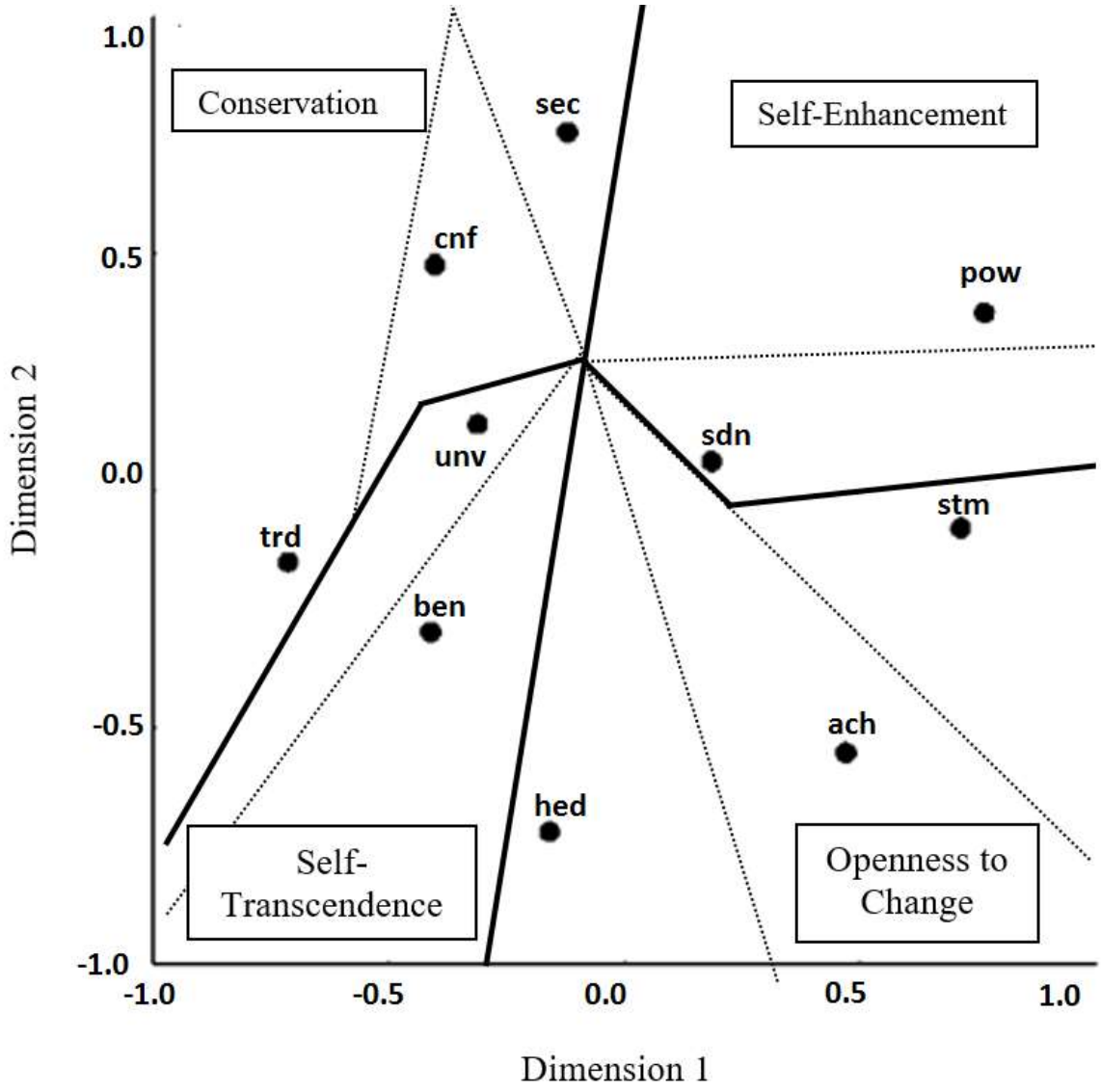


Figure 19. Value structure for Zimbabwe rural subsistence consumers in Study 1, two-dimensional similarity structure analysis (N=340).

Table 12

Multidimensional scaling of values for study 1

Multidimensional Scaling Final Configuration (Correlation Matrix) Final Configuration (Correlation Matrix) Stress = 0.06032 RSQ = 0.9427		
	Dimension	
	1	2
Self-direction	.184	.061
Stimulation	.712	-.080
Hedonism	-.161	-.720
Achievement	.469	-.554
Power	.762	.374
Security	-.122	.755
Tradition	-.715	-.152
Conformity	-.404	.475
Benevolence	-.412	-.299
Universalism	-.313	.139

The SSA for the dataset partially confirmed the circumplex structure in terms of the bipolar domains of self-transcendence and conservation versus self-enhancement and openness to change (see figure 19). Universalism and benevolence were in the same quadrant. Adjacent to these self-transcendence values were conservation values of conformity and security. However, tradition was almost in self-transcendence quadrant. Openness to change comprised the usual stimulation but also had achievement. Success and ambition was associated with openness to change in the subsistence marketplace and was in direct conflict with conservation values such as conformity.

Another interesting outcome was the closeness of hedonism to self-transcendence values of benevolence and universalism. This position was contrary to the circumplex of motivational value types as propounded by Schwartz. Hedonism is positioned in between openness to change

and self enhancement values. These results positioned hedonism under openness to change, far away from self enhancement values. According to Schwartz (1992) such deviations from the theoretical structure are expected in empirical research. Conformity and tradition were not really positioned as tradition being outside conformity but were basically in separate wedges contrary to the expected positions on the circular structure of values as theorized by Schwartz (1992).

Study 2

Sample. The second phase of data collection was done six months later from Mutare rural district. The villages, clinics and nursing sisters used for study 1 were different from those used for study 2. The nursing sisters administered 225 questionnaires to rural women randomly.

Participant characteristics. Study 2 had 225 respondents who completed questionnaires from five other clinics which were administered by a different team of nursing sisters manning these clinics. After filtering, 209 respondents remained. Most rural women who participated in the study were low income earners as 44% (83 rural women) with a monthly income equivalent to US$100 or less. The next level was income between US101 to US200, which had 23% and the cumulative percentage was 67%. The largest age group was 21 to 30 at 46%, followed by the 31 to 40 years which had 21% of the respondents. Almost 62% of the respondents attended high school or actually completed high school, signifying a high literacy rate. Half of the respondents were Pentecostals, 26% were apostolic and 18% were Catholics. More than half (55%) of the rural women who participated were married whilst 34% were not married. Basically the two datasets shared common characteristics with regards to low levels of income, above average literacy rate and having majority of participants who were married. In study 1 the largest religion was apostolic whilst in study 2 it was Pentecostals.

Poster ads design. A preliminary qualitative research through focus groups conducted by nursing sisters at a clinic in Honde Valley (Mutasa District in Zimbabwe) was done to determine the nature of contraceptive poster ads in terms of ads messages that would be considered as suitable by rural women and the models (persons) to appear on the ads. The aim was to design ads that were compatible to consumers' beliefs and values in the subsistence marketplace yet having variations on text and imagery. Thirty rural women were divided into groups of five and asked to describe a desirable public print ad message and models of their imagination. After fifteen minutes the groups were asked to present their ads to the whole group. Generally women participants suggested the need to depict their subsistence settings in ads so as to enable subsistence contraceptive consumers to associate and appreciate the relevance of the ad to them. This also included having typical subsistence women and men as ad models. Opinion was split on whether to also include subsistence male models on the ads.

Discussions and modifications were made and out of the suggested six ads, participants were asked to vote for the best four descriptions. The descriptions of the four ads were;

1) a rural woman holding a woman condom explaining the benefits of being in control as she can also put on her condom rather than relying with her male partner. The ad was designed to show a women traditionally dressed standing on the door step of a traditional house (thatched pole and dagga house) with eye contact (see appendix 3).
2) a rural woman on a gravesite of her late husband who could have avoided death if he had used condoms for protection against STIs/AIDS. The woman is kneeling to put some modern flowers on the grave. Her dressing is modern but there is no eye contact.

3) Some rural women sharing information on the various contraceptives they are using. The women are chatting in a field, no physical structures are shown and some have their children.
4) Some rural men advising each other to use contraceptives. They are sitting outside a traditional house. One of the men is holding a traditional drum. The man putting on a traditional head gear (implying a village elder or community leader such as a headman) seems to be dominating the discussion.

Volunteers from focus group participants were then selected to be models for the ads. Pictures were taken at nearby villages after following protocol. Male models for the fourth ads were villagers who consented to participate. The researcher then designed the four ads basing on the focus group discussions with minimum changes. All models appearing on the ads signed consent forms and were all rural people from Mutasa District in Zimbabwe (See Appendix 7 and 8).

Instruments. Study 2 had a questionnaire which comprised of;

1) Social axioms survey (SAS).
2) Portrait value questionnaire.
3) Contraceptive attitudes scale (CAS).
4) Demographics.
5) Four poster ads with questions adapted from attitudes towards the ad scale (Aad) (see appendix 3).

The first four were the same questions which were used in study 1. The reliabilities for contraceptive attitudes scale used was 0.648, fate control 0.604, religiosity 0.595, reward for application 0.622, social cynicism 0.50, social complexity

0.547, and Ubuntu 0.632. These reliabilities were moderate and acceptable taking into consideration the nature of subsistence markets (Burgess & Steenkamp, 2006; Taherdoost, 2016) as alluded to in study 1 above.

Attitude towards the ad scale (A_{ad}). The A_{ad} Scale adapted for this study was based on consumer evaluations of each advertisement (Mitchell & Olson, 2000; Shimp, 1981) which was in experimental design in the form of a post exposure questionnaire. The questionnaire included paired evaluative factors such as; 'good-bad', 'like-dislike,' 'irritating-not irritating,' interesting-uninteresting,' pleasant- unpleasant,' nice-awful' and so on. In this study the researcher designed four public print ads with pictorial and text messages (see appendix 3) that respondents were asked to evaluate with questions such as, 'looking at the advertisement, what would people like you think about the person and the message in the advertisement?' What they think about the person in the advertisement, was testing 'cognition source' and what they think about the message, was testing 'cognition message'. Respondents' feelings (affect ad) about the ad was measured by the question; 'how would the message make them feel?'

Data cleaning. Data screening for study 2 was consistent with the criteria described in study 1. The filtering formula was: *Compute filter_$= ((countmax<14|maxrep<11) & count5_6<14).* 35 respondents were filtered out of 225, remaining with 209 respondents, on the basis of the criteria described above.

Data analysis.

Confirmatory factor analysis. The measurement model for study two excluded ancestral relevance as a construct because of poor factor loadings as had been noted in study 1. The final measurement model therefore comprised of 3 items for social cynicism, 3 items reward for

application, 4 items social complexity, 3 items fate control, 3 items religiosity, 2 items Ubuntu, and 5 items contraceptive attitudes. These items had acceptable convergence validity as shown on figure 20 and Appendix 15.

Discriminant validity was also tested to show the differences in the remaining constructs. These were acceptable as shown on figure 20.

Model fit for measurement model. The model fit for study 2 had a poor chi square value with a significant p value just like in study 1. CFI and TLI were slightly below the minimum threshold of 0.95, and this was not bad given circumstances of rural women in subsistence marketplaces. CMIN/df, RMSEA and SRMR were all within acceptable range. The details of such fit indices are shown on table 13.

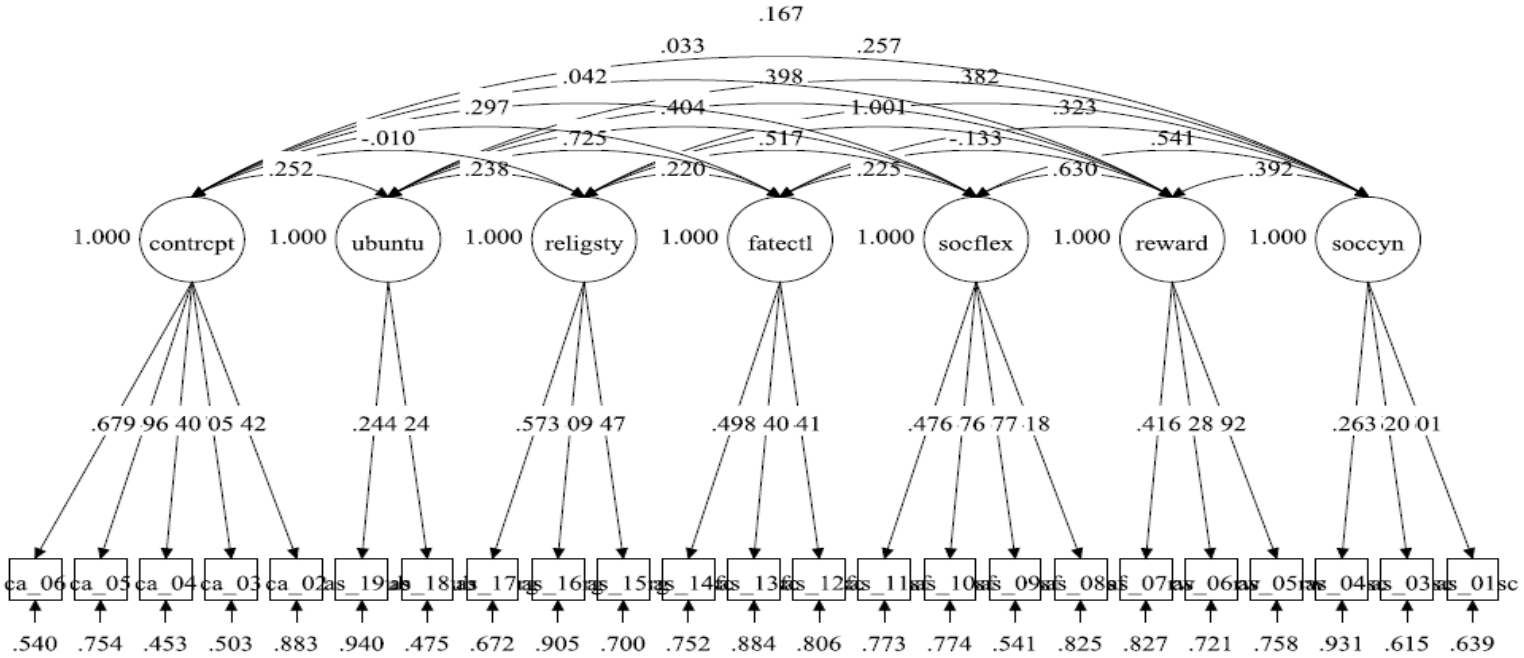


Figure 20. Measurement model for study 2

Table 13

Model fit for measurement model-study 2

Model Fit Name	Threshold	
Chi Square Test		275.905
Degrees of Freedom		209
P Value	>0.05	0.0013
CMIN/df	<3	1.3201196172
RMSEA	<0.07	0.054
CFI	>=0.95	0.864
TLI	>=0.95	0.836
SRMR	<0.08	0.064

Smallest space analysis. Basing on Schwartz's threshold (see study 1 above), the normalized raw stress index of 0.05192 was acceptable (see table 14). The stress value of 0.5 was even much better than the stress value for study 1. Borg, Bardi, and Schwartz (2017) noted that a stress value of zero is excellent and good stress index will be between 0 and 1.

In study 2, the circular structure was partly confirmed (see figure 21) in terms of the two major splits between conservation and self-transcendence versus openness to change and self enhancement. Conservation values of security, tradition and conformity had a clear quadrant. Opposing values for openness to change, that is, self-direction and stimulation were on the opposite quadrant. Benevolence and universalism were a bit dispersed but in the same quadrant. Hedonism was positioned under self enhancement bordering conservation values and clearly a distant away from openness to change values.

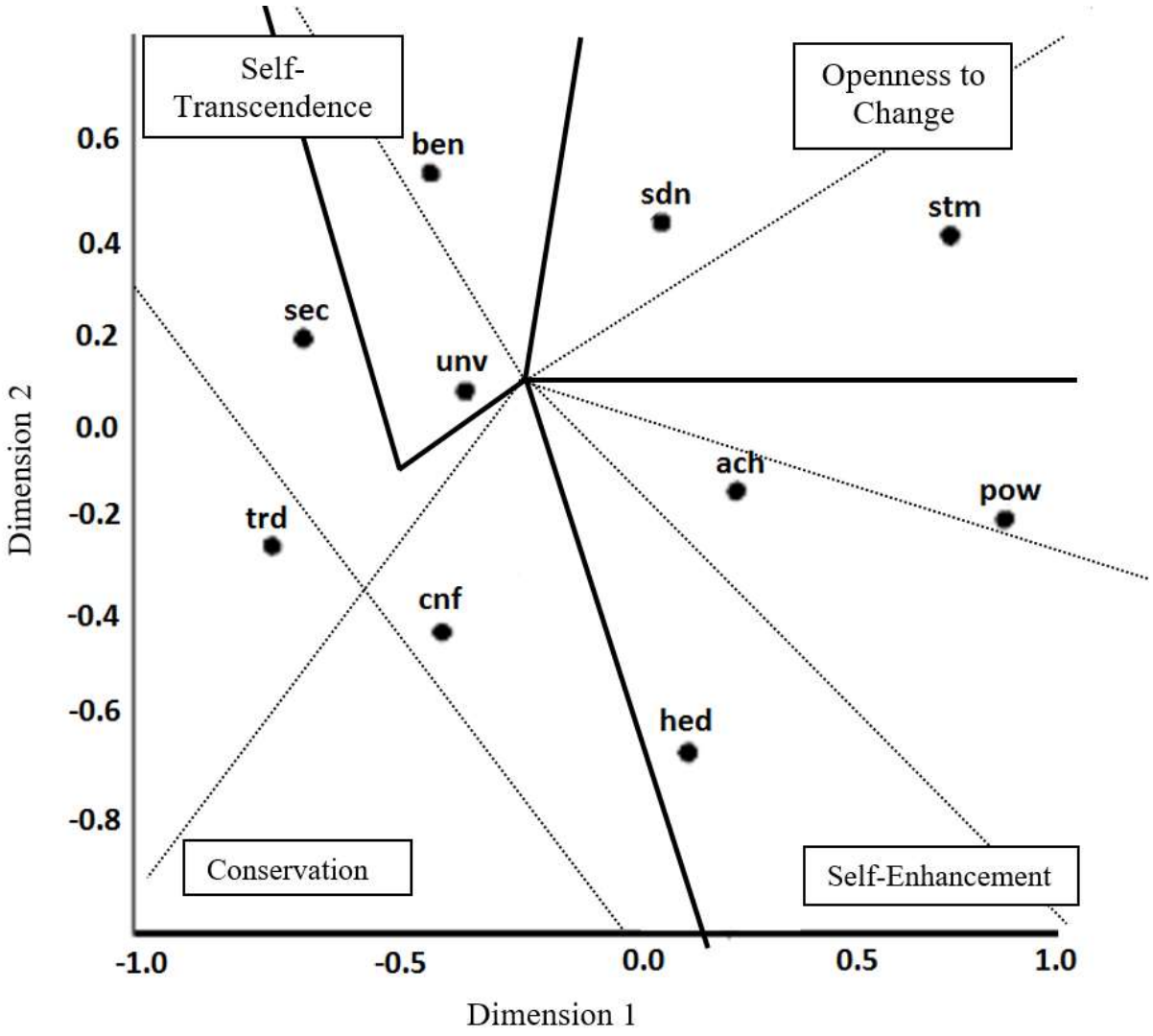


Figure 21. Value structure for Zimbabwe rural subsistence consumers in Study 2, two-dimensional similarity structure analysis (N=209).

Table 14

Multidimensional scaling of values for study 2

Multidimensional Scaling Final Configuration (Correlation Matrix) Final Configuration (Correlation Matrix) Stress = 0.05192 RSQ = 0.9423		
	Dimension	
	1	2
Self-direction	.143	.447
Stimulation	.771	.419
Hedonism	.202	-.700
Achievement	.309	-.073
Power	.879	-.230
Security	-.633	.196
Tradition	-.700	-.254
Conformity	-.332	-.440
Benevolence	-.357	.553
Universalism	-.282	.082

Ethical Considerations

A full ethical clearance was granted by the Medical Research Council of Zimbabwe (see Appendix 5 and 6 for full details and protocol documents) to confirm adherence to Zimbabwe Research statutes, the Helsinki declaration and accuracy of translations from English to Shona of research instruments and consent forms. Ethical clearance from the Zimbabwe Medical Research Council was obtained (Appendix 5) and this involved several steps (including Mutare District clearance (Appendix 6), culminating in a presentation to the full board of medical research experts representing National Medical Research Council of Zimbabwe. The Medical Research Council of Zimbabwe is a specialised council of the Research Council of Zimbabwe from the provisions of the Research Act of 1959. The act was followed by a Government Notice number 225 of 1974 in order to provide health academics, researchers and institutions with independent organisation overseeing ethical considerations on any studies done in

Zimbabwe. The Medical Research Council is the brain child of the Zimbabwe Government and it is run by the Health ministry. It is composed of scientists, medical experts, ethicists, lawyers and religious community representatives who provide independent reflection, advice and ethical decisions.

Academically, an ethical clearance was also granted by the WITS Medical School in South Africa (Appendix 5). Participants in the study were rural women aged 18 to 60 years, which was the egal age of majority in Zimbabwe, indicating that respondents were not minors. They participated at their own consent and they were asked to complete consent forms as prescribed by the Medical Research Council of Zimbabwe. Questionnaires translated into Shona were administered and no names were written on the questionnaires to ensure confidentiality of respondents (see Appendix 1 to 4). Research assistants were trained in cross-cultural best practices and were fluent in both English and Shona. Research assistants were women nursing sisters and health officers in rural clinics and health centres since respondents were rural women.

Chapter Summary

The methodology chapter focused on the research approach and the various methodological decisions that were made in terms of sample size, sampling process, prior qualitative research involving focus groups to get subsistence women's ideas on message and source concepts to include on the four poster ads and establishing face validity of questionnaires after back translation. Data was collected from subsistence women in two phases of repeated cross-sectional survey. The initial phase (study 1) was meant to establish the structural relations or effect of culture (values and social axioms) on contraception attitudes of subsistence women. A questionnaire was administered to 395 (340 remained after data cleaning) rural women in Mutare rural district, Manicaland province, in Eastern Zimbabwe. Six months later, the second phase (Study 2) of data collection was done in the same district but different respondents using a questionnaire which repeated the culture and attitudes items plus the four poster ads with questions on cognition source, cognition message and affect. Data was collected from 225 (209 remained after filtering) rural women (financial constraints restricted the number of respondents). Data was collected from rural clinics and health centers. In both phases, respondents were given a questionnaire to complete by women research assistants (nursing sisters and health workers at rural clinics and health centers) who had gone through training in cross-cultural best practices. The two datasets were subjected to confirmatory factor analysis to establish psychometric properties of measurement scales. Some items were dropped to improve scales internal consistency, discriminant and convergence validity. Ethical considerations were noted. The next chapter will give the study findings.

Chapter 5: Results

No one will dispute the right of any thinking man to deny acceptance of a statement until convinced by solid evidence.

-Blaikklock, The answer's in the Bible, 1978 p. 32

The current chapter provides evidence of the procedures and findings emanating from the research which was done in two studies. Study 1 tested the relations between culture (values and social axioms) and contraception attitudes using structural equation modeling. Study 2 sought to establish the heterogeneity in subsistence women's portrayals of the four poster ads perceptions using latent class modeling. The peculiar features of the heterogeneous segments and the homogeneity of within cluster aspects were analyzed in terms of values, social axioms and demographic profiles.

Study 1

Univariate statistics. The univariate statistics are shown in appendix 9 and these comprise of the mean, standard deviation, skewness and kurtosis. The mean for the 21 PVQ items was around 4 whilst social axioms had a mean around 3, and being based on a 5 point Likert scale, this meant that the respondents were more positive regarding the PVQ items than the social axioms. Nevertheless, the distribution of the data was largely negatively skewed and the kurtosis was invariably platykurtic.

Structural equation model. In line with the two step procedure in structural equation modeling (SEM), an analysis of the hypothesized relations was done (Anderson & Gerbing, 1984, 1988). Path analysis was carried out to test the relationships between the latent variables, that is, culture and contraception attitudes using Mplus v7. The two-step approach to structural equation modeling prescribed by Anderson and Gerbing (1988) was used and this entailed the running of the confirmatory

factor analysis first, prior to SEM. For the SEM analysis, the maximum likelihood (ML) estimation was used as this is known for being robust (Hair *et al.* 2010; Little, 2013). Having dropped ancestral relevance as a construct and some items as reported on the measurement model, the structural model which was assessed comprised of reward for for application, social cynicism, social complexity, fate control, Ubuntu, religiosity and contraceptive attitudes. The structural model had nine factors, namely; cultural factors (six social axioms and two bipolar for values as independent variables) and contraceptive attitudes as the dependent variable.

Analysis of hypotheses for study 1: Study 1 was focused on testing whether culture has a relationship with contraceptive attitudes among subsistence women. The study therefore sought to test hypotheses 1(a), 1(b), and 2a-f as presented in Figure 22.

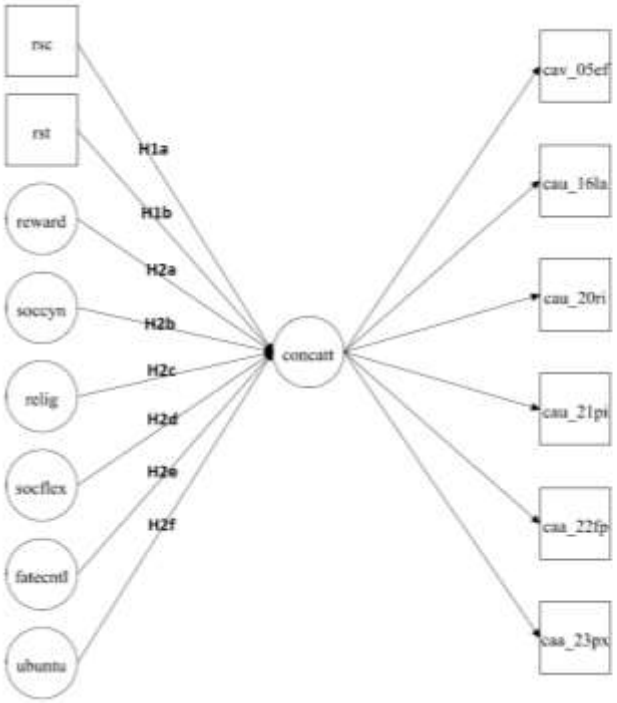


Figure 22. SEM–Tested Hypotheses for Study 1

As explained earlier, both Hypotheses 1 and 2 were tested using Mplus version 7. Among the two bipolar of values, one was supported and the other was insignificant whilst two social axioms had

significant path coefficients to contraceptive attitudes out of the six social axioms that were tested after dropping ancestral relevance. The tested structural model of relations using Mplus version 7 are illustrated on figure 23.

H_{1a}: *Resultant conservation has a negative relationship with contraception attitudes.*

The first hypothesis proposed that resultant conservation has a negative relationship with contraceptive attitudes. This hypothesis was not duly supported because the relationship was noted to be significant but it was not negative as had been hypothesised. The relationship between resultant conservation and contraceptive attitudes was positive. The standardised path coefficient was 0.202 and the p value was 0.006, and these were both significant. In other words, rural women who have high resultant conservation may also have positive contraceptive attitudes.

H_{1b}: *Resultant self enhancement has negative relationship with contraception attitudes.*

The examination of the relationship between resultant self enhancement and contraceptive attitudes was not supported completely since the path was not significant at all. The standardised path coefficient was weak at 0.108 and p value was 0.151. The relationship was also not negative as had been hypothesised.

H_{2a}: *Reward for application has a positive relationship with contraceptive attitudes.*

The hypothesis postulated that reward for application has a positive relationship with contraceptive attitudes. This hypothesis was not supported and it had the weakest path coefficient of 0.003 and an insignificant p value of 0.980. In other words reward for application and contraceptive attitudes are not related.

H_{2b}: *Social complexity has a negative relationship with contraceptive attitudes.*

The proposition that social complexity has a negative relationship with contraceptive attitudes was not supported. Although the path coefficient was negative at -0.119, it was below the threshold of 0.2 and the p value of 0.336 was insignificant (table 22).

H_{2c}: *Religiosity has a negative relationship with contraception attitudes.*

The proposed path between religiosity and contraceptive attitudes was significant, although the relations were noted to be positive. The path coefficient was 0.308 and the p value was 0.004. As a result rural women who are highly religious may also have positive attitudes towards contraceptives.

H_{2d}: *fate control has a negative relationship with contraceptive attitudes.*

The postulated negative relationship between fate control and contraceptive attitudes was well supported. The standardised path coefficient was above the minimum threshold at -0.288 and the p value was significant at 0.006. Consequently, the study confirmed that subsistence women who are high in fate control may have negative attitudes towards contraceptives.

H_{2e}: *Social cynicism has a negative relationship with attitudes towards contraception.*

The hypothesised negative relations between social cynicism and contraceptive attitudes were not supported. The link was positive rather than negative as had been proposed although the path coefficient was insignificant at 0.119 as well as the p value, which was 0.260. Hence, there is no relationship between social cynicism and contraceptive attitudes.

H_{2f}: *Ancestral relevance has a negative relationship with contraception attitudes.*

This hypothesis proposed that ancestral relevance has a negative relationship with contraceptive attitudes. However, basically the items which constituted ancestral relevance had very low loadings and were dropped to the extent that the construct was completely removed from the structural model. As a result, there is no relationship between ancestral relevance and attitudes towards contraceptives.

H_{2g}: *Ubuntu has negative relationship with contraceptive attitudes*

In this hypothesis, it was postulated that Ubuntu has negative relationship with contraceptive attitudes. This hypothesis was not supported. The standardised path coefficient was – 0.099 whilst the p value was insignificant at 0.421. The path was noted to be negative though not valid. As a result, there is no relationship between Ubuntu and contraceptive attitudes of subsistence women.

The highest regression coefficient observed was between religiosity and contraceptive attitude and the standardized regression weight was 0.308 whilst the unstandardized coefficient was 0.225. Fate control was the second and had a standardized regression coefficient of -0.288 whilst the unstandardized coefficient was -0.183. The third was resultant self-conservation with a standardized coefficient of 0.212 whilst the unstandardized coefficient was low at 0.082. These three constructs had standardized p-values less than 0.05. The regression coefficient for reward for application was the lowest at 0.003 standardized and 0.002 unstandardized coefficients. The other poor non-significant relations were on social cynicism with 0.119 and 0.095, social complexity -0.119 and -0.081, Ubuntu -0.099 and -0.054, and resultant self-transcendence 0.108 and 0.042 standardized and unstandardized respectively. Subsequently, the results for the hypotheses are presented in Table 15.

The internal consistency of the research constructs was determined by the composite reliability (CR). The minimum acceptable threshold for the composite reliability is 0.70 (Hair Jr, Matthews, Matthews, & Sarstedt, 2017). The results in Table 16 below show that the minimum composite reliability was $CR_{socflex}$= 0.751 and the other composite reliability statistics were all greater than 0.70. This shows the research constructs were internally consistent and, therefore, reliable. On the other hand, convergent validity was determined by the Average Variance Extracted (AVE). From the outcome, all the AVEs were greater than the prescribed minimum of 0.50 (Kline, 2015) and this shows that there was no violation in the convergent validity. Lastly, the Heterotrait-Monotrait (HTMT) ratio was calculated and the results in Table 16 show that none of the statistics was greater than the maximum prescribed 0.85

(Hair *et al.,* 2017). In this respect, it follows that the discriminant validity was not violated. Overall, the foregoing does confirm that both the construct reliability and construct validity were not violated.

Table 15: *Structural relations-study 1*

	Unstandardized				Standardized			
Indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
CONCATT ON								
REWARD	0.002	0.070	0.025	0.980	0.003	0.110	0.025	0.980
SOCCYN	0.095	0.085	1.121	0.262	0.119	0.106	1.127	0.260
RELIG	0.225	0.114	1.963	0.050	0.308	0.106	2.893	0.004
SOCFLEX	-0.081	0.087	-0.932	0.351	-0.119	0.123	- 0.961	0.336
FATECNTL	-0.183	0.079	-2.315	0.021	-0.288	0.104	-2.761	0.006
UBUNTU	-0.054	0.066	-0.824	0.410	-0.099	0.123	-0.804	0.421
CONCATT ON								
RSC	0.082	0.036	2.314	0.021	0.212	0.077	2.739	0.006
RST	0.042	0.033	1.265	0.206	0.108	0.075	1.437	0.151

Table 16: *Reliability and Validity-study 1*

	CR	**AVE**	**MSV**	**MaxR(H)**	REWARD	SOCCYN	RELIG	SOCFLEX	FATECNTL	UBUNTU	CONCATT
REWARD	0.781	0.797	0.410	0.752	**0.947**						
SOCCYN	0.885	0.814	0.305	0.885	0.321***	**0.956**					
RELIG	0.827	0.825	0.407	0.818	0.123**	0.373***	**0.962**				
SOCFLEX	0.751	0.894	0.501	0.769	0.104*	0.269***	0.638***	**0.946**			
FATECNTL	0.792	0.793	0.501	0.783	0.039	0.362***	0.616***	0.708***	**0.95**		
UBUNTU	0.846	0.820	0.399	0.886	0.579***	0.552***	0.271***	0.058	0.077†	**0.959**	
CONCATT	0.813	0.722	0.410	0.787	0.640***	0.483***	0.275***	0.213***	0.156***	0.632***	**0.960**

† $p < 0.10$; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

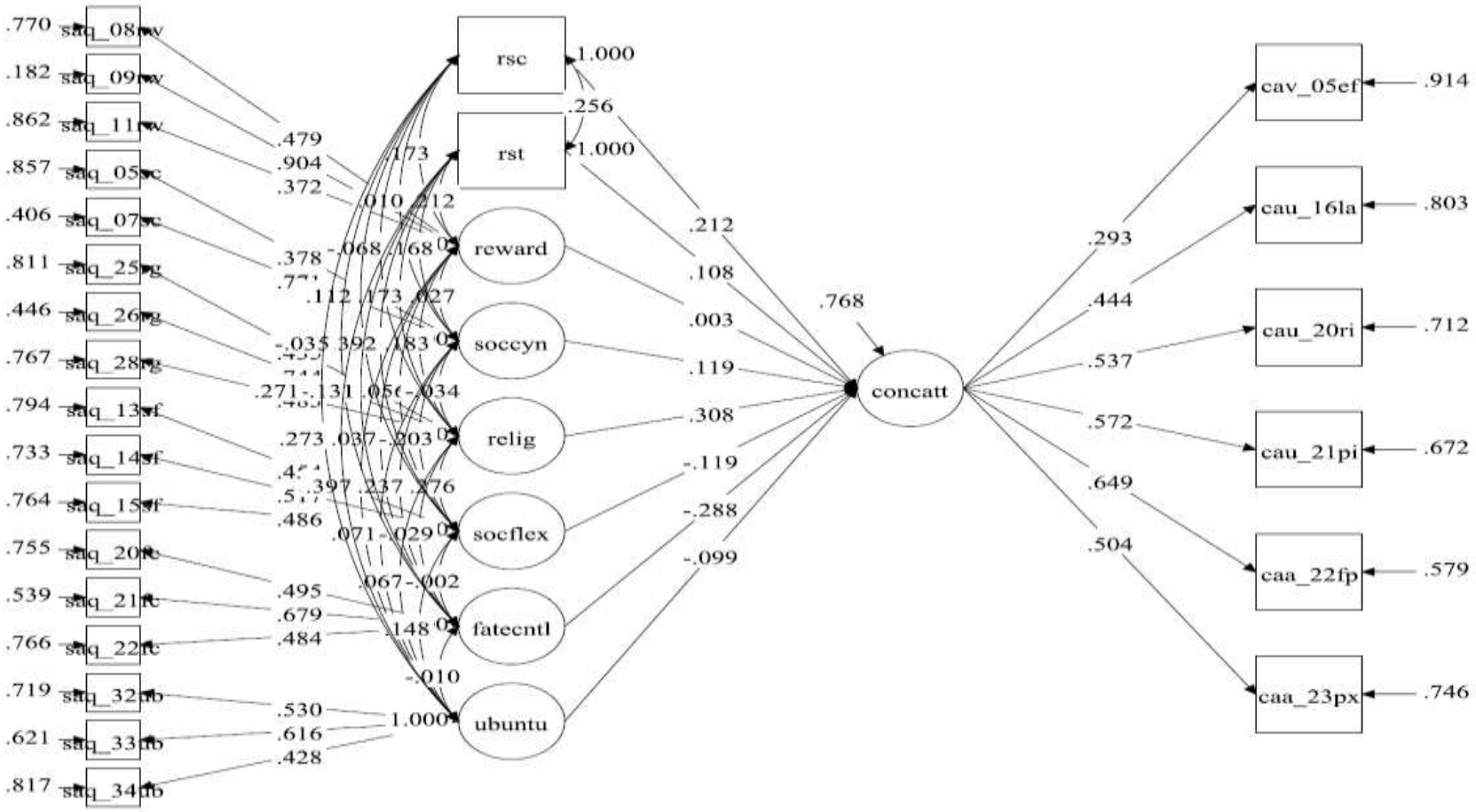


Figure 23. The tested structural model of relations for study 1

Model fit for the structural model. The final model fit indices for the structural model for study 1 are shown on table 17. Chi square, CFI and TLI indices were not acceptable. On absolute fit measures, SRMR was acceptable using a cutoff point of less than 0.08 (Hu & Bentler, 1999). Chi-square/ degree of freedom was also acceptable since the threshold considered was less than 3.0. Comparative fit measure which was acceptable was RMSEA at 0.060 compared with the threshold of 0.07 (Steiger, 2007). Considering the subsistence marketplace argument and the intrusiveness of contraception in such markets, these fit indices are acceptable.

