

**Psychological ownership in online brand communities: Scale
development and validation**

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Abstract

“Mine is a small word.... It is deceptive in its power and importance.... It controls our behaviour, but we rarely notice, as we move about our world restricting ourselves to narrow walkways and to those places for which we have keys.” (Rudmin, 1994, p. 55)

The quote above mirrors that ownership can influence an individual's behaviour. Psychological ownership (PO) is a psychological aspect of ownership that reflects a close bond between an individual and their possessions. Organisational scholars contributed to its conceptualisation and scale development and there has been a massive adoption of the concept in marketing research. However, scholars have continued to debate its dimensionality and measurement. Marketing scholars in particular have questioned the use of the concept in an online marketing context, suggesting that there is a need to extend the theory to fully encompass both individual and collective levels of the PO phenomenon in online marketing research. This thesis aims to 1) explore the theoretical notion of PO in online brand communities, 2) establish a PO measurement in the online marketing context, 3) examine the effects of PO in online brand communities.

To achieve these objectives, the present study was undertaken in three research phases with a mixed-method design. First, a qualitative study involving online observation, a collage projective technique (i.e., collage), and in-depth interviews was conducted to explore the meaning and dimensions of PO in online communities. The results informed an initial scale development item pool for the second research phase, in which a quantitative study using a survey was conducted to assess the measurement. In the third research phase, the scale was implemented to test the effect of PO on consumers' online brand community commitment, brand commitment, and brand attachment.

Results of the qualitative study that included nine online observations and 10 in-depth interviews suggested a conceptual framework for PO made up of two levels of PO: the individual level of PO (IPO); and collective level of PO (CPO). Eight dimensions were proposed that included five IPO dimensions (sense of gratification, sense of trust, sense of belonging, sense of duty, sense of pride) and three CPO dimensions (sense of affinity, sense of unity, sense of power). The research results from quantitative studies of 421 online brand community members provided support for the dimensions. The findings reported that both levels of PO could positively and directly influence consumers' online brand community commitment. The consumers who had a

strong sense of PO towards the community were more likely to commit to the community.

Further, both levels of PO were also found to directly influence consumers' brand commitment and brand attachment. Consumers who developed a strong feeling of PO towards the online brand community were likely to commit and attach to the focal brand. Also, the consumers with IPO were more likely to commit to the community and the brand, and more likely to attach to the brand than consumers with a sense of CPO to the community.

This thesis contributes to the PO literature in the online marketing context. The study developed and empirically validated a conceptual model of PO and a measurement scale in the context of an online community. The thesis also has implications for online brand community management. PO can be seen as a means of retaining online brand community members. Specifically, the marketer can monitor and influence online brand community members' state of PO by shaping certain underlying dimensions. They can also apply the scale to examine their online community members' PO states to predict consumers' attitudes to the community and the brand.

Table of Contents

Abstract	i
Table of Contents	iii
List of Tables	x
List of Figures	xii
Attestation of Authorship	xiii
Acknowledgements	xiv
Chapter One: Introduction	1
1.1 Problem orientation	1
1.2 Background	1
1.3 Problem statement	3
1.4 Research objectives and research questions	5
1.5 Research design	6
1.6 Significance of the study	6
1.7 Definition of key terms	7
1.8 Outline of the thesis	9
1.9 Chapter conclusion	10
Chapter Two: Literature Review	11
2.1 Introduction	11
2.2 The conceptualisation of psychological ownership	11
2.2.1 PO theoretical foundation	11
2.2.2 PO definition	13
2.2.3 Why do people develop PO?	15
2.2.4 How does PO emerge?	16
2.2.5 PO dimensions	17
2.2.6 Individual and collective level of PO	20
2.2.7 PO measurement	21
2.3 How should we evaluate psychological ownership?	23
2.3.1 Predicting employees' attitude and behaviour	24
2.3.2 In other research disciplines	25
2.3.3 Negative effects	26
2.4 Reviewing psychological ownership research in the marketing discipline	27
2.4.1 PO Definition and dimensionality	27
2.4.2 PO Measurement in marketing literature	30
2.4.3 PO antecedents in the marketing literature	32
2.4.4 PO effects in marketing	33
	iii

2.4.5 PO in online marketing literature	34
2.5 Theoretical concerns about PO in the online marketing discipline	37
2.6 Can the online community be a PO target?	41
2.6.1 PO target attributes	41
2.6.2 Online brand community	42
2.6.3 Consumer participation in online brand communities	45
2.7 Research objectives and questions	46
2.8 Chapter conclusion	47
Chapter Three: Research Design	55
3.1 Introduction	55
3.2 Research paradigm	55
3.3 Research methodology	57
3.4 Research phase one - Qualitative research enquiry	58
3.4.1 Qualitative research method justification	58
3.4.2 Qualitative research design	58
3.4.2.1 Netnography approach Justification	58
3.4.2.2 Netnography participants identification and data collection	59
3.4.2.3 Projective technique justification	60
3.4.2.4 Projective technique participants identification and data collection.	62
3.4.2.5 Data analysis for the qualitative research enquiry	64
3.4.2.6 Trustworthiness of the qualitative research enquiry	66
3.5 Research phases two and three – Quantitative research enquiry	67
3.5.1 Method justification	68
3.5.2 Research phase two–Scale development enquiry	68
3.5.2.1 Specify the domain of the PO concept	69
3.5.2.2 Generate a sample of items	69
3.5.2.3 Purify the measure – Exploratory factor analysis	70
3.5.2.3.1 Sample and data collection	70
3.5.2.3.2 Data analysis	71
3.5.2.3.3 Test assumptions of EFA	72
3.5.2.3.4 Selecting factor method	74
3.5.2.3.5 Selecting rotational methods	75
3.5.2.3.6 Judging the significance of factor loading	76
3.5.2.4 Assessing reliability and validity	76
3.5.2.5 Confirmatory factor analysis	77
3.5.2.5.1 Sample and data collection	77
3.5.2.5.2 Specifying the measurement model	78
3.5.2.5.3 Assessing measurement model validity	78

3.5.2.6 Assess reliability and validity of CFA	79
3.5.3 Research phase three–PO effects testing enquiry	80
3.6 Ethics requirement	81
3.7 Chapter conclusion	82
Chapter Four: Qualitative Research Results	83
4.1 Introduction	83
4.2 Description of the sample	83
4.3 Overview of the participation experience	85
4.3.1 Individual-level of PO	87
4.3.1.1 Sense of gratification	87
4.3.1.1.1 Informational gratification	88
4.3.1.1.2 Companionship gratification	89
4.3.1.1.3 Psychological gratification	90
4.3.1.1.4 Entertainment gratification	92
4.3.1.2 Sense of belonging	92
4.3.1.2.1 Community acceptance	93
4.3.1.2.2 Responsiveness and support	94
4.3.1.2.3 Tacit understanding	94
4.3.1.3 Sense of trust	95
4.3.1.3.1 Freedom of expression	95
4.3.1.3.2 Reliability	96
4.3.1.4 Sense of pride	97
4.3.1.4.1 Authentic pride	97
4.3.1.4.2 Hubristic pride	99
4.3.1.5 Sense of duty	100
4.3.2 Collective level of PO	101
4.3.2.1 Sense of community affinity	101
4.3.2.1.1 Closeness	101
4.3.2.1.2 Mutual benefits	102
4.3.2.1.3 Shared goals and values	103
4.3.2.2 Sense of unity	104
4.3.2.2.1 Community cohesion	104
4.3.2.2.2 Co-construct and protect	105
4.3.2.3 Sense of power	106
4.4 Discussion	107
4.4.1 PO conceptual foundation	107
4.4.1.1 Individual level of PO and collective level of PO differences	108
4.4.1.2 Online collective level of PO form condition	110