Table 17: *Model fit indices on structural relations hypothesized in study 1*

Model Fit Name	Threshold	
Chi Square Test		470.841
Degrees of Freedom		243
P Value	>0.05	0.000
CMIN/df	<3	1.937617284
RMSEA	<0.07	0.060
CFI	>=0.95	0.761
TLI	>=0.95	0.705
SRMR	<0.08	0.063

Study 2

Univariate statistics. Univariate statistics for study 2 also had a mean which was around 4. Most values and social axioms were negatively skewed whilst kurtosis did not show any clear pattern for the values and social axioms items (see appendix 10).

Latent class modelling. This section presents results of latent classes existing in Zimbabwe rural consumers' advertising perceptions. The latent classes were based on the four ads designed by the researcher through focus groups comprising of subsistence marketplace consumers. The ads were therefore expected to be compatible with the nature of subsistence marketplaces. The indicators of the latent class model were responses to message source, message cognition and message feelings. The covariates were values (divided into two major bipolar according to Schwartz's theory of human values (Schwartz, 1992): resultant conservation and resultant self-enhancement) , social axioms (social complexity, reward for application, social cynicism, fate control, religiosity and Ubuntu), contraceptive attitudes and socio-demographic profiles (income, method of contraception, future use. Age and education) as illustrated on figure 24. Results presented are based on output from Latent Gold version 5.0.

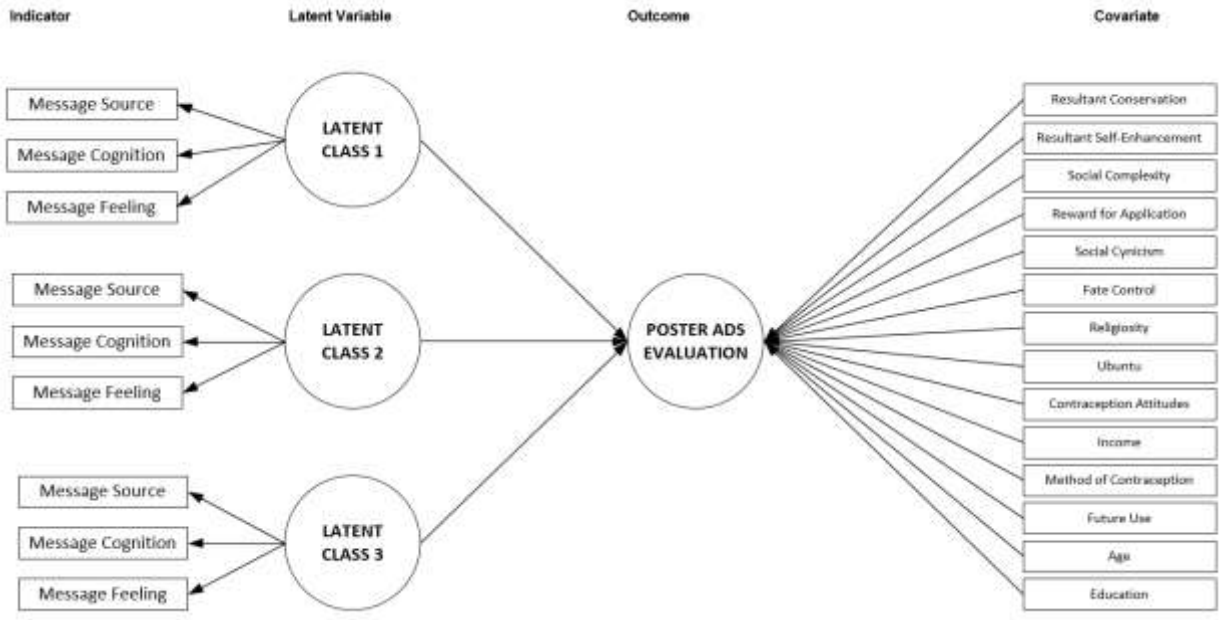


Figure 24. Latent class model for Zimbabwe rural subsistence consumers' responses to public health poster ads in Study 2.

The sample size for the second dataset in study 2 was 225 respondents of which 209 remained after filtering to remove careless respondents. The major limiting factor leading to the small size of 209 respondents were financial constraints. There is no minimum threshold on the number of respondents to be included but just as discussed under SEM; a big sample size is preferred. McBride (2011) stipulates that the sample size should be N>100. Nylund-Gibson and Choi (2018) suggested N=300 to 1000 as a common range basing on the studies they analyzed. Basically the number of indicators and classes influence the optimum sample size for a study.

Latent models do not have stringent assumptions such as the need for normal distribution and linearity. Moreso, latent class analysis accommodate various types of data; ordinal, categorical, continuous etc in a single analysis (Vermunt & Magidson, 2002). There were no prior researches to base on the possible number of groups therefore latent class analysis was essentially exploratory (Muthén & Asparouhov, 2002). The process involved starting with a 1 class model and then increasing the number of classes until a best fitting model was identified (Nylund-Gibson & Choi, 2018).

Theoretical basis of model selection. With a view to testing the validity of the latent class models, the researcher considered several model fit indices and the major ones included the Akaike Information Criterion (AIC), Bayesian information criterion (BIC), sample-adjusted Bayesian information criterion (SABIC), Integrated Classification Likelihood with Bayesian Information Criterion (ICL-BIC), Consistent Akaike Information Criterion (CAIC), Entropy, CLC, AWE and the ICL-BIC (Akaike, 1973; Rissanen, 1978).

Lukociene and Vermunt (2010), who studied the performance of model selection fit indices for binary data, as in this study, established that BIC and CAIC were the most robust where there was a large separation between the clusters while AIC was optimal where there was

less separation. Further, among BIC, AIC, AIC3, AIC, CAIC, NEC, NEC1, NEC2, CLC, and ICL-BIC, the normalized entropy criterion emerged as the key test and was more significant where there was a small sample.

In all the above cases, while researchers fall back to the BIC as a rule of thumb (Nylund, Asparouhov, & Muthén, 2007), what is important to note was that there was no coherence in the findings by the scholars critiquing the use of BIC and that their findings tended to differ depending with the various factors emerging from the data. According to Borden *et al* (2014), the BIC and SSA-BIC are only significant up to five clusters, while VLMT-LRT would be ideal for comparing one cluster with two and that the entropy was optimal at 2 to 3 clusters. Gomez *et al* (2014) argued that the BIC and entropy were optimal at the 3 class solution, while the SSA-BIC was optimal at the 4 class solution. Other studies such as Bauer and Curran (2003) looked into the distribution properties and confirmed that AIC, BIC, and CAIC were less robust in cases where the distribution was less normal, and that ICL-BIC would be the optimal index. McLachlan and Peel's (2000) further chose ICL and ICL-BLC as the optimal in contrast to AIC and BIC both of which overestimated the number of classes.

In light of these diverse findings, the researcher was not confined to one particular model fit index, but considered all the model fit indices. Owing to the differing schools of thought, the researcher further considered the interpretability of the cluster solution to justify the cluster selection as was also done by Borden *et al*., (2014), Grunschel, Patrzek and Fries (2013), Mokros et al. (2015), Morin *et al*. (2011) as well as Pastor, Barron, Mille and Davis (2007). Effectively, model selection tends to be highly subjective and thus not a standardized process (Li, Gong, & Xiang, 2008; Nylund et al., 2007; Yang & Yang, 2007). For this study, the researcher considered that some fit indices tend to overestimate the number of clusters (such as AIC) and

some to underestimate (such as BIC), and when they produce coherent results, this provided supportive evidence toward the selection of the model. However, in cases where there were divergent, the quality of all other indices as well as interpretability were considered as recommended by Borden *et al*. (2014) and Gomez, Gomez, Winther and Vance (2014). The subsequent findings are presented in Appendix 18 and 19. For each of the model fit indices, the best two were selected for all the four ads

Latent class model fit overview of the four ads. Appendix 19 shows the log likelihood fit indices for the four ads from 1 cluster to 4 cluster models. Chi square fit indices for the four ads are shown on appendix 18. BIC for Ad 1 had the 2 cluster model as the lowest with a model fit of 3,926.38, followed by the 3 cluster model with a model fit of 3,960.587. For Ad 2, BIC also had the 2 cluster model as the lowest model fit of 4,421.08 and the 3 cluster model followed at 4,471.69. BIC for Ad3 deviated from the order of Ad 1 and 2, with the lowest BIC model fit being for the 2 cluster model followed by the 1 cluster model at 3,510.31 and 3,527.34 respectively. Ad 4 maintained the order where the lowest BIC was for 2 cluster model (3,673.63) and 3 cluster followed (3,704.92). BIC (L^2) preferred the 2 cluster model followed by the 3 cluster model (see Appendix 19).

AIC model fit indices had the 4 cluster model as the cluster with the lowest model fit throughout the 4 ads followed by the 3 cluster model (see Appendix 19). AIC (LL) maintained the 4 cluster model as the lowest and followed by the 3 cluster solution except for Ad 4 where the 3 cluster model was actually the lowest. L^2 had the 4 cluster model as the lowest model fit followed by 3 cluster model (see Appendix 19). AIC (L^2) and AIC3 (L^2) largely favored the 4 cluster model followed by the 3 cluster model. CAIC (L^2) did not have a clear pattern across the Ads. The trend on model fit indices was apparent that the race was a toss between 3 cluster and

4 cluster solutions. Having noted the lack of a clear cut indication on the optimum cluster, there was need to consider number of parameters and p values between the two competing clusters. The 3 cluster model had 93 to 94 parameters across the four Ads whereas the 4 cluster model had 129 to 130 parameters across the four Ads. On the basis of number of parameters, the 3 cluster model was the preferred model which was 36 parameters lower than the 4 cluster models across the four Ads. P values were also considered in determining the best model. The 3 cluster model had the highest p values across the 4 Ads; Ad1 e-644, Ad 2 e-752, Ad3 e-554 and Ad 4 e-591 (see Appendix 19). Other factors were considered in determining the optimal classes of which there was need to be consistent across the 4 ads. The 3 cluster solution featured in almost all indices among the lowest two. It was the most consistent cluster (see the asterisks for the lowest two clusters on Appendix 19). Therefore, taking into consideration model fit indices, number of parameters, p values and interpretability of latent classes inclusive, the 3 cluster models were considered to be optimum in this study.

In the next sections I report results for ad 1 to ad 4 according to Latent Gold version 5 output on model fit indices, classification statistics, parameter and covariates statistics and cluster profiles.

Ad 1. The ad depicted a rural woman on the door step of a thatched rural hut holding a female condom and communicating her advantage in having a female condom which she can decide to wear when having sexual intercourse rather than relying on her male partner (see Appendix 3). A comparison of the 2 class, 3 class and 4 class models shows that the 2 class model had a lower BIC and CAIC whereas the 4 class model had the lowest AIC, L^2 and degrees of freedom (see Table 18). The 3 class model was consistently moderate or rather very close to

the lowest on all fit indices and degrees of freedom. Hence the 3 class model was the optimum solution.

Table 18 : *Model fit indices for Ad 1*

	BIC	AIC	CAIC	L^2	df	p-value
Class 1	2866.30	3491.32	2679.30	3865.32	187	0.00
Class 2	2809.83	3314.52	2658.83	3616.52	151	0.00
Class 3	2844.04	3228.41	2729.04	3458.41	115	0.00
Class 4	2921.81	3185.86	2842.81	3343.86	79	0.00

Note: N=209. A bootstrap model comparing 2-class,3-class and 4 class model, p < .001. Entropy= .90

The 3 cluster model had 147 rural women in cluster 1, 41 in cluster 2 and 21 in cluster 3 giving a total of 209 respondents (see Table 19) after screening for quality of responses basing on the procedure recommended by Schwartz as explained in the previous chapter.

Table 19 : *Ad1 Classification Statistics for 3 cluster model*

Classification Table	Modal			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	144.73	3.30	0.43	148.46
Cluster2	1.30	37.70	0.00	39.00
Cluster3	0.97	0.00	20.57	21.55
Total	147.00	41.00	21.00	209.00
Classification Table	Proportional			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	143.69	3.51	1.26	148.46
Cluster2	3.51	35.48	0.00	39.00
Cluster3	1.26	0.00	20.29	21.55
Total	148.46	39.00	21.55	209.00

Classification errors were 0.0287; meaning that chances of a rural woman being misclassified were a paltry 3%. However, covariates were not as accurate with 27% chance that misclassification would occur. The basic threshold would be to have classification errors of almost 0 (Vermunt & Magidson, 2015,p.112). The membership into clusters was presumed to be accurate given the 90.15% reduction of errors (lambda), 89.59% entropy R squared and

89.90% standard R squared. Covariates were relatively low with reduction errors of 5.75%, entropy R squared of 16.17% and standard R squared of 12.98% (see Table 20).

Table 20 : *Ad1 Classification Errors and R squared for 3 cluster model*

Classification Statistics	Clusters	Covariates
Classification errors	0.03	0.27
Reduction of errors (Lambda)	0.90	0.06
Entropy R-squared	0.90	0.16
Standard R-squared	0.90	0.13
Classification log-likelihood	1746.48	
Entropy	17.27	
CLC	3492.95	
AWE	4779.31	
ICL-BIC	3995.13	

On parameters, the three questions on (i) ad message (what would people like you think about the person (ii) message (They would think the message is), (iii) message feelings (how would this message make them feel?) had significant p values of less than 0.05 (see Appendix 20).

This implies that these items were included in the description of cluster profiles. For covariates on culture constructs (values and social axioms), demographic data (income, age, education, and future intention) and contraceptive attitudes, only religiosity (p value was 0.0210) and contraceptive attitudes (p values 0.0057) had significant p values. It was noted using paired comparisons that cluster 1 and cluster 2 would be differentiated by religiosity, inter alia, with a significant p value of 0.0250 (see Appendix 17). Cluster 2 and 3 could be differentiated using religiosity given a p value of 0.0077 which was significant.

Cluster 1 and 3, however, were not differentiated by religiosity given the insignificant p value of 0.1700. Paired comparisons on contraceptive attitudes noted cluster 1 and 3 to be distinguishable using contraceptive attitudes as the p value was significant (0.0110). This was

also true for comparison between cluster 2 and 3 using contraceptive attitudes (p value 0.0023). Cluster 1 and 2 had a marginally insignificant p value of 0.0800. It follows therefore that, Ad 1 cluster profiles were presented on religiosity and contraceptive attitudes only (see Appendix 20).

Cluster profiles for Ad 1.

Cluster 1. This cluster had 147 respondents who rated the ad source (person conveying the ad message) as credible (68.56%). Some respondents thought the woman holding a female condom was trendy (36.91%). Clearly the cluster did not rate the woman as promiscuous (7.44%) and unattractive (3.36%).

The message 'even if my partner does not put on a male condom, I will always put on mine' and 'female condoms give women the right to make a decision' were considered in cluster 1 as informative (93.58%) and understandable (65.60 %). The message evoked a feeling of being pleased (80.66%) and they would spare time to read the ad (83.25%).

Cluster 1 was low in religiosity given that the lower categories of 1 to 9 had 65.66% of the 147 respondents in this cluster. This cluster did not have a clear-cut pattern on contraceptive attitudes as responses were almost evenly distributed across the categories (see Appendix 20).

Cluster 2. There were 41 rural women in this cluster. The message source was rated as attractive (98.31%) and credible (99.45%). They viewed the message as interesting (82.58%) and informative (97.04%). The respondents were excited about the message (98.90%) and they would spare time to read the advertisement (97.91%). Cluster 2 was very high in religiosity as categories 8 to 11 had 79.03% on religiosity. On contraceptive attitudes, higher categories from 15 to 24 summed up to 82.80% indicating positive attitude towards contraceptives.

Cluster 3. The message source was rated as promiscuous (64.01%). Majority thought the message was inappropriate (46.91%) and unacceptable (24.12%), therefore more than 70% of the respondents did not appreciate the message. They felt the message would lead to distress and misery. Most respondents in this cluster would not waste their time to read such a message. Most of these respondents had low scores on religiosity given that the lower categories 1 to 9 had 90.82 %. Their contraceptive attitudes were also negative as 70.91 % were in the lower categories.

The summary of the cluster features are shown on Table 21 and the cluster plot on figure 25.

Table 21 : *Ad1Cluster Descriptors*

	Message Source	Message	Message Feeling	Religiosity	Contraceptive attitude
Cluster 1	Credible	Informative and understandable	Pleased	Low	mild
Cluster 2	Attractive and credible	Interesting and informative	Excited	High	positive
Cluster 3	Promiscuous	Inappropriate	Distressed	Low	negative

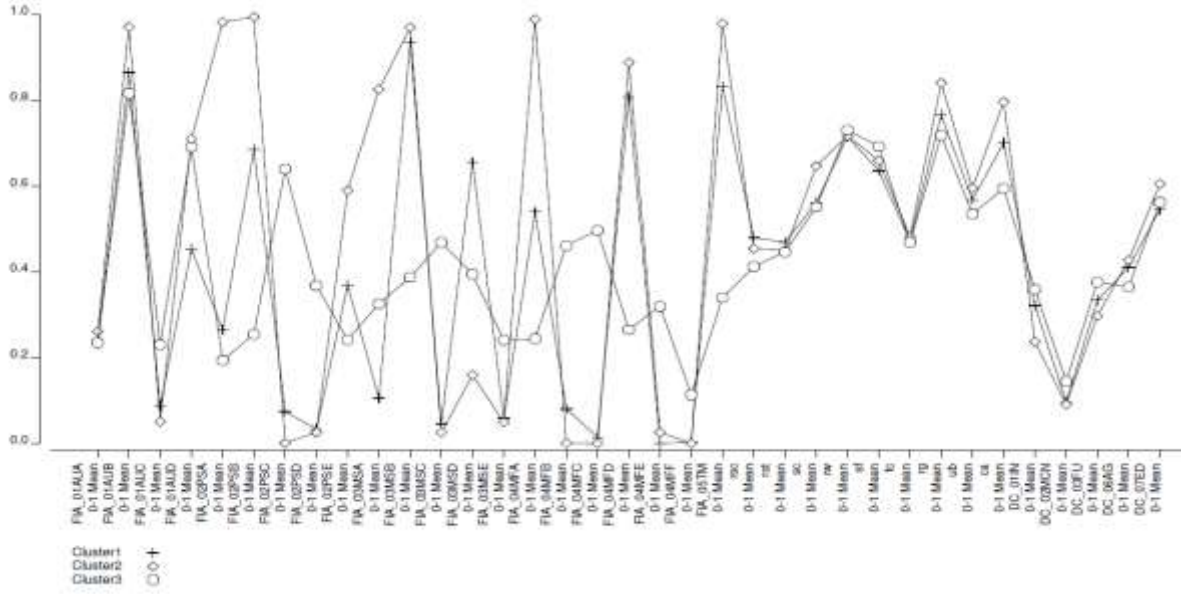


Figure 25. Ad1 3 Cluster Plots

Ad 2. The second ad depicted a rural woman kneeling on the grave of her late husband who died of STI related disease and she was saying that the death could have been avoided by using condoms (see Appendix 3). The model fit indices for ad 2 were compared among the 2 class, 3 class and 4 class models. The 3 class model was superior to the 2 and 4 class models because it maintained its consistency in all fit indices and degrees of freedom, being close to the lowest in all cases (see Table 22). The 2 class model had only a lower BIC and CAIC whilst the 4 class model had lowest L^2, and AIC but highest BIC and CAIC.

Table 22 : *Model fit indices for Ad 2*

	BIC	AIC	CAIC	L^2	df	p-value
Class 1	3458.90	4087.26	3270.90	4463.26	188	0.00
Class 2	3304.53	3812.57	3152.53	4116.57	152	0.00
Class 3	3355.14	3742.85	3239.14	3974.85	116	0.00
Class 4	3412.87	3680.26	3332.87	3840.26	80	0.00

Note: N=209. A bootstrap model comparing 2-class,3-class model and 4 class model, p < .001. Entropy= .91

The three cluster model comprised of 127 rural women making up cluster 1, 69 for cluster 2 and 13 for cluster 3 totaling 209 respondents (see Table 23).

Table 23 : *Ad2 Classification Statistics for 3 cluster model*

Classification Table	Modal			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	124.58	2.54	0.00	127.11
Cluster2	2.39	66.22	0.26	68.87
Cluster3	0.03	0.24	12.74	13.01
Total	127.00	69.00	13.00	209.00
Classification Table	Proportional			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	123.28	3.79	0.05	127.11
Cluster2	3.79	64.67	0.42	68.87
Cluster3	0.05	0.42	12.55	13.01
Total	127.11	68.87	13.01	209.00

Classification errors were again minimal at 3% for parameters but covariates had 34% chances of misclassification of respondents. The classes were noted to be accurate in terms of membership with 93.35% reduction of errors, 90.99% entropy R squared and 92.16% standard R squared. Again covariates were rated poorly with 12.35% reduction of errors, 13.37% entropy R squared and 13.78% standard R squared (see Table 24).

Table 24 : *Ad2 Classification Errors and R squared for 3 cluster model*

Classification Statistics	Clusters	Covariates
Classification errors	0.03	0.34
Reduction of errors (Lambda)	0.93	0.12
Entropy R-squared	0.91	0.13
Standard R-squared	0.92	0.14
Classification log-likelihood	-2003.04	
Entropy	15.89	
CLC	4006.08	
AWE	5278.76	
ICL-BIC	4502.92	

On parameters, the three main questions on ad source, ad message and affect had significant p values just like in Ad 1(see Appendix 21). On covariates, three social axioms namely; social cynicism, social complexity and Ubuntu had significant p values of 0.0230, 0.0040, 0.0350 respectively (see Appendix 21). Method of contraception used had a significant p value of 0.0200. Using paired comparisons, social cynicism had a significant p value of 0.0170 in separating cluster 1 and 3 (see Appendix 17) and the difference in cluster 1 and 2 had a borderline insignificant p value of 0.0640. Social cynicism could not be used to distinguish between cluster 2 and 3 as the p value was insignificant at 0.2000. Social complexity was also instrumental in separating cluster 1 and 2 (p value was 0.0230) and cluster 1 and 3 (p value was 0.0046) but not as such in differentiating cluster 2 and 3 (p value was 0.2100). Ubuntu was

significant in separating cluster 1 and 2 (p value was 0.0240) but not significant on differentiating cluster 1 and 3 and cluster 2 and 3. Method of contraception used separated cluster 1 and 2 (p value was 0.0070) only, because the other pairs had insignificant p values (see Appendix 17).

Cluster profiles for Ad 2.

Cluster 1. This cluster had 127 respondents. They rated the woman kneeling on the grave as credible (75.41%) and attractive (49.81%). The message; 'had he known, he could have used condoms, now he is dead because he was infected with a deadly STI', was rated by rural women in cluster 1 as informative (90.59%) and understandable (60.20%). Most of these women in cluster 1 were pleased (89.92%) with the message (see Appendix 21). Almost 50% of the respondents were high in social cynicism but they had low scores on social complexity as most of their responses (69.85%) were in the lower categories 1 to 11. These women also had low scores on Ubuntu and 86.73% indicated the use of birth control pills (see Appendix 21).

Cluster 2. This cluster had 69 rural women. They rated the kneeling woman as credible (74%). The respondents were almost unanimous that the message was informative at 99.94%. However, the respondents felt that the message would make them feel distressed and miserable. The cluster did not have a discernible pattern on social cynicism as their responses were evenly spread across the five categories, averaging 17 to 20 % per category. However, social complexity was high in this cluster with 63.38% in higher categories, confirming positive responses on social complexity. The cluster had the biggest group of respondents who were high

in Ubuntu but they were spread in all categories. More than 90% of the respondents in this cluster indictaed that they used birth control pills.

Cluster 3. The cluster comprised of just 13 rural women. They rated the message source as promiscuous (80.67%). They also viewed the message as inappropriate and unacceptable (60.22% and 60.83% respectively). These respondents were indecisive on social cynicism as depicted by having the majority of their ratings on the central or middle categories. However, the respondents were high in social complexity and Ubuntu (68.36%). Their common contraception method was birth control pills (more than 90%).

A summary of the cluster features are shown in Table 25 and figure 26.

Table 25 : *Ad2 Cluster Descriptors*

	Message Source	Message	Message Feeling	Social Cynicism	Social Complexity	Ubuntu	Birth Control Pill
Cluster 1	Credible and attractive	Informative and understandable	Pleased	High	Low	Low	High
Cluster 2	Credible	Informative	Distressed	Evenly spread	High	High	High
Cluster 3	Promiscuous	Inappropriate	Distressed	Indecisive	High	High	High

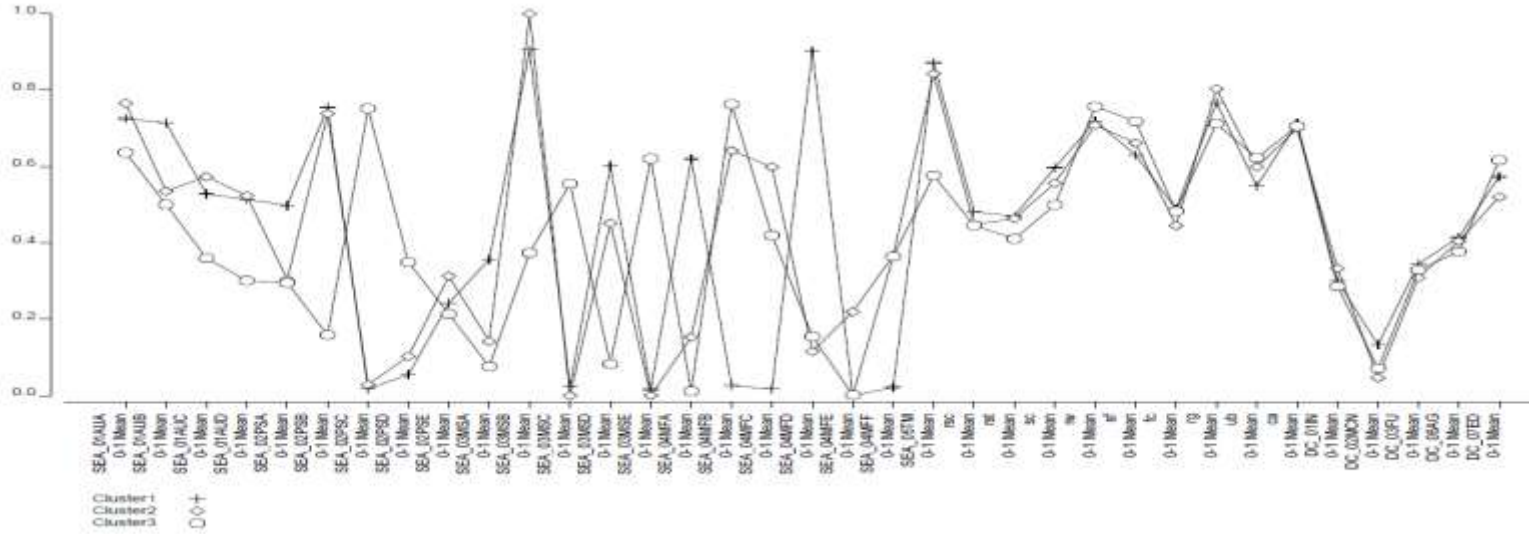


Figure 26. Ad2 3 Cluster Plots

Ad 3. The third ad had rural women discussing the various contraceptives which they use ranging from IUD, pills, condoms, implant and ring (see Appendix 3). The 3 class model was again preferred because the solution maintained favorable fit indices which were close to the lowest in all cases (see table 26). The BIC for the 3 class model was close to the 2 class model which had the lowest as well as CAIC. At the same time the 3 class model had AIC and L^2 which were close to the 4 class model which had the lowest.

Table 26 : *Model fit indices for ad 3*

	BIC	AIC	CAIC	L^2	df	p-value
Class 1	2393.76	3022.12	2205.76	3398.12	188	0.00
Class 2	2386.94	2894.97	2234.94	3198.97	152	0.00
Class 3	2410.79	2798.50	2294.79	3030.50	116	0.00
Class 4	2508.76	2776.15	2428.76	2936.15	80	0.00

Note: N=209. A bootstrap model comparing 2-class and 3-class model, $p < .001$. Entropy= .93

The three cluster model for Ad 3 comprised of 115 rural women in cluster 1, 67 rural women in cluster 2 and 27 rural women in cluster 3, giving a total of 209 respondents (see Table 27).

Table 27 : *Ad3 Classification Statistics for 3 cluster model*

Classification Table	Modal			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	112.07	0.28	0.67	113.02
Cluster2	0.53	66.44	0.05	67.02
Cluster3	2.41	0.28	26.28	28.96
Total	115.00	67.00	27.00	209.00
Classification Table	Proportional			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	109.88	0.76	2.38	113.02
Cluster2	0.76	65.95	0.32	67.02
Cluster3	2.38	0.32	26.26	28.96
Total	113.02	67.02	28.96	209.00

There was overwhelming evidence of good classification of classes on the basis of parameters with a 2% chance of an erroneous classification. However, covariates had 38.88% chance of an erroneous classification. This position was further supported by high reduction of errors; entropy R squared and standard R squared at 96%, 93%, and 94% respectively (see Table 28).

Table 28 : *Ad3 Classification Errors and R squared for 3 cluster model*

Classification Statistics	Clusters	Covariates
Classification errors	0.02	0.39
Reduction of errors (Lambda)	0.96	0.16
Entropy R-squared	0.93	0.19
Standard R-squared	0.94	0.16
Classification log-likelihood	-1529.21	
Entropy	13.97	
CLC	3058.41	
AWE	4331.08	
ICL-BIC	3555.25	

The three major questions on message source, message and affect ad had significant p values (see Appendix 22) justifying their inclusion in cluster profiles for this ad. On covariates, social complexity, fate control and religiosity had significant p values of 0.028, 0.0004 and

0.0005 respectively. Social complexity was critical in differentiating cluster 1 and 2 (p value was 0.0410) and cluster 2 and 3 (p value was 0.0410) whereas cluster 1 and 3 had a borderline p value of 0.0660 (see Appendix 22). Fate control prevailed as a separating feature between cluster 1 and 3 (p value was 0.0005) and cluster 2 and 3 (p value was 0.0001). Religiosity also separated cluster 1 and 3 (p value 0.0006) and cluster 2 and 3 (p value was 0.0001).

Cluster profiles for Ad 3.

Cluster 1. This was the largest cluster of the three with 115 rural women. The respondents rated rural women in Ad 3 as credible (71.15%). They evaluated the message as informative (98.34%) and understandable (70.68%). They felt pleased with the message (85.57%) and 85.20% would spare time to read the ad (see Appendix 22). On social complexity as a covariate, this cluster had responses which were evenly spread across the five categories with 17% to 20% in each category. Fate control was low in this category with the lower 3 categories constituting 64.92 % of the responses. The cluster had high scores on religiosity with the top three categories totaling 72.65%.

Cluster 2. This cluster of 67 rural women rated the rural women on Ad 3 as attractive and credible (both were rated above 80%). They were unanimously in agreement that the ad message was interesting (99%) and informative (85%). The respondents were excited (83.43%) and pleased about the message, hence, they would spare time to read the ad (96.90%). On social complexity, 50% of the respondents were in the lower categories. The cluster was not decisive in their responses on fate control, with the biggest category being the central category which implies neutrality or being undecided. Religiosity was also rated mildly as the biggest category of 28.54% was basically the undecided category (see Appendix 22).

*Cluster 3.*This was the smallest cluster with 27 rural women. They had a 51% credible rating for the women on Ad 3 which was the lowest among the three clusters. They also had the lowest rating for the message as interesting (42.10%) and informative (68.33%). They had low ratings with regards to their feelings about the message, albeit, 51% of the women were pleased with the message. Social complexity was high for this cluster with 39.23% of the respondents in the highest category. They were high in fate control given that 60% rated fate control highly. However, the respondents had low ratings of religiosity.

An overview of the cluster features which separated the three clusters for ad 3 are given in Table 29 and the plots on figure 27.

Table 29 : *Ad3 Cluster Descriptors*

	Message Source	Message	Message Feeling	Social Complexity	Fate Control	Religiosity
Cluster 1	Credible	Informative and understandable	Pleased	Evenly spread	Low	High
Cluster 2	Credible and attractive	Interesting and informative	Excited	Low	Mild	Mild
Cluster 3	Low rating	Low rating	Evenly spread	High	High	Low

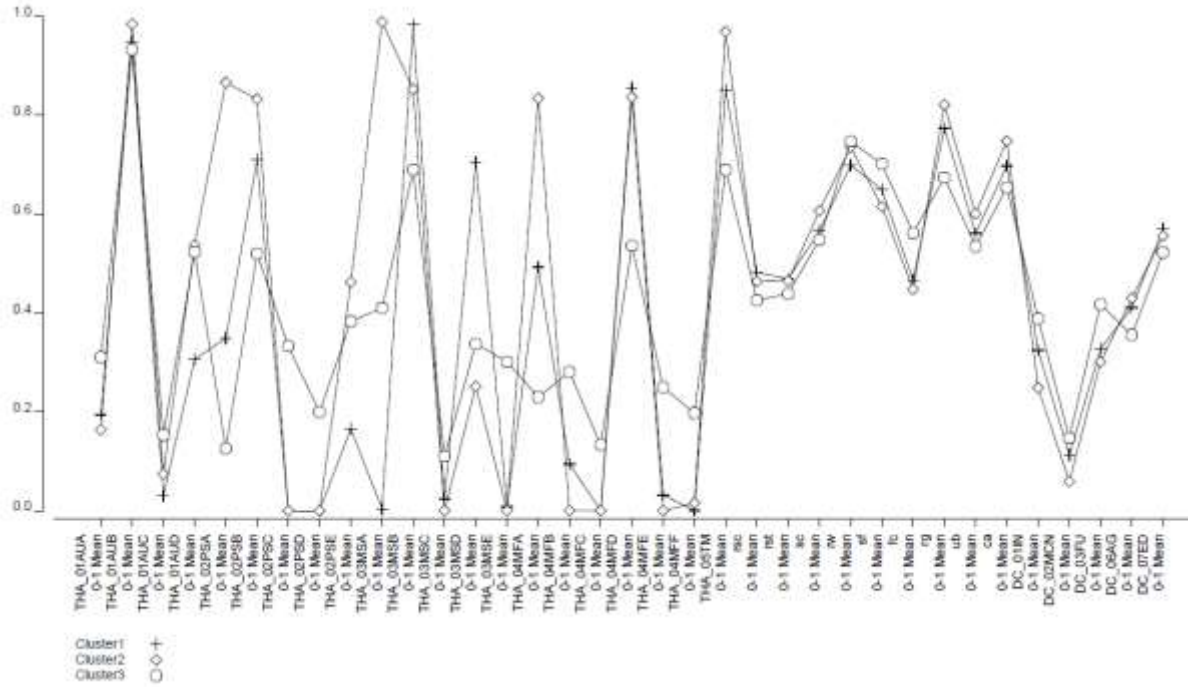


Figure 27. Ad3 3 Cluster Plots

Ad 4. The ad had rural men canvassing the need to use contraceptives (see Appendix 3). The model fit indices shown on Table 30 shows that the 3 class model maintained its superiority over the 2 class and 4 class model on the basis of having relatively better fit indices that were close to the lowest on all the indices shown. Moreso, there was also a need to maintain the same cluster solution throughout the four ads; hence a global view would supersede any individual ad fit indices taken in isolation of the other ads.

Table 30 : *Model fit indices for ad 4*

	BIC	AIC	CAIC	L2	df	p-value
Class 1	2631.09	3259.45	2443.09	3635.45	188	0.00
Class 2	2557.08	3065.12	2405.08	3369.12	152	0.00
Class 3	2588.37	2976.08	2472.37	3208.08	116	0.00
Class 4	2672.91	2940.30	2592.91	3100.30	80	0.00

Note: N=209. A bootstrap model comparing 2-class, 3-class and 4 class modes, p < .001. Entropy= .83

The three clusters were made up of 93 rural women in cluster 1, 92 rural women in cluster 2 and 24 rural women in cluster 3 (see Table 31).