4.4.1.3 PO definition in online brand communities	111
4.4.2 The roots of PO in the online brand communities	111
4.4.2.1 Individual level of PO underlying motives	112
4.4.2.1.1 Self-efficacy through being recognised	112
4.4.2.1.2 Self-identity	112
4.4.2.1.3 Having an online place	113
4.4.2.1.4 Stimulation	113
4.2.2.2 Collective level of PO underlying motives	114
4.2.2.2.1 Social comparison	114
4.2.2.2.2 Community identity	114
4.4.3 The route of PO development in an online brand community	115
4.4.3.1 Gaining influence in the online brand community	115
4.4.3.2 Coming to intimately know the community and the members	116
4.4.3.3 Investing the self into the community	116
4.5 Online PO conceptualisation model	117
4.6 Community factors	117
4.7 Is PO a natural phenomenon or a practice result in an online context?	118
4.8 Chapter conclusion	119
Chapter Five: PO Scale Development	120
5.1 Introduction	120
5.2 Item generation	120
5.2.1 Content analysis of item generation	120
5.2.2 Content validity check by an expert panel	120
5.2.3 Justification of potential measuring items from prior research	124
5.2.3.1 Individual level of PO dimension justification	124
5.2.3.1.1 Sense of gratification-Definition and measurement	124
5.2.3.1.2 Sense of pride - Definition and measurement	125
5.2.3.1.3 Sense of trust - Definition and measurement	126
5.2.3.1.4 Sense of duty - Definition and measurement	127
5.2.3.1.5 Sense of belonging - Definition and measurement	128
5.2.3.2 Collective level of PO dimension justification	129
5.2.3.2.1 Sense of unity- Definition and measurement	129
5.2.3.2.2 Sense of power - Definition and Measurement	130
5.2.3.2.3 Sense of affinity - Definition and Measurement	130
5.3 Formative or reflective	131
5.4 Scale Purification-Exploratory Factor Analysis	132
5.4.1 Sample	132
5.4.2 Data examination	135

5.4.2.1 Missing data	135
5.4.2.2 Outlier detection	135
5.4.2.3 Testing the assumption of multivariate analysis	136
5.4.3 Exploratory factor analysis results	136
5.4.3.1 Testing assumptions of factor analysis	136
5.4.3.2 Factor extraction and assessing the overall fit	137
5.4.3.3 EFA results of the individual level of PO	137
5.4.3.4 Individual level of PO EFA result interpretation	141
5.4.3.5 EFA results of the collective level of PO	141
5.4.3.6 Collective level of PO EFA result interpretation	144
5.4.3.7 Reliability tests of both the individual level of PO and the collective level of PO scales	145
5.5 Scale Validation-Confirmatory Factor Analysis	147
5.5.1 Confirmatory analysis results	147
5.5.1.1 CFA results of the individual level of PO	147
5.5.1.2 Construct reliability and validity for the IPO scale	149
5.5.1.3 CFA results of the collective level of PO scale	151
5.5.1.4 Construct reliability and validity of CPO scale	152
5.5.1.5 Combined PO scale validity	154
5.5.1.5.1 Individual level of PO and collective level of PO as a second-order factor	154
5.5.2 Cross-validation of the model	156
5.5.2.1 Sample	156
5.5.2.2 Preliminary DATA examination	158
5.5.2.2.1 Missing data	159
5.5.2.2.2 Outlier detection	159
5.5.2.3 Testing the assumption of multivariate analysis	160
5.5.2.3.1 Normality	160
5.5.2.3.2 Homoscedasticity and linearity	160
5.5.2.4 Testing the assumption of multivariate analysis	160
5.5.2.5 Cross-validation of CFA results	161
5.5.2.5.1 Cross-CFA results of IPO scale	161
5.5.2.5.2 Cross-CFA results of CPO scale	161
5.5.2.5.3 Cross-CFA results of IPO and CPO as a second-order construct	161
5.5.2.5.4 Cross-CFA results of the whole PO scale	162
5.6 Model fit comparison across two datasets	162
5.7 Chapter discussion	163
5.7.1 Discussion of the PO dimensionality	163
5.7.2 Validity discussion	167
5.7.3 Cross-validation CFA discussion	167

5.8 Chapter conclusion	167
Chapter Six: Hypothesis Development and Testing	169
6.1 Chapter introduction	169
6.2 Hypothesis development	169
6.2.1 Online brand community commitment	169
6.2.1.1 The relationship between PO and commitment	170
6.2.1.2 The relationship between PO dimensions and online brand community commitment	171
6.2.2 Individual level of PO and online brand community commitment	171
6.2.2.1 Sense of gratification and online brand community commitment	171
6.2.2.2 Sense of belonging and online brand community commitment	172
6.2.2.3 Sense of trust and online brand community commitment	173
6.2.2.4 Sense of pride and online brand community commitment	173
6.2.2.5 Sense of duty and online brand community commitment	174
6.2.3 Collective level of PO and online brand community commitment	175
6.2.4 Online brand community commitment and brand commitment and brand attachment	176
6.2.5 Online brand community commitment mediation effects	177
6.3 The research framework	179
6.4 Hypothesis testing	182
6.4.1 Measurement and validity assessment	182
6.4.2. Sample	183
6.4.3 Data examination	184
6.4.3.1 Missing data	184
6.4.3.2 Outlier detection	185
6.4.3.2.1 Univariate detection	185
6.4.3.2.2. Multivariate detection	185
6.4.3.3 Testing the assumption of multivariate analysis	186
6.4.3.3.1 Normality and linearity	186
6.4.3.4 Testing assumptions of multivariate analysis	187
6.5 Results	187
6.5.1. PO and online band community commitment	187
6.5.2. Online brand commitment and online brand attachment	188
6.5.3 Identification of community commitment mediation role	188
6.5.3.1 PO with brand commitment and brand attachment	189
6.5.3.2 Community commitment mediation effects on PO dimensions with brand attachment	189
6.5.3.3 Community commitment mediation effects on PO dimensions with brand commitment	190
6.6 Discussion	191
	viii

6.6.1 PO and community commitment	191
6.6.2 Community commitment mediation effects	194
6.7 Chapter conclusion	195
Chapter Seven: Implication and Conclusions	196
7.1 Chapter Introduction	196
7.2 Summary of research findings	197
7.3 Theoretical contributions	198
7.3.1 Contribution to PO theory	198
7.3.2 Contribution to PO outcomes	201
7.3.3 Methodological contribution	203
7.4 Managerial implications	204
7.4.1 For online consumers	207
7.4.2 For the community	208
7.5 Research limitations	208
7.6 Future research directions	209
7.7 Concluding remarks	212
References	213
Appendices	231

List of Tables

Table 2. 1 PO in Marketing Context-Definition, Terms, and Operationalisation	47
Table 2. 2 PO in marketing literature-Dimensionality and Measurement	50
Table 2. 3 PO in marketing context-Antecedents and Effects	52
Table 3. 1 Qualitative Research Design Overview	58
Table 3. 2 Criteria for Assessing the Fit of the CFA Solution	78
Table 4. 1 Collage and In-depth Interview Samples	83
Table 4. 2 FerrariChat Online Brand Community Samples	84
Table 4. 3 Themes and Codes	85
Table 5. 1 IPO Measurement Item Pool	120
Table 5. 2 CPO Measurement Item Pool	121
Table 5. 3 IPO and CPO Item Pool Validation Results	122
Table 5. 4 Sense of Gratification Measure Items	124
Table 5. 5 Sense of Pride Measure Items	125
Table 5. 6 Sense of Trust Measurement Items	126
Table 5. 7 Sense of Duty Measure Items	127
Table 5. 8 Sense of Belonging Measure Items	128
Table 5. 9 Sense of Unity Measure Items	128
Table 5. 10 Sense of Power Measure Items	129
Table 5. 11 Sense of Affinity Measure Items	130
Table 5. 12 EFA Participants' Demographic Details	131
Table 5. 13 Univariate Outlier Detection of Study Two	133
Table 5. 14 Sample Adequacy for Factor Analysis	134
Table 5. 15 Sample Adequacy for the IPO Scale Factor Analysis	135
Table 5. 16 Principal Component Solution for the IPO Scale	135
Table 5. 17 Principal Component Solution for the IPO Scale with Eigenvalue (>1)	136
Table 5. 18 Principal Component Solution for the IPO Scale with Five Factors	137
Table 5. 19 IPO Scale Communalities	138
Table 5. 20 Sample Adequacy for the CPO Factor Analysis	139
Table 5. 21 Principal Component Analysis for the CPO Scale with Eigenvalue (>1)	140
Table 5. 22 Component Solution for CPO Items	140
Table 5. 23 Component Solution for CPO scale with Oblique Rotation	141
Table 5.24 CPO Three Dimensions Communalities	142