Table 31 : *Ad4 Classification Statistics for 3 cluster model*

Classification Table	Modal			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	86.20	6.75	0.56	93.52
Cluster2	6.06	85.08	0.04	91.19
Cluster3	0.73	0.17	23.39	24.29
Total	93.00	92.00	24.00	209.00
Classification Table	Proportional			
Latent	Cluster1	Cluster2	Cluster3	Total
Cluster1	83.27	9.19	1.05	93.52
Cluster2	9.19	81.80	0.20	91.19
Cluster3	1.05	0.20	23.04	24.29
Total	93.52	91.19	24.29	209.00

The classification of rural women into the 3 clusters was accurate with 7% chance of misclassification (see Table 32). There were 87.61% reduction of errors, 82.52% entropy R squared and 83.25% standard R squared, all supporting the accuracy of class prediction. However, covariates were again lagging behind with 40% classification errors whilst reduction of errors was 26.21%, entropy R squared was 26.21% and standard R squared was 13.12%. This ad had higher classification errors by 3% relative to the other 3 ads. Reduction of errors, entropy R squared and standard R squared were all lower than the other 3 ads (see Appendix 23).

Table 32 : Ad4 *Classification Errors and R squared for 3 cluster model*

Classification Statistics	Clusters	Covariates
Classification errors	0.07	0.41
Reduction of errors (Lambda)	0.88	0.26
Entropy R-squared	0.83	0.13
Standard R-squared	0.83	0.14
Classification log-likelihood	-1639.59	
Entropy	35.55	
CLC	3279.18	
AWE	4551.86	
ICL-BIC	3776.02	

Consistent with the other three ads, parameters had significant p values on ad perception questions on message source, message and feelings about the message. Only one covariate, religiosity had a significant p value (see Appendix 23). Therefore, these parameters and a covariate were included in cluster profiles for ad 4. Religiosity only separated cluster 2 and 3 with a significant p value of 0.0043 on paired comparisons (see Appendix 17).

Cluster profiles for Ad 4.

Cluster 1. The cluster comprised of 93 rural women. They viewed the rural men on the ad as credible (79.08%). The message was unanimously evaluated as informative (99.99%) and they felt pleased about the message (see Appendix 23). Largely religiosity was mild, given that the biggest categories were central or undecided categories (43.52%).

Cluster 2. The cluster was almost the same size with cluster 1. There were 92 rural women in this cluster. The women rated the men on Ad 4 as attractive (88.41%) and credible (76.66%). The message on the ad was considered to be both interesting (74.14%) and

informative (89.14%). They felt excited (85.70%) and pleased (89.85%) with the message. The cluster was high in religiosity (see Appendix 23).

*Cluster 3.*This was the smallest cluster of 24 rural women. They were evenly spread in terms of their evaluation of the message source. The biggest group rated the message as unacceptable (44.73%) and felt distressed (43.33%) and miserable (32.54%) about the message. This cluster was low on religiosity with the 1 to 6 category being the largest category with 38.92%.

The summary of key cluster descriptors which helped in differentiating the clusters for ad 4 are shown on Table 33 and the cluster plots for all parameters and covariates are illustrated on figure 28.

Table 33 : *Ad4 Cluster Descriptors*

	Message Source	Message	Message Feeling	Religiosity
Cluster 1	Credible	Informative and understandable	Pleased	High
Cluster 2	Credible and attractive	Interesting and informative	Excited	Mild
Cluster 3	Low rating	Low rating	Evenly spread	Low

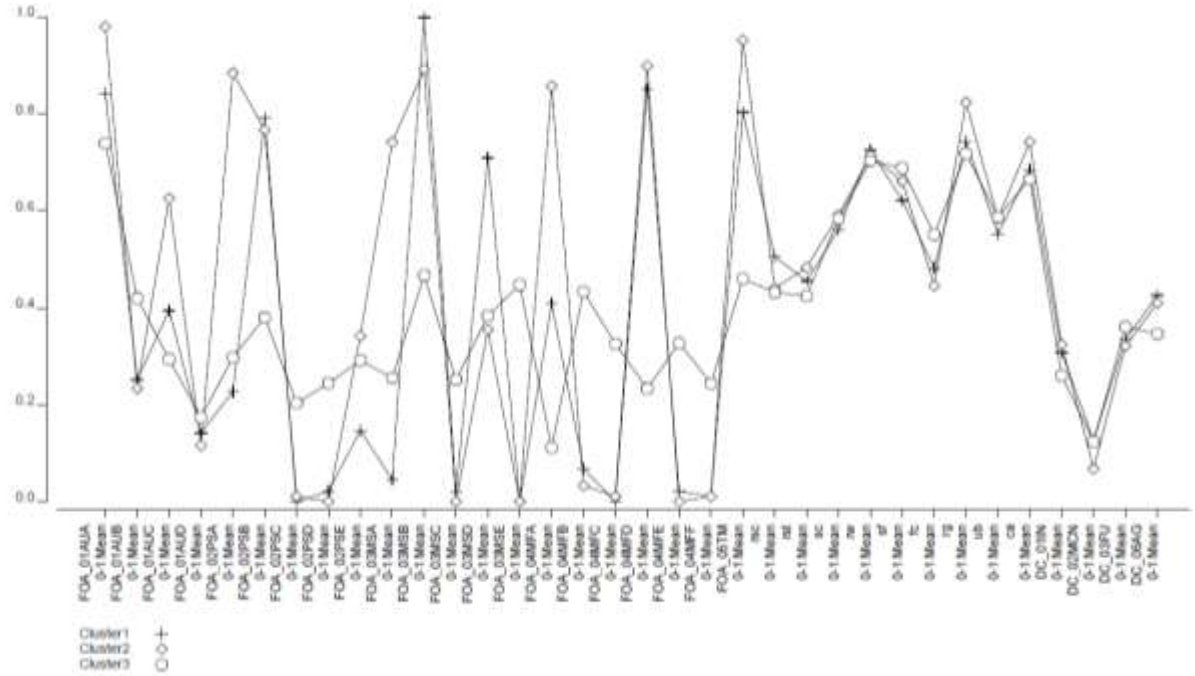


Figure 28. Ad4 3 Cluster Plots

Chapter Summary

This chapter focused on the results of the study. Structural relations between culture and contraceptive attitudes using SEM was reported for study 1. Study 1 noted the significant relations between fate control, religiosity and resultant self-conservation. The remaining social axioms, that is, reward for application, social cynicism, social complexity and Ubuntu had no significant path coefficients and p values on the structural model. The bipolar, resultant self-transcendence also had an insignificant path to contraceptive attitudes. Having noted the impact of culture on contraceptive attitudes, study 2 sought to investigate the existence of heterogeneous groups of subsistence women on their portrayals of ads perceptions and how they relate to culture and demographic profiles. The three cluster model was the optimum model for each of the four ads. Cluster profiles had the following parameters as descriptors across the four ads; message source evaluations, message evaluations and message feelings. Covariates with significant p values were social axioms viz; social cynicism (Ad 2), social complexity (Ad 2, Ad 3), Religiosity (Ad 1, Ad 3, Ad 4), Ubuntu (Ad 2), fate control (Ad 3) and contraceptive attitudes (Ad 1) and method of contraception (Ad2). Values had insignificant p values across the four ads.

The curtain comes down in the next chapter where a summary of findings, discussions, conclusions and contributions are given together with limitations and resultant grey areas for future studies.

Chapter 6: Discussion and Contribution

The human mind must seek conclusions because it is only conclusions which provide a basis for active living.

-Blaiklock, The answer's in the Bible, 1978 p. 33

The main objective of this research was to identify any patterns in contraceptive poster advertisements perceptions of subsistence women (in rural Zimbabwe, a typical subsistence marketplace). The research was structured in line with the C-CAPS model (Mendoza-Denton & Mischel, 2007). The research was logically structured in two phases. Study 1 sought to assess the effect of two culture constructs, viz; values and social axioms on contraceptive attitudes. This was meant to understand the broader subsistence subjective culture (Values, social axioms and contraceptive attitudes) and physical culture (rural clinics as contraceptive knowledge and product distribution institutions). This understanding of constructs relations was followed as a sequel by study 2; whose main objective was to examine possible heterogeneity in cognitive and affective responses to contraceptive advertising messages within subsistence marketplaces. In the C-CAPS model, the four different advertisementds presented a platform to investigate four background 'contexts' and 'situations' given that each advertisement had different cues like the non-celebrity rural ad models, contraceptive messages and the surroundings.

The key justification of this research was to make theoretical, empirical and practical contributions to the often neglected contraception transformative consumer research in subsistence marketplaces on rural contraceptive consumers' reactions to advertising stimuli (poster ads as public print media) and the resultant latent classes in this cultural setting.

In study 1, data was collected from 395 rural women (questionnaires were administered by female nursing sisters at five rural clinics) in Eastern Zimbabwe. The hypothesized relations among culture (values and social axioms) and contraceptive attitudes were assessed in the institutional context of a subsistence marketplace. Covariance based SEM was applied to test the theorized relations among the latent variables. The robust two step approach to SEM was employed. Three paths were noted to be significant from possible eight paths or relations which had been proposed on the relations between culture (values and social axioms) and contraceptive attitudes. Fate control was confirmed to have negative relations with contraceptive attitudes. Resultant self-conservation had a significant positive relationship with contraceptive attitudes although the hypothesized relationship was negative. Religiosity also had a significant link to contraceptive attitudes though it was positive though a negative relationship had been proposed. Relationships between resultant self-transcendence, reward for application, social cynicism, social complexity, Ubuntu and contraceptive attitudes were not significant.

Having identified significant paths between some culture constructs and contraceptive attitudes in study 1, the logical follow up was study 2 done six months later. A focus group of rural women was conducted as qualitative research to get ideas on the nature of pictorial and text messages and models to use in designing the four poster advertisements that were eventually used in study 2. Data was collected from 225 rural women. Questionnaires were administered by another team of female nursing sisters at five rural clinics which were not involved in study 1 and therefore respondents were also different from those in study 1. This was designed to examine the existence of heterogeneous segments of subsistence women's contraceptive poster advertisements perceptions.

Latent class analysis was used to determine the optimal latent classes of rural women and their characteristics in terms of similarities and differences were analyzed in terms of values, social axioms and demographic profiles. The three cluster model was identified as the optimum model across the four advertisements. Cluster 1 descriptors were largely rating the message source as credible and attractive, the messages as informative and they largely felt pleased with the message. Social axioms did not have a discernable pattern across the four advertisements. Cluster 2 descriptors were largely rating the message source or person as attractive and the message as interesting. The cluster had higher scores for Ubuntu, religiosity and contraceptive attitudes. Cluster 3 comprised of skeptics who viewed the message source as promiscuous.The message was regarded as inappropriate and it resulted in distress. Contraceptive attitudes were negative, social complexity was high but religiosity was low. In the following sections I discuss the results of study 1 and study 2 and then give conclusions, contributions, limitations and areas for future research.

Lessons about Constructing Ads and Administering Ads through Nursing Sisters

Designing advertisements targeting rural consumers in subsistence marketplaces require advertisers to depart from the procedures followed in ads design for Western markets and elite markets in emerging markets. Most creative strategies involve advertisers creating an ad without the active involvement of target consumers. Constructing or designing ads for Subsistence marketplaces require advertisers to get into subsistence marketplaces and learn from the rural consumers before prescribing ads for them. The term subsistence connotes how rural consumers struggle to make ends meet as individuals and families. Viswanathan and Venugopal (2015, p. 248) noted that the term ‘marketplaces’ indicated the need “to learn from these preexisting contexts as a basis to devise solutions”. In this case, the solution, which was required in this

study, was public health poster ads appropriate for rural consumers in a subsistence marketplace. These advertisements would be important to improve advertising effectiveness.

Ad design for subsistence marketplaces requires an inclusive participatory approach where advertisers leave their offices and get into the target rural market. They should get assistance from rural experts so as to select a representative group of consumers. In this study, focus groups were used effectively through the assistance of nursing sisters as local experts who had prior knowledge of rural consumers in terms of their culture and socio-demographic background. Nursing sisters were surprised by the dynamic ideas which were suggested by participants when we asked them to discuss possible text and imagery to be included on advertisements. The researcher noted that the most prevalent approach was the resonance approach to public health pictorial and text advertisements as most of the discussions naturally zeroed on situations and emotions compatible with subsistence rural consumers. The vibrancy of focus group discussions was enhanced by the expert selection of focus group participants by nursing sisters and randomization which the researcher insisted on. The mix of participants in terms of age (18 to 60 years), education (from less than 7 years of education to tertiary) and diverse religious affiliations produced a group which was representative of the subsistence marketplace. Focus group participants and nursing sisters were instrumental in coming up with a creative execution strategy for each of the four ads. The nursing sisters managed to convince rural women to participate freely as advertisements models.

The lesson from their interactions was the need for researchers to involve same sex local experts when dealing with sensitive products such as contraceptives. Even data collection was done by nursing sisters to enhance maximum cooperation from participants. At times the researcher would excuse himself on advertisements execution as rural women tried several

actions and poses to get the best pictorial ads especially on ad1 (with a woman holding a female condom) and ad 2 (with a woman kneeling on a gravesite).

The participatory approach helps improve advertisers' understanding of the targeted subsistence marketplace culture and social systems. This helps in contextualizing the pictorial and textual messages to be included on ads. These subsistence marketplaces are face to face interactional markets (Viswanathan et al., 2008) which are best understood through being part of them than from a distance. Advertisers would then craft appropriate ads which maximize on subsistence marketplace social capital (Viswanathan et al, 2007) and cultural capital (Shultz et al, 2002).

Measurement Properties of Scales

This study contributed to existing knowledge through the validation of a contraceptive attitudes scale which is compatible with the nature of subsistence marketplaces. The original Contraceptive Attitudes Scale by Black and Pollack (1987) which had 17 positively and negatively worded items was more suitable for Western markets. Negatively worded items were dropped because they have been noted to perform badly in emerging markets (Steenkamp & Burgess, 2002). A six item Contraceptive Attitudes Scale (see appendix 1) was produced and tested empirically to advance marketing science (Steenkamp & Van Trijp, 1991).

The Social Axioms Scale was originally designed with five social axioms by Leung and Bond. However, Stankov and Saucier (2015, p. 313) had anticipated the existence of other worldviews to add to the five original axioms given unique contexts. Ancestral relevance and Ubuntu had been added as relevant worldviews in African markets (Burgess, 2003). These seven social axioms were included on the SAS used in this study and was validated in rural Zimbabwe as a typical subsistence marketplace. In study 1 and 2, ancestral relevance was dropped from

measurement models (see figure 17 and 20) because all the items for the construct performed badly. Ubuntu, as a social axiom, was maintained in both study 1 and 2. Therefore six social axioms were retained on the measurement scales of the two studies.

There may be need to develop a dedicated subsistence marketplace ancestors related measurement scale. Ancestral relevance, as a construct, might have performed badly due to the nature of items which were measuring the construct. Ancestral relevance as a social axiom had three items:

1. Worshipping the dead- the item was 'it's accepted to say a prayer to one's late mother and father.'
2. Communication with the dead- the item was, 'the dead are conscious and can be communicated with.'
3. respect the dead- worded as,' the dead need our respect.'

Probably, these items were not compatible with the concept of ancestors as understood by rural consumers in this subsistence marketplace. Zulu (2002, p. 476) argued that the concept of ancestors is 'diverse, complicated and delicate' so its uniqueness in a given subsistence marketplace should be studied in its own right (Viswanathan & Venugopal, 2015). A world view for a given subsistence marketplace cannot be generalized but should be based on local wisdom.

The Institutional Context of Rural Subsistence Marketplaces

This study was focused on the unique natural learning laboratory of subsistence marketplaces (Viswanathan & Venugopal, 2015). Subsistence marketplaces have been noted to comprise of the majority of the world population and occupy the bottom of the pyramid, therefore, it is resource poor (Prahalad & Hart, 2002; Viswanathan & Venugopal, 2015; Weidner et al., 2010).

Research in subsistence marketplaces should highlight unique features of these markets as tested empirically especially how the daily circumstances of rural consumers in a contraceptive behaviour context intersect with the three pillars of institutions noted by Burgess and Steenkamp (2006), namely socio-demographic, cultural and regulative pillars.

Socioeconomic: The majority of rural respondents in both study 1 and 2 had household incomes less than US $100. Considering the life styles observed in these markets, these incomes could be approximately US1 per day or less. These very low disposable incomes had been noted in studies by Viswanathan and his colleagues (Viswanathan, 2017; Viswanathan, Gajendiran, et al., 2008a; Viswanathan & Sridharan, 2009). There are huge economic swings (S.M. Burgess & Steenkamp, 2006) depending on whether there is a drought or not. At the time of writing (January, 2020), inflation in Zimbabwe was 450% according to the Reserve Bank of Zimbabwe. Household incomes, in subsistence marketplaces in Zimbabwe, were almost the same. Families with higher incomes migrate to cities and towns, commercial farms and plots. Contrary to the systems existing in emerging markets such as South Africa, there are no dual systems (Batra, 1999) in subsistence marketplaces of countries with economies that will be shrinking or experiencing a recession. The marginal household income differences are negligible and the affluent are too few to constitute a separate system within subsistence marketplaces of this nature. In this marketplace, there was a single ‘mass market’ rather than a dual market. The mass market maintained homogeneity in terms of access to public health institutions which are under-resourced and contraceptives were usually provided for free.

Cultural: Culture constructs were studied, the value priorities of subsistence marketplace consumers were examined testing Shalom Schwartz’s theory of human values

(Schwartz, 1992) and beliefs (Bond et al., 2004). As noted on focus group discussions, there was high embeddedness in the rural subsistence marketplace. Generally ads with groups (ad 3 and 4) were more acceptable than ads with single models (Ad1 and 2). The second bipolar from Schwartz's cultural framework was hierarchy versus egalitarianism (Schwartz, 2004). Emphasis from subsistence marketplace participants was on exhibiting responsible behaviour to maintain good morals. Cultural hierarchy, in subsistence marketplaces, has unequal power structures but household incomes are marginally low even for those with political power. Their advantage is on accessing basic provisions such as drought relief handouts. The fourth ad depicted hierarchy, as the men putting on a traditional hat could have been a headman or chief. Hierarchy was also depicted by having elders sit on a raised platform whilst younger men sat on the ground.

Regulative: The regulative system is linked to cultural system existing in a subsistence marketplace. The first ad showing a woman holding a female condom was accepted as some participants indicated that the female condom allows women to protect themselves against men who violate the law by deliberately infecting their partners with HIV/AIDS and STIs. Non-Governmental Organisations also play a key role in legislative education in subsistence marketplaces.

Value Priorities of Rural Subsistence Marketplace Consumers

Results from study 1 and study 2 on the nature of content and structure of human values, as originated by Schwartz (1992), confirmed the existence of the circumplex structure in rural subsistence marketplaces in Zimbabwe. The two major bipolar of resultant conservation (conservation versus openness to change) and resultant self enhancement (self enhancement versus self-transcendence) were confirmed in both study 1 and study 2. However, results for

study 1 and 2 were inconsistent on the position of hedonism. In study 1, hedonism was classified under openness to change and it was adjacent to self-transcendence values. In study 2, hedonism was classified under self enhancement and it was adjacent to conservation values. These findings were contrary to Schwartz's circumplex (Schwartz, 1992) where hedonism was between openness to change and self enhancement. In other words, hedonism has both openness to change and self enhancement elements (Schwartz, 2004).

Future studies may focus on hedonism, broadening the study to include men and women in subsistence marketplaces. Data for this study was focused on rural women whose definition and understanding of hedonic values could be different from men. Steenkamp and Burgess (2002) noted differences between men and women on optimum stimulation level and such differences may exist on value types. Hedonism includes values relating to fun, pleasure and gratification which may be related to consumers' preferences for new and exciting experiences (optimum stimulation levels). Future studies could also incorporate optimum stimulation level as a construct to be studied in subsistence marketplaces.

Another divergent finding on value priorities of subsistence consumers was the position of achievement. In study 1, achievement was classified under openness to change bordering stimulation and hedonism, whereas in study 2, achievement was classified under self enhancement bordering power and hedonism, which was in line with the theory (Schwartz, 1992). In both study 1 and 2, achievement was close to hedonism. In a survey of South Africans, Burgess (2002) noted the closeness of achievement to hedonism. The classification of achievement under openness to change, rather than under self enhancement, is acceptable because the value domains are not conflicting values.

Study 1. Relations of Constructs

Values priorities on contraception attitudes. This study supported a significant link between resultant self-conservation and contraceptive attitudes although the relationship was noted to be actually positive not negative as had been hypothesized. The results did not confirm the hypothesized positive relation between resultant self-transcendence and contraceptive attitudes.

Whilst values are not specific to a given product or circumstance (Schwartz, 1992, 2012) they show goals of a particular group of people, in this case rural women. The findings are not confined to rural women's values in the context of contraception but their values in general.

Values studies have not produced consistent results empirically on the extend they influence attitudes and behaviour (Leung et al., 1995). In this study, the relationship between resultant conservation and contraceptive attitudes were significant. Initially, the researcher had hypothesized that the dominance of tradition, conformity and security would imply that contraceptive consumers would prefer to stick to their traditional customs which discouraged controlling contraception using modern methods, therefore a negative relationship between resultant conservation and contraception attitudes. The opposite came out, where resultant conservation and contraception attitudes were noted to be positively related. Probably rural women might have privately chosen to accept or use contraceptives despite not publicly showing dissent to avoid social sanctions. The high literacy levels may also explain the balancing scenario of being conservative albeit embracing modern contraceptives in subsistence markets.

The relationship between resultant self enhancement and contraception attitudes was not supported. Rural women with high self enhancement also had positive attitudes towards the use of modern contraceptives. This might have been influenced by the infiltration of modernism into

subsistence markets through mass communication and social media which increases rural women's gratification. These findings were also contrary to Chitereka and Nduna's findings in Zimbabwe (2010, p. 18).

Whilst extant literature has noted the essence of values in behaviour and attitudes research (see Burgess, 2011; Schwartz et al., 2001), there has always been a fuzzy link empirically between values and individual attitudes and behaviour (see Bond et al., 2004, p. 178). Feather (1992; Feather, 1995) proposed that values are abstract structures and they transcend specific objects and situations. Whilst they are expected to be relatively stable, they are 'not unchanging across the life span' (Feather, 1995, p. 1135). It follows therefore that exposure to mass media overtime can actually sway a person's values. The period of transition, where people are changing their values but are at different stages of change, may actually distort results that were expected on the relations between values and contraceptive attitudes.

Social axioms on contraception attitudes

Reward for application. In terms of reward for application, this study noted that the hypothesized association between reward for application and contraceptive attitudes was not significant. Women, who are careful planners and hardworking (Leung et al., 2002), were not consistent in terms of controlling contraception. Some hardworking families, in rural Zimbabwe, are peasant farmers who actually benefit from having big families. Some of the women use their aptitude to plan their families through the use of contraceptives.

Social complexity. The negative relations between social complexity and contraception attitudes were not supported in this study. Women with high cognitive flexibility (Leung et al., 2002) may also be inconsistent in terms of their contraceptive attitudes. It follows therefore that

such women flip-flop socially and their inconsistency in providing solutions to solve social problems, also manifest in their inconsistent contraception attitudes.

Religiosity. In this study, it was hypothesized that religiosity has a negative relationship with contraceptive attitudes and this was not confirmed by the findings of this study but rather a positive relationship was noted to be significant. Indeed Chitereka and Nduna (2010, p. 18) had noted that religious beliefs contribute to the rejection of modern contraceptives in Zimbabwe and also group polarization according to social categorization theory (Turner, Wetherell, & Hogg, 1989) since most religious teachings from Catholics, Apostolic sects, and African traditional religion proscribe contraception control. To the contrary, rural women, who were high in religiosity, were actually positive to contraceptives in terms of their attitudes. The positive relations between religiosity and contraceptive attitudes were significant. The level of literacy in the subsistence market might have had a bearing on the positive relation. People, who receive reasonably high western education, became resistant to anti-contraceptives ideology taught in their religious institutions (Longwe, Huisman, & Smits, 2012). Again, these decisions are made away from public scrutiny (Froming, Walker, & Lopyan, 1982), and deviance is not obvious unless personally probed.

Fate control. In terms of fate control, this study confirmed the hypothesized negative relationship to contraceptive attitudes. Rural women, with high fate control, abdicate any attempts to control or plan their families in terms of contraceptive attitudes. This may also relate to having unprotected sex as some rural women may hold the belief that contracting STIs and AIDS are a matter of ‘fate’ rather than being careful in the use of contraceptives. Moreso, low efficacy in use of contraceptives may also prompt a strong belief in leaving it to providence. This, therefore, led to negative contraceptive attitudes. The belief that events in life are a

prewritten life script (Leung et al., 2002, p. 292) squarely fits in the African belief that prophets, sorcerers, n'angas/ sangomas and spirit mediums can read your future life events because it has already been predetermined. These foretold events can also be manipulated to take a desired route. The acceptance of 'predestination' resonates with low contraceptive attitudes as had been observed by Chitereka and Nduna (2010).

Social cynicism. Studies on social cynicism had noted a negative relationship with life satisfaction (Lai, Bond, & Hui, 2007) and job satisfaction (Leung, Ip, & Leung, 2010). However, the proposed hypothesis that social cynicism has negative relations to contraceptive attitudes was not supported in this study. Leung et al (2002, p. 292) included issues relating to mistrust of social institutions and not using ethical means to achieve an end. , Rural women were noted to have a positive link probably because their mistrust of social institutions would not extend to contraceptives due to availability of information on the safety and quality (Fisher, Davis, Yarber, & Davis, 2013) of modern contraceptives. These findings were contrary to Chitereka and Nduna's observations that rural consumers had a deep mistrust of Western contraceptives.

Social cynicism denotes negative beliefs about institutions and also people (Li, Zhou, & Leung, 2011). The relationship between social cynicism and attitudes towards contraceptives was positive but the path coefficient was insignificant. This could be ascribed to a stronger inclination of rural women towards being negative about people but not necessarily against contraceptive institutions. This would mean that a person could be a cynic with regards to people but have trust on supply chain institutions involved in contraceptives. A cynic could view people as 'self serving' (Li et al., 2011; Mirvis & Kanter, 1989). This heightened cynicism towards people especially sexual partners by rural women lead to acceptance of contraceptives to curb STIs/HIV and also to avoid unwanted pregnancy given the mistrust of the partner.

Ubuntu. This study found that there was no link between Ubuntu and contraception attitudes. The moral theory conceptualization of Ubuntu pronounces the essence of human dignity , identifying with community members (Metz, 2011). As noted in the current study, these Ubuntu moral theory elements do not negatively relate to contraceptive atitudes. These results indicate that Ubuntu and contraceptive attitudes may not reflect a person's human dignity, solidarity and morals. This might have been complicated by the nature of contraceptive decisions and actions; these decisions and choices are made privately not publicly. The secretive element of contraception behaviour may then lead to a weak link between "moral obligation to become fully human" (Merz, 2011, p. 537). Schreider and Tomm-Bonde(2015) noted that a person with Ubuntu may also seek individual gains and these gains could have dominated rural women on contraception attitudes.

High Ubuntu reflects high in-group bias (Tajfel & Turner, 1979), humanness (Biko, 1979; Samkange, 1975; Tutu, 1999b) and this was expected to influence women to have a negative attitude towards contraceptives. It was noted that some rural women might have high Ubuntu and also seek to avoid infecting their spouses with STIs. Furthermore,they also aimed at restricting family size so as to avoid exposing children to poverty as income per head become just too low and unsustainable. The other reason might be the meaning ascribed to the items that made up Ubuntu. It can be argued that being generous or feeling for others would imply that the subsistence consumer, who is positive in terms of generosity and feeling for others, would actually have a positive attitude towards contraceptives as a way of protecting the other partner. The dominance of supernatural beings may not directly translate to people negating the use of contraceptives; therefore, respondents would have mixed attitudes towards the use of contraceptives.

Study 2 Advertising Perceptions

Study 2 results confirmed the third and key hypothesis that there are heterogeneous latent classes among rural women on their perceptions of the four poster ads with regards to culture and demographic profiles. Cultural affordances in the form of subjective and physical culture (Studied in study 1) were expected to influence rural women's ads evaluations (Study 2) in different nominal situations (Mendoza-Denton & Mischel, 2007). The researcher designed contraception advertisements that depicted different scenarios ranging from: a rural woman holding a female condom, rural women discussing the various contraception options, a widow on her late husband's grave who died of STI's and rural men advising each other on the need to use contraceptives (see appendix 3). Martins, Yusuf and Swanson (2014) noted that 'people are markets' and people's characteristics are critical in understanding these markets. They enumerated the centrality of income, sex, culture, attitudes, and geographical location in defining people and their segments. Within culture variations, diversity of consumer behaviour in emerging markets and contraception behaviour heterogeneity provided the basis for unique classes existing in such markets (Burgess & Steenkamp, 2006; Leung & Cohen, 2011; Robinson et al., 2002). It follows therefore that the existence of latent classes in contraceptive rural markets was quiet in order.

Rural women, in a subsistence market of rural Zimbabwe, had very low incomes (67 % had monthly income less than US$200) and according to the values and lifestyle program, these women are '*survivors'* (Intelligence, 2003) and Burgess et al., (2002, p. 48) called them *rural survivalists*. In line with Richards (2000), rural women were grouped in terms of their similarities in evaluating contraceptive poster ads and their culture characteristics. Burgess and Steenkamp (2006) noted diversity as a characteristic of emerging markets. It follows that

diverging views on ads perception by rural women were not a surprise in a subsistence market which has been exposed to Western education and the impact of marketing communications media in connecting with people all over the world. The historical background of Zimbabwe as a former British colony give credence to variations of perceptual thought on ads. The researcher noted that the low literacy rate in rural communities also buoyed the existence of African traditional customs. The blending of these cultures would lead to heterogeneity of latent classes in subsistence markets. Fiske, Gilbert and Lindsey (2010) contend that attitudes are malleable and depend on context. Ads perceptions, contraceptive attitudes and indeed contraception behaviour are not enduring but situational to a larger extend. Implicit attitudes change instantly in response to contextual variables (see Blair, Dasgupta, & Glaser, 2015).

Advertisements background cues provided on the ads also contributed to ads perceptions of rural women. For instance, respondents perceptions towards Black-Americans changed significantly due to the background cues of a poor neighborhood or a middle class neighborhood (Wittenbrink, Judd, & Park, 2001). Also exposure of respondents to stimuli relating to Black-good and White-bad activated a decrease in anti-black perception and attitudes (Dasgupta & Greenwald, 2001). In the next section, the advertisement models on the ads in terms of whom they are in a subsistence marketplace, the background cues, their implications, implicit and explicit meanings of the messages on the ads are discussed.

Patterns in advertising responses across the four ads.

Ad 1 On ad 1, the woman model is confidently holding a female condom showing her ability to control the use or non-use of a condom. This had been traditionally a decision reserved for men. The eye contact with the woman model highlights that the woman is ready to justify her actions and this was noted by Robinson et al (2002, p. 47) as the first of the ten components

of the sexual health model called ‘talking about sex’. She is quite trendy by subsistence markets standards, suggesting positive sexuality (Robinson et al., 2002, p. 50). She is not leaving her hut to depict fidelity in sexual affairs. The hut also implies that the female condom can be used by married women rather than viewing female condoms as contraceptives used by women with loose morals. The manner in which the woman is holding the condom implies high self-efficacy in the use of the condom in sexual intercourse. The ability to use a female condom and its availability point to the role of rural clinics (physical culture on the C-CAPS model) in providing nurses to train rural women to use the contraceptive and also demystify its adoption in subsistence markets. People, who evaluate this ad positively, are likely to adopt the contraceptive or are already using the contraceptive. Some may be willing to get training on how to use the contraceptive because they might have been attracted by the advantages of using the contraceptive especially the ability to determine whether to put on the condom or not which has been a monopoly of men when using male condoms.

Ad 2. The second ad shows a woman kneeling on the grave of her late husband. The kneeling depicts that the woman is still grieving and helpless under such circumstances. The woman is shying away to avoid eye contact as an African custom practiced by women to show their respect and remorse. Avoiding eye contact might also suggest that the woman was crying. In traditional customs, women usually cry covering their faces. The woman appears to be older than the woman appearing on ad 1. As a widow, she feels lonely and dejected as responsibilities are too heavy on her as a single parent in a subsistence marketplace where livelihood is basically peasantry. This ad might be aligned to fear appeals. Fear appeal usually has the following features;

i) existence of the threat of contracting HIV.

ii) ultimate death due to AIDS (Earl & Albarracín, 2007; Fisher, Fisher, Bryan, & Misovich, 2002).

In the context of ad 2, fear could have been induced by the graveyard and the grave, the flowers that are brought by relatives to a grave of their deceased relative, and the message from the kneeling woman that, 'had he known, he could have used condoms, now he is *dead* because he was *infected* with a *deadly STI* (italics added to indicate the fear inducing words). People, who evaluated this ad negatively, could have experienced the effects of fear appeals. Research, on fear appeals in HIV promotions, has been noted to create little or no positive reactions (Albarracín et al., 2005; Earl & Albarracín, 2007). The researcher noted that some respondents might have been swayed by feeling pity and empathizing in the shoes of the widow and they could have rated the ad positively.

Ad 3. On this ad, there are five rural women discussing the various modern contraceptives each woman is using. There is diversity in contraceptive choices made by subsistence women and these differences are depicted as within-culture heterogeneity. In subsistence markets, such information is considered to be confidential such that the sharing indicates that they are close friends. The women share a common element that each of them is at least using a modern contraceptive unlike a group of non-adopters. According to the social categorization theory (Tajfel & Turner, 1979) the similarity enhances attraction and liking among group members. This homogeneity improves members' commitment to the group and there is cohesion. It was noted that there is within-group variations since every member of the group is using a different contraceptive ranging from IUD, condom, birth control pill, ring and implant. At times some women may switch from one type of contraceptive to another basing on the word of mouth advice coming from such friends as they share information on their

experiences in using the various contraceptives. People, who accepted the ad, might have been attracted by the need to be in the company of friends in a subsistence market, reinforcing the need for social networking and social capital (Viswanathan et al, 2007). They might have preferred the provision of variety in terms of the various contraceptives which were at the disposal of the five models.

Ad 4. The ad was different from the other three ads because it had four male models discussing the benefits of using contraceptives. The scene is a rural setting showing men seated outside a hut and away from women. A man is holding a traditional drum, implying the tendency by men to discuss contraception issues whilst having fun. Elders dominate in these discussions counseling young men basing on their experiences. Male models were lowly rated as they led to high classification errors and low reduction of errors, entropy R squared and standard R squared. Ads perceptions are affected by the gender of non-celebrity models appearing on the ads. This could be explained on the basis of evolution psychology (e.g. Buss, 1995; Buss, 2000). Evolution psychology asserts that gender differences emanated from differences in historical roles of men and women as they evolved. Men were hunters and fighters whilst women were mothers caring for the young and cooking food for the family. The social structural theory (e.g. Eagly, 1995; Eagly, 1996) postulates that differences in perceptions between men and women are derived from division of labour within societies, norms and socialization.

In African traditional customs women would not discuss contraception with any men other than her husband (Chitereka & Nduna, 2010). However, these differences in ads perceptions basing on gender of non-celebrity models do not imply gender differences in values.

Struch, Schwartz and van der Kloot (2002) noted that there were no significant differences in meanings of basic values for women and men across cultures.

Cognitive, affective and behavioural influences on ad responses. The major descriptors, which emerged from study 2, were basically the message source (person conveying the ad message), the message, and feelings about the message. Covariates were also significant descriptors of the three clusters. On social axioms, religiosity emerged on three ads, social complexity on two ads and fate control, Ubuntu, and social cynicism on a on a single ad each. Contraceptive attitudes emerged on ad 1 only. In study 1, religiosity was noted to have a positive relationship with contraceptive attitudes because it had significant p values. In study 2, it emerged as a key differentiator among clusters on three ads.

The coherence of these findings in both studies makes it apparent that religiosity is pertinent when designing public print ads in subsistence marketplaces. In study 1, fate control was confirmed to have negative relations with contraceptive attitudes. In study 2, it also had a significant distinguishing feature of clusters on ad 3. In subsistence markets, there are women who require to be persuaded to make deliberate decisions on contraception choices rather than leaving everything to chance and fate.

Values were insignificant as distinguishing descriptors across the four ads. This was a clear exhibition of cultural homogeneity and cross situational consistency (Mischel, Shoda, & Mendoza-Denton, 2002) within a subsistence market. Values are not context specific and might be homogeneous in a given cultural locale. Cohen and Kitayama (2007) argued that East Asians have a high interdependence and this could also be true in subsistence markets due to notable characteristics such as social networking (Viswanathan & Rosa, 2007). The interdependence existing among people of a given community has a direct impact on the people's values and

social behaviour (Kitayama & Cohen, 2010). At the same time, individuality and cross situational variability (Mischel et al., 2002) was also noted on the differences of subsistence women as three distinct classes emerged in terms of social axioms as covariates and ads perceptions. I will discuss the three main latent classes that were noted across the four ads.

Cluster 1. This latent class featured in the four ads as the biggest cluster: ad 1 had 147 rural women, ad 2 had 127 rural women, ad 3 had 115 rural women and ad 4 had 93 rural women. The women largely evaluated the message source as credible and the message as informative throughout the four ads. The researcher noted that religiosity, as a covariate, was not rated consistently in cluster 1 of the four ads. Ad 1 respondents were mostly low on religiosity whereas ad 3 respondents were high on religiosity. Ad 4 was mild on religiosity.

The ad perceptions were basically very positive in terms of ad source and ad message and feelings implying that the respondents in cluster 1 of each of the four ads focused on the 'focal object'(in this case, contraceptives) and the message. They applied analytic reasoning (Nisbett & Masuda, 2003). Through the use of formal logic, these respondents approved both the message source as credible and the message as informative. These characteristics indicate the influence of Western education which inculcates logical reasoning. Luria (1971) noted the differences in logical reasoning between rural illiterate villagers living a traditional lifestyle and literate women at a teachers' training college. Luria (1971) concluded that cognitive structures are influenced by changes in socioeconomic and educational context and the interface that the society has with modernization. People, who have contact with modernization and are educated, will apply formal logic in evaluating any external stimuli such as ads even in rural markets of Sub Saharan Africa.

Cluster 2. This cluster was second in terms of size: ad 1 had 41 rural women, ad 2 had 69 rural women, ad 3 had 67rural women and ad 4 had 92 rural women. The cluster considered message source as attractive and the message as interesting across the four ads. On ad 1 and ad 4, religiosity was high. Ubuntu and social complexity were highly scored in ad 2 and contraceptive attitudes were positive in ad 1. This cluster was generally moderate in its ads evaluations. The respondents avoided extremes. The cultural differences in reasoning of these respondents could be classified as holistic reasoning according to Nisbett and his colleagues (Miyamoto, Nisbett, & Masuda, 2006; Nisbett & Masuda, 2003).

The respondents considered the ads in terms of the focal object (contraceptives). They also considered the field or context, for example in ad 1, the respondents considered the female condom, the woman holding the condom, the thatched hut and the message she was conveying. They then used experience based knowledge and opted for the 'middle of the road' perception rather than extremes (Norenzayan, Choi, & Peng, 2007,p.577). The respondents might have observed some subtle issues of contradiction in the context or some debatable concerns about the ads. The cluster had high scores in Ubuntu and social complexity. People, with high scores in Ubuntu, may be affected by the need to satisfice in terms of responses so as to avoid embarrassing nursing sisters who were my research assistants. The cluster's responses could also be justified on the basis of dialectical reasoning (Norenzayan et al., 2007,p.583). The three principles of dialectical reasoning confirmed the nature of this cluster;

1. The principle of change- which is based on the fact that reality is not cast in concrete but it is dynamic. This principle was captured through high social complexity which was reported for this cluster in ad 2 and ad 3.

2. The principle of contradiction- which was hitched on the premise that in life things oppose each other or they contradict. Contradiction was confirmed in the high social complexity in ad 2 and ad 3. Furthermore, religiosity was also confirmed in ad 1 and ad 4 as a way of solving the contradictions.
3. The principle of relationship or holism-which emphasised that everything is related to everything, reinforcing the need to consider context or field in ads evaluations.

Cluster 3. The cluster was the smallest in size across the four ads. Membership of the cluster across the four ads was as follows: ad 1 had 21, ad 2 had 13, ad 3 had 27 and ad 4 had 24.

This cluster comprised largely of skeptics who had a negative view of the ads. These respondents used holistic reasoning (Norenzayan et al., 2007,p.577). The negative responses could have been caused by respondents' unwillingness to reason on the ads that contained some contraceptives which they did not have prior knowledge. It should be noted that female condoms are not yet popular with women in Zimbabwe rural subsistence marketplaces (Chitereka & Nduna, 2010). . Luria (1971) noted that illiterate villagers were reluctant to analyze simple syllogisms because they were not familiar with the contents, that is, they did not have prior experience of what was being referred to. The researcher observed that most respondents, who aborted questionnaire completion prematurely, could have been affected by their lack of knowledge of contraceptives. Those who persevered then gave largely negative responses making up this minority cluster. Marketers could tap on this characteristic of subsistence marketplace consumers; that is, advertisements are evaluated positively if the focal object is known by the target audience. This is also substantiated by the need to use concrete thinking (Viswanathan et al., 2005) in such markets. The respondents were field dependent (Witkin & Berry, 1975) in disapproving the ads. For example, in ad 1, the woman holding a female condom

and claiming to be able to determine whether to put it on could be associated with promiscuity and so the ad was dismissed. In ad 2, the woman kneeling on a grave was considered to be blaming her deceased husband at a wrong place, (at a gravesite), therefore, the ad was disapproved. Fear could also have led to the negative perception of the ad. Overwhelming dependence on the field rather than the focal object is typical of subsistence consumers in Africa and Asia due to their social orientation (Kitayama & Cohen, 2010) .

Overview and Conclusions.

The relations between values, social axioms and contraceptives attitudes had significant paths on resultant conservation, religiosity and fate control signifying their importance in influencing contraception choices in subsistence markets (study 1). Rural women could be high in resultant conservation and have positive attitudes towards the use of contraceptives. In subsistence markets, contraception concerns raise a strong focus on security. The need to enhance family security necessitates that rural women may have positive contraceptive attitudes since family planning helps control the family per capita income by avoiding increasing number of children in a family. Schwartz included individual and group security (national security), social order and reciprocation of favour to maintain good health (2012,p.5) which would all be promoted through acceptance and use of modern contraceptives.

Issues on contraceptives being ‘intrusive’ or ‘unmentionables’ (Waller et al., 2005; Wilson & West, 1981) did not arise. Physical culture, in the form of clinics and health centers as rural contraceptive institutions, are very pertinent in influencing subjective culture (Mendoza-Denton & Mischel, 2007). Rural women had high public awareness of modern contraceptives as evidenced by their confidence to complete the questionnaires in full with a negligible number of respondents quitting. Accessibility and knowledge of the focal object

was noted to be very important in influencing consumer perceptions and attitudes in subsistence markets. Intimate knowledge of modern contraceptives might also have affected respondents' reactions to the four ads. For instance, the first ad had a woman holding a female condom and ad 3 had women discussing various types of contraceptives. Some respondents might not have known the contraceptives being discussed and this could have affected their evaluations of the ads (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975, 1980).

In study 2, ads perceptions produced clear clusters of subsistence women signifying diversity in these markets. Although values were not significant differentiators of the three clusters in study 2, it was noted that there is almost homogeneity in terms of values in subsistence markets. The study findings confirmed a link between resultant conservation and contraceptive attitudes. It follows, therefore, that values are still important as a differentiating feature of consumers' ads perceptions in rural markets. Social axioms such as religiosity, fate control, social complexity and social cynicism as covariates were significant differentiators. There is evidence in literature that values and social axioms are intertwined (Leung & Bond, 2008). Values are evaluative beliefs which are general, whilst, social axioms are specific. Social axioms express people's values, that is, social axioms are value expressive (Leung et al., 1995).

Wilson et al (2000) proposed the existence of dual attitudes in a person-implicit and explicit attitude. Contraceptives involve public and private self-awareness.This scenario occurs when personal attitudes are in conflict with societal expectations. A rural woman might have been reminded of societal expectations by the presence of nursing sisters (research assistants) who could have been viewed as contraceptive 'teachers' by rural women. At the same time, fellow villagers, at the clinic or health center, could also remind respondents of the

contraception norms accepted according to social norms and church ideology. Which attitude prevailed to be influencing the responses that were eventually given, what of public -self and private -self conflict? This could have compounded contraceptive attitudes responses, hence the insignificant p values in most paths involving attitudes.

Taking a cultural perspective in the institutional context of subsistence marketplaces, the following conclusions can be made from the findings: values have fuzzy or weak relations to contraceptive attitudes, whilst, beliefs relate to attitudes towards contraceptives. Subsistence marketplace women's advertising perceptions of contraceptive ads in terms of cognition source (evaluations of the person on the ad), cognition message (meaning ascribed to the print ad) and feelings towards the ad can be divided into three latent classes with heterogeneous characteristics in terms of social axioms and demographic profiles of respondents. .

The negative relationships between social axioms and contraceptive attitudes as hypothesized were largely insignificant. There is a sense in which these findings resonate to the consistent behavioural characteristics of subsistence marketplace consumers. Giddens (1991) ascribed such need for consistency to ontological security and the fact that enduring social systems are prevalent. The daily life practices (the Duree of daily life) is expected to be repetitive and unchanging(Giddens, 1991). Contraception is a daily life practice that fits the Duree of daily life; therefore consumers in a rural setting may not be in that situation (Viswanathan, 2012). Situational response tendency is also parallel to DiMaggio and Powell's (1983) coercive isomorphism and this actually indicates that in subsistence markets, there is 'contraception coercive isomorphism'. This compels subsistence markets contraception consumers to behave in tandem with what others are doing. These are typical features and behaviour of consumers in subsistence markets (Ingenbleek, 2014; Rivera-Santos et al., 2012;

Viswanathan, Sridharan, et al., 2008). Manipulating rural contraceptives consumers to uptake modern contraceptives therefore entails deliberately building positive implicit attitudes towards contraceptives. Any other information to the contrary would not sway rural consumers to change their attitudes and behaviour. Moreso, contraception behaviour is practiced away from public scrutiny and so people may profess one thing and do the opposite when they are in private.

Culture was confirmed to be positively related to contraceptive attitudes and contraception ads evaluation. Deeply held attitudes had direct influence on rural women's evaluation of ads implying that manipulating rural consumers' attitudes will in turn produce desirable evaluation of public print messages. Consumers evaluate messages without much thought or cognitive rigor but are more inclined to conformism or passively accepting the influence of latent or implicit attitudes. It can be concluded that contraception attitudes and behaviour is enduring and cannot be easily influenced in the short run. The strategy should be longitudinal and participatory to convince rural consumers to adopt modern contraceptives.

Latent classes were noted as heterogeneous sub segments of subsistence women in terms of their ads perceptions. Subsistence consumers may use holistic and analytic reasoning depending on the socioeconomic conditions, level of education and experience based knowledge of the focal object being advertised. These consumers are field or context dependent in the evaluation of marketing stimuli, so due diligence should be given to focal object, ad source, message, ecological environment, color and other relevant cues. In designing ads, cultural context matters. Therefore, marketers cannot afford to assume that a subsistence marketplace is a mass market. These markets cannot be served by a 'one size fits all' marketing mix but separate ads for particular segments would be more effective.

These findings have theoretical and practical implications to existing literature and social marketing practice.

Summary of Contributions to Theory and Practice

This chapter is basically on contributions of this thesis to existing knowledge. This section captures succinctly the theoretical, practical and empirical contributions, details of which have already been provided throughout the chapters and in previous sections of this chapter.

Theoretically, value priorities of subsistence marketplace women were established in two studies exhibiting basic consistence of the two conflicting bipolar and relations among values in subsistence marketplaces. This was a confirmation of Schwartz's theory of human values and the circumplex structure. Social axioms were also measured and their relations to contraceptive attitudes determined. Therefore, a structural model of relations among values, beliefs and contraceptive attitudes was established as bedrock to understanding consumers' ads perceptions in subsistence marketplaces. The study advanced our understanding of subsistence consumer behaviour in subsistence marketplaces given the uniqueness of the socio-economic, cultural and regulative systems existing in bottom of the pyramid markets presenting huge departures from the systems existing in Western markets. The institutional context in its various perspectives provides a learning laboratory for subsistence marketplace. There is a dearth in subsistence marketplace contraceptive consumer behaviour research despite its importance in improving consumer wellbeing through influencing consumer household per capita income.

This research provides measurement properties of the Contraceptive Attitudes Scale (CAS) suitable for subsistence marketplaces. Unlike the original scale by Black and Pollack (1987) which included 17 positive and negative worded items, the validated scale had only six items excluding the negative worded items which are notorious in low income and literacy

markets. The SAS was also validated in subsistence marketplace to comprise of six beliefs, adding Ubuntu to the original five axioms introduced by Leung and Bond. Contrary to expectations by African researchers, ancestral relevance was dropped due to poor loadings of all its items.

This study provides insights on subsistence marketplace consumers' advertising perceptions with regards to cultural constructs, and these relations have not been studied before in the literature I accessed. Whilst studies on values as a construct to operationalize culture have been done over the years, the incorporation of social axioms especially in contraception studies is a novel contribution to marketing science.

The most critical contribution of the current study was the identification of heterogeneous latent classes existing in subsistence marketplace consumers' advertising perceptions and the influence of cultural and socio-demographic factors. The study provide a detailed dissection of latent classes of rural women's poster ads perceptions and how these segments relate to cultural and demographic profiles of subsistence consumers. Details include the precise identification of religiosity and resultant conservation as having a positive relationship with contraceptive attitude. Fate control was noted to have a negative relationship whilst resultant self-transcendence and the rest of social axioms had insignificant relationship with contraceptive attitudes. The basis for a model of culture and antecedents of contraception ads evaluations in emerging markets was provided.

In most studies, behaviour is the ultimate dependent variable, however in study 1 the ultimate dependent variable was contraceptive attitudes, which have been noted in earlier research to be closely related to behaviour (Ajzen & Fishbein, 1980). The thrust was based on assessing the effects of previous and current behaviour on ads evaluation. This occurs on the

subsequent ads evaluation given that people would have behaved in one way or the other even before being exposed to public print ads. This is a feedback loop on the EBM model where consumption and post consumption evaluations would influence the evaluations of marketer dominated stimuli.

Practically, the study brings new insights on designing public poster ads targeting low income subsistence consumers. The contents of ads for such markets need to be revisited as the findings point to the need for advertisers to consider resultant self-conservation values and social axioms particularly religiosity and fate control in designing adverts. Attitudes are also crucial when creating creative briefs and appeals for subsistence markets. The often held notion that low income consumers evaluate negatively adverts with unmentionables such as condoms was not supported empirically. Marketers and advertising agents should evaluate target audience in terms of their values, beliefs, attitudes and demographic factors before coming up with public print media. Knowledge of the focal object was noted to be very crucial in determining ads perceptions. Fear appeals are not automatically accepted by consumers in emerging markets especially if the message has some blaming connotation of the dead which is against African norms. The findings of this study provides advertisers with a check list when designing and executing public print ads in emerging markets.

In segmenting subsistence marketplace contraceptive consumers, marketers are provided with the segmentation variables of culture and socio-demographic profiles which are relevant in subsistence markets. The three clusters identified can be used as default segments to be applied so as to then craft suitable marketing strategies to influence adoption and continual use of products in such markets.

Empirically, the researcher designed four typical public health poster advertisements which had unique cues as had been identified by subsistence marketplace focus group right in the field. These were not desk ads based on the researcher's imagination but they were ideas which came from subsistence consumers. Consequently, the four ads designed had the following interesting and novel text and imagery of which their comparative analysis is a substantive contribution to advertising research:

i) eye contact in ad 1 and lack of eye contact in ad 2
ii) individual subsistence consumer models in ad 1 and 2 and groups subsistence consumer models in ad 3 and ad 4
iii) background features on ads such as gravesite on ad 2 and field on ad 3

Advertisers are provided with, inter alia, possible features to include on subsistence marketplace poster advertisements which were derived from subsistence marketplace participants.

Methodologically, the study contributed to data collection approaches which may be used in subsistence markets especially when collecting data from women and also involving sensitive products. To maximize on subsistence women participation same sex local experts or informants must be used on sampling focus group participants and also in facilitating discussions on sensitive products.

The study brings into contraceptive studies social psychological and marketing perspectives. Contraception studies have been a preserve of natural sciences yet contraception is influenced by a plethora of latent behavioural sciences variables such as attitudes, values and beliefs. The depiction of the four ads, that were designed by the researcher showing different scenarios, provide a foundation for a development of if…..then…. contraceptive ads profiles,

which can be used as a basis for designing public print ads for subsistence marketplaces in the future.

Limitations and Implications for Future Research

There is no research without limitations and this study was not an exception especially given the macro-economic constraints that the researcher endured during the study duration.

The sample sizes for study 1 and study 2 were too small for a research of this nature. Schwartz (2007) noted that the circular structure of human values is usually not accurate if the sample size is less than 400 people. Future studies can aim at large numbers of participants and also broaden the study to cross-cultural research covering SADC or most African subsistence marketplaces.

The other limitation of the study was the confined focus on women. Contraceptive dynamics need to be understood by extending the study to include spouses of the women respondents and members of the extended family as they may have a bearing on women's contraception behaviour. Group dynamics were also not included in the study and could bring further insights. The study considered print ads only and excluded electronic media advertising which may also bring interesting perspectives given that such electronic media has diffused into subsistence markets. Another limitation was on the minimum attention which was given to content analysis of the messages that were included on the public print media. The models on the ads that were evaluated were non-celebrities and it would be interesting to find out how rural consumers would evaluate some ads that involve their own celebrities.

Another limitation of this study emanates from the nature of attitudes in terms of Fishbein and Ajzen's (1980) compatibility principle, that is, specificity in attitudinal measure improve predictability of the focal behaviour. It follows therefore that using the CAS compromised

specificity because the scale was on general attitudes towards contraceptives rather than attitudes towards a specific contraceptive. Attitudes are more accurate where object, time and action are more precise ((Ajzen & Fishbein, 1980). Future research may focus on zeroing on a specific contraceptive so as to improve the accuracy of predictors according to Fishbein and Ajzen's compatibility principle.

Consumer ethnocentrism could have been an interesting construct to include in this study. The effect of the 'in-group' as the center of everything as compared to the 'out-group' in terms of ethnocentric and non-ethnocentric sentiments (Balabanis & Diamantopoulos, 2004; Batra, Ramaswamy, Alden, Steenkamp, & Ramachander, 2000; Shimp & Sharma, 1987) would further enrich our understanding of subsistence marketplaces contraceptive consumer behaviour.

Future research could be done using implicit attitudes rather than explicit attitudes. The current study measured explicit attitudes rather than implicit attitudes to contraceptives (see Petty et al, 2008). Extant literature in social psychology indicates that implicit measures are better predictors of spontaneous behaviour whereas explicit attitudes are closely related to deliberate and controlled behaviour (Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Guyer & Fabrigar, 2015). Future research should focus on devising appropriate experimental design that would disentangle contraceptive attitudes in terms of the prevalence of public -self versus private -self (Froming et al., 1982,p.476-487). Contraceptives are usually used away from public glare. The question is do people maintain their public self in private in this regard?

More research is required on ads perceptions in terms of field dependence and field independence (see Witkin & Berry, 1975) of subsistence consumers. Do subsistence consumers decontextualize when evaluating public print ads and other external stimuli? Although incidental in this study, the issue of masculinity appeared to be a subtle factor in ads perception.

Researchers may further delve on the features of traditional masculinity acceptable by rural women where men are to be used as non-celebrity ad models. What about the influence of media on masculinity types (see Shaw, Eisend, & Tan, 2014) acceptable in subsistence markets?

In this study, the researcher employed the etic approach where measurement scales designed in Western markets were adapted for example CAS (Black & Pollack, 1987). Some scholars contends that using the etic approach in subsistence markets is fallacious because these markets may have their own meanings to the constructs of interest (Punnett, Ford, Galperin, & Lituchy, 2017, p. 3). Chen recommended recognition of culture specific 'focal approach' (Chen, 2010) in subsistence marketplaces. The culture specific approach is the emic approach which was not done in this study. The emic approach provides context specific views and understanding of concepts, and they will be culture specific. Taking an emic approach to studying contraception behaviour in subsistence marketplaces may bring more insights to existing knowledge.

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Appendix 1

Study 1 Data collection instrument-English

Dear participant:

Thank you for participating in this study. It is being conducted on behalf of a lecturer at Bindura University, Divaries C. Jaravaza, as a requirement of his doctoral degree studies at the University of the Witwatersrand in South Africa. The research concerns how people see themselves and the world, including public health issues such as contraception. There is no right or wrong answers. The results will help government and health care providers around the world understand how to share public health messages.

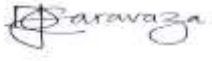
Your name and answers will be held in strict confidence by the researcher. As a quality check, someone on the research team may contact you in future to verify that you participated in this study, but that person will not know how you answered any question in the survey. Everything you tell us will be kept in strict confidentiality.

We would like to confirm that you are participating voluntarily, of your own free will. Your participation will in no way affect your present and future care, employment or lifestyle. There is no pressure on you to consent to participate.

We hope that you will answer every question, but please feel free to not answer a question, if you choose, or even to stop participating in the study at any time. If you have questions or concerns about the research, please call Divaries C. Jaravaza at Bindura University on 077-215-4887/8 or 077-317-6147.

Thank you for sharing your time to help us in this research.

With appreciation,



Divaries C. Jaravaza

Bindura University

To begin, we'd like to briefly describe some people to you. As each description is read, please think about how much each person is or is not like you.

Tick ☑ the box to the right that shows how much the person in the description is or is not like you.

How much is each person like you or not like you?	**Not like me at all**	**Not like me**	**A little like me**	**Somewhat like me**	**Like me**	**Very much like me**	**Do not know**
Thinking up new ideas and being creative is important to her. She likes to do things in her original way.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to be rich. She wants to have a lot of money and expensive things.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She thinks it is important that every person in the world be treated the same. She wants justice for everyone, even for people she doesn't know.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is very important to her to show her abilities. She wants people to admire what she does.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to live in a safe place. She avoids anything that might endanger her safety.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She likes surprises and is always looking for new things to do. She thinks it is important to do lots of different things in life.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She believes that people should do what they are told. She thinks people should follow rules at all times even when no one is watching.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to listen to people who are different from her. Even when she disagrees with others, she still wants to understand them.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She thinks it is important not to ask for more than what you have. She believes that people should be satisfied with what they have in life.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Having a good time is important to her. When a little money is left over, she likes to spoil herself with small treats.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

How much is each person like you or not like you?	**Not like me at all**	**Not like me**	**A little like me**	**Somewhat like me**	**Like me**	**Very much like me**	**Do not know**
It is important to her to make her own decisions about what she does. She likes to be free to plan and choose her activities for herself.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It's very important to her to help the people around her. She wants to care for other people.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Being very successful is important to her. She likes to impress other people.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is very important to her that her country is safe from threats from within or other nations. She is concerned that social order be protected.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She looks for adventures and likes to take risks. She wants to have an exciting life.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to always behave properly. She wants to avoid doing anything that people would say is wrong.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to be in charge. She likes to tell others what to do. She wants people to do what she says.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to be loyal to her friends. She wants to devote herself to people close to her.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She strongly believes that people should care for nature. Looking after the environment is important to her.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Religious belief is important to her. She tries hard to do what her religion requires.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She seeks every chance she can to have fun. It is important to her to do things that give her pleasure.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Thank you. Now, we'd like to ask some statements <u>about life and how it works</u>.

Please tell us how much you believe or don't believe each statement by ticking ☑ the box to the right of each statement.

How much do you believe or not believe each statement?	**Strongly do not believe**	**Do not believe**	**Undecided**	**Believe**	**Strongly believe**	**Do not know**
Kind hearted people are easily bullied.	☐1	☐2	☐3	☐4	☐5	☐6
One should be open and available to others.	☐1	☐2	☐3	☐4	☐5	☐6
Powerful people tend to exploit others.	☐1	☐2	☐3	☐4	☐5	☐6
It is good to be generous.	☐1	☐2	☐3	☐4	☐5	☐6
Difficult problems can be overcome by hard work and persistence.	☐1	☐2	☐3	☐4	☐5	☐6
Power and status make people arrogant.	☐1	☐2	☐3	☐4	☐5	☐6
Hard working people will achieve more in the end.	☐1	☐2	☐3	☐4	☐5	☐6
A person's behaviour is influenced by many things.	☐1	☐2	☐3	☐4	☐5	☐6
People may have opposite behaviour on different occasions.	☐1	☐2	☐3	☐4	☐5	☐6
One has to deal with matters according to the specific circumstances.	☐1	☐2	☐3	☐4	☐5	☐6
Human behaviour changes with the social context.	☐1	☐2	☐3	☐4	☐5	☐6
Good luck follows if one survives a disaster.	☐1	☐2	☐3	☐4	☐5	☐6
Fate determines ones success and failures.	☐1	☐2	☐3	☐4	☐5	☐6
There are certain ways to help us improve our luck and avoid unlucky things.	☐1	☐2	☐3	☐4	☐5	☐6
Belief in a religion helps one to understand the meaning of life.	☐1	☐2	☐3	☐4	☐5	☐6
Belief in a religion makes people good citizens.	☐1	☐2	☐3	☐4	☐5	☐6
There is a supreme being controlling the universe.	☐1	☐2	☐3	☐4	☐5	☐6

How much do you believe or not believe each statement?	**Strongly do not believe**	**Do not believe**	**Undecided**	**Believe**	**Strongly believe**	**Do not know**
Adversity can be overcome by effort.	☐1	☐2	☐3	☐4	☐5	☐6
One has to consider other people's wishes when choosing how to act.	☐1	☐2	☐3	☐4	☐5	☐6
Kind hearted people usually suffer losses.	☐1	☐2	☐3	☐4	☐5	☐6
It is not good to humiliate others.	☐1	☐2	☐3	☐4	☐5	☐6

Now, we would like to ask your opinions about contraceptives and why people use them. By contraceptives, we mean things that help stop unwanted pregnancies such as condoms, the diaphragm, the contraceptive pill, implants, IUDs (intrauterine devices), sterilization and the morning after pill.

There is no right or wrong answers. Please tell us your opinion, not what you think others might want you to think or feel. Your answers will be held in strict confidence.

Please tell us how much you agree or disagree with the following statements by ticking ☑ the box to the right of each statement.

How much do you agree or disagree with each statement?	**Strongly disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly agree**	**Do not know**
I encourage my friends to use contraceptives.	☐1	☐2	☐3	☐4	☐5	☐6
One should use contraceptives regardless of how long one has known their partner.	☐1	☐2	☐3	☐4	☐5	☐6
I feel more relaxed during intercourse if a contraception method is used.	☐1	☐2	☐3	☐4	☐5	☐6
I prefer to use contraceptives during intercourse.	☐1	☐2	☐3	☐4	☐5	☐6
In future I plan to use contraceptives any time I have intercourse.	☐1	☐2	☐3	☐4	☐5	☐6
I would practice contraception even if my partner did not want me to.	☐1	☐2	☐3	☐4	☐5	☐6

THANK YOU

Appendix 2

Study 1 Data collection instrument-Shona

Anodiwa

Ndinoda kukutendai nekubvuma kwenyu kupa pfungwa dzenyu pamusoro petsvakurudzo iyi. Tsvakurudzo iyi iri kuitwa naDivaries C. Jaravaza anodzidzisa paUnivhesiti yeBindura ari kubato rezvekutengesa nekutengeserana, izvo zvinodiwa paanenge achiita dzidzo yake yekuzova muzvinafundo apo ari kudzidza paUnivhesiti yemuSouth Africa inonzi Witwatersrand.

Tsvakurudzo iyi yakanangana nezveutano munharaunda ichizobudisa shanduko patsika nemagariro evanhu pakushandiswa kwenzira dzekudzivirira zvirwere zvirwere zvepabonde nepamuviri zvichibatsira hurumende neavo vanobatsira panzira dzekutaurirana nadzo uye zveutano munharaunda kuti dzive dzakavandudzika. Pfungwa dzawapa, zvauri uye zita rako zvinoita kuti uzikanwe hazvisi kuzobudiswa pachena kana mhinduro dzaunopa hadzigoni kuzozikanwa kuti ndiwe wadzipa. Sechidimbu chekutarisa tsvakurudzo iyi kuti ndeye chokwadi pane mukana mudiki wekuti munhu anokwanisa kukubata pane imwe nguva inotevera achida kuva nechokwadi papfungwa dzamakapa patsvakurudzo iyi. Asi munhu iyeye haazokwanisi kuziva kuti makapindura sei mibvunzo yacho. Zvese zvamuchatitaurira zvichachengetedzwa.

Tinoda kukuzivisai kutyi pfungwa dzenyu dzamuchapa muchaita nekuda kwenyu. Kupa pfungwa dzenyu patsvakurudzo iyi hakukanganisi kugara kwamakaita panzvimbo kana nguva inotevera kana basa uye magariro enyu. Hapana manikidzo iripo pakuti mupe pfungwa dzenyu.

Kana muine mibvunzo yamunayo yakanangana netsvakurudzo iyi ridzirai runhare Divaries C Jaravaza ari paBindura Univhesiti panhamba dzinoti 0772154887 kana 0773176147.

Ndinofunga muchapindura mibvunzo yose yakapiwa asi sunungukai henyu kusadaira mibvunzo yamusingadi kana maita sarudzo yenyu kana kuda kurega kupa pfungwa dzenyu patsvakurudzo iyi chero nguva.

Ndinotenda nekuzvipira kwenyu kuzvipa nguva yekundibatsira nepfungwa dzenyu pasarudzo iyi.

Ndinokutendai,



Divaries C. Jaravaza

Bindura University

Chekutanga ndinoda kutsanangura vamwe vanhu muchidimbu.Tsananguro imwe neimwe ichiverengwa mufunge kuti munhu wacho akafanana kana kuti haana kufanana newe. **Muise ☑ mubhokisi rekurudyi kuratidza kuti tsananguro yemunhu akapiwa yakafanana neyako zvakadii?**

Munhu wacho akafanana newe kana kusiyana newe zvakadii?	**Haana kufanana neni zvachose**	**Haana kufanana neni**	**Akafanana neni zvishoma**	**Muchidimbu anenge ini**	**Akafanana neni**	**Akafanana neni zvakanyanya**	**Handizivi**
Kufunga pfungwa itsva zvakamukoshera kwaari. Anoda kuita zvinhu nenzira yake oga.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kwaari kuti ave akapfuma. Anoda kuva nemari yakawanda nezvinhu zvinodhuura.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofunga kuti zvakakosha kuti munhu wese pasi rese abatwe zvakafanana. Anoda kuti pave nekubatwa kwakaenzana kumunhu wese chero waasingazivi.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuti azviratidze zvaanokwanisa kuita. Anoda kuti vanhu vayemure zvaanoita.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuti agare munharaunda dzakachengetedzeka. Anonyenyeredza zvinhu zvaanofunga kuti zvingamupinza munjodzi.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofarira kushamisa vanhu uye anogara achitsvaga zvinhu zvitsva zvekuita. Anofunga kuti zvakakosha kuita zvinhu zvakasiyana-siyana muupenyu.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofunga kuti vanhu vanofanira kuita zvavanenge vaudzwa. Anofunga kuti vanhu vanofanira kuteedzera mitemo nguva dzose chero pasina akavatarisa.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuteerera vanhu vakasiyana naye chero paanenge asingabvumirane nevamwe, anoda kuvanzwisisa.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofunga kuti zvakakosha kusakumbira zvinhu zvakawanda pamusoro pezvaunazvo. Ane mufungo wekuti munhu anofanira kugutsikana nezvaanazvo muhupenyu.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Kuva nenguva yakanaka zvakamukoshera kwaari. Kana pakasara kamari, anofarira kuzvifadza	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Munhu wacho akafanana newe kana kusiyana newe zvakadii?	**Haana kufanana neni zvachose**	**Haana kufanana neni**	**Akafanana neni zvishoma**	**Muchidimbu anenge ini**	**Akafanana neni**	**Akafanana neni zvakanyanya**	**Handizivi**
netunonakidza.							
Zvakamukoshera kuti azvifungire zvaanoda pazvinhu zvaanoita. Anoda kuva munhu akasununguka pakuronga uye kushara zvaanoda kuita.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha zvikuru kwaari kubatsira vanhu vakamupoteredza. Ane hanya nevamwe.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Kubudirira zvakanyanya zvakamukoshera kwaari. Anofarira kuti vanhu vayemure zvaanoita.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kuti nyika yake ive yakachengetedza mukugarisana kwevanhu mukati nekunze kwenyika. Anohanya nekuti kugarisana kwevanhu kwakachengetedzeka.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofarira kuita zvinhu zvitsva kunyange zvine njodzi. Anoda kuva neupenyu hunonakidza.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kwaari kuva neunhu hwakanaka. Anofarira kusaita zvinhu zvinoita kuti vamwe vanhu vati akanganisa.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuti ave iye anotungamira vamwe nekuudza vanhu zvekuita. Anoda kuti vanhu vaite zvaanenge ataura.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kuva munhu akatendeka kushamwari dzake. Anoda kupedza nguva yakareba nevanhu vari pedyo naye.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anogutsikana kuti vanhu vanofanira kuva nehanya nezvisikwa zvinowanikwa pasi rose zvinofema nezvisingafemi. Kuchengetedza nharaunda zvakamukoshera kwaari.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Chitendero chakakosha kwaari. Anozama kuita zvinoda chitendero chake.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anotsvakiridza mukana wekuti afare. Zvakamukoshera kwaari kuita zvinhu zvinomupa mufaro.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Tinoda kudzidza chimwe chinhu pamusoro pematendero aunoita kuti upenyu hunofamba sei. Ratidza uremu hwekutenda kwako pachirevo choga choga chiri pazasi. **Isa ☑ mubhokisi rekurudyi kuratidza uremu hwematendero ako muchirevo choga choga kana chausingatendi machiri.**

Unotenda kana kusatenda zvakadii pachirevo choga choga.	**Handinyanyi kutenda kwazviri**	**Handitotendi kwazviri**	**Ndiri pakati nepakati pekusatenda nekutenda**	**Ndinotenda kwazviri**	**Ndinonyanya kutenda kwazviri**	**Handizivi**
Vanhu vane moyo wakanaka vanojairirwa.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anofanira kuva akasununguka uye achibatika nguva dzose kune vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Vanhu vanesimba neupfumi vanodzvanyirira vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Zvakanaka kubatsira nekupa vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Matambudziko ese anopedzwa nekushanda nesimba uye kushingirira.	☐1	☐2	☐3	☐4	☐5	☐6
Simba nechiremerera chinopa vanhu ukasha uye kuti vakakosha kukunda vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Vanhu vanoshanda nesimba vanowana mubairo wakakura pakupedzisira.	☐1	☐2	☐3	☐4	☐5	☐6
Unhu hwemunhu hunokonzerwa nezvinhu zvakasiyana siyana.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anokwanisa kushandura unhu hwake zvichienderana nezviri kuitika ipapo.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anogadzirisa zvinhu netsira inoenderana nezvirikuitika uye zviripo.	☐1	☐2	☐3	☐4	☐5	☐6
Unhu hwevanhu hunochinja zvichienderana nenharaunda.	☐1	☐2	☐3	☐4	☐5	☐6
Zvinhu zvakanaka zvinouya mushure mekunge munhu ararama munjodzi.	☐1	☐2	☐3	☐4	☐5	☐6
Kubudirira kana kukundikana kunoenderana kupfurikidza nezvaakazvarwa akagumbatira.	☐1	☐2	☐3	☐4	☐5	☐6
Pane nzira dzinotibatsira kuti tive nerombo rakanaka kana rakashata.	☐1	☐2	☐3	☐4	☐5	☐6
Kutenda muchitendero kunobatsira munhu kunzwisisa zvinoreva upenyu.	☐1	☐2	☐3	☐4	☐5	☐6
Kutenda muchitendero kunoita kuti zvibatsire vanhu vemunyika kuti vave vakanaka.	☐1	☐2	☐3	☐4	☐5	☐6
Pasi rese riri mumaoko aMwari.	☐1	☐2	☐3	☐4	☐5	☐6
Nguva yakaoma muupenyu inokundwa nekuisa simba pazviri.	☐1	☐2	☐3	☐4	☐5	☐6

Unotenda kana kusatenda zvakadii pachirevo choga choga.	**Handinyanyi kutenda kwazviri**	**Handitotendi kwazviri**	**Ndiri pakati nepakati pekusatenda nekutenda**	**Ndinotenda kwazviri**	**Ndinonyanya kutenda kwazviri**	**Handizivi**
Munhu anofanira kutarisa zvinoda vamwe vanhu kana achisarudza maitiro ake.	☐1	☐2	☐3	☐4	☐5	☐6
Vanhu vane moyo wakanaka vanorasikirwa nezvinhu zvakawanda muupernyu.	☐1	☐2	☐3	☐4	☐5	☐6
Zvakashata kunyadzisa vamwe.	☐1	☐2	☐3	☐4	☐5	☐6

Pazasi apa pane zvirevo zvakasiyana-siyana zviri pamusoro pekushandiswa kwenzira dzekudzivirira zvirwere zvepabonde nepamuviri. Taridza zvaunofunga usingatarisi kuti vamwe vanhu vanonzwa sei nekuda kwezvirevo izvi? Hapana mhinduro yakanaka kana yakashata. **Isa ☑ mubhokisi rekurudyi kuratidza uremu hwematendero ako muchirevo choga choga kana chausingatendi machiri.**

Unotenda kana kusatenda zvakadii pachirevo choga choga.	**Handibvumirani nazvo zvakanyanya.**	**Handibvumirani nazvo**	**Handikwanisi kutsara**	**Ndinobvumirana nazvo**	**Ndinobvumirana nazvo zvakanyanya**	**Handizivi**
Ndinokurudzira shamwari dzangu kushandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anofanira kushandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri zvisinei nekuti madanana kwenguva yakareba zvakadii.	☐1	☐2	☐3	☐4	☐5	☐6
Ndinonzwa kudakara panguva yandinenge ndichiita bonde kana ndichishandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri.	☐1	☐2	☐3	☐4	☐5	☐6
Ndinotoda kushandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri.	☐1	☐2	☐3	☐4	☐5	☐6
Munguva inotevera ndinoronga kuzoshandisa nzira dzekudzivirira zvirwere zvepabonde nepamuviri chero nguva pandinoita bonde.	☐1	☐2	☐3	☐4	☐5	☐6
Ndinoshandisa nzira dzekudzivirira zvirwere zvepabonde nepamuviri chero mudiwa wangu asingadi kuti tishandise.	☐1	☐2	☐3	☐4	☐5	☐6

MAZVITA

Appendix 3

Study 2 Data collection instrument-English

Dear participant:

Thank you for participating in this study. It is being conducted on behalf of a lecturer at Bindura University, Divaries C. Jaravaza, as a requirement of his doctoral degree studies at the University of the Witwatersrand in South Africa. The research concerns how people see themselves and the world, including public health issues such as contraception. There is no right or wrong answers. The results will help government and health care providers around the world understand how to share public health messages.