Table 5. 25 CPO Scale Communalities	143
Table 5. 26 IPO & CPO Reliability Test Results	144
Table 5. 27 IPO Scale Convergent Validity and Reliability	147
Table 5. 28 IPO Scale Discriminant Validity	148
Table 5. 29 CPO Scale Validity and Reliability	150
Table 5. 30 CPO Scale Discriminant Validity	150
Table 5. 31 Participant Information of Cross-validation CFA	154
Table 5. 32 Univariate Outlier Detection of Cross-validation Dataset	156
Table 5. 33 Cross-validation Sample Adequacy	158
Table 5. 34 Model Fit Comparison	159
Table 6. 1 Variable Measurement and Validity Assessment	179
Table 6. 2 Discriminant validity test of PO and community commitment	179
Table 6. 3 Sample Demographic for Testing PO Effects	181
Table 6. 4 Univariate Outlier Detection of PO Effects Test Data	183
Table 6. 5 Sample Adequacy for Testing PO Effects	184
Table 6. 6 Hypothesis Testing Results	189

List of Figures

Figure 2. 1 Theory of psychological ownership in a marketing context	28
Figure 2. 2 Customer-centric model of brand community	41
Figure 3. 1 Research methodology overview	56
Figure 3. 2 Thematic analysis process	64
Figure 3. 3 The EFA development process guide	71
Figure 4. 1 Psychological gratification from the community 1	89
Figure 4. 2 Psychological gratification from the community 2	90
Figure 4. 3 Community acceptance	93
Figure 4. 4 Reliability	96
Figure 4. 5 Consumers' authentic pride in identity	97
Figure 4. 6 Consumers' authentic pride in a better 'me'	98
Figure 4. 7 Consumers' hubristic pride	99
Figure 4. 8 Online community members' sense of duty	100
Figure 4. 9 Online community members being together with each other	101
Figure 4. 10 Online community members' sense of community affinity	102
Figure 4. 11 Online community members share the same goals and values	103
Figure 4. 12 Online brand community cohesion	104
Figure 4. 13 Online members co-construct and protect the community	105
Figure 4. 14 Consumers' sense of power	106
Figure 4. 15 Online PO process model	116
Figure 5. 1 CFA of IPO scale solution	146
Figure 5. 2 CFA of CPO scale solution	148
Figure 5. 3 IPO as second-order factor measurement models	152
Figure 5. 4 CPO as second-order factor measurement models	153
Figure 5. 5 Finalised model for measurement	160
Figure 6. 1 PO effects model	177
Figure 6. 2 PO dimension effects model	177
Figure 6. 3 IPO and CPO effects model	178

Attestation of Authorship

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning.

The following publications relate to work undertaken for this thesis:

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Signed

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Chapter One: Introduction

1.1 Problem orientation

Nowadays, many businesses are committed to building brand communities to maintain a close relationship between consumers and their brands (Herhausen et al., 2019; Shen et al., 2018). Marketing scholars have acknowledged the importance of consumers' psychological processes in building social relationships with consumers and developing a successful online brand community (Carlson et al., 2008; Lin et al., 2019; Schouten et al., 2007). Specifically, the concept of psychological ownership (PO), which reflects the close relationship between individuals and their psychologically owned possessions (Pierce et al., 2001), is applied in an online brand community context to examine its effects on consumers' behaviour. Some marketing scholars believe the notion of PO in organisational research is conceptually the same as PO in the online marketing context (e.g., Kuchmancer et al., 2019). Thus, they have adapted the borrowed PO definition, dimensions, and measurement from organisational research to their online brand community studies (e.g., Lee & Suh, 2015). In contrast, other marketing scholars maintain that the conceptualisation of PO may need adaptation given that online brand communities follow a different communication pattern compared to offline setting (Kuo & Feng, 2013). The question remains as to whether PO theory is still valid in an online brand community context, and how the concept differs from its meaning originated from the organisation literature. This thesis seeks to advance the theoretical notion of consumers' PO within their brand communities in the online marketing context.

1.2 Background

A brand community is defined as “a specialised, non-geographically bound community, based on a set of social relationships among admirers of a brand” (Muniz & O’Quinn, 2001, p. 412). An online brand community is a community that exists in an online setting, in which the community members’ interactions are mediated by the internet (Fuller et al., 2007). De Valck et al. (2009) define an online brand community as “a specialized, non-geographically bound, online community, based on social communications and relationships among a brand's consumers” (p. 185). Online brand communities have been a crucial source of consumer insights for marketing research.

As the individual consumer is the focal point of the online brand community (McAlexander et al., 2002), there is a set of social relations that consumers may develop

in this situation. First, consumers can participate in online brand communities to search for product information or interact with other community members about the product (Kuo & Feng, 2013), such as product usage, price, specific features, and availability, using experience and opinions from other consumers. This information allows consumers to build a relationship with their favourite brands. Second, consumers also get to know other consumers' brand consumption experience, the brand culture, and other consumers' opinions about products or brand services (Muniz & O'Guinn, 2001). Through online brand community participation, consumers are able to understand the brand and build a relationship with it (Luo et al., 2016; McAlexander et al., 2002). Scholars have found that consumers' feelings and psychological experience when participating in brand community interactions can enhance consumers' commitment to the community, which can be transferred to the relationship with the brand (Lin et al., 2019). Third, consumers can form an attitude towards the company's brand, product line, and corporate image through their engagement in the online brand community activities (De Valk et al., 2009). The online community also provides opportunities for social connection with the employees working for the company who can share knowledge about the company, brand, and product. Lastly, an online brand community comprises enthusiasts of a brand who join the community for the brand; they know that they are related to one another via the brand within the community. In an online brand community, consumers can interact with community members through the internet regardless of time and geographic restrictions, and the communication within the community can be dynamic and rich (Kim et al., 2008; Luo et al., 2016). Through online community participation, consumers have an opportunity to get to know each other within the community, and to build a relationship with other community members (Wu et al., 2015). Overall, an online brand community is not only an online space for social interactions, but a set of social relationships linking consumers with the product, the brand, the company, and other consumers, that constitute a basic framework of consumers' community relationship.

Given the role of an online brand community in facilitating the development of social relationships among members, it is a strategic resource for firms to increase online reputation, brand patronage, and customer spending (Baker et al., 2016; Baldus et al., 2015; Hajli et al., 2017; Hollenbeck, 2018; Kumar et al., 2016). Specifically, online brand communities can offer firms value by promoting the sales of the products and services (Iskoujina et al., 2017). Through an online brand community, a company

can develop positive word-of-mouth (Kim et al., 2011; Spaulding, 2010), promote search engine ranking (Clemons, 2009), increase website traffic (Clemons, 2009) as well as brand awareness and commitment (Macaulay et al., 2007; Spaulding, 2010), and provide product support (Porter, 2004). However, as consumers' access and contributions to online brand communities are completely voluntary, they can readily assess competing services and products and consequently leave a community and switch brands should they deem the competing brands or products to be more attractive (Clark, 2001; Kumar, 2019; Wirtz et al., 2013). This underlines the importance of PO as an affective and cognitive construct which reflects the close relationship between a consumer, community, and brand (Pierce et al., 2001) in the online marketplace. There is emerging academic attention to the application of the concept of PO in the context of online marketing (Hulland et al., 2015). Organisation scholars Pierce et al. (2001, p. 5) define PO as "the state where an individual feels as though the target of ownership or a piece of that target is 'theirs' (i.e., it is mine)". They further indicate that PO could exist without legal ownership and could relate to tangible objects, such as a working desk, a working computer, or tasks, and to intangible objects, such as ideas or reputation (Pierce et al., 2001, 2003). For instance, an employee may affectively and cognitively feel that he or she owns the target object (i.e., it is 'my' desk) even when he or she does not own it (e.g., the working desk) in their work environment. The next section discusses the theoretical issues associated with the concept of PO.

1.3 Problem statement

Past PO studies in the online setting have borrowed the concept of PO from organisational research. However, Belk (2013) points out that digital possessions are intangible; that is, they lack the tactile characteristics of physical possessions. The dematerialisation of online possessions (e.g., digital video files, virtual games, web pages, photo sharing sites etc.) might influence people's understanding of themselves. Belk further emphasises that digital possessions are operated within a different realm than physical possessions, and there is uncertainty about the control and ownership of these possessions. Thus, the way in which consumers communicate with digital possessions is different from their communication with physical possessions (Belk, 2013). These observed differences between online possessions and physical possessions point to the need to revitalise the PO concept by understanding consumers' PO of online possessions. Belk's (2016) assertion that the "changing nature of feeling of ownership and possession with virtual and digital possessions is a topic that we are just

beginning to understand” (p. 52) prompted the present thesis to revisit the theoretical foundation of PO and to extend the PO theory from an offline context to online marketing context.