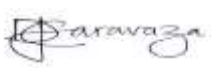
Your name and answers will be held in strict confidence by the researcher. As a quality check, someone on the research team may contact you in future to verify that you participated in this study, but that person will not know how you answered any question in the survey. Everything you tell us will be kept in strict confidentiality.

We would like to confirm that you are participating voluntarily, of your own free will. Your participation will in no way affect your present and future care, employment or lifestyle. There is no pressure on you to consent to participate.

We hope that you will answer every question, but please feel free to not answer a question, if you choose, or even to stop participating in the study at any time. If you have questions or concerns about the research, please call Divaries C. Jaravaza at Bindura University on 077-215-4887/8 or 077-317-6147.

Thank you for sharing your time to help us in this research.

With appreciation,



Divaries C. Jaravaza

Bindura University

To begin, we'd like to briefly describe some people to you. As each description is read, please think about how much each person is or is not like you.

Tick ☑ the box to the right that shows how much the person in the description is or is not like you.

How much is each person like you or not like you?	**Not like me at all**	**Not like me**	**A little like me**	**Somewhat like me**	**Like me**	**Very much like me**	**Do not know**
Thinking up new ideas and being creative is important to her. She likes to do things in her original way.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to be rich. She wants to have a lot of money and expensive things.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She thinks it is important that every person in the world be treated the same. She wants justice for everyone, even for people she doesn't know.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is very important to her to show her abilities. She wants people to admire what she does.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to live in a safe place. She avoids anything that might endanger her safety.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She likes surprises and is always looking for new things to do. She thinks it is important to do lots of different things in life.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She believes that people should do what they are told. She thinks people should follow rules at all times even when no one is watching.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to listen to people who are different from her. Even when she disagrees with others, she still wants to understand them.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She thinks it is important not to ask for more than what you have. She believes that people should be satisfied with what they have in life.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Having a good time is important to her. When a little money is left over, she likes to spoil herself with small treats.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

How much is each person like you or not like you?	**Not like me at all**	**Not like me**	**A little like me**	**Somewhat like me**	**Like me**	**Very much like me**	**Do not know**
It is important to her to make her own decisions about what she does. She likes to be free to plan and choose her activities for herself.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It's very important to her to help the people around her. She wants to care for other people.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Being very successful is important to her. She likes to impress other people.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is very important to her that her country is safe from threats from within or other nations. She is concerned that social order be protected.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She looks for adventures and likes to take risks. She wants to have an exciting life.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to always behave properly. She wants to avoid doing anything that people would say is wrong.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to be in charge. She likes to tell others what to do. She wants people to do what she says.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
It is important to her to be loyal to her friends. She wants to devote herself to people close to her.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She strongly believes that people should care for nature. Looking after the environment is important to her.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Religious belief is important to her. She tries hard to do what her religion requires.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
She seeks every chance she can to have fun. It is important to her to do things that give her pleasure.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Thank you. Now, we'd like to ask some statements about life and how it works.

Please tell us how much you believe or don't believe each statement by ticking ☑ the box to the right of each statement.

How much do you believe or not believe each statement?	**Strongly do not believe**	**Do not believe**	**Undecided**	**Believe**	**Strongly believe**	**Do not know**
Kind hearted people are easily bullied.	☐1	☐2	☐3	☐4	☐5	☐6
One should be open and available to others.	☐1	☐2	☐3	☐4	☐5	☐6
Powerful people tend to exploit others.	☐1	☐2	☐3	☐4	☐5	☐6
It is good to be generous.	☐1	☐2	☐3	☐4	☐5	☐6
Difficult problems can be overcome by hard work and persistence.	☐1	☐2	☐3	☐4	☐5	☐6
Power and status make people arrogant.	☐1	☐2	☐3	☐4	☐5	☐6
Hard working people will achieve more in the end.	☐1	☐2	☐3	☐4	☐5	☐6
A person's behaviour is influenced by many things.	☐1	☐2	☐3	☐4	☐5	☐6
People may have opposite behaviour on different occasions.	☐1	☐2	☐3	☐4	☐5	☐6
One has to deal with matters according to the specific circumstances.	☐1	☐2	☐3	☐4	☐5	☐6
Human behaviour changes with the social context.	☐1	☐2	☐3	☐4	☐5	☐6
Good luck follows if one survives a disaster.	☐1	☐2	☐3	☐4	☐5	☐6
Fate determines ones success and failures.	☐1	☐2	☐3	☐4	☐5	☐6
There are certain ways to help us improve our luck and avoid unlucky things.	☐1	☐2	☐3	☐4	☐5	☐6
Belief in a religion helps one to understand the meaning of life.	☐1	☐2	☐3	☐4	☐5	☐6
Belief in a religion makes people good citizens.	☐1	☐2	☐3	☐4	☐5	☐6
There is a supreme being controlling the universe.	☐1	☐2	☐3	☐4	☐5	☐6

How much do you believe or not believe each statement?	**Strongly do not believe**	**Do not believe**	**Undecided**	**Believe**	**Strongly believe**	**Do not know**
Adversity can be overcome by effort.	☐1	☐2	☐3	☐4	☐5	☐6
One has to consider other people's wishes when choosing how to act.	☐1	☐2	☐3	☐4	☐5	☐6
Kind hearted people usually suffer losses.	☐1	☐2	☐3	☐4	☐5	☐6
It is not good to humiliate others.	☐1	☐2	☐3	☐4	☐5	☐6

Now, we would like to ask your opinions about contraceptives and why people use them. By contraceptives, we mean things that help stop unwanted pregnancies such as condoms, the diaphragm, the contraceptive pill, implants, IUDs (intrauterine devices), sterilization and the morning after pill.

There is no right or wrong answers. Please tell us your opinion, not what you think others might want you to think or feel. Your answers will be held in strict confidence.

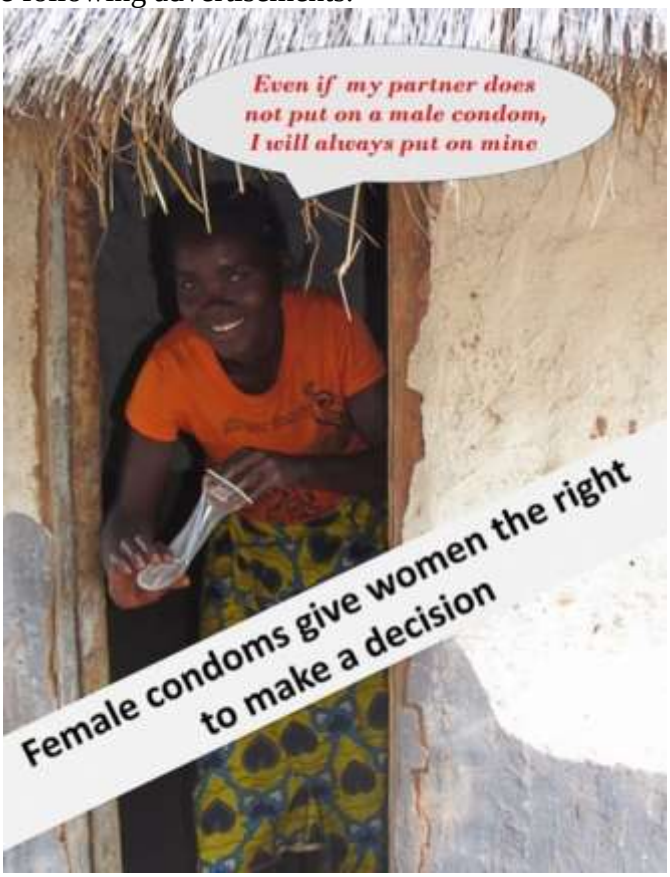
Please tell us how much you agree or disagree with the following statements by ticking ☑ the box to the right of each statement.

How much do you agree or disagree with each statement?	**Strongly disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly agree**	**Do not know**
I encourage my friends to use contraceptives.	☐1	☐2	☐3	☐4	☐5	☐6
One should use contraceptives regardless of how long one has known their partner.	☐1	☐2	☐3	☐4	☐5	☐6
I feel more relaxed during intercourse if a contraception method is used.	☐1	☐2	☐3	☐4	☐5	☐6
I prefer to use contraceptives during intercourse.	☐1	☐2	☐3	☐4	☐5	☐6

How much do you agree or disagree with each statement?	**Strongly disagree**	**Disagree**	**Undecided**	**Agree**	**Strongly agree**	**Do not know**
In future I plan to use contraceptives any time I have intercourse.	☐1	☐2	☐3	☐4	☐5	☐6
I would practice contraception even if my partner did not want me to.	☐1	☐2	☐3	☐4	☐5	☐6

Advertisement Evaluations

Now, we'd like you to tell us what you think about some advertising messages. Please tell us your opinions about the following advertisements.



1. To whom is the person in this advertisement speaking? (**Tick ☑ as many as apply**)

   ☐ Adult Males ☐ Adult females ☐ Teenage males ☐ Teenage females

2. Now, **looking at the advertisement, what would people like you think** about the person and the message in the advertisement? (**Tick ☑ as many as apply**)

They would think **the person in the ad is…**	They would think **the message is…**
☐$_1$ Attractive. Somebody like them.	☐$_1$ Interesting. People would read it.
☐$_2$ Credible. She knows what she is talking about.	☐$_2$ Informative. People would learn something.
☐$_3$ Promiscuous. Her behaviour is unacceptable.	☐$_3$ Inappropriate. People would be offended.
☐$_4$ Unattractive. She is not somebody like them.	☐$_4$ Understandable. People know what it means.
☐$_5$ Trendy. She is moving up with time.	☐$_5$ Unacceptable. People don't agree with this.

3. How would this message make them feel? (**Tick ☑ as many as apply**)

   ☐ Excited ☐ Distressed ☐ Miserable Pleased ☐ Sleepy ☐ Depressed ☐

4. Would people like you really take the time to read this advertisement?

☐ Yes ☐ No

Advertisement Evaluations

Here is another advertising message. Please tell us your opinions.



1. To whom is the person in this advertisement speaking? (**Tick ☑ as many as apply**)
   ☐ Adult Males ☐ Adult females ☐ Teenage males ☐ Teenage females
2. Now, **looking at the advertisement, what would people like you think** about the person and the message in the advertisement? (**Tick ☑ as many as apply**)

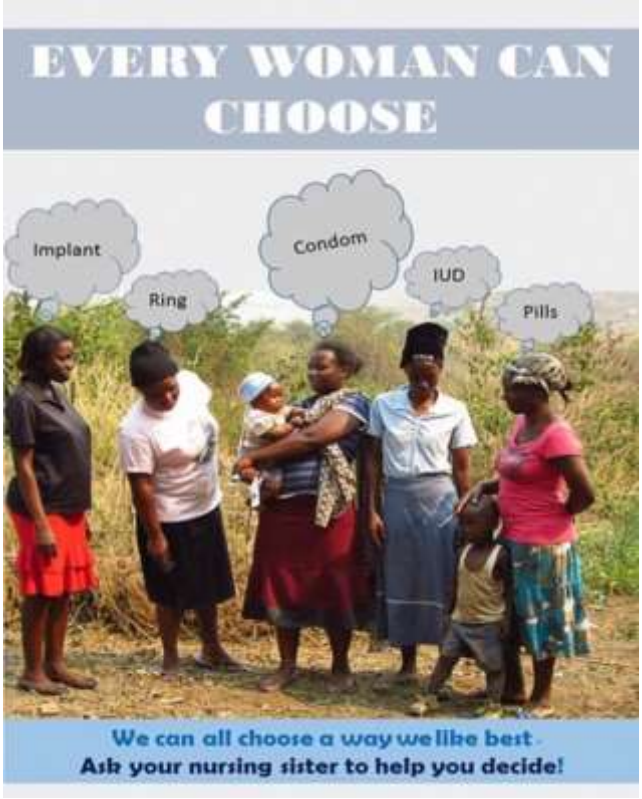
They would think **the person in the ad is…**	They would think **the message is…**
☐$_1$ Attractive. Somebody like them.	☐$_1$ Interesting. People would read it.
☐$_2$ Credible. She knows what she is talking about.	☐$_2$ Informative. People would learn something.
☐$_3$ Promiscuous. Her behaviour is unacceptable.	☐$_3$ Inappropriate. People would be offended.
☐$_4$ Unattractive. She is not somebody like them.	☐$_4$ Understandable. People know what it means.
☐$_5$ Trendy. She is moving up with time.	☐$_5$ Unacceptable. People don't agree with this.

3. How would this message make them feel? (**Tick ☑ as many as apply**)
   ☐ Excited ☐ Distressed ☐ Miserable Pleased ☐ Sleepy ☐ Depressed ☐
4. Would people like you really take the time to read this advertisement?

☐ Yes ☐ No

Advertisement Evaluations

Here is another advertising message. Please tell us your opinions.



1. To whom are the people in this advertisement speaking? (**Tick ☑ as many as apply**)

☐ Adult Males ☐ Adult females ☐ Teenage males ☐ Teenage females

2. Now, **looking at the advertisement, what would people like you think** about the people and the message in the advertisement? (**Tick ☑ as many as apply**)

They would think **the people in the ad are…**	They would think **the message is…**
☐$_1$ Attractive. Somebody like them.	☐$_1$ Interesting. People would read it.
☐$_2$ Credible. They know what they are talking about.	☐$_2$ Informative. People would learn something.
☐$_3$ Promiscuous. Their behaviour is unacceptable.	☐$_3$ Inappropriate. People would be offended.
☐$_4$ Unattractive. They are not somebody like them.	☐$_4$ Understandable. People know what it means.
☐$_5$ Trendy. They are moving up with time.	☐$_5$ Unacceptable. People don't agree with this.

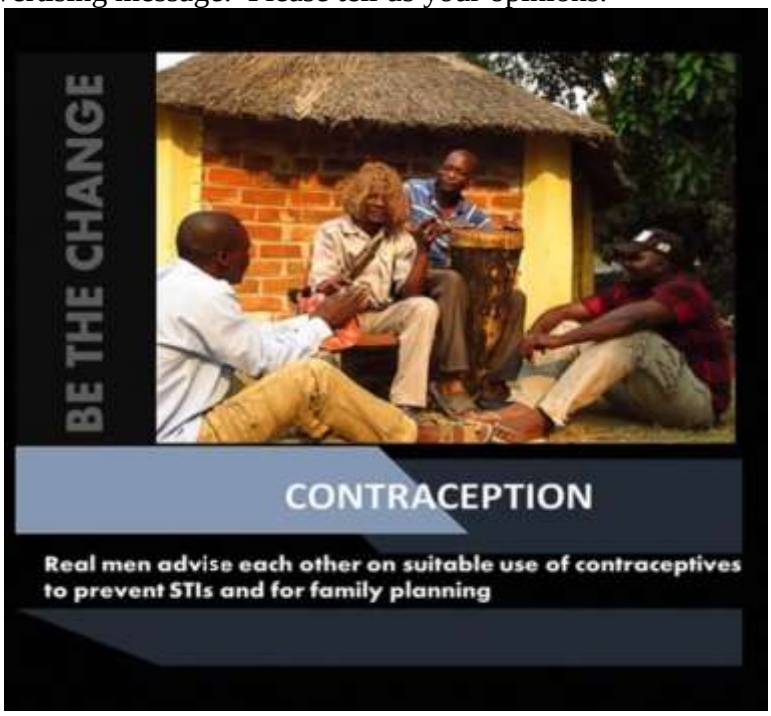
3. How would this message make them feel? (**Tick ☑ as many as apply**)

☐ Excited ☐ Distressed ☐ Miserable Pleased ☐ Sleepy ☐ Depressed ☐

4. Would people like you really take the time to read this advertisement?
☐ Yes ☐ No

Advertisement Evaluations

Here is another advertising message. Please tell us your opinions.



1. To whom is the person in this advertisement speaking? (**Tick ☑ as many as apply**)
☐ Adult Males ☐ Adult females ☐ Teenage males ☐ Teenage females

2. Now, **looking at the advertisement, what would people like you think** about the person and the message in the advertisement? (**Tick ☑ as many as apply**)

They would think **the people in the ad are…**	They would think **the message is…**
☐$_1$ Attractive. Somebody like them.	☐$_1$ Interesting. People would read it.
☐$_2$ Credible. They know what they are talking about.	☐$_2$ Informative. People would learn something.
☐$_3$ Promiscuous. Their behaviour is unacceptable.	☐$_3$ Inappropriate. People would be offended.
☐$_4$ Unattractive. They are not somebody like them.	☐$_4$ Understandable. People know what it means.
☐$_5$ Trendy. They are moving up with time.	☐$_5$ Unacceptable. People don't agree with this.

3. How would this message make them feel? (**Tick ☑ as many as apply**)
☐ Excited ☐ Distressed ☐ Miserable Pleased ☐ Sleepy ☐ Depressed ☐

4. Would people like you really take the time to read this advertisement?

☐ Yes ☐ No

Thank you very much for participating in this study. Please tell us a bit about yourself by answering these final questions. Your answers will help us to understand your answers to the survey**.**

Demographic and Contraceptive Background: Tick ☑ only one box

1. Income: Monthly Income

   ☐US$ 100 and below ☐ between US$101 and US$200

   ☐ US$201 and US$400 ☐ US$401 and US$600

   ☐ US$601 and US$800 ☐ US$801 and US$1000

   ☐ Above US$1000

2. What is your primary method of contraception?
   Tick ☑ as many boxes as apply

   ☐ Male condoms ☐ Female condoms

   ☐ Oral contraceptives (birth control pills) ☐ IUD

   ☐ Birth control patch ☐ Vaginal ring

   ☐ Spermicides ☐ Diaphragm

   ☐ Withdrawal method ☐ Abstinence

   ☐ Every 3 month hormone shot ☐ Emergency contraception

   ☐ Traditional (specify)…… ☐ None

3. How likely is it that you will continue using at least some of these contraceptive methods during the next year?
   Tick ☑ only one box

   ☐ Very likely ☐ Likely ☐ Neutral

   ☐ Unlikely ☐ Very unlikely ☐ Do not know

4. Is it likely that you would adopt one of these contraceptive methods that you do not use now, in the next year?
   Tick ☑ only one box

   ☐ Very likely ☐ Likely ☐ Neutral

   ☐ Unlikely ☐ Very unlikely ☐ Do not know

5. Is it likely that you would adopt one of these contraceptive methods that you do not use now, if you learned more about it from a class or programme in the next year?
   Tick ☑ only one box

☐ Very likely ☐ Likely ☐ Neutral
☐ Unlikely ☐ Very unlikely ☐ Do not know

6. In which of these age groups are you?
Tick ☑ only one box
☐ 20 or below ☐ 21 – 30 ☐ 31 – 40
☐ 41 – 50 ☐ 51 – 60 ☐ 60 or over

7. People learn a lot in daily life as well as school. How many years did you attend classes in a formal school or higher education Which of these groups best describes how many years of formal education you received in a school or university?
Tick ☑ only one box
☐ Less than 4 years of education ☐ 5 – 7 years of education
☐ Some high school ☐ Completed high school
☐ Some technical school or university ☐ University or technical school certificate or degree

Occupation: _____
Village: _____

8. Religion:
Tick ☑ only one box
☐ Muslim ☐ Catholic ☐ Pentecostal
☐ Apostolic ☐ African traditional religion ☐ none

9. How religious, if at all, do you consider yourself to be?
Tick ☑ only one box
☐ Not at all religious ☐ Not very religious ☐ Somewhat religious
☐ Religious ☐ Very religious ☐ Do not know

10. How often, if at all, do you engage in religious practice (e.g., go to church/mosque, pray)
Tick ☑ only one box
☐ Never ☐ A few times a year ☐ Once a month
☐ Once a week ☐ Once a day ☐ More than once a day

11. Marital status:
Tick ☑ only one box
☐ Married ☐ Divorced
☐ Widowed ☐ Unmarried

THANK YOU!

Appendix 4

Study 2 Data collection instrument-Shona

Anodiwa

Ndinoda kukutendai nekubvuma kwenyu kupa pfungwa dzenyu pamusoro petsvakurudzo iyi. Tsvakurudzo iyi iri kuitwa naDivaries C. Jaravaza anodzidzisa paUnivhesiti yeBindura ari kubato rezvekutengesa nekutengeserana, izvo zvinodiwa paanenge achiita dzidzo yake yekuzova muzvinafundo apo ari kudzidza paUnivhesiti yemuSouth Africa inonzi Witwatersrand.

Tsvakurudzo iyi yakanangana nezveutano munharaunda ichizobudisa shanduko patsika nemagariro evanhu pakushandiswa kwenzira dzekudzivirira zvirwere zvirwere zvepabonde nepamuviri zvichibatsira hurumende neavo vanobatsira panzira dzekutaurirana nadzo uye zveutano munharaunda kuti dzive dzakavandudzika. Pfungwa dzawapa, zvauri uye zita rako zvinoita kuti uzikanwe hazvisi kuzobudiswa pachena kana mhinduro dzaunopa hadzigoni kuzozikanwa kuti ndiwe wadzipa. Sechidimbu chekutarisa tsvakurudzo iyi kuti ndeye chokwadi pane mukana mudiki wekuti munhu anokwanisa kukubata pane imwe nguva inotevera achida kuva nechokwadi papfungwa dzamakapa patsvakurudzo iyi. Asi munhu iyeye haazokwanisi kuziva kuti makapindura sei mibvunzo yacho. Zvese zvamuchatitaurira zvichachengetedzwa.

Tinoda kukuzivisai kutyi pfungwa dzenyu dzamuchapa muchaita nekuda kwenyu. Kupa pfungwa dzenyu patsvakurudzo iyi hakukanganisi kugara kwamakaita panzvimbo kana nguva inotevera kana basa uye magariro enyu. Hapana manikidzo iripo pakuti mupe pfungwa dzenyu.

Kana muine mibvunzo yamunayo yakanangana netsvakurudzo iyi ridzirai runhare Divaries C. Jaravaza ari paBindura Univhesiti panhamba dzinoti 0772154887 kana 0773176147.

Ndinofunga muchapindura mibvunzo yose yakapiwa asi sunungukai henyu kusadaira mibvunzo yamusingadi kana maita sarudzo yenyu kana kuda kurega kupa pfungwa dzenyu patsvakurudzo iyi chero nguva.

Ndinotenda nekuzvipira kwenyu kuzvipa nguva yekundibatsira nepfungwa dzenyu pasarudzo iyi.

Ndinokutendai,



Divaries C. Jaravaza

Bindura University

Chekutanga ndinoda kutsanangura vamwe vanhu muchidimbu.Tsananguro imwe neimwe ichiverengwa mufunge kuti munhu wacho akafanana kana kuti haana kufanana newe. **Muise ☑ mubhokisi rekurudyi kuratidza kuti tsananguro yemunhu akapiwa yakafanana neyako zvakadii?**

Munhu wacho akafanana newe kana kusiyana newe zvakadii?	**Haana kufanana neni zvachose**	**Haana kufanana neni**	**Akafanana neni zvishoma**	**Muchidimbu anenge ini**	**Akafanana neni**	**Akafanana neni zvakanyanya**	**Handizivi**
Kufunga pfungwa itsva zvakamukoshera kwaari. Anoda kuita zvinhu nenzira yake oga.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kwaari kuti ave akapfuma. Anoda kuva nemari yakawanda nezvinhu zvinodhuura.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofunga kuti zvakakosha kuti munhu wese pasi rese abatwe zvakafanana. Anoda kuti pave nekubatwa kwakaenzana kumunhu wese chero waasingazivi.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuti azviratidze zvaanokwanisa kuita. Anoda kuti vanhu vayemure zvaanoita.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuti agare munharaunda dzakachengetedzeka. Anonyenyeredza zvinhu zvaanofunga kuti zvingamupinza munjodzi.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofarira kushamisa vanhu uye anogara achitsvaga zvinhu zvitsva zvekuita. Anofunga kuti zvakakosha kuita zvinhu zvakasiyana-siyana muupenyu.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofunga kuti vanhu vanofanira kuita zvavanenge vaudzwa. Anofunga kuti vanhu vanofanira kuteedzera mitemo nguva dzose chero pasina akavatarisa.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuteerera vanhu vakasiyana naye chero paanenge asingabvumirane nevamwe, anoda kuvanzwisisa.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofunga kuti zvakakosha kusakumbira zvinhu zvakawanda pamusoro pezvaunazvo. Ane mufungo wekuti munhu anofanira kugutsikana nezvaanazvo muhupenyu.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Kuva nenguva yakanaka zvakamukoshera kwaari. Kana pakasara kamari, anofarira kuzvifadza netunonakidza.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kuti azvifungire zvaanoda	☐1	☐2	☐3	☐4	☐5	☐6	☐7

pazvinhu zvaanoita. Anoda kuva munhu akasununguka pakuronga uye kushara zvaanoda kuita.							
Zvakakosha zvikuru kwaari kubatsira vanhu vakamupoteredza. Ane hanya nevamwe.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Kubudirira zvakanyanya zvakamukoshera kwaari. Anofarira kuti vanhu vayemure zvaanoita.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kuti nyika yake ive yakachengetedza mukugarisana kwevanhu mukati nekunze kwenyika. Anohanya nekuti kugarisana kwevanhu kwakachengetedzeka.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anofarira kuita zvinhu zvitsva kunyange zvine njodzi. Anoda kuva neupenyu hunonakidza.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kwaari kuva neunhu hwakanaka. Anofarira kusaita zvinhu zvinoita kuti vamwe vanhu vati akanganisa.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakakosha kwaari kuti ave iye anotungamira vamwe nekuudza vanhu zvekuita. Anoda kuti vanhu vaite zvaanenge ataura.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Zvakamukoshera kuva munhu akatendeka kushamwari dzake. Anoda kupedza nguva yakareba nevanhu vari pedyo naye.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anogutsikana kuti vanhu vanofanira kuva nehanya nezvisikwa zvinowanikwa pasi rose zvinofema nezvisingafemi. Kuchengetedza nharaunda zvakamukoshera kwaari.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Chitendero chakakosha kwaari. Anozama kuita zvinoda chitendero chake.	☐1	☐2	☐3	☐4	☐5	☐6	☐7
Anotsvakiridza mukana wekuti afare. Zvakamukoshera kwaari kuita zvinhu zvinomupa mufaro.	☐1	☐2	☐3	☐4	☐5	☐6	☐7

Tinoda kudzidza chimwe chinhu pamusoro pematendero aunoita kuti upenyu hunofamba sei. Ratidza uremu hwekutenda kwako pachirevo choga choga chiri pazasi. **Isa ☑ mubhokisi rekurudyi kuratidza uremu hwematendero ako muchirevo choga choga kana chausingatendi machiri.**

Unotenda kana kusatenda zvakadii pachirevo choga choga.	**Handinyanyi kutenda kwazviri**	**Handitotendi kwazviri**	**Ndiri pakati nepakati pekusatenda nekutenda**	**Ndinotenda kwazviri**	**Ndinonyanya kutenda kwazviri**	**Handizivi**
Vanhu vane moyo wakanaka vanojairirwa.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anofanira kuva akasununguka uye	☐1	☐2	☐3	☐4	☐5	☐6

achibatika nguva dzose kune vamwe.						
Vanhu vanesimba neupfumi vanodzvanyirira vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Zvakanaka kubatsira nekupa vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Matambudziko ese anopedzwa nekushanda nesimba uye kushingirira.	☐1	☐2	☐3	☐4	☐5	☐6
Simba nechiremerera chinopa vanhu ukasha uye kuti vakakosha kukunda vamwe.	☐1	☐2	☐3	☐4	☐5	☐6
Vanhu vanoshanda nesimba vanowana mubairo wakakura pakupedzisira.	☐1	☐2	☐3	☐4	☐5	☐6
Unhu hwemunhu hunokonzerwa nezvinhu zvakasiyana siyana.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anokwanisa kushandura unhu hwake zvichienderana nezviri kuitika ipapo.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anogadzirisa zvinhu netsira inoenderana nezvirikuitika uye zviripo.	☐1	☐2	☐3	☐4	☐5	☐6
Unhu hwevanhu hunochinja zvichienderana nenharaunda.	☐1	☐2	☐3	☐4	☐5	☐6
Zvinhu zvakanaka zvinouya mushure mekunge munhu ararama munjodzi.	☐1	☐2	☐3	☐4	☐5	☐6
Kubudirira kana kukundikana kunoenderana kupfurikidza nezvaakazvarwa akagumbatira.	☐1	☐2	☐3	☐4	☐5	☐6
Pane nzira dzinotibatsira kuti tive nerombo rakanaka kana rakashata.	☐1	☐2	☐3	☐4	☐5	☐6
Kutenda muchitendero kunobatsira munhu kunzwisisa zvinoreva upenyu.	☐1	☐2	☐3	☐4	☐5	☐6
Kutenda muchitendero kunoita kuti zvibatsire vanhu vemunyika kuti vave vakanaka.	☐1	☐2	☐3	☐4	☐5	☐6
Pasi rese riri mumaoko aMwari.	☐1	☐2	☐3	☐4	☐5	☐6
Nguva yakaoma muupenyu inokundwa nekuisa simba pazviri.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anofanira kutarisa zvinoda vamwe vanhu kana achisarudza maitiro ake.	☐1	☐2	☐3	☐4	☐5	☐6
Vanhu vane moyo wakanaka vanorasikirwa nezvinhu zvakawanda muupernyu.	☐1	☐2	☐3	☐4	☐5	☐6
Zvakashata kunyadzisa vamwe.	☐1	☐2	☐3	☐4	☐5	☐6

Pazasi apa pane zvirevo zvakasiyana-siyana zviri pamusoro pekushandiswa kwenzira dzekudzivirira zvirwere zvepabonde nepamuviri. Taridza zvaunofunga usingatarisi kuti vamwe vanhu vanonzwa sei nekuda kwezvirevo izvi? Hapana mhinduro yakanaka kana yakashata. **Isa ☑ mubhokisi rekurudyi kuratidza uremu hwematendero ako muchirevo choga choga kana chausingatendi machiri.**

Unotenda kana kusatenda zvakadii pachirevo choga choga.	**Handibvumirani nazvo zvakanyanya.**	**Handibvumirani nazvo**	**Handikwanisi kutsara**	**Ndinobvumirana nazvo**	**Ndinobvumirana nazvo zvakanyanya**	**Handizivi**
Ndinokurudzira shamwari dzangu kushandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri.	☐1	☐2	☐3	☐4	☐5	☐6
Munhu anofanira kushandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri zvisinei nekuti madanana kwenguva yakareba zvakadii.	☐1	☐2	☐3	☐4	☐5	☐6
Ndinonzwa kudakara panguva yandinenge ndichiita bonde kana ndichishandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri.	☐1	☐2	☐3	☐4	☐5	☐6
Ndinotoda kushandisa nzira yekudzivirira zvirwere zvepabonde nepamuviri.	☐1	☐2	☐3	☐4	☐5	☐6
Munguva inotevera ndinoronga kuzoshandisa nzira dzekudzivirira zvirwere zvepabonde nepamuviri chero nguva pandinoita bonde.	☐1	☐2	☐3	☐4	☐5	☐6
Ndinoshandisa nzira dzekudzivirira zvirwere zvepabonde nepamuviri chero mudiwa wangu asingadi kuti tishandise.	☐1	☐2	☐3	☐4	☐5	☐6

Ongororo yeshambadzo

Tiudze pfungwa dzako pamusoro peshambadzo dzinotevera.



1. Munhu ari kutaura pashambadzo iyi akanangana nani?
   (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

   ☐1 Varume vakuru ☐2 Vakadzi vakuru
   ☐3 Majaha ☐4 Mhandara

2. **Takatarisa shambadzo iyi, vanhu vakaita sewe vanofungei** pamusoro pemunhu uye mashoko ari kusvitswa kuvanhu mushambadzo? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

Vanogona kufunga kuti **munhu uyu…**	Vanogona kufunga kuti **mashoko aya…**
☐1 Anoyemurika, mumwe munhu akaita savo.	☐1 Anofadza, vanhu vanozviverenga.
☐2 Anotendeseka, anoziva zvaari kutaura.	☐2 Anodzidzisa, vanhu vanogona kudzidza chimwe chinhu.
☐3 Inzenza, zviito zvake zvakashata.	☐3 Haakodzeri, vanhu vanogona kunyangadzwa.
☐4 Haayemuriki, haana kufanana navo.	☐4 Haanzwisisiki, vanhu vanotadza kunzwa zvataurwa.
☐5 Ndewe chizvino zvino, anofambirana nenguva.	☐5 Haagamuchiriki, vanhu havatenderani nazvo.

3. Vanhu vakaita sewe vangatora nguva vachiverenga shambadzo iyi here?
   ☐ Hongu ☐ Kwete
4. Mashoko aya anoita kuti vanzwe sei? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

   Kufara ☐ Kushushikana ☐ Kusiririsa ☐
   Kugutsikana ☐ Kupedzwa simba ☐ Kushaya mufaro ☐

Ongororo yeshambadzo

Tiudze pfungwa dzako pamusoro peshambadzo dzinotevera.



1. Munhu ari kutaura pashambadzo iyi akanangana nani?
   (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

   ☐1 Varume vakuru ☐2 Vakadzi vakuru

   ☐3 Majaha ☐4 Mhandara

2. **Takatarisa shambadzo iyi, vanhu vakaita sewe vanofungei** pamusoro pemunhu uye mashoko ari kusvitswa kuvanhu mushambadzo? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

Vanogona kufunga kuti **munhu uyu…**	Vanogona kufunga kuti **mashoko aya…**
☐1 Anoyemurika, mumwe munhu akaita savo.	☐1 Anofadza, vanhu vanozviverenga.
☐2 Anotendeseka, anoziva zvaari kutaura.	☐2 Anodzidzisa, vanhu vanogona kudzidza chimwe chinhu.
☐3 Inzenza, zviito zvake zvakashata.	☐3 Haakodzeri, vanhu vanogona kunyangadzwa.
☐4 Haayemuriki, haana kufanana navo.	☐4 Haanzwisisiki, vanhu vanotadza kunzwa zvataurwa.
☐5 Ndewe chizvino zvino, anofambirana nenguva.	☐5 Haagamuchiriki, vanhu havatenderani nazvo.

3. Vanhu vakaita sewe vangatora nguva vachiverenga shambadzo iyi here?
   ☐ Hongu ☐ Kwete

4. Mashoko aya anoita kuti vanzwe sei?
   (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)
   Kufara ☐ Kushushikana ☐ Kusiririsa ☐

Kugutsikana ☐ Kupedzwa simba ☐ Kushaya mufaro ☐

Ongororo yeshambadzo

Tiudze pfungwa dzako pamusoro peshambadzo dzinotevera.



1. Munhu ari kutaura pashambadzo iyi akanangana nani?
   (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

   ☐1 Varume vakuru ☐2 Vakadzi vakuru
   ☐3 Majaha ☐4 Mhandara

2. **Takatarisa shambadzo iyi, vanhu vakaita sewe vanofungei** pamusoro pevanhu vari mushambadzo iyi, uye mashoko ari kusvitswa kuvanhu mushambadzo? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

Vanogona kufunga kuti **vanhu ava…**	Vanogona kufunga kuti **mashoko aya…**
☐1 Vanoyemurika, vamwe vanhu vakaita savo.	☐1 Anofadza, vanhu vanozviverenga.
☐2 Anotendeseka, vanoziva zvavari kutaura.	☐2 Anodzidzisa, vanhu vanogona kudzidza chimwe chinhu.
☐3 Inzenza, zviito zvavo zvakashata.	☐3 Haakodzeri, vanhu vanogona kunyangadzwa.
☐4 Haayemuriki, haana kufanana navo.	☐4 Haanzwisisiki, vanhu vanotadza kunzwa zvataurwa.
☐5 Ndeve chizvino zvino, vanofambirana nenguva.	☐5 Haagamuchiriki, vanhu havatenderani nazvo.