Marketing scholars have traditionally focused on consumers’ individual level of PO while research on the collective sense of PO remains scarce in the online marketing literature. However, the collective level of PO is particularly relevant in an online brand community where community members can freely exchange information, ideas, or opinions in an open and collective environment (Muniz & O’Guinn, 2001). As consumers within a brand community become socially connected, interpersonal relationships can be fostered in the online realm, thereby giving rise to a sense of a collective level of PO among the members (Hulland et al., 2015). Therefore, an exploration of the theory of PO that encompasses both an individual and collective level of PO within the online brand community context is warranted.

The majority of PO studies in the online brand community literature have adapted the dimensionality of PO from organisational research despite the existing confusion on PO dimensionality in this area of research. While some researchers have posited that PO is a global affective and cognitive concept (e.g., Pierce et al., 2001, 2003), others have insisted that PO is a multidimensional concept. For example, Avey et al. (2009) view PO as a multidimensional concept composed of five dimensions: self-efficacy, belongingness, self-identity, accountability, and territoriality. This debate on PO’s dimensionality has directly influenced the development of PO measuring instruments in the organisational literature. To illustrate, some researchers have developed a unidimensional measure based on the possessive words “my” and “ours” (e.g., Pierce et al., 2001, 2003; Pierce & Jussila, 2010); others have suggested a multidimensional scale (e.g., Avey et al., 2009) or using PO underlying motives or PO development routes as dimensions in their research (Note: the notions of PO underlying motives and PO development routes will be discussed in Chapter 2). The debate about these measurement scales among organisational scholars highlights the fact that the same concept in the organisational literature is measured by using different scales (Dawkins et al., 2017). As a result, there is a lack of consensus on the dimensionality of PO and various measurement scales borrowed from the organisational literature have been adopted in the marketing discipline. Some marketing scholars have also questioned the direct applicability of these PO measurement scales in the marketing context (Hulland et al., 2015). The above discussion foregrounds the need to explore the

dimensionality of PO and to develop a valid measurement instrument that can be used for online marketing research. Particularly, there is a need to address the theoretical and measurement issues relating to the collective level of PO in the online marketing context.

Organisational studies have reported that PO influences a variety of outcomes, such as employees' organisational commitment (Han et al., 2010; Liu, 2012; Liu et al., 2009), organisation-based self-esteem (Liu, 2012), intention to stay in a job (Knapp et al., 2014; Zhu et al., 2013), and knowledge-sharing behaviour (Khan & Ghadially, 2010) in the organisational context. Applied to the context of online brand communities, the examination of how PO may affect marketing related outcomes can potentially yield valuable insights into online marketing strategy. Marketing scholars have suggested that the real success of an online brand community relies on the community members' commitment to the community (Astakhova, 2016; Greguras & Diefendorff, 2009; Shen et al., 2018). Online brand community commitment has been identified as an essential concept in marketing research that is necessary to build and maintain consumers' relationship with a brand (Akrouf & Nagy, 2018; Bagozzi & Dholakia, 2006; Kim et al., 2008; Raies et al., 2015; Shankar et al., 2006). Thus, this thesis aims to examine how PO influences social relation outcomes on two aspects: consumers' commitment to the community, and consumers relationship with the brand such as brand commitment and brand attachment.

1.4 Research objectives and research questions

The present research seeks to advance the theoretical understanding of PO in online brand communities. Specifically, the research takes a consumer-centric perspective (i.e., it views the meaning of PO from consumers' participation experience in 'their' community) to understand the concept of PO (McAlexander et al., 2002).

The research objectives are to: 1) explore the theoretical notion of PO in an online brand community context; 2) develop and validate a multidimensional measurement of PO in an online community; and 3) test PO's effects in the online brand community. In order to address these objectives, this research seeks to answer the following research questions:

- (1) What is the meaning of PO in an online brand community?
- (2) What are the dimensions of PO in this context?

(3) How should PO be measured in an online brand community?

(4) How does PO impact consumers' online community commitment, brand commitment and brand attachment in an online brand community context?

1.5 Research design

To address these research questions, a mixed-method research design was conducted in three main research phases. First, a netnographic study comprised of online observations and in-depth interviews using a projective technique (i.e., collage) was conducted to explore the meaning and dimensions of the PO concept. The online observation occurred in a chosen online brand community (i.e., FerrariChat) and a collage method was used during in-depth interviews to explore the participants' sentiments and experience in the online brand community. Thematic analysis was used to analyse the two sets of qualitative data collected in the first phase of the study. In the second research phase, the pool of item measurements developed from the qualitative study was reviewed by a panel of marketing experts to establish the face validity of the scale. To assess the measurement properties, an online survey was conducted among samples (n=409) recruited by a reputable research company (i.e., CINT). Structural equation modelling analysis was performed to test the validity and reliability of the model. In the third research phase, the effects of PO on consumers' relationship with (i) the community (online brand community commitment), and (ii) the brand (brand attachment and brand commitment) were tested.

1.6 Significance of the study

Theoretically, this research will extend PO theory in online marketing through the development of a conceptual model of PO that includes a definition of PO, underlying motives, and develop routes, establishing a theoretical foundation for understanding the concept of PO in an online brand community context. Other researchers can extend and apply the research findings to further explore the role of PO in the online marketing context. Moreover, this thesis will contribute to the body of knowledge by extending the current understanding of the two levels of PO in online brand communities. This thesis will open the door to a new stream of marketing research around consumers' sense of PO in the brand community, especially consumers' collective PO experience in the online community and its impact on consumers' relationship with the community and the brand.

Furthermore, the thesis will offer empirical contributions. As the thesis aims to establish a measurement scale for the two levels of PO in online brand communities, the scales are expected to address the existing debate on the measurement issues in the organisational research. The scales will provide an instrument for marketers and management to monitor consumers' PO states in the community and their relationship with the community. Further, the measurement developed for measuring both individual and collective levels of PO can be applied to study other online PO targets in different online marketing contexts.

Managerially, this thesis will provide valuable insights into how PO can influence consumers' relationship with the community and brand at both individual and collective levels. The findings from this research will be helpful for marketers who seek to build and maintain customer relationships by influencing online consumers' PO states. The results will also suggest to marketers the need to strengthen consumers' brand relationship by influencing their online PO experiences to the community.

Methodologically, past PO studies have been dominated by a quantitative approach. This thesis applies a mixed-method approach that includes a netnography study consisting of multiple sources of data (i.e., online observation and in-depth interviews) to provide a triangulated explanation of PO as a theoretical notion, as well as a survey study aimed at establishing the validity of the measurement scale. As PO is a psychological state that is hard to describe or observe, this research design is helpful for the researcher to gain fruitful insights from online brand community members. The research design might be beneficial for studying another consumer psychological phenomenon.

1.7 Definition of key terms

PO: is the state in which individuals feel as though the target of ownership (material or immaterial in nature) or a piece of it is "theirs" (i.e., "It is MINE!"). The core of psychological ownership is the feeling of possessiveness and of being psychologically tied to an object (Pierce et al., 2001, p. 299)

PO underlying motives: explain why people develop psychological ownership. Pierces, Kostova, and Dirks (2001) propose three underlying motives of PO development in organisational research: efficacy and effectence, self-identify, and having a place. Pierce and Jussila (2011) add the fourth motive: simulation to the

literature. The present research justifies these four motives relating to an individual level of psychological ownership in online brand communities, and also proposes two extra motives (i.e., social comparison and community identity) for the collective level of psychological ownership development in online brand communities.

PO routes: explain how psychological ownership emerges. Pierces Kostova, and Dirks propose three routes through which psychological ownership emerges in organisational research: controlling the ownership target (object), coming to know the target intimately, and investing the self into the target (2001). The present research proposes three routes to explain how psychological ownership emerges in online brand communities: gaining influence in the community, coming to intimately know the community, and investing the self in the community.

The targets (objects) of PO: are the things that can be owned psychologically. They can be a wide variety of targets – either tangible things such as tools, books, photos etc. or intangible things such as relationships, ideas, reputations etc. In the present research, the PO target is the online brand community.

Individual level of PO (IPO): The present thesis proposes that IPO is individual consumers' intrapersonal recognition of a sense of gratification, sense of belonging, sense of trust, sense of pride, and sense duty that together foster a sense of “this is MY community”.

Collective level of PO (CPO): The present thesis proposes that CPO is individual consumers' recognition of a sense of affinity, sense of unity, and sense of power which are collectively shared by one or more community members and which foster a sense of “this is OUR community”.

Sense of gratification: is the degree to which a community member feels gratified by the online brand community that fulfils their needs.

Sense of pride: is the degree to which a community member feels proud of what they did in the online brand community or with the online brand community members, or feels proud of who they are in the community or of the online brand community members.

Sense of trust: is the degree to which a community member feels a sense of safety and security arising from the honesty, reliability, and trustworthiness of a brand community.

Sense of duty: is the degree to which a community member feels a sense of obligation to the online brand community as a whole, and its members.

Sense of belonging: is the degree to which a community member feels that they belong to the online brand community by regarding themselves as an integral part of the online brand community.

Sense of unity: is the degree to which the community members feel that they are together as one.

Sense of power: is the degree to which the community members understand that community power is the connection between individuals that leads to this sense of power.

Sense of affinity: is the degree to which the community members feel familiar, attractive, and similar to one another.

Online brand community participation: Members' participation behaviour in the online brand community can be interaction or non-interactive (Burnett, 2000). In this thesis, participation is used as a general term to describe any participation behaviour (i.e. browsing, discussing, sharing, posting, searching, observing, watching etc.) in the online brand community.

1.8 Outline of the thesis

The thesis is organised into seven chapters. Chapter 1 presents the research introduction that contains the research orientation, research background, research objectives, research questions, a summary of the research design, and the significance of the research. Chapter 2 reviews the existing literature with a specific focus on the concept of PO and its effect on organisational and marketing research.

Chapter 3 provides an explanation of the research design and a justification of the research paradigm and the mixed-method research design across the three research phases. This chapter also examines the data collection methods and data analysis approaches in conjunction with an explanation of research validity and the reliability examination process. Ethical consideration of both qualitative research and quantitative research is presented at the end of the chapter.

Chapter 4 details the data analysis results from the qualitative study in which the PO conceptualisation, its dimensions, and the proposed measurement items are reported. The chapter begins with a presentation of the profile of the qualitative study participants. Then, the thematical analysis results of two types of qualitative data are presented. The PO dimensions and subdimensions are described and discussed. A conceptual model of PO is presented at the end of the chapter.

Chapter 5 presents the conceptual model assessment results. The chapter begins by outlining the item generation process that forms the potential item pool for each individual and collective level of the PO dimensions. The resulting measurement models are examined and validated using exploratory factor analysis and confirmatory factor analysis. The discussion of the results is presented at the end of the chapter.

Chapter 6 reports the results of PO effects tests. The chapter presents the structural model along with the hypothesis development. Then, the chapter reports the results of PO effects on consumers' community commitment and brand attachment and commitment. The chapter also discusses the mediation effects of community commitment and compares the effects of the individual level of PO and the collective level of PO in the model as second-order constructs.

Chapter 7 concludes the thesis by discussing its contributions, its managerial implications, the research limitations, and future research directions.

1.9 Chapter conclusion

This chapter presented the foundation of this thesis, including the research orientation background, the main research objectives, and the research questions. This chapter also stated the potential theoretical, methodological, and online community management contributions of the research, outlining the structure of the thesis with a content summary of each chapter. The next chapter will explore the existing literature on PO theory to establish the research context for the thesis.

Chapter Two: Literature Review

2.1 Introduction

This chapter reviews the significant PO literature to paint an overall picture of PO studies. It examines the conceptualisation of PO, its measuring instrument development, and its effects. This is followed by a discussion on theoretical concerns and research gaps in online marketing research. The literature review leads to a discussion on the marketing research priority for PO studies in the online context. This leads to the research objectives and research questions that this thesis will address.

Chapter 2 is structured into eight sections. After the introduction, section two addresses the concept of PO and provides a concept definition. It also discusses the PO developing reasons and developing routes, and two levels of PO that have been the focus of past literature. Section three discusses the effects of PO on humans' prediction behaviour. Section four reviews PO studies in the marketing literature. Section five highlights the research gaps in PO studies in the online marketing literature. This is followed by section six, which provides a review of the online brand community. Section seven presents the research priorities and objectives. Section eight concludes the chapter.

2.2 The conceptualisation of psychological ownership

This section discusses the theoretical foundation of PO and explains the conceptualisation of PO in the literature. This section offers a literature review of the construct and seeks to determine the meaning of PO in the past literature. This section also reviews the literature to address the questions of why an individual develops PO and how PO is developed. It also addresses the different levels of PO that have been studied in the literature.

2.2.1 PO theoretical foundation

PO's conceptual core is an individual's psychological sense of possession of a target (Pierce et al., 2001). Possession is a multidimensional phenomenon, which includes the defining characteristics of the right of use and/or control over an object (Furby, 1978). Research on the psychology of possession suggests that possession is a human instinctual behaviour (James, 1980; Burk, 1990; Prelinger, 1995). James (1980) demonstrates that instinctive impulses drive people to own objects (e.g., property and land) to become part of their self. Burk (1900), in his children's collection research, also

supports this point of view and proposes that collecting behaviour at an early age is an instinct rather than an interest. These studies suggest that the psychology of possession is part of the human condition and instinctively occurs in life.

Research also indicates a close relationship exists between owners and their possessions. For example, Burk (1900) reveal that children have a close relationship with their owned collections in his early childhood research, which he describes as “the tender feeling or the feeling of ‘kinship’ between ‘me’ and ‘my possession’” (p. 179). This research points to the psychological aspect of possession behaviour. Prelinger (1959) supports this argument and maintains that individuals hold strong psychological feelings towards their controlled ‘belongings’. This feeling is discussed in the educational research (e.g., Prelingers, 1959; Yims et al. 2019). Due to this close relationship, people may experience depression at the loss of their possessions (Burk, 1900). For example, research has shown that when elderlies leave their houses to enter nursing facilities, they regret being away from their own home (Cram & Paton, 1993). This finding also supports the close relationship between owners and their possessions.

Research has focused on this relationship between self and possessions. For example, James argues that people feel and act towards their own possessions very much as they feel and act towards the self (1980). Possessions carry meaning of the owner’s identity, and become part of the extended self (Belk, 1988). This research shows that the psychological ownership of a possession is rooted in the relationship with the owner’s self. This psychological ownership can be directed towards various target possessions such as physical objects (e.g., houses, cars, or rooms) and non-physical objects (e.g., ideas, creations or sounds) (Dittmar, 1992). Issac (1993) reports that young children claim their ownership of a nursery rhyme if they are the first to hear a song in the class and that this describes a phenomenon whereby children feel things are ‘theirs’ if they are the first to mention them. This observation highlights that there is a feeling of ownership even though the targets may not be touchable or owned by anyone. Research has also identified that the feeling of ownership of objects has important psychological and behavioural effects. Some possible positive results include self-enhancement, social approval and uplifting effects (Beggan, 1992; Formanek, 1991). These studies provide a theoretical foundation for understanding the psychological feelings that owners have towards possessions, particularly the concept of psychological ownership of possessions as a part of the human instinct.

2.2.2 PO definition

Several studies have attempted to define people's sense of ownership. For example, Furby (1978) clearly believes that the ownership concept includes the owner's feelings about possessions (1978). Etzioni (1991) strengthens Furby's idea and defines ownership as a "dual creation, part attitude, part object, part in the mind, part 'real'" (p. 466). This definition describes the feeling of ownership of personal property as something that exists both "inside and outside mind". It also indicates the objective and subjective aspects of ownership. It confirms that the concept of ownership is related to an individual's mind and feeling. Etzioni (1991) suggests that ownership has two aspects. Apart from the legal aspect of ownership, the feeling of ownership and the owner's attitude or mindset towards objects, both of which are the psychological aspect of ownership. The concept of ownership has been defined as a multidimensional construct that "can operate both as a formal and a psychologically experienced phenomenon" (Pierce et al. 1991, p.124). It is believed that ownership contains two dimensions: formal and psychologically experienced ownership (Pierce et al., 1991). This argument conceptualises PO as a theoretical construct, distinguishing it from legal (or formal) ownership. This further highlights the psychological aspect of ownership and confirms it as being an independent theoretical construct, highlighting the importance of employees' psychological ownership experience within their organisations.