3. Vanhu vakaita sewe vangatora nguva vachiverenga shambadzo iyi here?
   ☐ Hongu ☐ Kwete

4. Mashoko aya anoita kuti vanzwe sei? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

Kufara ☐ Kushushikana ☐ Kusiririsa ☐

Kugutsikana ☐ Kupedzwa simba ☐ Kushaya mufaro ☐

Ongororo yeshambadzo

Tiudze pfungwa dzako pamusoro peshambadzo dzinotevera.



1. Munhu ari kutaura pashambadzo iyi akanangana nani?
   (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

   ☐1 Varume vakuru ☐2 Vakadzi vakuru

   ☐3 Majaha ☐4 Mhandara

2. **Takatarisa shambadzo iyi, vanhu vakaita sewe vanofungei** pamusoro pemunhu uye mashoko ari kusvitswa kuvanhu mushambadzo? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

Vanogona kufunga kuti **vanhu ava…**	Vanogona kufunga kuti **mashoko aya…**
☐1 Vanoyemurika, vamwe vanhu vakaita savo.	☐1 Anofadza, vanhu vanozviverenga.
☐2 Vanotendeseka, vanoziva zvavari kutaura.	☐2 Anodzidzisa, vanhu vanogona kudzidza chimwe chinhu.
☐3 Inzenza, zviito zvavo zvakashata.	☐3 Haakodzeri, vanhu vanogona kunyangadzwa.
☐4 Havayemuriki, haana kufanana navo.	☐4 Haanzwisisiki, vanhu vanotadza kunzwa zvataurwa.
☐5 Ndeve chizvino zvino, vanofambirana nenguva.	☐5 Haagamuchiriki, vanhu havatenderani nazvo.

3. Vanhu vakaita sewe vangatora nguva vachiverenga shambadzo iyi here?

   ☐ Hongu ☐ Kwete

4. Mashoko aya anoita kuti vanzwe sei? (**Isa ☑ pakakodzera, unogona kutika pakawanda zvichienderana nemaonero ako**)

Kufara ☐ Kushushikana ☐ Kusiririsa ☐

Kugutsikana ☐ Kupedzwa simba ☐ Kushaya mufaro ☐

Ndinokutendai nesarudzo yenyu kupindura mibvunzo ino.Tavakuda kuziva mashandisiro amunoita mhando dzezvinodzivirira pamuviri nezvirwere zvepabonde uye zvimwe zvine chokuita nezera, upfumi nemararamiriro enyu**. . Isa ☑ mubhokisi rekurudyi kuratidza mashandisiro emhando dzekudzivirira pamuviri uye nenhorondo yemararamiro enyu.**

12. Mari yamunotambira kana kuwana pamwedzi.

Isa ☑ mubhokisi rimwe chete.

☐US$ 100 zvichidzika ☐ pakati peUS$101 ne US$200

☐ pakati peUS$201 ne US$400 ☐ pakati peUS$401 ne US$600

☐ pakati peUS$601 ne US$800 ☐ pakati peUS$801 ne US$1000

☐ Kupfuura US$1000

13. Ndeipi nzira yaunoshandisa pakudzivirira zvirwere zvepabonde nepakuronga mhuri? .**Isa ☑ mumabhokisi akawanda zvichienderana nezvaunoshandisa.**

☐ Makondomu echirume ☐ Makondomu echikadzi

☐ Mapiritsi ekurera mhuri (birth control pills) ☐ IUD

☐ Birth control patch ☐ Vaginal ring

☐ Spermicides ☐ Diaphragm

☐ Kurasira mbeu pasi (Withdrawal method) ☐ Kusaita zvebonde (Abstinence)

☐ Every 3 month hormone shot ☐ Emergency contraception

☐ Kushandisa tsika dzechivanhu (Traditional (Tsanangura)…… ☐ Hapana chandinoshandisa (None)

14. Unofunga kuti uchakwanisa kuramba uchishandisa nzira dzekudzivirira dzauri kushandisa gore rinouya kana kudarika here?

Isa ☑ mubhokisi rimwe chete

☐ ndinofunga kudaro ☐ Ndinofunga kudaro zvakanyanya

☐ hameno ☐ handifungi ndichashandisa

☐ Handifungi kudaro ☐ Handizivi zvakanyanya

15. Unofunga kuti ungazotanga kushandisa dzimwe mhando dzekudzivirira pamuviri nezvirwere zvepabonde dzausiri kushandisa izvezvi here?

Isa ☑ mubhokisi rimwe chete.

☐ ndinofunga kudaro zvakanyanya ☐ Ndinofunga kudaro

☐ hameno ☐ handifungi ndichashandisa

☐ Handifungi kudaro zvakanyanya ☐ Handizivi

16. Unofunga kuti ungazotanga kushandisa dzimwe mhando dzemazuva ano dzekudzivirira pamuviri nezvirwere zvepabonde kana pakaitwa chirongwa chekukudzidzisamashandisirwo uye zvakanakira mhando idzi?

Isa ☑ mubhokisi rimwe chete.

☐ ndinofunga kudaro zvakanyanya ☐ Ndinofunga kudaro

☐ hameno ☐ handifungi ndichashandisa

☐ Handifungi kudaro zvakanyanya ☐ Handizivi

17. Uri wezera ripi?

Isa ☑ mubhokisi rimwe chete.

☐ 20 kana kudzika ☐ 21 – 30 ☐ 31 – 40

☐41 – 50 ☐ 51 – 60 ☐ 60 kana kukwira

18. Dzidzo: vanhu vanodzidza kubva muzvinhu zvinoitika mazuva ose ekurarama. Asivo pane kudzidza kwekuenda kuchikoro, kumakoreji kana univhesiti. Imi makaenda kuchikoro kusvika papi?

Isa ☑ mubhokisi rimwe chete.

☐ Less than 4 years of education ☐ 5 – 7 years of education

☐ Secondary education ☐ College yekudzidzira basa

☐ High school(kupedza fomu 6) ☐ Certificate/ degree

Zvaunoita: _____

Dunhu: _____

19. Chitendero:

Isa ☑ mubhokisi rimwe chete.

☐ Chimuziremu (Muslim) ☐ Chiroma (Catholic)

☐ Pentecostal ☐ Chipositori (Apostolic)

☐ Midzimu (African traditional religion) ☐ Handina chitendero (none)

20. Unonyanya kubatikana nezvechitendero zvakadii?

Isa ☑ mubhokisi rimwe chete.

☐ Handina hanya nazvo zvachose
☐ Handinyanyi kubatikana nazvo
☐ ndinongotiwo pano neapo
☐ Ndine hanya nazvo
☐ Ndinehanya nazvo zvakanyanya

21. Unoita uye kufambira kana kuwanikwa uri panzvimbo dzechitendero nguva dzakadii?
Isa ☑ mubhokisi rimwe chete.

☐ Handiite zvechitendero
☐ Pano neapo pagore
☐ Kamwe chete pamwedzi
☐ Kamwe chete pavhiki
☐ Kamwe chete pazuva rimwe
☐ Kakawanda pazuva rimwe

22. Wakaroorwa here kana kuti hauna?
Isa ☑ mubhokisi rimwe chete.

☐ Ndakaroorwa
☐ Ndakabuda muwanano
☐ Ndakafirwa
☐ Handina kuroorwa

MAZVITA!

Appendix 5

WITS and Medical Research Council of Zimbabwe ethical clearance



R14/49 Mr DC Jaravaza

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
CLEARANCE CERTIFICATE NO. M170873

NAME: (Principal Investigator)	Mr DC Jaravaza
DEPARTMENT:	Wits Business School University
PROJECT TITLE:	The effects of culture on contraceptive adoption and use: the case of rural Zimbabwe
DATE CONSIDERED:	25/08/2017
DECISION:	Approved unconditionally
CONDITIONS:	
SUPERVISOR:	Professor S Burgess
APPROVED BY:	Professor PE Cleaton-Jones, Chairperson, HREC (Medical)
DATE OF APPROVAL:	04/10/2017

This clearance certificate is valid for 5 years from date of approval. Extension may be applied for.

DECLARATION OF INVESTIGATORS

To be completed in duplicate and **ONE COPY** returned to the Research Office Secretary on 3rd floor, Phillip V Tobias Building, Parktown, University of the Witwatersrand, Johannesburg.
I/We fully understand the conditions under which I am/we are authorised to carry out the above-mentioned research and I/we undertake to ensure compliance with these conditions. Should any departure be contemplated from the research protocol as approved, I/we undertake to resubmit to the Committee. **I agree to submit a yearly progress report.** The date for annual re-certification will be one year after the date of convened meeting where the study was initially reviewed. In this case, the study was initially reviewed in August and will therefore be due in the month of August each year. Unreported changes to the application may invalidate the clearance given by the HREC (Medical).

Principal Investigator Signature _____ Date _____

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

Telephone: 791792/791193
Telefax: (263) - 4 - 790715
E-mail: mrcz@mrcz.org.zw
Website: http://www.mrcz.org.zw

Medical Research Council of Zimbabwe
Josiah Tongogara / Mazoe Street
P. O. Box CY 573
Causeway
Harare

APPROVAL

REF: MRCZ/A/2179

19 May 2017

Divaries Cosmas Jaravaza
Bindura University
Marketing Department
Bag 1020
Bindura

RE:- Effects of culture on contraceptive adoption and use: The case of rural Zimbabwe

Thank you for the application for review of Research Activity that you submitted to the Medical Research Council of Zimbabwe (MRCZ). Please be advised that the Medical Research Council of Zimbabwe has **reviewed** and **approved** your application to conduct the above titled study.

This approval is based on the review and approval of the following documents that were submitted to MRCZ for review:-

a) Protocol
b) Informed Consent Form (English and Shona)
c) Questionnaire (English and Shona)

- **APPROVAL NUMBER : MRCZ/A/2179**

This number should be used on all correspondence, consent forms and documents as appropriate.

- **TYPE OF MEETING : Full Board**
- **EFFECTIVE APPROVAL DATE : 19 May 2017**
- **EXPIRATION DATE : 18 May 2018**

After this date, this project may only continue upon renewal. For purposes of renewal, a progress report on a standard form obtainable from the MRCZ Offices should be submitted three months before the expiration date for continuing review.

- **SERIOUS ADVERSE EVENT REPORTING**: All serious problems having to do with subject safety must be reported to the Institutional Ethical Review Committee (IERC) as well as the MRCZ within 3 working days using standard forms obtainable from the MRCZ Offices or website.
- **MODIFICATIONS**: Prior MRCZ and IERC approval using standard forms obtainable from the MRCZ Offices is required before implementing any changes in the Protocol (including changes in the consent documents).
- **TERMINATION OF STUDY**: On termination of a study, a report has to be submitted to the MRCZ using standard forms obtainable from the MRCZ Offices or website.
- **QUESTIONS**: Please contact the MRCZ on Telephone No. (04) 791792, 791193 or by e-mail on mrcz@mrcz.org.zw

Other

- Please be reminded to send in copies of your research results for our records as well as for Health Research Database.
- You're also encouraged to submit electronic copies of your publications in peer-reviewed journals that may emanate from this study.

Yours Faithfully

.....

MRCZ SECRETARIAT
FOR CHAIRPERSON
MEDICAL RESEARCH COUNCIL OF ZIMBABWE

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
19
APPROVED

Appendix 6

Data collection protocol-Mutare Rural District Council letter of permission



All Communications to be addressed to the Chief Executive Officer

MUTARE RURAL DISTRICT COUNCIL

HEAD OFFICE
Cnr. 'C' Avenue & Riverside Drive
P O Box 604
MUTARE
Tel: 020 – 61587/64737
Fax : 020 69125
rdcmutare@gmail.com

SUBOFFICE
Box 958
Zimunya Township
MUTARE

Workshop

MEDICAL RESEARCH COUNCIL OF ZIMBABWE
2017 -04- 21
RECEIVED

REF: XC/157/13

11 April 2017

Mr. Divaries Cosmas Jaravaza

Dear Sir

REF: REQUEST FOR PERMISSION TO CARRYOUT A RESEARCH PROJECT IN MUTARE DISTRICT

Reference is made to your letter seeking authority to carryout a research in our Council on the above subject matter.

We hereby grant you permission to undertake your research in our District under the following conditions:

1. You shall abide by the requirements of the Official Secrecy Act during the course of your research.
2. Information gathered shall be used for academic purposes only.
3. You shall avail a copy of your research to Council upon completion.

Yours faithfully

Mutare Rural District Council
P.O. BOX 604, MUTARE
11 APR 2017
TEL: 020- 61587/61783/64737
FAX 020- 68261
TEL: 020- 67491 (Workshop)

S.D CHINAKA
CHIEF EXECUTIVE OFFICER

SDC/cm

I Divaries Cosmas Jaravaza I.D N°: 83-064464K-83 do accept to carryout my research in Mutare District under the above conditions.

Signed : ..... Date: .....
(Divaries Cosmas Jaravaza)

Appendix 7

Consent form (MRCZ) – English

INFORMED CONSENT FORM

THE EFFECTS OF CULTURE ON CONTRACEPTIVE ADOPTION AND USE

THE CASE OF RURAL ZIMBABWE

PRINCIPAL INVESTIGATOR: DIVARIES C JARAVAZA

PHONE NUMBER: 263 773 176 147

WHAT YOU SHOULD KNOW ABOUT THIS RESEARCH STUDY:

We give you this consent so that you may read about the purpose, risks and benefits of this research study. You have the right to refuse to take part, or agree to take part now and change your mind later. Whatever you decide, it will not affect your relationship with any individual or institution now or in future. Please review this consent carefully. Ask any questions before you make a decision. Your participation is voluntary.

PURPOSE

You are being asked to participate in a research study on the effects of culture on contraceptive adoption and use. The purpose of the study is to establish the relationship between culture and the use of contraceptives. You were selected as a possible participant in this study because the study is focused on rural women who are 18 years and above who are sexually active. The approximate number of participants in the study in Zimbabwe will be 250.

PROCEDURES AND DURATION

If you decide to participate, you will complete a questionnaire which may take you between 30 to 40 minutes.

RISKS AND DISCOMFORTS

There are no foreseeable risks in participating.

BENEFITS AND/OR COMPENSATION

We cannot and do not guarantee or promise that you will receive any benefits from this study.

CONFIDENTIALITY

If you indicate your willingness to participate in this study by signing this document, your identity will be kept confidential.

ADDITIONAL COSTS

There are no additional costs to be incurred by the participant.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you decide not to participate in this study, your decision will not affect your relations with any institution or person now or in future. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time without penalty.

THE EFFECTS OF CULTURE ON CONTRACEPTIVE ADOPTION AND USE

THE CASE OF RURAL ZIMBABWE

DATE.....

OFFER TO ANSWER QUESTIONS: Before you sign this form, please ask any questions on any aspect of this study that is unclear to you. You may take as much time as necessary to think it over.

AUTHORIZATION: You are making a decision whether or not to participate in this study. Your signature indicates that you have read and understood the information provided above, have had all your questions answered and have decided to participate.

....

NAME OF RESEARCH PARTICIPANT DATE

....

SIGNATURE OF PARTICIPANT TIME

....

WITNESS NAME AND SIGNATURE DATE

....

NAME OF STAFF OBTAINING CONSENT DATE

YOU WILL BE OFFERED A COPY OF THIS CONSENT FORM TO KEEP

If you have any questions concerning this study or consent form beyond those answered by the investigator, including questions about the research, your rights as a research participant or research related injuries, or if you feel you have been treated unfairly and would like to talk to someone other than a member of the research team, please feel free to contact the Medical Research Council (MRCZ) on telephone (04) 791792 or (04) /91193 and cell phone lines 0/84

956 178. The MRCZ offices are located at the National Institute of Health Research premises at corner Josiah Tongogara and Mazowe Avenue in Harare.

Appendix 8

Consent form (MRCZ) - Shona

CHINYORWA CHECHIBVUMIRANO

THE EFFECTS OF CULTURE ON CONTRACEPTIVE ADOPTION AND USE

THE CASE OF RURAL ZIMBABWE

TSVAGURUDZO YEUKAMA HURI PATSIKA DZEDU NEKUSHANDISWA KWEMHANDO DZEKUDZIVIRIRA PAMUVIRI UYE ZVIRWERE ZVEPABONDE KUMAMISHA ENYIKA YE ZIMBABWE

Tsvagurudzo iri kuitwa naDivaries C Jaravaza

Nharembozha 263 773 176 147

ZVAMUNODA KUZIVA MAERERANO NETSVAGURUDZO INO:

Verengai chinyorwa chechibvumirano chino kuti munzwisise chinangwa chetsvagurudzo. Munekodzero yekuramba kuvamumwe wavanopindura mibvunzo mutsvagurudzo ino. Munotenderwa kuchinja pfungwa dzenyu mavepakati pekupindura mibvunzo mobvamatoregera kupindura. Sarudzo yenyu haina zvainokanganisa paukama hwenyu kana kudyidzana kwenyu neripi boka kana munhu. Verengai chnyorwa chechibvumirano chino makadekara zvenyu. Kana munimibvunzo makasununguka kubvunza musati maita sarudzo yekuva umwe wevanopindura mibvunzo. Itai sarudzo yenyu makasununguka.

Chinangwa che tsvagurudzo

Ndiri kuzcya pamusoro poukama kana kuti kudyidzana pakati petsika dzedu nekushandiswa kwemhando dzekudzivirira pamuviri kana zvirwere zvepabonde nevanhukadzi muZimbabwe. Tsvagurudzo inoda mhinduro dzinobva kuvanhukadzi vanogara kumaruwa vane makore gumi nemasere(18) zvichiraudzira vachiri kuteera. Ndinotarisira kubvunza vakadzi mazana maviri nemashanu(250).

Nguva ingadiwa kupindura mibvunzo uye maitirwo azvo

Ndinokumbirawo kuti mupindure mibvunzo iyi nekutendeka kukuru. Hapana mazita achashandiswa pakuzcya uku. Muchapindura mibvunzo iri pachinyorwa chemibvunzo mumaminiti ari pakati pemakumi matatu(30 minutes) kusvika pamakumi mana (40 minutes).

Makasunguka kubvunza zvamunenge muchida kunzwisisa maererano netsvagurudzo ino. Kero yangu inoti: Bindura University of Science Education, Bag 1020, Bindura.

Nharembozha: 263 773 176 147 Kana tsambambozha inoti: divariescjaravaza@gmail.com

Pangave nenjodzi here pakupindura mibvunzo

Kwete, hapana njodzi yamunosangana nayo nekuda kwekuti mapindura mibvunzo mutsvagurudzo ino.

Zvamungawana kana kupiwa semubairo

Kwete, hapana mubairo wamunopiwa

Kuvanzika kwemhinduro dzenyu

Mhinduro dzamuchapa hadzigoni kuzikanwa kuti ndedzenyu nokuti hamuisi mazita enyu pamunopindura mibvunzo.

Zvamungaripiswa mutsvagirudzo ino

Hapana chamunobhadhara kuti mupindure mibvunzo, tsvagurudzo ino iri kuitwa pasina muripo.

Kubvuma kuva nhengo yekuzeya kuno zviri kwamuri

Hamumanikidzwi kuva nhengo kana kupindura mibvunzo kana musingadi, sunungukayi kuita sarudzo yenyu. Isu tiri kukumbira kwete kumanikidza.

KUBVUMA KUVA NHENGO YEKUZEYA: Kuzeya kwataurwa pamusoro ndakutsanangurirwa wuye ndinobvuma kuva nhengo yekuzeya uku.

.....	.....
ZITA REMUZEYEWA	ZUVA
.....	.....
RUOKO	NGUVA
.....	.....
ZITA REMUFAKAZI NERUOKO	ZUVA
.....	.....
ZITA REMUSHANDI ATSANANGURA NEZVETSVAKURUDZO	RUOKO ZUVA

MUCHAPIWA CHINYORWA CHECHIBVUMIRANO CHINO KUTI MUCHENGETE

Kana mune mibvunzo uye zvimwe zvamungada kubvunza maererano netsvagurudzo ino uye zvekodzero dzenyu makasununguka kuridza runhare kuneveMedical Research Council (MRCZ). Ridzai nhare dzinoti (04) 791792 kana (04) 791193 kana nharembozha 0784 956 128 kana tsambambozha dzinoti mrcz@mrcz.org.zw. VeMedical Research Council of Zimbabwe vanowanikwa panosangana Josiah Tongogara naMazowe Avenue muHarare.

Appendix 9

Study 1 Demographic Profiles

	Frequency	Percent	Valid Percent	Cumulative Percent
Income				
US$100 and below	317	93.2	93.5	93.5
between US$101 and US$200	8	2.4	2.4	95.9
between US$201 and US$400	9	2.6	2.7	98.5
between US$401 and US$600	5	1.5	1.5	100.0
Method of contraception				
Male condoms	81	23.8	24.0	24.0
Female condom	29	8.5	8.6	32.5
birth control pill	132	38.8	39.1	71.6
IUD	9	2.6	2.7	74.3
Birth control patch	9	2.6	2.7	76.9
Vaginal ring	1	.3	.3	77.2
Diaphragm	2	.6	.6	77.8
Withdrawal	6	1.8	1.8	79.6
Abstinence	16	4.7	4.7	84.3
hormone shot every 3 months	40	11.8	11.8	96.2
none	13	3.8	3.8	100.0
Reason for using contraception				
Pregnancy prevention	142	41.8	43.0	43.0
STI prevention	176	51.8	53.3	96.4
Any other	12	3.5	3.6	100.0
Age group				
20 years and below	38	11.2	11.2	11.2
21 to 30 years	138	40.6	40.6	51.8
31 to 40 years	105	30.9	30.9	82.6
41 to 50 years	50	14.7	14.7	97.4
51 to 60 years	6	1.8	1.8	99.1
61 and above	3	.9	.9	100.0
Religion				
Muslim	5	1.5	1.5	1.5
Catholic	64	18.8	18.9	20.4
Pentecostal	95	27.9	28.0	48.4

	Frequency	Percent	Valid Percent	Cumulative Percent
Apostolic	139	40.9	41.0	89.4
African traditional religion	11	3.2	3.2	92.6
None	25	7.4	7.4	100.0
Marital Status				
Married	240	70.6	70.8	70.8
Divorced	48	14.1	14.2	85.0
Widowed	25	7.4	7.4	92.3
Unmarried	26	7.6	7.7	100.0
Future use				
Very unlikely	15	4.4	4.4	4.4
Unlikely	29	8.5	8.5	12.9
Neutral	16	4.7	4.7	17.6
Likely	168	49.4	49.4	67.1
Very likely	112	32.9	32.9	100.0
Future use				
Very unlikely	15	4.4	4.4	4.4
Unlikely	29	8.5	8.5	12.9
Neutral	16	4.7	4.7	17.6
Likely	168	49.4	49.4	67.1
Very likely	112	32.9	32.9	100.0
Total	340	100.0	100.0	

Appendix 10

Study 1 Univariate statistics

	Values				
Individual PVQ Items	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic
Self-Direction - Creativity	340	4.06	1.875	-.366	-1.459
Self-Direction - Freedom	339	3.87	1.567	-.244	-1.061
Power - Wealth	340	3.47	1.794	.036	-1.427
Power - Tell Others	340	3.40	1.731	.118	-1.372
Universalism - Equality	340	4.54	1.448	-.989	.054
Universalism - Care for Environment	340	4.35	1.463	-.737	-.353
Universalism - Listen and Understand	340	3.89	1.396	-.350	-.561
Achievement - Impress Others	340	3.81	1.595	-.289	-1.035
Achievement - Success	340	3.02	1.587	.300	-1.035
Security - Surroundings	339	4.14	1.745	-.686	-.908
Security - Country Safety	340	4.95	1.388	-1.456	1.162
Stimulation - New Things	340	3.61	1.618	-.077	-1.214
Stimulation - Takes Risks	340	3.35	1.796	.115	-1.481
Conformity - Follow Rules	339	4.21	1.562	-.666	-.673
Conformity - Behave	338	4.20	1.532	-.661	-.607
Tradition - Satisfied	336	2.82	1.482	.521	-.741
Tradition - Religious	339	3.99	1.549	-.432	-.899
Hedonism - Spoil Herself	340	3.50	1.562	.128	-1.137
Hedonism - Fun	340	3.59	1.615	-.113	-1.183
Benevolence - Care	340	4.26	1.583	-.576	-.819
Benevolence - Loyalty	340	3.75	1.510	-.184	-.999
Value Types					
Self-direction	340	3.971	1.2135	-.195	-.629

Stimulation	340	3.481	1.2055	.058	-.578
Hedonism	340	3.549	1.1604	-.033	-.579
Achievement	340	3.413	1.1440	-.331	-.393
Power	340	3.438	1.4367	.104	-1.051
Security	340	4.544	1.1971	-.836	.026
Tradition	340	4.078	1.1343	-.261	-.564
Conformity	340	4.206	1.1400	-.361	-.562
Benevolence	340	4.006	1.1044	-.309	-.496
Universalism	340	4.257	.9009	-.419	.067
Aggregate Values					
Self-transcendence	340	4.131	.8005	-.332	-.385
Conservation	340	4.276	.8194	-.667	.576
Self-enhancement	340	3.426	1.0383	-.250	-.632
Openness to change	340	3.667	.7659	-.429	-.309
Bipolar Values					
rsc	340	.609	.9656	.237	-.056
rst	340	.706	1.3186	.324	-.060
			Social Axioms		
Social Cynicism					
Social Cynicism - Bullied	340	2.93	1.242	.122	-1.086
Social Cynicism - Suffer Losses	338	2.88	1.291	.130	-1.172
Social Cynicism - Power Exploitation	337	3.00	1.345	-.059	-1.221
Social Cynicism - Power and arrogance	338	3.16	1.325	-.163	-1.134
Reward for Application					

Reward for Application- Trying to succeed	340	3.64	1.158	-.997	.286
Reward for Application - Good Deeds	340	3.72	1.320	-.706	-.743
Reward for Application - Effort	338	3.41	1.280	-.521	-.849
Reward for Application - Solution to problem	338	3.51	1.301	-.614	-.709
Reward for Application - Hard work	340	3.44	1.287	-.509	-.681
Reward for Application - Plan	335	3.57	1.262	-.647	-.596
Social Complexity					
Social Complexity	340	2.97	1.386	-.113	-1.314
Social Complexity - Contrary to true feelings	340	3.20	1.265	-.267	-.964
Social Complexity - Opposite behaviour	339	3.42	1.313	-.466	-.895
Social Complexity - Circumstances	340	3.29	1.387	-.313	-1.127
Social Complexity - One way	339	2.95	1.331	.105	-1.167
Social Complexity - Context	339	3.21	1.327	-.262	-1.068
Social Complexity - Science can't explain	336	3.43	1.378	-.382	-1.083
Fate Control					
Fate Cotrol - Appearance	340	2.82	1.243	.233	-1.049
Fate Control - Luck follows disaster	340	2.66	1.241	.229	-.997
Fate Control - Success/ failure	340	2.71	1.339	.190	-1.218
Fate Control - Improve luck	340	2.99	1.290	-.019	-1.127
Fate Control - Predict	340	2.53	1.256	.567	-.745
Fate Control - Predetermined	340	3.58	1.114	-.872	.106
Fate Control - No concern	340	3.31	1.245	-.338	-.936
Religiosity					

Religiosity - Mental Health	339	3.41	1.245	-.670	-.648
Religiosity - Understand life	339	3.47	1.229	-.609	-.524
Religiosity - Good Citizen	340	3.44	1.255	-.528	-.764
Religiosity - Supreme Being	339	3.73	1.314	-.805	-.547
Religiosity - Moral Standards	339	3.26	1.238	-.284	-.824
Religiosity - Escape reality	340	2.91	1.311	.041	-1.148
Ubuntu					
Ubuntu - Generosity	339	3.55	1.247	-.673	-.532
Ubuntu _ Consider others	340	3.10	1.355	-.204	-1.171
Ubuntu - Open to others	340	3.09	1.288	-.251	-1.022
Ubuntu - Not humiliate others	335	3.26	1.372	-.358	-1.142
Ancestral Relevance					
Ancestral Relevance - Worship the dead	340	3.23	1.302	-.188	-1.150
Ancestral Relevance - Communication with the dead	340	2.66	1.180	.447	-.678
Ancestral Relevance - Respect the dead	340	3.78	1.256	-.845	-.383

Appendix 11

Study 1 Convergence validity-

	Unstandardized				Standardized			
Indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
Reward by								
SAQ_08RW	1.000	0.000	999.000	999.000	0.490	0.066	7.474	0.000
SAQ_09RW	1.847	0.404	4.569	0.000	0.892	0.103	8.624	0.000
SAQ_11RW	0.783	0.176	4.442	0.000	0.382	0.069	5.508	0.000
Soccyn by								
SAQ_05SC	1.000	0.000	999.000	999.000	0.387	0.128	3.022	0.003
SAQ_07SC	2.060	1.236	1.667	0.096	0.764	0.224	3.419	0.001
Relig by								
SAQ_25RG	1.000	0.000	999.000	999.000	0.432	0.070	6.146	0.000
SAQ_26RG	1.809	0.374	4.836	0.000	0.765	0.116	6.605	0.000
SAQ_28RG	1.184	0.390	3.037	0.002	0.479	0.103	4.665	0.000
Socflex by								
SAQ_13SF	1.000	0.000	999.000	999.000	0.471	0.096	4.886	0.000
SAQ_14SF	1.085	0.280	3.877	0.000	0.492	0.084	5.860	0.000
SAQ_15SF	1.293	0.453	2.853	0.004	0.555	0.105	5.296	0.000
Fatecntl by								
SAQ_20FC	1.000	0.000	999.000	999.000	0.503	0.072	6.960	0.000
SAQ_21FC	1.458	0.336	4.336	0.000	0.680	0.086	7.878	0.000
SAQ_22FC	0.995	0.199	5.009	0.000	0.482	0.072	6.709	0.000
Ubuntu by								
SAQ_32UB	1.000	0.000	999.000	999.000	0.557	0.086	6.494	0.000
SAQ_33UB	1.060	0.289	3.666	0.000	0.621	0.092	6.747	0.000
SAQ_34UB	0.755	0.237	3.178	0.001	0.415	0.081	5.108	0.000
Concatt by								
CAV_05EF	1.000	0.000	999.000	999.000	0.280	0.071	3.957	0.000

	Unstandardized				Standardized			
Indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
CAU_16LA	1.538	0.461	3.339	0.001	0.428	0.060	7.127	0.000
CAU_20RI	1.792	0.558	3.211	0.001	0.542	0.062	8.758	0.000
CAU_21PI	1.819	0.514	3.537	0.000	0.582	0.066	8.854	0.000
CAA_22FP	1.875	0.511	3.669	0.000	0.660	0.065	10.198	0.000
CAA_23PX	1.733	0.553	3.133	0.002	0.509	0.062	8.169	0.000

Appendix 12

Study 1 Discriminant Validity

	Unstandardized				Standardized			
Indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
Soccyn with Reward	0.001	0.031	0.044	0.965	0.004	0.100	0.044	0.965
RELIG WITH REWARD	0.069	0.034	2.036	0.042	0.207	0.094	2.217	0.027
SOCCYN	-0.015	0.025	-0.586	0.558	-0.055	0.092	-0.602	0.547
SOCFLEX WITH REWARD	0.007	0.039	0.175	0.861	0.018	0.107	0.171	0.864
SOCCYN	-0.073	0.045	-1.635	0.102	-0.247	0.116	-2.126	0.034
RELIG	0.093	0.048	1.956	0.051	0.296	0.130	2.280	0.023
FATECNTL WITH REWARD	0.007	0.036	0.192	0.848	0.018	0.093	0.191	0.848
SOCCYN	0.078	0.053	1.466	0.143	0.252	0.112	2.252	0.024
RELIG	-0.015	0.030	-0.476	0.634	-0.044	0.093	-0.472	0.637
SOCFLEX	-0.017	0.043	-0.393	0.694	-0.045	0.118	-0.383	0.702
UBUNTU WITH REWARD	0.085	0.085	2.373	0.018	0.429	0.116	3.697	0.000
SOCCYN	0.012	0.038	0.326	0.744	0.033	0.098	0.335	0.737
RELIG	0.040	0.049	0.822	0.411	0.101	0.123	0.824	0.410
SOCFLEX	0.098	0.073	1.333	0.183	0.218	0.126	1.737	0.082
FATECNTL	-0.017	0.046	-0.357	0.721	-0.035	0.097	-0.361	0.718
CONCATT WITH REWARD	0.023	0.023	1.029	0.304	0.101	0.092	1.099	0.272
SOCCYN	0.004	0.017	0.245	0.807	0.022	0.089	0.253	0.800
RELIG	0.057	0.026	2.221	0.026	0.289	0.093	3.107	0.002
SOCFLEX	0.008	0.023	0.370	0.712	0.038	0.101	0.382	0.702
FATECNTL	-0.069	0.028	-2.471	0.013	-0.298	0.096	-3.111	0.002
UBUNTU	0.006	0.027	0.234	0.815	0.022	0.096	0.233	0.816

Appendix 13

Study 2 Demographic profiles

		Frequency	Percent	Valid Percent	Cumulative Percent
Income	less than US100	83	44	44	44
	between US$101 and US$200	44	23.2	23.3	67.2
	between US$201 and US$400	34	17.9	18.0	85.2
	between US$401 and US$600	11	5.8	5.8	91.0
	between US$601 and US$800	7	3.7	3.7	94.7
	between US$801 and US$1 000	5	2.6	2.6	97.4
	above US1 000	5	2.6	2.6	100.0
Future use					
	Do not know	25	13.2	13.2	13.2
	Very unlikely	84	44.2	44.2	57.4
	Unlikely	31	16.3	16.3	73.7
	Neutral	28	14.7	14.7	88.4
	Likely	15	7.9	7.9	96.3
	Very likely	7	3.7	3.7	100.0
Future adoption of another method					
	Do not know	19	10.0	10.0	10.0
	Very unlikely	47	24.7	24.7	34.7
	Unlikely	39	20.5	20.5	55.3
	Neutral	27	14.2	14.2	69.5
	Likely	42	22.1	22.1	91.6
	Very likely	16	8.4	8.4	100.0
Future adoption of another method if trainned					
	Do not know	12	6.3	6.3	6.3
	Very unlikely	65	34.2	34.2	40.5

		Frequency	Percent	Valid Percent	Cumulative Percent
	Unlikely	66	34.7	34.7	75.3
	Neutral	29	15.3	15.3	90.5
	Likely	11	5.8	5.8	96.3
	Very likely	7	3.7	3.7	100.0
Age group					
	20 years and below	30	15.8	15.8	15.8
	21 to 30 years	88	46.3	46.3	62.1
	31 to 40 years	40	21.1	21.1	83.2
	41 to 50 years	17	8.9	8.9	92.1
	51 to 60 years	11	5.8	5.8	97.9
	61 and above	4	2.1	2.1	100.0
Education					
	less than 4 years of education	2	1.1	1.1	1.1
	5 to 7 years of education	15	7.9	7.9	8.9
	Some high school	60	31.6	31.6	40.5
	Completed high school	57	30.0	30.0	70.5
	Some technical school or university	36	18.9	18.9	89.5
	University or technical school certificate/ degree	20	10.5	10.5	100.0
Religion					
	Muslim	1	.5	.5	.5
	Catholic	34	17.9	17.9	18.4
	Pentacostal	95	50.0	50.0	68.4
	Apostolic	49	25.8	25.8	94.2
	None	11	5.8	5.8	100.0
Religious Degree					
	Not at all religious	8	4.2	4.2	4.2

		Frequency	Percent	Valid Percent	Cumulative Percent
	Not very religious	14	7.4	7.4	11.6
	Somewhat religious	16	8.4	8.5	20.1
	Religious	63	33.2	33.3	53.4
	Very religious	88	46.3	46.6	100.0
Religious Frequency					
	Never	5	2.6	2.6	2.6
	A few times a year	22	11.6	11.6	14.2
	Once a month	4	2.1	2.1	16.3
	Once a week	119	62.6	62.6	78.9
	Once a day	18	9.5	9.5	88.4
	More than once a day	22	11.6	11.6	100.0
Marital Status					
	Married	105	55.3	55.3	55.3
	Divorced	15	7.9	7.9	63.2
	Widowed	5	2.6	2.6	65.8
	Unmarried	65	34.2	34.2	100.0