Pierce, Kostova, and Dirks (2001) examined diverse literatures and conceptually define psychological ownership as "the state where an individual feels as though the target of ownership or a piece of that target is "theirs" (i.e. It's Mine)" (p. 5). The conceptual core is that the individual's psychological sense of possession towards a target answers the question of "what do I feel is mine?". This definition uses the possessive words of 'mine', and 'theirs' to manifest the meaning of PO and to describe the relationship that associates the owner and the target. This relationship shows that the target has a connection with the self and become part of the extended self. Further, PO has been described as having both cognitive and affective aspects. The cognitive aspect reflects the individual's intellectual perception of their sense of ownership towards a target, such as the individual's awareness, thoughts, and beliefs regarding their PO of the target. This is coupled with an affective sensation of PO of the target as well, such as the individual's' emotion towards the target. Based on the above discussion, three

unique features of the PO construct can be summarised and elaborated (Pierce et al., 2001, 2003). First, PO is derived from its conceptualised core – the sense of possession, that is, the sense of “my” or “mine” or “ours”. Second, the PO concept reflects the close relationship between the individual and the object, which becomes part of the self. Third, PO includes cognitive and affective components that reflect the individual’s PO in their mind.

This definition also distinguishes PO from legal ownership in the management literature (O'Driscoll et al., 2006; Pierce et al., 2001, 2003; Pierce et al., 1991; Rousseau & Shperling, 2003). Legal ownership is protected by the society's legal system that ensures the ownership of the possessions is recognised and secured (Pierce et al., 2003). On the other hand, PO is an individual’s feeling about a target possession without any sense of legal restriction (Pierce et al., 2001). Furthermore, researchers have found that PO is based on the individual’s psychological experience (O'Driscoll et al., 2006; Pierce et al., 2001; Pierce et al., 1991; Rousseau & Shperling, 2003). Thus, individuals experience PO through a mental process. As a result, while lacking legal ownership, individuals can still develop PO through their psychological experiences (O'Driscoll et al., 2006; Pierce et al., 2001; Pierce et al., 1991; Rousseau & Shperling, 2003).

On the other hand, an individual can legally own an object but never claim psychological ownership (Pierce et al., 2001). This is because the individual fails to find personal meaning in the owned object. This suggests that when an individual feels an object is important and meaningful to them, they want to claim it as ‘mine’. In other words, finding personal meaning in the object is the precondition for individuals to develop PO towards an object regardless of the facts of legal ownership. In addition, the responsibility that is associated with legal ownership is also bound by law and is governed by the legal system. Thus, if an individual legally owns an object, they have the legal rights to use the object and take responsibility of the object, regardless of their personal PO towards the object. On the other hand, PO is in the individual’s mind and is recognised foremost by the individual’s personal feeling towards the object. Thus, the individual feels responsible for their PO target without any lawful restriction. This discussion not only distinguishes PO from legal ownership but also elaborates the precondition of PO development and the individuals’ psychological relationship with the PO target. The next section explains the reason why an individual develops a sense of PO.

2.2.3 Why do people develop PO?

Scientific researchers have identified different reasons why psychological ownership exists in human nature (Furby, 1978; Poteous 1976; Dyne & Pierce 2004; Pierce et al., 2001, 2003). One research stream takes a biological perspective to understand the psychological experienced of ownership and believes that PO is in peoples' innate genetic structure (e.g., Ellis 1985). Researchers draw parallels with various animals such birds and rats to illustrate that the innate need of having a 'home' is not unique to human beings, but a shared phenomenon in nature (Pierce et al., 2001). This stream of research emphasises that biology plays a role in the PO development process.

Another stream of research, on the other hand, takes a social perspective, emphasising that social and cultural factors play a significant role in influencing people's underlying motive to own possessions (Dittmar, 1992). Possessions can satisfy people's basic needs such as security and having a place for food and reproduction, and also satisfy their social needs (Dittmar, 1992). Researchers have explored how people understand the meaning of possession in their lives. Beaglehole (as cited in Furby, 1978) suggests that the psychology of possession is motivated by a desire to satisfy instinctual human needs. Porteous (1976) explains the meaning of owning a home space, providing evidence of three satisfaction motives underlying ownership. Porteous argues that people need to control a physical space and owning a home enables them to achieve this need (i.e., choosing a place to live and decorating the space in the way they like). The second motive underlying ownership highlighted by Porteous (1976) is the need for personalising space. People need a space to represent their identity. Home, then, becomes a personalised space in which people can assert their identity. The last motive of ownership that Porteous discusses is stimulation. People want to own possessions because they want to use new objects or improve their old possessions. The discussion of these three motives contributes to an understanding of people's psychological reasons for owning a physical home.

Drawing on these research findings, Pierce et al. (2001, 2003) integrate both biology and social perspectives and propose three underlying motives to explain why an individual develops PO. They agree that PO emerges because it satisfies some common motives amongst individuals. The first motive that Pierce et al. (2001) identify is efficacy and effectance. The authors believe that to be in control is a human instinctual need. Controlling PO targeted possessions results in a feeling of efficacy and the feeling

of satisfaction of owning objects. Therefore, an individual's desire to effectively interact with their possessions and to gain efficacy and satisfaction is the main reason they develop PO towards the target objects. The second motive put forward by Pierce et al. (2001) is self-identity. It is explained that an individual uses possessions as a way for coming to know themselves and expressing their self-identity to others. That is, they maintain their continuity of self-identity through their possessions. The psychologically owned objects also have symbolic meanings for the owner through which they define and express themselves. Thus, when an individual finds meaning from specific objects, they want to own the objects, and hence develop PO of the objects. Thus, understanding and maintaining self-identity is one of the motives for PO of specific objects. The third motive put forward by Pierce et al. (2001) is having a place. This motive arises from an individual's biological need to have a 'home' and a special place to form personal security. This need motivates an individual to accumulate certain objects in order to feel psychologically comfortable and safe and to develop a sense of PO. These three underlying motives for PO development have been applied to many workplaces in organisational behaviour research (Dyne & Pierce, 2004; O'Driscoll et al., 2006; van Dyne & Pierce, 2004; Zammuto et al., 2007).

Pierce and Jussila (2011) later added another motive to the PO development theory – stimulation. When discussing the territoriality literature (Porteous, 1976) they point out that "human beings are motivated to seek stimulation, to meet their arousal requirements" (Pierce & Jussila, 2011, p. 48). This means individuals feel the need to get out of the comfort zone of their current possessions and tend to actively seek out new and different possessions to meet stimulation and activation needs. These needs motivate individuals to use their possessions, and to think and care for them, so that PO can emerge from these activities (Jussila et al., 2015). The above four underlying motives are proposed to understand why an individual develops PO of certain possessions. Pierce et al. (2001, 2002) further suggest that individuals can experience a feeling of ownership for a variety of objects so long as these objects can activate their motives and can satisfy these motives. If an object allows individuals to operate and satisfy these motives, PO of this object can develop (Pierce et al., 2001). The next section explains how PO emerges in certain contexts.

2.2.4 How does PO emerge?

Pierce et al. took initial steps towards the development of a theory of PO emergence and proposed three significant routes to explain how PO emerges within the

organisational context (2001, 2003). First, control over an object is regarded as an essential way to increase PO of an object (Pierce et al., 2001, 2003). The authors emphasise how control exercised over a certain object contributes to an understanding of a sense of self, and PO develops through control experiences. It is suggested that the more control experience a person can have over an object, the more the person can experience the object as part of the self (Furby 1978). Consequently, the object is more likely to be perceived as theirs. Thus, PO emerges through controlling the targets of PO.

Second, it is argued that an individual becomes psychologically connected with an object through their active participation or association with that object (Pierce et al., 2001, 2003). The more information the individuals know about the object, the more intimately they feel connected to it. The more the individual feels attached to the object, the more they feel the object is theirs. As a result, PO emerges through this process of active association. Thus, coming to intimately know the target is another route to developing PO towards the target.

The third route of PO emergence is proposed as investing the self into an object. It is noted that individuals invest their self into the target object during communication with the target. The investment of the self can be in many forms, such as time, ideas, skills, physical, psychological, and intellectual energies etc. (Pierce et al., 2001, 2003). Through this investment, individuals feel the object has become a reflection of their efforts, carrying meanings about the self. This results in the individual coming to think of the object as part of 'them'. Thus, PO of the object emerges through these investment activities. This relationship can be reinforced if other people can recognise the effort the individual's makes towards the target, because it strengthens the fact that the individual can find themselves in the object. In summary, three routes that explain how PO emerges are proposed and elaborated by Pierce et al. (2001, 2003). The following section addresses the PO dimensions in the literature.

2.2.5 PO dimensions

Even though Pierce et al.'s (2001, 2003) conceptualisation of PO established the foundation of the affective and cognitive components of the concept, PO is regarded as a unidimensional concept, which has been criticised by other scholars (e.g., Avey et al., 2009). Avey et al. (2009) agree with Pierce et al. (2001) on three points. Firstly, they agree that PO is innately human. Secondly, PO can occur towards both physical (tangible) and nonphysical (intangible) objects (targets). Thirdly, PO has significant

emotional, attitudinal, and behavioural effects (Pierce et al, 2001). In contrast to Pierce et al.'s (2001, 2003) conceptualisation, Avey et al. (2009) do not discuss PO's theoretical origins, but consider PO's relationship with other well-studied psychological constructs, such as psychological capital, psychological well-being, and organisational scholarship. The authors believe that PO is like other psychological constructs in an organisation, which can be and should "be measured, invested in, developed, and managed for performance impact and competitive advantage" (Avey et al., 2009, p. 174). This conceptualisation defines PO as a positive psychological resource that influences employees' behaviour and positions PO into the positive organisational behaviour literature. Compared with Pierce et al.'s (2001, 2003) PO theory, this conceptualisation places greater emphasis how to manage PO in its effect on employees' behaviour and how to manage PO impacts on company performance.

Avey et al. (2009) conceptualise PO as having five dimensions. The first dimension is self-efficacy. This dimension is developed from Furby's discussion (1978) and therefore concurs with Pierce et al.'s (2001, 2003) argument on the need to control objects. It is a psychological component that creates a feeling of self-efficacy and responsibility for the target objects. Avey et al. (2009) insist that self-efficacy should be one of the PO dimensions identified by Pierce et al. (2001, 2003). Avey et al. (2009) also recognise employees' need for 'having a place' or 'having home' in Pierce et al.'s (2001, 2003) research, and adjust it to employees' belongingness in an organisation. They argue that employees' belongingness needs to be understood as a feeling that one belongs to an organisation. It is a sense of ownership and a sense of home. Similarly, employees' need to belong in a workplace can be satisfied through their job, work team, organisation, or industry as a whole; it positively influences employees' behaviour. Thus, it is suggested that belongingness should be one of the PO dimensions in the organisational research context.

Furthermore, the targets of ownership are often used as descriptors of one's identity. Employees need to internalise organisational identity to define the self, and they gain a sense of meaningfulness and connectedness through knowing their organisational identity (Avey et al., 2009). It has been argued that a sense of PO of a target object affirms the owners' self-identity. Thus, self-identity is considered to be a dimension of PO (Avey et al., 2009; Lee et al., 2019). This argument also aligns with Pierce et al.'s (2001, 2003) discussion on how individuals establish, maintain, reproduce, and transform their self-identity through their tangible and intangible

possessions. In contrast, self-identity is believed to be a dimension of PO rather than an underlying motive to understand why PO develops. Additionally, an individual who holds a high feeling of PO expects to hold self and others accountable (Avey et al., 2009). This feeling of accountability is theorised as a source of PO development with evidence from economic systems and sports team research. Accountability is defined as a higher level of feeling of PO, to explain that the individual expects a more influential position and expects responsibility for self and others (Avey et al., 2009). Moreover, Avey et al. (2009) highlight the positive relationship between employees' feeling of PO and territorial behaviours, arguing that PO also reflects individuals' fear of losing territory that is associated with self and identity. Thus, territoriality should be like self-identity, which can be included in PO as an additional dimension that influences employees' behaviour. In summary, PO is theorised as a multidimensional construct, that contains the above five dimensions: self-efficacy, belongingness, self-identity, accountability, and territoriality

These five dimensions are further classified into two higher-order constructs: a promotional and preventional form of PO (Avey et al., 2009; Avey, et al., 2012). PO can be used to promote an owner's increased feeling of efficacy, being more accountable to the target, feeling a greater sense of belonging to the target, or feeling a greater sense of personal identification with the target (Avey et al., 2012). Thus, the dimensions of self-efficacy, belongingness, self-identity, and accountability can be categorised as a promotional form of PO. Nevertheless, territoriality is also shown when individuals fear their PO targets may be taken away by external entities, and subsequently mark their PO targets in order to declare ownership and to prevent loss and avoid punishment (Avey et al., 2012). Thus, the dimension of territoriality can thus be categorised as marking owners' territory to external constituencies. It is considered a more preventative form of PO.

However, this PO dimensionality is not fully supported by other researchers. For example, some researchers (e.g., Alok, 2014) have noted that there is a lack of examination of the covariation and association between the promotional and preventional forms of psychological ownership, and these two forms of psychological ownership are too distinct to be part of a one multidimensional construct. Some researchers have also questioned how these dimensions were developed, maintaining that how they link to the underlying motives is not clear. They have further emphasised that the underlying motives of PO "are not seen as the causes of (that is, drivers,

independent variables) PO; instead, they are merely the reasons for why this psychological state manifests itself and when it does so” (Pierce & Jussila, 2011, p. 48). Further, the development of new PO dimensions – territoriality and accountability – is not aligned with past research (Brown et al., 2005; Pierce et al., 2001), where these two constructs are defined as a distinct, behavioural outcome of PO, rather than dimensions of PO. Specifically, the role of territoriality as a separate dimension under the construct has also been debated (Dawkins et al., 2017; Martin, 2017). Brown, Lawrence, and Robinson (2014) define territoriality as an individual’s behavioural expressions of the feeling of ownership; they emphasise that territoriality represents the action or behavioural outcome of psychological ownership and is not one of the dimensions of psychological ownership. These discussions and debate indicate a need to investigate the conceptualisation of PO further to determine if and how these dimensions can inform the study of PO simultaneously (Dawkins et al., 2017; Martin, 2017).

2.2.6 Individual and collective level of PO

The PO concept has been well established in the management literature, while a large amount of research has also examined the PO concept at the individual level. In fact, PO can be classified into individual and collective levels; both have the concept of possessiveness at their conceptual core (Pierce et al., 2003; Pierce & Jussila, 2010). However, past research has conceptualised the collective level of PO as a separate concept that is different from the individual level of PO. The construct of collective PO is defined as a “collectively held sense” (feeling) that the target of ownership (or a piece of that target) is collectively ‘ours’ among group members (Pierce & Jussila, 2010, p. 812). The individual level of PO is defined as a personal feeling of ownership that emerges through the interaction between the person and the target (Pierce & Jussila, 2010). The collective level of PO depends on the interaction between individuals and objects, as well as person to person interaction (Pierce & Jussila, 2010). This difference is further extended by Pierce et al. (2018), who define the collective level of PO as a shared collective cognition within a group in which the group collectively has a sense of possessiveness towards tangible or intangible targets.

Three routes for developing a collective level of PO are also proposed (Pierce et al. 2018) based on the PO routes developed by Pierce et al. (2003). The first route is shared and jointly experience control over an object among group members. Through the experience of collective control over an object, group members feel that ownership of the target object is shared by the group members. Also, when the group members

know more about the target through group communication, they feel group members are the collective owners of the target. Thus, members coming to intimately know and collectively negotiate the meaning of a target is one of the routes to developing a collective level of PO within a group. Similarly, during group communication, the group members mutually invest their related selves into the target, and hence they feel they mutually own the target together (Pierce et al., 2018). Unlike the individual level of PO, the collective level of PO development is intended to meet the social identity motive and may couple with one or more individual levels of underlying motivation to possess a target. The target possession is important and has meaning for the group, becoming part of the individual self and group self (Pierce et al., 2018). The above research reveals that individuals can experience themselves as sole psychosocial owners while also becoming a party to a collective feeling of ownership for the same target at a later point in time. This discussion explains that an individual's feeling of PO may shift between these two levels depending on the individual's personal experience at the time, and PO emergence at the two levels is at times hard to separate (Pierce et al., 2018). In sum, the above discussion elaborates the two levels of PO in past research, explaining the differences between them. The next section reviews PO measurement in the literature.

2.2.7 PO measurement

The leading study for PO measurement development in work-related research is that of Van Dyne and Pierce (2004), who developed and validated unidimensional measurements. Based on Pierce et al.'s conceptualisations, Van Dyne and Pierce (2004) incorporated the possessive words 'my', 'mine', and 'ours' to develop and validate a measure of PO in their research (such as 'This is MY organisation.' 'I sense that this organisation is OUR company.'). In total, seven measurement items are used as a unidimensional scale to examine employees' PO in relation to their organisation. When this scale was developed, the individual level of PO and the collective level of PO were not clearly distinguished in the literature. As this scale contains possessive words: 'my' and 'ours', the scale is used at both levels of PO as a measuring instrument. Specifically, management and organisational scholars have used these seven items to either measure the individual level of PO (e.g., Knapp et al., 2014; Liu, 2012) and the collective level of PO (Gray et al., 2020) separately or to measure PO as a whole concept in the work-related research context (Lee et al., 2019). In other words, this scale has been continually used to measure both levels of PO in the research. Later, this scale

was modified with more items added by Brown, Pier, and Crossley (2014). A scale of six items (example items include ‘I sense that this is MY job.’ ‘I feel a very high degree of personal ownership for the work that I do.’) was used to measure the individual level of PO related to people’s jobs (Brown et al., 2014, p. 332).