Appendix 14

Study 2 Univariate statistics

	Values				
	N Statistic	Mean Statistic	Std. Deviation Statistic	Skewness Statistic	Kurtosis Statistic
PVQ Individual Items					
Self-Direction - Creativity	209	2.77	1.439	.199	-.621
Self-Direction - Freedom	209	4.19	1.453	-1.014	.572
Power - Wealth	209	2.84	1.431	.445	-.649
Power - Tell Others	209	2.31	1.358	.944	.410
Universalism - Equality	209	4.46	1.582	-1.207	.720
Universalism - Care for Environment	209	4.16	1.435	-.878	.513
Universalism - Listen and Understand	209	3.62	1.548	-.375	-.800
Achievement - Impress Others	209	3.49	1.686	-.282	-1.050
Achievement - Success	209	3.46	1.622	-.080	-1.007
Security - Surroundings	209	4.09	1.613	-.728	-.488
Security - Country Safety	209	4.38	1.405	-1.218	1.335
Stimulation - New Things	209	3.08	1.653	.013	-.978
Stimulation - Takes Risks	209	2.37	1.571	.830	-.234
Conformity - Follow Rules	209	3.94	1.716	-.703	-.600
Conformity - Behave	209	4.14	1.676	-.847	-.015
Tradition - Satisfied	209	4.21	1.535	-.599	-.579
Tradition - Religious	209	4.56	1.513	-1.155	.631
Hedonism - Spoil Herself	209	3.39	1.833	-.131	-1.200
Hedonism - Fun	209	3.80	1.776	-.346	-1.059
Benevolence - Care	209	4.71	1.279	-1.345	1.982
Benevolence - Loyalty	209	3.72	1.547	-.347	-.691
	209				
	209				

Self-direction	209	3.482	1.1238	-.392	.233
Stimulation	209	2.726	1.1769	.213	-.455
Hedonism	209	3.595	1.4407	-.138	-.639
Achievement	209	3.479	1.2289	-.083	-.512
Power	209	2.574	1.0578	.269	-.335
Security	209	4.237	1.2092	-.760	.062
Tradition	209	4.387	1.1992	-.709	.082
Conformity	209	4.042	1.2283	-.347	-.592
Benevolence	209	4.216	1.0915	-.408	.135
Universalism	209	4.079	1.0236	-.716	.027
Aggregate Values					
Self-transcendence	209	4.147	.8532	-.360	-.133
Conservation	209	4.222	.9222	-.628	.284
Self-enhancement	209	3.026	.8804	.008	-.316
Openness to change	209	3.268	.8188	-.005	-.310
Bipolar Values					
rsc	209	.954	1.0231	.173	-.659
rst	209	1.121	1.0989	.312	.289
		Social Axioms			
Social Cynicism					
Social Cynicism - Bullied	209	2.96	1.416	-.466	-.873
Social Cynicism - Suffer Losses	209	3.52	1.259	-1.046	.560
Social Cynicism - Power Exploitation	209	3.35	1.449	-.730	-.272
Social Cynicism - Power and arrogance	209	2.42	1.519	-.035	-.955

Reward for Application					
Reward for Application - Effort	209	4.21	.900	-2.003	6.037
Reward for Application - Solution to problem	209	3.96	1.023	-1.415	2.845
Reward for Application - Hard work	209	4.02	1.071	-1.779	3.876
Social Complexity					
Social Complexity - Contrary to true feelings	209	3.75	1.121	-1.390	2.447
Social Complexity - Opposite behaviour	209	3.51	1.356	-.925	.097
Social Complexity - Circumstances	209	3.17	1.452	-.821	-.213
Social Complexity - Context	209	3.15	1.325	-.564	-.467
Fate Control					
Fate Control - Luck follows disaster	209	2.52	1.340	.019	-.697
Fate Control - Success/ failure	209	2.62	1.467	.018	-.911
Fate Control - Improve luck	209	2.83	1.472	-.340	-.915
Religiosity					
Religiosity - Understand life	209	4.01	1.003	-1.358	2.447
Religiosity - Good Citizen	209	3.85	1.122	-1.160	1.194
Religiosity - Supreme Being	209	4.30	1.182	-2.216	4.844
Ubuntu					
Ubuntu - Generosity	209	2.99	1.602	-.467	-.871
Ubuntu _ Consider others	209	3.13	1.364	-.658	-.337

Ubuntu - Open to others	209	2.64	1.487	-.089	-.911
Ubuntu - Not humiliate others	209	3.91	1.169	-1.260	1.325
Aggregate Social Axioms					
Social Cynicism	209	3.062	.8731	-.357	-.217
Reward for Application	209	4.060	.6943	-.752	.342
Social Complexity	209	3.393	.8816	-.510	.093
Fate Control	209	2.654	.9658	-.120	-.663
Religiosity	209	4.054	.7690	-.857	.919
Ubuntu	209	3.167	.8084	-.216	-.097
Contraceptive Attitudes					
Encourage friends	209	3.97	1.168	-1.771	3.039
Length of affair does not matter	209	3.92	1.333	-1.480	1.473
Feel relaxed on intercourse	209	3.09	1.871	-.695	-1.042
Prefer to use	209	3.62	1.527	-1.248	.524
In future plan to use	209	3.53	1.579	-1.059	-.056
Use even if partner does not want	209	3.05	1.721	-.555	-1.013
First Ad					
For audience Adult Males	209	.25	.433	1.180	-.613
For audience Adult Females	209	.87	.333	-2.268	3.176
For audience Teenage Males	209	.09	.294	2.790	5.844
For audience Teenage Females	209	.53	.500	-.128	-2.005
The person is attractive	209	.43	.496	.300	-1.930
The person is credible	209	.69	.464	-.826	-1.333
The person is promiscuous	209	.13	.333	2.268	3.176
The person is unattractive	209	.08	.278	3.018	7.186
The person is trendy	209	.37	.485	.526	-1.741
The message is interesting	209	.29	.455	.936	-1.136
The message is informative	209	.88	.327	-2.342	3.522

The message is inappropriate	209	.10	.301	2.688	5.280
The message is undestandable	209	.53	.500	-.128	-2.005
The message is unacceptable	209	.08	.270	3.148	7.993
Message feeling, excited	209	.60	.491	-.412	-1.850
Message feeling, distressed	209	.13	.339	2.197	2.858
Message feeling, miserable	209	.07	.253	3.446	9.981
Message feeling, pleased	209	.75	.433	-1.180	-.613
Message feeling, sleepy	209	.04	.201	4.596	19.330
Message feeling, depressed	209	.03	.191	8.069	70.858
Time	209	1.79	.409	-1.431	.049
Second Ad					
For audience Adult Males	209	.72	.450	-.994	-1.024
For audience Teenage Males	209	.54	.500	-.149	-1.999
The person is attractive	209	.45	.499	.213	-1.975
The person is credible	209	.72	.450	-.994	-1.024
The person is promiscuous	209	.08	.278	3.018	7.186
The person is unattractive	209	.09	.286	2.900	6.475
The person is trendy	209	.25	.433	1.180	-.613
The message is interesting	209	.29	.455	.936	-1.136
The message is informative	209	.89	.314	-2.504	4.316
The message is inappropriate	209	.06	.234	3.816	12.697
The message is understandable	209	.50	.501	.000	-2.021
The message is unacceptable	209	.06	.244	3.620	11.225
Message feeling, excited	209	.43	.497	.278	-1.943
Message feeling, distressed	209	.27	.447	1.023	-.963
Message feeling, miserable	209	.24	.429	1.214	-.533
Message feeling, pleased	209	.58	.494	-.344	-1.901
Message feeling, sleepy	209	.05	.224	4.039	14.465
Message feeling, depressed	209	.14	.345	2.130	2.565
Time	209	1.82	.384	-1.689	.860

Third Ad					
For audience Adult Males	209	.19	.393	1.597	.558
For audience Adult Females	209	.95	.213	-4.296	16.627
For audience Teenage Males	209	.06	.234	3.816	12.697
For audience Teenage Females	209	.41	.493	.367	-1.886
The person is attractive	209	.51	.501	-.021	-2.021
The person is credible	209	.70	.459	-.880	-1.239
The person is promiscuous	209	.04	.201	4.596	19.330
The person is unattractive	209	.03	.160	5.966	33.945
The person is trendy	209	.27	.447	1.023	-.963
The message is interesting	209	.38	.488	.480	-1.789
The message is informative	209	.91	.286	-2.900	6.475
The message is inappropriate	209	.03	.175	5.400	27.448
The message is understandable	209	.53	.500	-.128	-2.005
The message is unacceptable	209	.05	.224	4.039	14.465
Message feeling, excited	209	.58	.495	-.322	-1.916
Message feeling, distressed	209	.10	.301	2.688	5.280
Message feeling, miserable	209	.01	.102	9.669	92.457
Message feeling, pleased	209	.81	.393	-1.597	.558
Message feeling, sleepy	209	.05	.224	4.039	14.465
Message feeling, depressed	209	.03	.160	5.966	33.945
Time	209	1.85	.361	-1.947	1.811
Fourth Ad					
For audience Adult Males	209	.88	.327	-2.342	3.522
For audience Adult Females	209	.26	.442	1.084	-.833
For audience Teenage Males	209	.48	.501	.085	-2.014
For audience Teenage Females	209	.13	.333	2.268	3.176
The person is attractive	209	.52	.501	-.085	-2.014
The person is credible	209	.71	.457	-.908	-1.189
The person is promiscuous	209	.04	.189	4.957	22.808

The person is unattractive	209	.04	.201	4.596	19.330
The person is trendy	209	.24	.429	1.214	-.533
The message is interesting	209	.37	.485	.526	-1.741
The message is informative	209	.90	.301	-2.688	5.280
The message is inappropriate	209	.04	.201	4.596	19.330
The message is understandable	209	.51	.501	-.042	-2.020
The message is unacceptable	209	.06	.244	3.620	11.225
Message feeling, excited	209	.57	.496	-.300	-1.930
Message feeling, distressed	209	.11	.308	2.593	4.774
Message feeling, miserable	209	.04	.189	4.957	22.808
Message feeling, pleased	209	.77	.420	-1.319	-.264
Message feeling, sleepy	209	.06	.234	3.816	12.697
Message feeling, depressed	209	.04	.201	4.596	19.330
Time	209	1.80	.401	-1.512	.289

Appendix 15

Study 2 Convergence validity

	Unstandardized				Standardized			
Indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
SOCCYN BY								
SAS_01SC	1.000	0.000	999.000	999.000	0.601	0.112	5.365	0.000
SAS_03SC	1.057	0.363	2.913	0.004	0.620	0.112	5.529	0.000
SAS_04SC	0.469	0.188	2.490	0.013	0.263	0.093	2.815	0.005
REWARD BY								
SAS_05RW	1.000	0.000	999.000	999.000	0.492	0.093	5.285	0.000
SAS_06RW	1.219	0.380	3.209	0.001	0.528	0.091	5.784	0.000
SAS_07RW	1.006	0.337	2.987	0.003	0.416	0.083	4.986	0.000
SOCFLEX BY								
SAS_08SF	1.000	0.000	999.000	999.000	0.418	0.122	3.438	0.001
SAS_09SF	1.959	0.712	2.750	0.006	0.677	0.078	8.672	0.000
SAS_10SF	1.473	0.634	2.322	0.020	0.476	0.096	4.933	0.000
SAS_11SF	1.346	0.393	3.420	0.001	0.476	0.086	5.563	0.000
FATECTL BY								
SAS_12FC	1.000	0.000	999.000	999.000	0.441	0.121	3.649	0.000
SAS_13FC	0.845	0.382	2.211	0.027	0.340	0.110	3.081	0.002
SAS_14FC	1.242	0.571	2.176	0.030	0.498	0.119	4.194	0.000
RELIGSTY BY								
SAS_15RG	1.000	0.000	999.000	999.000	0.547	0.116	4.710	0.000
SAS_16RG	0.631	0.175	3.598	0.000	0.309	0.118	2.616	0.009
SAS_17RG	1.234	0.412	2.995	0.003	0.573	0.111	5.144	0.000
UBUNTU BY								
SAS_18UB	1.000	0.000	999.000	999.000	0.724	0.223	3.247	0.001
SAS_19UB	0.287	0.178	1.615	0.106	0.244	0.099	2.467	0.014
CONTRCPT BY								

	Unstandardized				Standardized			
Indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
CA_02	1.000	0.000	999.000	999.000	0.342	0.097	3.525	0.000
CA_03	2.897	1.036	2.797	0.005	0.705	0.067	10.514	0.000
CA_04	2.482	0.824	3.012	0.003	0.740	0.063	11.669	0.000
CA_05	1.722	0.481	3.582	0.000	0.496	0.093	5.315	0.000
CA_06	2.564	0.864	2.969	0.003	0.679	0.073	9.350	0.000

Appendix 16

Study 2 Discriminant validity

	Unstandardized				Standardized			
indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
REWARD WITH								
SOCCYN	0.147	0.082	1.799	0.072	0.392	0.172	2.277	0.023
SOCFLEX WITH SOCCYN	0.215	0.107	2.011	0.044	0.541	0.125	4.345	0.000
REWARD	0.130	0.089	1.460	0.144	0.630	0.195	3.224	0.001
FATECTL WITH SOCCYN	0.161	0.079	2.048	0.041	0.323	0.166	1.949	0.051
REWARD	-0.035	0.047	-0.740	0.459	-0.133	0.173	-0.768	0.443
SOCFLEX	0.062	0.048	1.281	0.200	0.225	0.186	1.212	0.226
RELIGSTY WITH								
SOCCYN	0.177	0.101	1.759	0.079	0.382	0.184	2.072	0.038
REWARD	0.242	0.058	4.188	0.000	1.001	0.164	6.089	0.000
SOCFLEX	0.132	0.067	1.974	0.048	0.517	0.146	3.551	0.000
FATECTL	0.071	0.072	0.990	0.322	0.220	0.194	1.131	0.258
UBUNTU WITH								
SOCCYN	0.252	0.122	2.060	0.039	0.257	0.165	1.554	0.120
REWARD	0.204	0.074	2.755	0.006	0.398	0.192	2.078	0.038
SOCFLEX	0.219	0.085	2.564	0.010	0.404	0.170	2.370	0.018
FATECTL	0.494	0.209	2.364	0.018	0.725	0.227	3.193	0.001
RELIGSTY	0.151	0.094	1.609	0.108	0.238	0.174	1.372	0.170
CONTRCPT WITH								
SOCCYN	0.064	0.062	1.036	0.300	0.167	0.133	1.256	0.209
REWARD	0.007	0.029	0.227	0.820	0.033	0.141	0.234	0.815
SOCFLEX	0.009	0.024	0.364	0.716	0.042	0.112	0.371	0.711
FATECTL	0.080	0.059	1.343	0.179	0.297	0.137	2.167	0.030
RELIGSTY	-0.002	0.034	-0.074	0.941	-0.010	0.137	-0.073	0.942

	Unstandardized				Standardized			
indicator	Estimate	S.E.	Est./S.E	P-Value	Estimate	S.E.	Est./S.E	P-Value
UBUNTU	0.132	0.087	1.519	0.129	0.252	0.124	2.038	0.042

Appendix 17

Study 2 Paired Comparisons

	Models for Indicators			df	Wald FIA	SEA	THA	FOA	p-value FIA	SEA	THA	FOA
A_01AUA	Cluster	1	2	1	0.0472	0.3490	0.2099	3.3855	0.8300	0.5500	0.6500	0.0660
	Cluster	1	3	1	0.0023	0.5991	1.1803	0.8540	0.9600	0.4400	0.2800	0.3600
	Cluster	2	3	1	0.0395	1.0444	2.1444	5.8845	0.8400	0.3100	0.1400	0.0150*
A_01AUB	Cluster	1	2	1	2.2434	3.7833	1.3521	0.0315	0.1300	0.0520	0.2400	0.8600
	Cluster	1	3	1	0.3106	2.6878	0.0953	1.7783	0.5800	0.1000	0.7600	0.1800
	Cluster	2	3	1	2.8070	0.1661	1.4286	2.2452	0.0940	0.6800	0.2300	0.1300
A_01AUC	Cluster	1	2	1	0.4388	0.1579	0.9487	3.2401	0.5100	0.6900	0.3300	0.0720
	Cluster	1	3	1	2.8459	0.7067	1.5507	0.5222	0.0920	0.4000	0.2100	0.4700
	Cluster	2	3	1	3.1606	0.9288	0.8447	6.3288	0.0750	0.3400	0.3600	0.0120*
A_01AUD	Cluster	1	2	1	5.3227	0.0005	6.7175	0.0947	0.0210*	0.9800	0.0096*	0.7600
	Cluster	1	3	1	2.7564	1.4248	1.6082	0.0989	0.0970	0.2300	0.2000	0.7500
	Cluster	2	3	1	0.0168	1.2158	0.0327	0.4118	0.9000	0.2700	0.8600	0.5200
A_02PSA	Cluster	1	2	1	7.1326	4.1744	33.1846	9.9670	0.0076*	0.0410*	0.0000*	0.0016*
	Cluster	1	3	1	0.3632	2.6132	2.8684	0.0745	0.5500	0.1100	0.0900	0.7800
	Cluster	2	3	1	7.8814	0.1846	24.2299	12.8567	0.0050*	0.6700	0.0000*	0.0003*
A_02PSB	Cluster	1	2	1	12.9102	0.0310	2.9118	0.0262	0.0003*	0.8600	0.0880	0.8700
	Cluster	1	3	1	8.1625	12.9220	2.2288	6.9440	0.0043*	0.0003*	0.1400	0.0084*
	Cluster	2	3	1	21.8948	11.1771	7.0995	8.1532	0.0000*	0.0008*	0.0077*	0.0043*
A_02PSC	Cluster	1	2	1	52.1647	0.1454	0.1869	10.0270	0.0000*	0.7000	0.6700	0.0015*
	Cluster	1	3	1	24.3119	26.7094	125.9173	41.3574	0.0000*	0.0000*	0.0000*	0.0000*
	Cluster	2	3	1	104.5659	17.6767	103.3689	7.4116	0.0000*	0.0000*	0.0000*	0.0065*
A_02PSD	Cluster	1	2	1	0.0544	0.7266	0.2773	26.1765	0.8200	0.3900	0.6000	0.0000*
	Cluster	1	3	1	16.1405	9.3991	109.0005	8.1202	0.0001*	0.0022*	0.0000*	0.0044*
	Cluster	2	3	1	6.7847	4.9404	71.3279	98.7002	0.0092*	0.0260*	0.0000*	0.0000*
A_02PSE	Cluster	1	2	1	3.8440	0.7679	9.6700	3.3882	0.0500	0.3800	0.0019*	0.0660
	Cluster	1	3	1	1.0296	0.0065	1.1893	1.7332	0.3100	0.9400	0.2800	0.1900

	Models for Indicators			df	Wald FIA	SEA	THA	FOA	p-value FIA	SEA	THA	FOA
	Cluster	2	3	1	4.7176	0.2843	0.2849	0.1690	0.0300*	0.5900	0.5900	0.6800
A_03MSA	Cluster	1	2	1	23.4678	7.1930	60.6684	8.4887	0.0000*	0.0073*	0.0000*	0.0036*
	Cluster	1	3	1	4.8321	3.2725	23.2683	2.9093	0.0280*	0.0700	0.0000*	0.0880
	Cluster	2	3	1	7.8421	0.3020	22.6394	6.4856	0.0051*	0.5800	0.0000*	0.0110*
A_03MSB	Cluster	1	2	1	0.3173	66.8226	3.6848	12.0999	0.5700	0.0000*	0.0550	0.0005*
	Cluster	1	3	1	19.4607	17.0750	6.5371	21.1585	0.0000*	0.0000*	0.0110*	0.0000*
	Cluster	2	3	1	7.9722	95.9392	2.8989	12.7179	0.0048*	0.0000*	0.0890	0.0004*
A_03MSC	Cluster	1	2	1	0.2541	31.4959	22.2258	19.9052	0.6100	0.0000*	0.0000*	0.0000*
	Cluster	1	3	1	16.6062	19.8319	1.9131	6.6791	0.0000*	0.0000*	0.1700	0.0098*
	Cluster	2	3	1	8.8764	90.9651	42.8831	108.7643	0.0029*	0.0000*	0.0000*	0.0000*
A_03MSD	Cluster	1	2	1	10.6681	3.1000	27.3187	11.4615	0.0011*	0.0780	0.0000*	0.0007*
	Cluster	1	3	1	4.1135	8.4774	5.7671	5.3400	0.0430*	0.0036*	0.0160*	0.0210*
	Cluster	2	3	1	2.4032	4.6627	0.2800	0.0424	0.1200	0.0310*	0.6000	0.8400
A_03MSE	Cluster	1	2	1	0.0411	0.0153	8.4532	0.0035	0.8400	0.9000	0.0037*	0.9500
	Cluster	1	3	1	5.5402	22.3763	11.1996	121.8817	0.0190*	0.0000*	0.0008*	0.0000*
	Cluster	2	3	1	3.3490	11.9878	91.9161	148.6165	0.0670	0.0005*	0.0000*	0.0000*
A_04MFA	Cluster	1	2	1	1.9611	13.6526	17.9256	9.3161	0.1600	0.0002*	0.0000*	0.0023*
	Cluster	1	3	1	3.9909	51.2476	3.2938	2.7607	0.0460*	0.0000*	0.0700	0.0970
	Cluster	2	3	1	3.1477	9.5793	17.6064	20.2751	0.0760	0.0020*	0.0000*	0.0000*
A_04MFB	Cluster	1	2	1	53.6366	29.6221	99.1968	0.8285	0.0000*	0.0000*	0.0000*	0.3600
	Cluster	1	3	1	15.3687	22.5940	4.0024	7.9529	0.0001*	0.0000*	0.0450*	0.0048*
	Cluster	2	3	1	93.0488	0.4331	97.5099	15.2692	0.0000*	0.5100	0.0000*	0.0001*
A_04MFC	Cluster	1	2	1	8.4872	15.0089	0.1140	13.2939	0.0036*	0.0001*	0.7400	0.0003*
	Cluster	1	3	1	15.1601	7.7639	53.9635	101.3213	0.0001*	0.0053*	0.0000*	0.0000*
	Cluster	2	3	1	82.6627	1.7844	45.1893	11.2115	0.0000*	0.1800	0.0000*	0.0008*
A_04MFD	Cluster	1	2	1	0.7192	40.9410	0.1036	0.0919	0.4000	0.0000*	0.7500	0.7600
	Cluster	1	3	1	12.7449	20.0429	8.0385	11.7878	0.0004*	0.0000*	0.0046*	0.0006*
	Cluster	2	3	1	11.4314	0.2259	6.6545	11.4917	0.0007*	0.6300	0.0099*	0.0007*
A_04MFE	Cluster	1	2	1	4.4675	230.4244	27.9356	15.4445	0.0350*	0.0000*	0.0000*	0.0001*
	Cluster	1	3	1	12.0058	3.4544	4.9139	5.1621	0.0005*	0.0630	0.0270*	0.0230*

	Models for Indicators			df	Wald FIA	SEA	THA	FOA	p-value FIA	SEA	THA	FOA
	Cluster	2	3	1	6.3725	15.7157	80.7474	120.6626	0.0120*	0.0001*	0.0000*	0.0000*
A_04MFF	Cluster	1	2	1	5.7400	14.0323	0.0482	0.0015	0.0170*	0.0002*	0.8300	0.9700
	Cluster	1	3	1	7.0377	11.0308	0.5022	6.3537	0.0080*	0.0009*	0.4800	0.0120*
	Cluster	2	3	1	31.1540	0.0286	4.6948	5.0186	0.0000*	0.8700	0.0300*	0.0250*
A_05TM	Cluster	1	2	1	1.9233	0.2310	4.9289	4.8090	0.1700	0.6300	0.0260*	0.0280*
	Cluster	1	3	1	16.5355	7.4685	2.6017	5.1105	0.0000*	0.0063*	0.1100	0.0240*
	Cluster	2	3	1	7.4519	5.0742	9.2320	18.8402	0.0064*	0.0240*	0.0024*	0.0000*
rsc	Cluster	1	2	1	0.0995	1.8303	0.0054	3.7235	0.7500	0.1800	0.9400	0.0540
	Cluster	1	3	1	3.1090	1.1867	0.9252	1.1527	0.0780	0.2800	0.3400	0.2800
	Cluster	2	3	1	1.6064	0.1970	0.8765	0.0333	0.2000	0.6600	0.3500	0.8600
rst	Cluster	1	2	1	0.0599	0.0253	0.0007	1.3675	0.8100	0.8700	0.9800	0.2400
	Cluster	1	3	1	0.1125	0.5158	0.8379	0.3818	0.7400	0.4700	0.3600	0.5400
	Cluster	2	3	1	0.1951	0.3962	0.7990	2.6427	0.6600	0.5300	0.3700	0.1000
sc	Cluster	1	2	1	0.5922	3.4361	0.5966	0.0445	0.4400	0.0640	0.4400	0.8300
	Cluster	1	3	1	0.0624	5.7094	0.6585	0.0581	0.8000	0.0170*	0.4200	0.8100
	Cluster	2	3	1	0.5895	1.6220	1.2240	0.0009	0.4400	0.2000	0.2700	0.9800
rw	Cluster	1	2	1	1.1900	1.4800	0.0002	2.0151	0.2800	0.2200	0.9900	0.1600
	Cluster	1	3	1	0.9165	0.2546	4.2338	0.0735	0.3400	0.6100	0.0400*	0.7900
	Cluster	2	3	1	2.2268	1.8684	3.7328	1.3091	0.1400	0.1700	0.0530	0.2500
sf	Cluster	1	2	1	0.0057	5.2081	4.1873	1.1881	0.9400	0.0230*	0.0410*	0.2800
	Cluster	1	3	1	2.0095	8.0299	3.3716	3.5369	0.1600	0.0046*	0.0660	0.0600
	Cluster	2	3	1	1.9508	1.5871	5.9909	0.9317	0.1600	0.2100	0.0140*	0.3300
fc	Cluster	1	2	1	0.0000	3.4026	1.6708	2.2406	1.0000	0.0650	0.2000	0.1300
	Cluster	1	3	1	0.1123	0.0000	12.2975	0.9053	0.7400	1.0000	0.0005*	0.3400
	Cluster	2	3	1	0.0805	1.0818	15.4323	4.2859	0.7800	0.3000	0.0001*	0.0380*
rg	Cluster	1	2	1	5.0581	1.1458	3.0968	8.8452	0.0250*	0.2800	0.0780	0.0029*
	Cluster	1	3	1	1.8447	2.6065	11.8015	1.0132	0.1700	0.1100	0.0006*	0.3100
	Cluster	2	3	1	7.1171	4.5811	14.9728	8.1386	0.0077*	0.0320*	0.0001*	0.0043*
ub	Cluster	1	2	1	0.1041	5.1092	1.7057	0.1797	0.7500	0.0240*	0.1900	0.6700
	Cluster	1	3	1	0.5305	2.9505	1.8653	0.1552	0.4700	0.0860	0.1700	0.6900

	Models for Indicators			df	Wald FIA	SEA	THA	FOA	p-value FIA	SEA	THA	FOA
	Cluster	2	3	1	0.2578	0.3270	4.0414	0.0171	0.6100	0.5700	0.0440*	0.9000
ca	Cluster	1	2	1	3.0672	2.9419	1.2856	0.8781	0.0800	0.0860	0.2600	0.3500
	Cluster	1	3	1	6.4939	1.5250	0.7147	1.0563	0.0110*	0.2200	0.4000	0.3000
	Cluster	2	3	1	9.3192	0.0047	1.7978	2.7630	0.0023*	0.9500	0.1800	0.0960
DC_01IN	Cluster	1	2	1	3.5433	0.6965	3.5279	0.1016	0.0600	0.4000	0.0600	0.7500
	Cluster	1	3	1	0.6304	0.0843	1.6721	0.9636	0.4300	0.7700	0.2000	0.3300
	Cluster	2	3	1	4.5137	0.4213	4.8132	1.1761	0.0340*	0.5200	0.0280*	0.2800
DC_02MCN	Cluster	1	2	1	1.3375	7.2775	0.0280	0.3630	0.2500	0.0070*	0.8700	0.5500
	Cluster	1	3	1	0.9957	2.4086	0.0858	0.6035	0.3200	0.1200	0.7700	0.4400
	Cluster	2	3	1	2.5485	0.1544	0.0387	0.0586	0.1100	0.6900	0.8400	0.8100
DC_03FU	Cluster	1	2	1	0.5697	2.1638	0.2989	0.4463	0.4500	0.1400	0.5800	0.5000
	Cluster	1	3	1	0.0674	1.6107	0.7037	0.3563	0.8000	0.2000	0.4000	0.5500
	Cluster	2	3	1	0.5957	0.1757	1.2735	1.2216	0.4400	0.6800	0.2600	0.2700
DC_06AG	Cluster	1	2	1	0.5922	0.1932	1.2497	0.1703	0.4400	0.6600	0.2600	0.6800
	Cluster	1	3	1	0.3085	0.0445	0.9138	1.8812	0.5800	0.8300	0.3400	0.1700
	Cluster	2	3	1	0.9426	0.0003	1.9324	1.5940	0.3300	0.9900	0.1600	0.2100
DC_07ED	Cluster	1	2	1	2.1338	2.0346	0.0093	0.2994	0.1400	0.1500	0.9200	0.5800
	Cluster	1	3	1	0.0339	1.0911	0.2209	0.7941	0.8500	0.3000	0.6400	0.3700
	Cluster	2	3	1	1.1651	3.1733	0.1713	1.6374	0.2800	0.0750	0.6800	0.2000

Appendix 18

Study 2 Model Fit Indices-LCA Chi-Square

Ad 1

	Number of cases	Robustness Effect	Degrees of freedom (df)	L-squared (L^2)	X-squared	X-squared	BIC (based on L^2)	AIC (based on L^2)	AIC3 (based on L^2)	CAIC (based on L^2)	SABIC (based on L^2)	Dissimilarity Index	Total BVR
Class 1	209	1.005	187	3865.32	1.92E+13	3.7e-679	2866.3	3491.32	3304.32	2679.30*	3458.82	0.999*	1748.78
Class 2	209	1.077	151	3616.52	5.08E+08	8.1e-652	2809.83*	3314.52	3163.52	2658.83*	3288.28	0.999*	767.14
Class 3	209	1.008	115	3458.41*	7.48E+08	1.7e-644*	2844.04*	3228.41*	3113.41*	2729.04	3208.42*	0.995	618.85*
Class 4	209	0.94	79	3343.86*	1.15E+08	3.0e-648	2921.81	3185.86*	3106.86*	2842.81	3172.13*	0.995	564.74*

Ad 2

	Number of cases	Robustness Effect	Degrees of freedom (df)	L-squared (L^2)	X-squared	X-squared	BIC (based on L^2)	AIC (based on L^2)	AIC3 (based on L^2)	CAIC (based on L^2)	SABIC (based on L^2)	Dissimilarity Index	Total BVR
Class 1	209	1.005	188	4463.26	1.39E+12	1.6e-802	3458.9	4087.26	3899.26	3270.90*	4054.59	1.000*	1773.75
Class 2	209	1.059	152	4116.57	2.33E+10	1.7e-755	3304.53*	3812.57	3660.57	3152.53*	3786.15	1	1017.76
Class 3	209	0.963	116	3974.85*	1.50E+08	1.9e-752*	3355.14*	3742.85*	3626.85*	3239.14	3722.69*	1.000*	695.78*
Class 4	209	1.2	80	3840.26*	91089572	7.0e-753	3412.87	3680.26*	3600.26*	3332.87	3666.35*	0.999	530.49*

Ad 3

	Number	Robustness	Degrees	L-	X-	X-	BIC	AIC	AIC3	CAIC	SABIC	Dissimilarity	Total

	of cases	Effect	of freedom (df)	squared (L^2)	squared	squared	(based on L^2)	(based on L^2)	(based on L^2)	(based on L^2)	(based on L^2)	Index	BVR
Class 1	209	1.005	188	3398.12	5.93E+10	3.0e-582	2393.76*	3022.12	2834.12	2205.76*	2989.44	0.998*	1202.6
Class 2	209	0.926	152	3198.97	2.15E+10	1.9e-564	2386.94*	2894.97	2742.97	2234.94*	2868.55	0.995*	909.98
Class 3	209	0.916	116	3030.50*	3.70E+08	4.3e-554*	2410.79	2798.50*	2682.50*	2294.79	2778.34*	0.994	530.78*
Class 4	209	0.833	80	2936.15*	93371418	4.3e-561	2508.76	2776.15*	2696.15*	2428.76	2762.24*	0.994	494.69*

Ad 4

	Number of cases	Robustness Effect	Degrees of freedom (df)	L-squared (L^2)	X-squared	X-squared	BIC (based on L^2)	AIC (based on L^2)	AIC3 (based on L^2)	CAIC (based on L^2)	SABIC (based on L^2)	Dissimilarity Index	Total BVR
Class 1	209	1.005	188	3635.45	6.33E+12	4.7e-631	2631.09	3259.45	3071.45	2443.09*	3226.77	0.999*	1820.41
Class 2	209	1.047	152	3369.12	3.89E+08	1.0e-599	2557.08*	3065.12	2913.12	2405.08*	3038.7	0.997*	808.06
Class 3	209	1.038	116	3208.08*	3.77E+08	3.0e-591*	2588.37*	2976.08*	2860.08*	2472.37	2955.92*	0.995	619.37*
Class 4	209	0.976	80	3100.30*	4.02E+08	8.0e-596	2672.91	2940.30*	2860.30*	2592.91	2926.39*	0.993	507.18*

Appendix 19

Study 2 Model fit indices- LCA Log likelihood fit indices

		Log-likelihood (LL)	BIC (based on LL)	AIC (based on LL)	AIC3 (based on LL)	CAIC (based on LL)	SABIC (based on LL)
FIA	Class 1	-1932.66	3982.85	3909.32	3931.32	4004.85*	3913.14
	Class 2	-1808.26	3926.38*	3732.52	3790.52	3984.38*	3742.61
	Class 3	-1729.2	3960.59*	3646.41*	3740.41*	4054.59	3662.75*
	Class 4	-1671.93	4038.36	3603.86*	3733.86*	4168.36	3626.45*
SEA	Class 1	-2231.63	4575.45	4505.26	4526.26	4596.45	4508.91
	Class 2	-2058.28	4421.08	4230.57	4287.57	4478.08	4240.47
	Class 3	-1987.43	4471.69*	4160.85*	4253.85*	4564.69*	4177.02*
	Class 4	-1920.13	4529.42	4098.26*	4227.26*	4658.42	4120.68*
THA	Class 1	-1699.06	3510.31*	3440.12	3461.12	3531.31*	3443.77
	Class 2	-1599.49	3503.48*	3312.97	3369.97	3560.48*	3322.88
	Class 3	-1515.25	3527.34	3216.50*	3309.50*	3620.34	3232.67*
	Class 4	-1468.07	3625.31	3194.15*	3323.15*	3754.31	3216.57*
FOA	Class 1	-1817.72	3747.64	3677.45	3698.45	3768.64*	3681.1
	Class 2	-1684.56	3673.63*	3483.12	3540.12	3730.63*	3493.03
	Class 3	-1604.04	3704.92*	3394.08*	3487.08*	3797.92	3410.24*
	Class 4	-1550.15	3789.46	3358.30*	3487.30*	3918.46	3380.72*

Appendix 20

Study 2 Ad 1 Parameter statistics and Cluster profiles

Ad1 Parameters Statistics

	Cluster1	Cluster2	Cluster3	Wald	p-value	R^2
FIA_01AUA	-0.03	0.08	-0.06	0.06	0.97	0.00
FIA_01AUB	-0.44	1.24	-0.80	2.83	0.24	0.02
FIA_01AUC	-0.19	-0.76	0.95	4.06	0.13	0.03
FIA_01AUD	-0.69	0.39	0.30	6.90	0.03*	0.05
FIA_02PSA	-1.56	3.52	-1.96	7.89	0.01*	0.34
FIA_02PSB	-0.86	3.56	-2.71	23.00	0.00*	0.18
FIA_02PSC	0.43	-3.96	3.53	107.30	0.00*	0.31
FIA_02PSD	-0.85	-1.12	1.97	18.18	0.00*	0.17
FIA_02PSE	-0.10	0.80	-0.70	5.65	0.06	0.04
FIA_03MSA	-1.70	1.99	-0.29	23.82	0.00*	0.40
FIA_03MSB	0.78	1.59	-2.36	23.42	0.00*	0.29
FIA_03MSC	-0.78	-1.36	2.14	19.76	0.00*	0.22
FIA_03MSD	1.13	-1.18	0.05	12.64	0.00*	0.16
FIA_03MSE	-0.48	-0.66	1.14	6.38	0.04*	0.04
FIA_04MFA	-1.02	3.32	-2.31	5.88	0.05	0.18
FIA_04MFB	0.77	-3.82	3.05	95.68	0.00*	0.17
FIA_04MFC	-0.28	-3.64	3.92	84.27	0.00*	0.38
FIA_04MFD	0.60	1.25	-1.85	15.38	0.00*	0.17
FIA_04MFE	-4.27	0.70	3.58	15.80	0.00*	0.25
FIA_04MFF	0.06	-3.32	3.26	32.18	0.00*	0.12
FIA_05TM	0.01	2.25	-2.26	19.94	0.00*	0.19

Ad1 Covariates Statistics

Covariates	Cluster1	Cluster2	Cluster3	Wald	p-value
Rsc	0.23	0.15	-0.38	3.12	0.21
Rst	0.01	0.07	-0.09	0.20	0.91
Sc	-0.08	0.26	-0.18	0.69	0.71
Rw	0.03	-0.50	0.47	2.23	0.33
Sf	-0.29	-0.32	0.61	2.09	0.35
Fc	-0.04	-0.04	0.08	0.11	0.94
Rg	-0.09	0.72	-0.64	7.71	0.02*
Ub	0.14	0.05	-0.19	0.58	0.75
Ca	0.03	0.81	-0.83	10.35	0.01*
DC_01IN	0.13	-0.37	0.24	4.52	0.10
DC_02MCN	0.02	1.15	-1.16	2.62	0.27
DC_03FU	0.06	-0.17	0.12	0.65	0.72

DC_06AG	0.00	0.16	-0.16	1.06	0.59
DC_07ED	-0.16	0.28	-0.12	2.14	0.34

Cluster profiles for Ad 1

Ad1 Cluster Profiles – Ad Evaluation

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Cluster Size	0.71	0.19	0.10	0.71	0.19	0.10
FIA_01AUA	0.24	0.26	0.24	0.70	0.20	0.10
FIA_01AUB	0.87	0.97	0.82	0.70	0.21	0.10
FIA_01AUC	0.09	0.05	0.23	0.65	0.10	0.25
FIA_01AUD	0.45	0.71	0.69	0.61	0.25	0.14
FIA_02PSA	0.27	0.98	0.19	0.48	0.47	0.05
FIA_02PSB	0.69	0.99	0.26	0.70	0.27	0.04
FIA_02PSC	0.07	0.00	0.64	0.44	0.00	0.56
FIA_02PSD	0.03	0.03	0.37	0.35	0.07	0.58
FIA_02PSE	0.37	0.59	0.24	0.66	0.28	0.06
FIA_03MSA	0.11	0.83	0.33	0.28	0.59	0.13
FIA_03MSB	0.94	0.97	0.39	0.75	0.21	0.04
FIA_03MSC	0.05	0.03	0.47	0.37	0.06	0.57
FIA_03MSD	0.66	0.16	0.39	0.87	0.05	0.08
FIA_03MSE	0.06	0.05	0.24	0.55	0.12	0.33
FIA_04MFA	0.54	0.99	0.24	0.64	0.31	0.04
FIA_04MFB	0.08	0.00	0.46	0.54	0.00	0.46
FIA_04MFC	0.01	0.00	0.50	0.16	0.00	0.84
FIA_04MFD	0.81	0.89	0.27	0.75	0.22	0.04
FIA_04MFE	0.00	0.03	0.32	0.00	0.12	0.87
FIA_04MFF	0.01	0.00	0.14	0.25	0.00	0.75
FIA_05TM	0.83	0.98	0.34	0.73	0.23	0.04

Ad1 Cluster Profiles – Covariates

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
rsc						
1 - 8	0.20	0.28	0.28	0.63	0.24	0.13
9 - 11	0.16	0.24	0.24	0.62	0.24	0.13
12 - 15	0.18	0.22	0.23	0.66	0.21	0.13
16 - 19	0.26	0.04	0.15	0.89	0.03	0.07
20 - 28	0.19	0.22	0.10	0.73	0.22	0.05
rst						
1 - 16	0.20	0.20	0.23	0.70	0.19	0.12
17 - 21	0.16	0.15	0.20	0.70	0.18	0.13
22 - 27	0.22	0.33	0.23	0.64	0.26	0.10
28 - 34	0.21	0.18	0.15	0.75	0.17	0.08
35 - 48	0.21	0.13	0.19	0.77	0.13	0.10
sc						
1 - 6	0.18	0.12	0.19	0.76	0.13	0.11
7 - 8	0.19	0.08	0.14	0.82	0.09	0.09
9 - 10	0.19	0.19	0.42	0.63	0.17	0.20
11 - 12	0.23	0.30	0.15	0.69	0.24	0.07
13 - 16	0.20	0.30	0.11	0.68	0.27	0.05
rw						
1 - 6	0.23	0.29	0.19	0.69	0.22	0.08
7 - 7	0.29	0.21	0.52	0.68	0.13	0.18
8 - 8	0.15	0.08	0.00	0.88	0.12	0.00
9 - 9	0.15	0.17	0.01	0.77	0.23	0.00
10 - 10	0.18	0.25	0.28	0.63	0.23	0.14
sf						
1 - 7	0.24	0.14	0.15	0.80	0.12	0.07
8 - 9	0.16	0.28	0.24	0.60	0.27	0.13
10 - 11	0.27	0.24	0.15	0.76	0.18	0.06
12 - 12	0.16	0.10	0.10	0.79	0.14	0.07
13 - 16	0.18	0.24	0.37	0.60	0.22	0.18
fc						
1 - 4	0.24	0.12	0.15	0.82	0.10	0.07
5 - 6	0.14	0.19	0.27	0.61	0.22	0.17
7 - 8	0.22	0.39	0.34	0.59	0.28	0.13
9 - 9	0.16	0.16	0.06	0.76	0.20	0.04
10 - 14	0.24	0.15	0.18	0.78	0.13	0.09
rg						
1 - 6	0.24	0.11	0.30	0.77	0.09	0.14
7 - 7	0.07	0.10	0.09	0.64	0.24	0.12
8 - 9	0.34	0.33	0.52	0.68	0.17	0.15
10 - 10	0.13	0.16	0.00	0.74	0.26	0.00
11 - 11	0.22	0.30	0.09	0.70	0.25	0.04

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
ub						
1 - 7	0.25	0.13	0.34	0.75	0.10	0.15
8 - 9	0.16	0.22	0.13	0.68	0.24	0.08
10 - 10	0.14	0.14	0.14	0.70	0.19	0.11
11 - 12	0.22	0.33	0.14	0.67	0.26	0.06
13 - 17	0.23	0.17	0.24	0.74	0.15	0.11
ca						
1 - 11	0.22	0.09	0.39	0.73	0.08	0.19
12 - 14	0.19	0.08	0.32	0.73	0.08	0.19
15 - 18	0.24	0.18	0.09	0.80	0.16	0.05
19 - 20	0.13	0.27	0.19	0.57	0.31	0.12
21 - 24	0.22	0.38	0.01	0.69	0.31	0.00
DC_01IN						
1 - 1	0.01	0.00	0.00	1.00	0.00	0.00
2 - 2	0.45	0.49	0.34	0.71	0.21	0.08
3 - 3	0.18	0.41	0.23	0.56	0.34	0.11
4 - 4	0.21	0.06	0.15	0.85	0.07	0.09
5 - 8	0.15	0.04	0.28	0.75	0.05	0.20
DC_02MCN						
0	0.90	0.91	0.85	0.71	0.19	0.10
1	0.10	0.09	0.15	0.68	0.17	0.15
DC_03FU						
1 - 1	0.11	0.13	0.19	0.63	0.21	0.16
2 - 2	0.50	0.45	0.34	0.75	0.18	0.07
3 - 3	0.14	0.29	0.14	0.59	0.33	0.09
4 - 6	0.26	0.13	0.33	0.76	0.10	0.14
DC_06AG						
1 - 2	0.16	0.10	0.24	0.73	0.12	0.16
3 - 3	0.46	0.49	0.53	0.69	0.19	0.12
4 - 4	0.22	0.24	0.09	0.74	0.22	0.05
5 - 7	0.16	0.17	0.14	0.71	0.20	0.09
DC_07ED						
1 - 2	0.15	0.06	0.14	0.80	0.08	0.12
3 - 3	0.34	0.23	0.33	0.75	0.14	0.11
4 - 4	0.25	0.45	0.14	0.64	0.31	0.06
5 - 6	0.27	0.26	0.38	0.69	0.17	0.14

Appendix 21

Study 2 Ad 2 Parameter statistics and Cluster profiles

Ad2 Parameters Statistics

	Cluster1	Cluster2	Cluster3	Wald	p-value	R^2
SEA_01AUA	0.09	0.33	-0.42	1.07	0.59	0.01
SEA_01AUB	0.59	-0.16	-0.43	5.44	0.07	0.04
SEA_01AUC	0.14	0.28	-0.42	0.93	0.63	0.01
SEA_01AUD	0.27	0.28	-0.54	1.44	0.49	0.01
SEA_02PSA	0.63	-0.15	-0.47	6.14	0.05*	0.04
SEA_02PSB	1.12	1.04	-2.16	12.99	0.00*	0.12
SEA_02PSC	-1.99	-1.46	3.45	36.66	0.00*	0.55
SEA_02PSD	-1.00	-0.34	1.34	10.07	0.01*	0.07
SEA_02PSE	-0.09	0.24	-0.15	0.82	0.66	0.01
SEA_03MSA	1.02	-0.21	-0.81	9.88	0.01*	0.06
SEA_03MSB	-0.72	4.45	-3.73	107.99	0.00*	0.27
SEA_03MSC	0.14	-4.43	4.29	93.89	0.00*	0.41
SEA_03MSD	1.12	0.48	-1.60	10.46	0.01*	0.07
SEA_03MSE	-1.46	-1.64	3.11	27.78	0.00*	0.42
SEA_04MFA	2.38	0.13	-2.51	59.14	0.00*	0.24
SEA_04MFB	-2.95	1.24	1.72	31.70	0.00*	0.49
SEA_04MFC	-2.67	1.77	0.89	16.09	0.00*	0.42
SEA_04MFD	2.68	-1.57	-1.11	51.70	0.00*	0.60
SEA_04MFE	-3.19	4.06	-0.87	232.32	0.00*	0.16
SEA_04MFF	-2.16	1.02	1.13	14.62	0.00*	0.21
SEA_05TM	0.66	0.43	-1.09	7.57	0.02*	0.05

Ad2 Covariates Statistics

Covariates	Cluster1	Cluster2	Cluster3	Wald	p-value
Rsc	0.29	-0.03	-0.27	2.78	0.25
Rst	0.09	0.07	-0.16	0.52	0.77
Sc	0.49	0.04	-0.53	7.57	0.02*
Rw	0.07	-0.37	0.30	2.37	0.31
Sf	-0.58	0.02	0.57	11.06	0.00*
Fc	0.14	-0.29	0.14	3.47	0.18
Rg	0.17	0.47	-0.64	4.72	0.09
Ub	-0.49	0.10	0.40	6.71	0.04*
Ca	0.27	-0.12	-0.14	3.53	0.17
DC_01IN	-0.01	0.10	-0.09	0.92	0.63
DC_02MCN	1.48	-1.00	-0.48	7.86	0.02*
DC_03FU	0.20	-0.03	-0.17	3.70	0.16

Covariates	Cluster1	Cluster2	Cluster3	Wald	p-value
DC_06AG	0.05	-0.03	-0.02	0.20	0.90
DC_07ED	-0.02	-0.29	0.32	3.89	0.14

Cluster profiles for Ad 2

Ad2 Cluster Profiles – Ad Evaluation

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Cluster Size	0.61	0.33	0.06	0.61	0.33	0.06
SEA_01AUA	0.72	0.77	0.61	0.60	0.35	0.05
SEA_01AUB	0.71	0.54	0.47	0.68	0.28	0.05
SEA_01AUC	0.53	0.56	0.39	0.60	0.35	0.05
SEA_01AUD	0.51	0.52	0.32	0.62	0.34	0.04
SEA_02PSA	0.50	0.31	0.25	0.72	0.24	0.04
SEA_02PSB	0.75	0.74	0.10	0.65	0.34	0.01
SEA_02PSC	0.02	0.03	0.81	0.15	0.13	0.72
SEA_02PSD	0.06	0.10	0.38	0.37	0.37	0.27
SEA_02PSE	0.24	0.31	0.23	0.56	0.39	0.06
SEA_03MSA	0.36	0.14	0.08	0.81	0.17	0.02
SEA_03MSB	0.91	1.00	0.32	0.61	0.37	0.02
SEA_03MSC	0.02	0.00	0.60	0.27	0.00	0.73
SEA_03MSD	0.60	0.44	0.09	0.71	0.28	0.01
SEA_03MSE	0.02	0.01	0.61	0.18	0.08	0.74
SEA_04MFA	0.62	0.15	0.01	0.89	0.11	0.00
SEA_04MFB	0.03	0.65	0.75	0.06	0.77	0.17
SEA_04MFC	0.02	0.60	0.39	0.04	0.85	0.11
SEA_04MFD	0.90	0.11	0.17	0.92	0.06	0.02
SEA_04MFE	0.00	0.22	0.00	0.00	1.00	0.00
SEA_04MFF	0.02	0.36	0.39	0.09	0.75	0.16
SEA_05TM	0.87	0.84	0.54	0.63	0.33	0.04

Ad2 Cluster Profiles – Covariates

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Rsc						
1 – 8	0.19	0.28	0.24	0.52	0.41	0.07
9 – 11	0.20	0.14	0.23	0.66	0.26	0.08
12 – 15	0.19	0.22	0.08	0.59	0.38	0.03
16 – 19	0.20	0.21	0.32	0.57	0.34	0.10
20 – 28	0.22	0.14	0.14	0.71	0.25	0.05
Rst						
1 – 16	0.19	0.20	0.39	0.56	0.32	0.12
17 – 21	0.16	0.19	0.08	0.59	0.38	0.03
22 – 27	0.26	0.24	0.00	0.67	0.33	0.00
28 – 34	0.21	0.15	0.37	0.64	0.24	0.12
35 – 48	0.17	0.23	0.16	0.55	0.39	0.05
Sc						
1 – 6	0.14	0.21	0.24	0.51	0.40	0.09
7 – 8	0.17	0.19	0.06	0.61	0.37	0.02
9 – 10	0.20	0.22	0.38	0.55	0.34	0.11
11 – 12	0.27	0.18	0.24	0.69	0.25	0.06
13 – 16	0.23	0.21	0.08	0.65	0.32	0.02
Rw						
1 – 6	0.24	0.27	0.08	0.61	0.37	0.02
7 – 7	0.29	0.29	0.45	0.59	0.32	0.10
8 – 8	0.11	0.14	0.15	0.53	0.39	0.08
9 – 9	0.17	0.08	0.16	0.73	0.20	0.07
10 – 10	0.20	0.22	0.16	0.59	0.36	0.05
Sf						
1 – 7	0.22	0.21	0.15	0.63	0.33	0.05
8 – 9	0.21	0.16	0.16	0.67	0.27	0.05
10 – 11	0.27	0.22	0.23	0.66	0.29	0.06
12 – 12	0.14	0.14	0.06	0.63	0.34	0.03
13 – 16	0.16	0.28	0.39	0.45	0.43	0.12
Fc						
1 – 4	0.20	0.22	0.23	0.59	0.34	0.07
5 – 6	0.15	0.19	0.16	0.56	0.38	0.06
7 – 8	0.23	0.31	0.31	0.54	0.39	0.07
9 – 9	0.17	0.10	0.16	0.71	0.22	0.07
10 – 14	0.24	0.18	0.15	0.67	0.28	0.04
Rg						
1 – 6	0.21	0.22	0.32	0.58	0.33	0.09
7 – 7	0.10	0.07	0.00	0.73	0.27	0.00
8 – 9	0.39	0.30	0.37	0.66	0.28	0.07
10 – 10	0.11	0.15	0.08	0.54	0.42	0.04
11 – 11	0.20	0.26	0.23	0.54	0.39	0.07

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Ub						
1 – 7	0.28	0.17	0.15	0.72	0.24	0.04
8 – 9	0.16	0.22	0.08	0.55	0.42	0.03
10 – 10	0.15	0.13	0.09	0.66	0.30	0.04
11 – 12	0.23	0.21	0.39	0.61	0.29	0.10
13 – 17	0.18	0.28	0.30	0.50	0.41	0.09
Ca						
1 – 11	0.19	0.27	0.15	0.54	0.42	0.05
12 – 14	0.21	0.11	0.24	0.71	0.21	0.08
15 – 18	0.19	0.23	0.30	0.55	0.36	0.09
19 – 20	0.18	0.13	0.15	0.69	0.25	0.06
21 – 24	0.22	0.25	0.15	0.59	0.36	0.04
DC_01IN						
1 – 1	0.00	0.01	0.00	0.00	1.00	0.00
2 – 2	0.49	0.35	0.53	0.67	0.26	0.08
3 – 3	0.22	0.25	0.24	0.58	0.36	0.07
4 – 4	0.16	0.21	0.15	0.55	0.40	0.05
5 – 8	0.13	0.18	0.08	0.56	0.40	0.03
DC_02MCN						
0	0.87	0.95	0.92	0.59	0.35	0.07
1	0.13	0.05	0.08	0.80	0.15	0.05
DC_03FU						
1 – 1	0.10	0.16	0.15	0.49	0.43	0.08
2 – 2	0.50	0.43	0.47	0.64	0.30	0.06
3 – 3	0.15	0.22	0.08	0.53	0.44	0.03
4 – 6	0.26	0.19	0.30	0.65	0.27	0.08
DC_06AG						
1 – 2	0.13	0.19	0.24	0.51	0.40	0.10
3 – 3	0.50	0.42	0.47	0.65	0.29	0.06
4 – 4	0.22	0.22	0.14	0.62	0.34	0.04
5 – 7	0.15	0.17	0.15	0.57	0.36	0.06
DC_07ED						
1 – 2	0.09	0.20	0.16	0.42	0.50	0.08
3 – 3	0.32	0.31	0.30	0.61	0.33	0.06
4 – 4	0.32	0.22	0.08	0.71	0.27	0.02
5 – 6	0.27	0.27	0.47	0.58	0.31	0.10

Appendix 22

Study 2 Ad 3 Parameter statistics and Cluster profiles

Ad3 Parameters Statistics

	Cluster1	Cluster2	Cluster3	Wald	p-value	R^2
THA_01AUA	-0.15	-0.35	0.51	2.14	0.34	0.01
THA_01AUB	-0.33	0.94	-0.61	1.61	0.45	0.01
THA_01AUC	-0.90	0.03	0.87	1.55	0.46	0.03
THA_01AUD	-0.60	0.35	0.25	6.72	0.04*	0.05
THA_02PSA	-0.41	2.09	-1.69	44.09	0.00*	0.30
THA_02PSB	0.05	0.76	-0.81	7.67	0.02*	0.05
THA_02PSC	-2.81	-2.46	5.26	164.57	0.00*	0.31
THA_02PSD	-2.84	-2.35	5.19	134.10	0.00*	0.18
THA_02PSE	-0.83	0.61	0.22	11.77	0.00*	0.09
THA_03MSA	-5.12	4.97	0.15	60.78	0.00*	0.83
THA_03MSB	1.88	-0.45	-1.43	7.23	0.03*	0.12
THA_03MSC	1.16	-3.99	2.83	49.19	0.00*	0.05
THA_03MSD	1.20	-0.77	-0.42	27.91	0.00*	0.19
THA_03MSE	-0.12	-3.71	3.83	92.57	0.00*	0.24
THA_04MFA	-0.16	1.49	-1.33	25.97	0.00*	0.17
THA_04MFB	1.37	-4.09	2.72	138.51	0.00*	0.10
THA_04MFC	-2.76	-2.35	5.11	71.80	0.00*	0.12
THA_04MFD	0.61	0.46	-1.07	8.66	0.01*	0.08
THA_04MFE	0.84	-4.02	3.18	90.70	0.00*	0.14
THA_04MFF	-1.61	-0.54	2.15	4.75	0.09	0.12
THA_05TM	-0.24	1.45	-1.22	9.23	0.01*	0.07

Ad3 Covariates Statistics

Covariates	Cluster1	Cluster2	Cluster3	Wald	p-value
rsc	0.16	0.15	-0.31	0.94	0.62
rst	0.10	0.10	-0.20	0.87	0.65
sc	0.13	0.31	-0.44	1.74	0.42
rw	-0.45	-0.45	0.90	4.33	0.12
sf	-0.18	-0.70	0.88	7.14	0.03*
fc	-0.27	-0.53	0.80	15.75	0.00*
rg	0.37	0.88	-1.25	15.03	0.00*
ub	0.08	0.39	-0.46	4.34	0.11
ca	0.05	0.31	-0.37	2.43	0.30
DC_01IN	0.02	-0.33	0.31	5.26	0.07
DC_02MCN	0.18	0.06	-0.24	0.10	0.95
DC_03FU	-0.06	-0.16	0.22	1.35	0.51

DC_06AG	0.06	0.22	-0.28	2.65	0.27
DC_07ED	0.06	0.04	-0.10	0.22	0.90

Cluster profiles for Ad 3

Ad3 Cluster Profiles – Ad Evaluation

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Cluster Size	0.54	0.32	0.14	0.54	0.32	0.14
THA_01AUA	0.19	0.16	0.32	0.52	0.26	0.22
THA_01AUB	0.95	0.98	0.93	0.53	0.33	0.14
THA_01AUC	0.03	0.07	0.16	0.27	0.38	0.35
THA_01AUD	0.31	0.54	0.51	0.41	0.42	0.17
THA_02PSA	0.35	0.87	0.13	0.39	0.58	0.04
THA_02PSB	0.71	0.83	0.51	0.53	0.37	0.10
THA_02PSC	0.00	0.00	0.34	0.00	0.00	1.00
THA_02PSD	0.00	0.00	0.21	0.00	0.00	1.00
THA_02PSE	0.17	0.46	0.37	0.31	0.51	0.18
THA_03MSA	0.00	0.99	0.42	0.00	0.84	0.16
THA_03MSB	0.98	0.85	0.68	0.59	0.30	0.11
THA_03MSC	0.02	0.00	0.11	0.44	0.00	0.56
THA_03MSD	0.71	0.25	0.32	0.75	0.16	0.09
THA_03MSE	0.01	0.00	0.31	0.09	0.00	0.91
THA_04MFA	0.49	0.83	0.23	0.47	0.47	0.06
THA_04MFB	0.09	0.00	0.29	0.56	0.00	0.44
THA_04MFC	0.00	0.00	0.14	0.00	0.00	1.00
THA_04MFD	0.86	0.84	0.53	0.57	0.33	0.09
THA_04MFE	0.03	0.00	0.25	0.32	0.00	0.68
THA_04MFF	0.01	0.02	0.18	0.08	0.14	0.77
THA_05TM	0.85	0.97	0.68	0.53	0.36	0.11

Ad3 Cluster Profiles – Covariates

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
rsc						
1 - 8	0.16	0.28	0.35	0.38	0.40	0.22
9 - 11	0.20	0.18	0.15	0.58	0.31	0.11
12 - 15	0.21	0.20	0.10	0.60	0.33	0.07
16 - 19	0.26	0.10	0.25	0.68	0.16	0.17
20 - 28	0.17	0.24	0.15	0.48	0.41	0.11
rst						
1 - 16	0.21	0.16	0.29	0.55	0.26	0.20

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
17 - 21	0.12	0.21	0.21	0.41	0.41	0.18
22 - 27	0.26	0.27	0.10	0.58	0.36	0.06
28 - 34	0.23	0.16	0.16	0.63	0.26	0.11
35 - 48	0.18	0.19	0.25	0.50	0.32	0.18
sc						
1 - 6	0.17	0.15	0.25	0.52	0.28	0.20
7 - 8	0.21	0.12	0.11	0.68	0.23	0.09
9 - 10	0.21	0.21	0.26	0.52	0.31	0.17
11 - 12	0.23	0.26	0.22	0.52	0.35	0.13
13 - 16	0.19	0.27	0.16	0.48	0.41	0.11
rw						
1 - 6	0.23	0.25	0.26	0.51	0.34	0.15
7 - 7	0.36	0.22	0.22	0.65	0.24	0.10
8 - 8	0.16	0.08	0.07	0.72	0.20	0.08
9 - 9	0.12	0.16	0.15	0.47	0.38	0.16
10 - 10	0.14	0.28	0.29	0.36	0.44	0.20
sf						
1 - 7	0.18	0.30	0.14	0.45	0.45	0.09
8 - 9	0.20	0.20	0.16	0.55	0.33	0.12
10 - 11	0.24	0.27	0.23	0.53	0.34	0.13
12 - 12	0.20	0.06	0.07	0.79	0.14	0.07
13 - 16	0.18	0.18	0.39	0.47	0.27	0.26
fc						
1 - 4	0.22	0.24	0.12	0.56	0.37	0.08
5 - 6	0.19	0.15	0.07	0.64	0.30	0.06
7 - 8	0.24	0.33	0.21	0.49	0.40	0.11
9 - 9	0.12	0.12	0.35	0.42	0.26	0.32
10 - 14	0.24	0.16	0.26	0.59	0.24	0.17
rg						
1 - 6	0.21	0.15	0.43	0.52	0.22	0.27
7 - 7	0.06	0.12	0.07	0.42	0.47	0.11
8 - 9	0.41	0.29	0.32	0.62	0.26	0.12
10 - 10	0.13	0.13	0.04	0.60	0.36	0.04
11 - 11	0.18	0.31	0.15	0.45	0.46	0.10
ub						
1 - 7	0.28	0.14	0.28	0.65	0.19	0.17
8 - 9	0.16	0.21	0.15	0.49	0.39	0.13
10 - 10	0.11	0.18	0.18	0.41	0.41	0.18
11 - 12	0.22	0.27	0.21	0.51	0.37	0.12
13 - 17	0.24	0.21	0.17	0.59	0.30	0.11
ca						
1 - 11	0.23	0.15	0.33	0.57	0.22	0.21
12 - 14	0.19	0.16	0.20	0.56	0.29	0.16
15 - 18	0.25	0.18	0.15	0.63	0.27	0.10

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
19 - 20	0.12	0.24	0.16	0.40	0.47	0.13
21 - 24	0.22	0.27	0.16	0.52	0.38	0.10
DC_01IN						
1 - 1	0.01	0.00	0.00	1.00	0.00	0.00
2 - 2	0.38	0.60	0.34	0.46	0.43	0.11
3 - 3	0.23	0.22	0.22	0.55	0.31	0.14
4 - 4	0.22	0.10	0.17	0.68	0.19	0.13
5 - 8	0.15	0.07	0.27	0.57	0.17	0.26
DC_02MCN						
0	0.89	0.94	0.85	0.53	0.34	0.13
1	0.11	0.06	0.15	0.60	0.19	0.21
DC_03FU						
1 - 1	0.14	0.09	0.12	0.62	0.24	0.14
2 - 2	0.48	0.52	0.33	0.55	0.35	0.10
3 - 3	0.11	0.25	0.21	0.34	0.48	0.18
4 - 6	0.27	0.13	0.34	0.62	0.18	0.20
DC_06AG						
1 - 2	0.17	0.12	0.19	0.59	0.25	0.16
3 - 3	0.45	0.47	0.58	0.51	0.32	0.17
4 - 4	0.22	0.23	0.16	0.55	0.34	0.10
5 - 7	0.17	0.18	0.07	0.57	0.36	0.07
DC_07ED						
1 - 2	0.10	0.12	0.25	0.44	0.29	0.27
3 - 3	0.35	0.28	0.27	0.59	0.29	0.12
4 - 4	0.24	0.35	0.24	0.47	0.41	0.12
5 - 6	0.31	0.25	0.25	0.59	0.29	0.12

Appendix 23

Study 2 Ad 4 Parameter statistics and Cluster profiles

Ad4 Parameters Statistics

	Cluster1	Cluster2	Cluster3	Wald	p-value	R^2
FOA_01AUA	-0.53	1.69	-1.16	6.00	0.05	0.07
FOA_01AUB	-0.22	-0.32	0.54	2.66	0.26	0.02
FOA_01AUC	-0.17	0.78	-0.61	7.34	0.03*	0.07
FOA_01AUD	0.00	-0.24	0.24	0.41	0.81	0.00
FOA_02PSA	-1.21	2.05	-0.84	23.80	0.00*	0.41
FOA_02PSB	0.65	0.51	-1.17	13.91	0.00*	0.08
FOA_02PSC	-4.05	0.46	3.59	42.56	0.00*	0.15
FOA_02PSD	0.77	-4.24	3.47	99.39	0.00*	0.16
FOA_02PSE	-0.66	0.45	0.21	3.46	0.18	0.05
FOA_03MSA	-2.03	2.08	-0.05	9.67	0.01*	0.47
FOA_03MSB	4.13	-0.94	-3.19	24.72	0.00*	0.27
FOA_03MSC	0.72	-4.27	3.55	109.27	0.00*	0.17
FOA_03MSD	0.95	-0.54	-0.42	12.67	0.00*	0.12
FOA_03MSE	-2.76	-2.81	5.57	188.79	0.00*	0.42
FOA_04MFA	-0.15	2.01	-1.86	26.09	0.00*	0.29
FOA_04MFB	-0.53	-1.29	1.82	16.44	0.00*	0.18
FOA_04MFC	-4.13	0.18	3.95	101.62	0.00*	0.26
FOA_04MFD	0.83	1.27	-2.10	30.31	0.00*	0.27
FOA_04MFE	0.57	-4.27	3.69	129.57	0.00*	0.23
FOA_04MFF	-1.08	-1.17	2.24	14.16	0.00*	0.15
FOA_05TM	0.00	1.57	-1.57	18.87	0.00*	0.16

Ad4 Covariates Statistics

Covariates	Cluster1	Cluster2	Cluster3	Wald	p-value
Rsc	0.28	-0.17	-0.11	3.77	0.15
Rst	-0.05	0.27	-0.22	2.72	0.26
Sc	0.05	-0.02	-0.03	0.08	0.96
Rw	0.26	-0.39	0.13	2.42	0.30
Sf	-0.37	-0.01	0.37	3.63	0.16
Fc	0.02	-0.34	0.32	4.82	0.09
Rg	-0.15	0.72	-0.57	11.85	0.00*
Ub	-0.10	0.02	0.08	0.25	0.88
Ca	0.03	0.28	-0.31	2.81	0.25
DC_01IN	0.06	0.11	-0.17	1.22	0.54
DC_02MCN	0.41	-0.09	-0.32	0.70	0.70
DC_03FU	0.01	-0.14	0.13	1.22	0.54

Covariates	Cluster1	Cluster2	Cluster3	Wald	p-value
DC_06AG	0.17	0.10	-0.27	1.91	0.39
DC_07ED	0.03	0.17	-0.20	1.66	0.44

Cluster profiles for Ad 4

Ad4 Cluster Profiles – Ad Evaluation

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Cluster Size	0.45	0.44	0.12	0.45	0.44	0.12
FOA_01AUA	0.84	0.98	0.74	0.42	0.48	0.10
FOA_01AUB	0.25	0.23	0.42	0.43	0.39	0.19
FOA_01AUC	0.39	0.63	0.29	0.36	0.56	0.07
FOA_01AUD	0.14	0.12	0.17	0.47	0.38	0.15
FOA_02PSA	0.23	0.88	0.30	0.19	0.74	0.07
FOA_02PSB	0.79	0.77	0.38	0.48	0.46	0.06
FOA_02PSC	0.00	0.01	0.20	0.00	0.17	0.83
FOA_02PSD	0.02	0.00	0.24	0.25	0.00	0.75
FOA_02PSE	0.15	0.34	0.29	0.26	0.60	0.14
FOA_03MSA	0.05	0.74	0.26	0.05	0.87	0.08
FOA_03MSB	1.00	0.89	0.47	0.50	0.44	0.06
FOA_03MSC	0.02	0.00	0.25	0.22	0.00	0.78
FOA_03MSD	0.71	0.36	0.38	0.61	0.30	0.09
FOA_03MSE	0.00	0.00	0.45	0.00	0.00	1.00
FOA_04MFA	0.41	0.86	0.11	0.32	0.66	0.02
FOA_04MFB	0.07	0.03	0.43	0.32	0.15	0.53
FOA_04MFC	0.00	0.01	0.33	0.00	0.11	0.89
FOA_04MFD	0.85	0.90	0.23	0.48	0.49	0.03
FOA_04MFE	0.02	0.00	0.33	0.19	0.00	0.81
FOA_04MFF	0.01	0.01	0.24	0.13	0.12	0.75
FOA_05TM	0.80	0.95	0.46	0.43	0.50	0.06

Ad4 Cluster Profiles – Covariates

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
Rsc						
1 – 8	0.14	0.30	0.29	0.27	0.58	0.15
9 – 11	0.18	0.18	0.21	0.44	0.43	0.13
12 – 15	0.21	0.22	0.04	0.48	0.49	0.03
16 – 19	0.27	0.12	0.30	0.58	0.25	0.16
20 – 28	0.20	0.18	0.15	0.48	0.42	0.10
Rst						

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
1 – 16	0.21	0.20	0.23	0.45	0.42	0.13
17 – 21	0.13	0.18	0.24	0.36	0.47	0.18
22 – 27	0.30	0.21	0.13	0.55	0.38	0.06
28 – 34	0.23	0.17	0.23	0.50	0.36	0.14
35 – 48	0.14	0.25	0.17	0.34	0.56	0.10
Sc						
1 – 6	0.20	0.15	0.17	0.52	0.37	0.11
7 – 8	0.22	0.15	0.04	0.59	0.38	0.03
9 – 10	0.16	0.24	0.34	0.33	0.48	0.19
11 – 12	0.20	0.26	0.29	0.38	0.48	0.14
13 – 16	0.22	0.21	0.16	0.47	0.44	0.09
Rw						
1 – 6	0.20	0.30	0.18	0.37	0.54	0.09
7 – 7	0.33	0.22	0.44	0.50	0.33	0.17
8 – 8	0.13	0.10	0.16	0.47	0.37	0.16
9 – 9	0.19	0.11	0.05	0.62	0.34	0.04
10 – 10	0.16	0.27	0.17	0.34	0.57	0.09
Sf						
1 – 7	0.24	0.19	0.17	0.51	0.39	0.10
8 – 9	0.17	0.22	0.13	0.41	0.51	0.08
10 – 11	0.26	0.23	0.30	0.46	0.40	0.14
12 – 12	0.18	0.12	0.07	0.57	0.36	0.06
13 – 16	0.15	0.24	0.32	0.32	0.50	0.18
Fc						
1 – 4	0.20	0.26	0.09	0.42	0.53	0.05
5 – 6	0.16	0.14	0.25	0.45	0.38	0.18
7 – 8	0.29	0.27	0.13	0.49	0.45	0.06
9 – 9	0.10	0.17	0.26	0.30	0.50	0.20
10 – 14	0.25	0.16	0.28	0.52	0.33	0.15
rg						
1 - 6	0.26	0.14	0.39	0.52	0.27	0.21
7 - 7	0.06	0.11	0.04	0.34	0.59	0.06
8 - 9	0.44	0.33	0.16	0.54	0.40	0.05
10 - 10	0.11	0.10	0.21	0.42	0.38	0.20
11 - 11	0.13	0.32	0.20	0.27	0.62	0.11
ub						
1 - 7	0.31	0.17	0.17	0.60	0.32	0.09
8 - 9	0.16	0.20	0.09	0.43	0.51	0.06
10 - 10	0.12	0.11	0.29	0.40	0.36	0.25
11 - 12	0.16	0.33	0.17	0.31	0.61	0.08
13 - 17	0.24	0.19	0.27	0.48	0.37	0.15
ca						
1 - 11	0.28	0.14	0.26	0.59	0.27	0.14
12 - 14	0.18	0.16	0.25	0.45	0.39	0.16

	Cluster Profiles			Probability Means		
	Cluster1	Cluster2	Cluster3	Cluster1	Cluster2	Cluster3
15 - 18	0.20	0.22	0.24	0.41	0.45	0.13
19 - 20	0.13	0.21	0.12	0.36	0.55	0.09
21 - 24	0.21	0.28	0.13	0.40	0.53	0.07
DC_01IN						
1 - 1	0.00	0.00	0.04	0.02	0.00	0.98
2 - 2	0.45	0.41	0.56	0.45	0.40	0.15
3 - 3	0.21	0.26	0.18	0.41	0.50	0.09
4 - 4	0.20	0.17	0.09	0.51	0.43	0.06
5 - 8	0.14	0.15	0.12	0.43	0.47	0.10
DC_02MCN						
0	0.87	0.93	0.88	0.43	0.45	0.11
1	0.13	0.07	0.12	0.56	0.29	0.15
DC_03FU						
1 - 1	0.13	0.10	0.12	0.50	0.38	0.12
2 - 2	0.46	0.51	0.39	0.44	0.47	0.10
3 - 3	0.13	0.20	0.17	0.35	0.53	0.12
4 - 6	0.27	0.19	0.31	0.51	0.34	0.15
DC_06AG						
1 - 2	0.13	0.14	0.33	0.35	0.40	0.25
3 - 3	0.46	0.49	0.47	0.44	0.45	0.12
4 - 4	0.24	0.22	0.07	0.51	0.45	0.04
5 - 7	0.17	0.15	0.13	0.49	0.42	0.09
DC_07ED						
1 - 2	0.13	0.10	0.25	0.43	0.34	0.23
3 - 3	0.34	0.28	0.36	0.48	0.39	0.13
4 - 4	0.27	0.31	0.13	0.45	0.50	0.06
5 - 6	0.27	0.31	0.26	0.42	0.47	0.11