Van Dyne and Pierce’s (2004) measurement scale has been continuously supported by other researchers (Fan et al., 2019; Knapp et al., 2014; Lee et al., 2019; Liu, 2012; Park et al., 2013) and has been implemented in organisational and management studies (Baer & Brown, 2012; Chi & Han, 2008; Qian et al., 2015). Apart from the support for this scale development, other empirical studies have adopted this measurement either in its entirety or in modified versions (Baer & Brown, 2012; Bernhard & O’Driscoll, 2011; Brown et al., 2014; Chi & Han, 2008; Park et al., 2013; Qian et al., 2015). For example, some papers have removed items due to an insufficient factor loading (Chi & Han, 2008; Mayhew et al., 2007). Therefore, this reflects that the scale may not be fully applicable to organisational and management studies in different organisational research contexts.

A measurement of PO developed by Pierce et al. (1992) also appears to be one of the PO measurement choices of some researchers (Lee et al., 2018; Ramos et al., 2014; Sieger et al., 2011). The adopted scale from this research is similar to Van Dyne and Pierce’s (2004) scale that was developed utilising possessive vocabulary and contains measures for both levels of PO. However, Pierce and Jussila (2010) extended PO theory from the individual level to a collective level, theorising the collective level of PO to be a unique state and a collective perspective towards possession. Pierce et al. (2018) used the possessive words ‘we’ and ‘us’ to develop a collective level of PO measurement items and validated this instrument in a variety of work-related contexts. This scale contains four unidimensional items (for example ‘We [my team members and I] collectively agree that this is our job.’ ‘All the members of my work team feel as though we own this job collectively.’).

Other scholars have developed their own measure of PO. For example, Hsu (2013) uses a single item “I feel that the (target object) is mine”, while others use multi-items to measure PO based on Pierce et al.’s (2001) conceptualisation (Pan et al., 2014). Brown, Pierce, et al. (2014) adopted Pierce’s discussion of PO emerging routes, developing a 21-item scale to measure three dimensions: experienced control, investment of self, and intimate knowing. These scales are mainly used to measure an

individual level of PO in research contexts. As can be seen, in organisational literature, PO has been measured by using different unidimensional scales.

In contrast to Pierce et al.'s (2001) PO unidimensional measurements, Avey et al. (2009) insist on theorising PO as a multidimensional concept. They developed and validated a multidimensional measurement based on the PO dimensions in promotional and preventional forms. The measurement was developed by using items adapted from existing and validated measures of efficacy (Parker, 1998) and organisational identity (Mael & Ashforth, 1992). Consequently, items included in this measure appear to reflect more clearly the theoretical dimensionality of the PO. Example items include "I am confident setting high-performance goals in my organisation" (efficacy), "I feel being a member of this organisation helps define who I am" (identity), and "This place is home for me" (a sense of place). However, these dimensions were previously discussed as underlying motives of PO in Pierce et al.'s (2001, 2003) early research and have been criticised for confusing construct dimensionality with underlying PO motivations (Dawkins et al., 2017). On the other hand, this measurement has been supported by other researchers (Avey et al., 2012; Kim & Beehr, 2017), and also modified to fit other work-related research contexts (Olckers, 2013; Pinto et al., 2016).

The above literature review represents several scales that have been used in past research. Some of them are unidimensional and others are multidimensional. Scholars do not appear to have reached an agreement concerning the conceptualisation of the construct and the use of the same scale to measure the construct. The following section reviews the literature on the PO effects on people's behaviour and attitude.

2.3 How should we evaluate psychological ownership?

After reviewing the PO concept and its measurement, this section addresses how PO is used in people's lives, and reviews what PO effects have been examined in past research including potential negative effects.

Understanding ownership is crucial to people's social life. It has been reported that people may have a tendency to judge other people's behaviour and judge others in good or bad terms by comparing their ownership (DeScioli & Karpoff, 2015; DeScioli et al., 2017). In particular, research has found that young children use ownership to predict other people's reactions and emotions (Droege & Stipek, 1993; Friedman et al., 2018; Pesowski & Friedman, 2015; Vaish & Woodward, 2010). These studies emphasise

that knowing ownership enables us to understand human behaviour such as gift-giving and resource-sharing (Friedman et al., 2018). Therefore, ownership can be used to understand how people predict what others will do, to infer how they feel, and even to predict what they prefer (Friddman et al., 2018). Similarly, PO as the psychological aspect of ownership can also help to identify how people recognise other people's feelings and predict others' behaviour. Specifically, it can be used to understand and predict others' attitudes, thoughts, feelings, emotions, and reactions to target objects, as evident in research from the work-related context below.

2.3.1 Predicting employees' attitude and behaviour

PO's effects on employees' attitudes have been studied in work-related research. A significant body of research has reported that PO positively influences employees' attitudes such as organisational or job commitment (Han et al., 2010; Liu et al., 2012; Mayhew et al., 2007; Sieger et al., 2011; van Dyne & Pierce, 2004), intention to stay (Zhu et al., 2013), leadership (Avey et al., 2009) engagement (Ramos et al., 2014), job satisfaction (Knapp et al., 2014; Mayhew et al., 2007; Mustafa et al., 2015; Peng & Pierce, 2015), employees' emotions (Fan et al., 2019), employees' self-esteem (Franke et al., 2010; Liu et al., 2012; van Dyne & Pierce, 2004), and low intention to quit (Bernhard & O'Driscoll, 2011; Knapp et al., 2014). Notably, among these studies, employees' PO towards the organisation seems to have a positive and consistent link with employees' attitudes. In contrast, PO towards a job or specific work task has been reported to have a positive influence on employees' attitudes in some research (Bernhard & O'Driscoll, 2011), but insignificant effects found by other research (Mayhew et al., 2007; Peng & Pierce, 2015)

Furthermore, scholars have also examined PO effects on employees' work-related behaviour (Henssen et al., 2014; Liu et al., 2012; Park et al., 2013; Ramos et al., 2014; van Dyne & Pierce, 2004). Some research has found that PO has a positive relationship with extra role-taking behaviours. Employees who have a high level of PO towards the organisation are more likely to help in completing group work, doing extra work beyond their duty (van Dyne & Pierce, 2004), and helping peer members (Lee et al., 2019). Both an individual level of PO and a collective level of PO have a positive influence on leaders' stewardship behaviour (Henssen et al., 2014; Kim & Beehr, 2017; Peng & Pierce, 2015). On the other hand, some research has found that this relationship can change when supervision evaluation is involved (Liu et al., 2012; Mayhew et al., 2007). Empirical research has also examined the positive effects of PO on employees'

behaviour (O'Driscoll et al., 2006) and higher job and sales performance (Brown et al., 2014). These studies support PO effects on employees' attitudes and behaviour. PO can be seen as a crucial factor that helps employers to understand and predict employees' working attitudes and behaviour. For example, managers can use PO to understand the working preferences of staff and to help them to gain a degree of control over the psychological attitude of staff to the job, their emotions, and organisational satisfaction status, and further predict their potential work preferences, job involvement, job satisfaction, and job completion. These predictions may be useful in order to effectively allocate project tasks and relevant resources. Further, employees can have a better understanding of each other based on their understanding of the feeling of PO in their job and the organisation. They can predict each other's working attitudes, emotions, and job preferences, and even predict others' work quality.

2.3.2 In other research disciplines

PO studies in environmental psychology have found that the power of control over the natural resources, access to knowledge related to these resources and the possibility of a close connection to these resources are the routes leading to the experience of PO from nature tourism entrepreneurs and hunters (Marilainer, et al. 2017). Understanding these relationships can help nature resource managers to understand these stakeholders' needs of the resources and their potential usage of the resources.

In education research, PO is studied as an important motivation to promote learners' sustainable behaviour toward virtual learning platforms. It is because the psychologically owned online learning platform is perceived as a symbolic representation of the learner's self and they are motivated to "look after" their possessions to maintain the self (Yim et al. 2019). PO is examined as a mediator that links between learners' experience of virtual learning platforms and their evaluation of the platform such as the usefulness of the platform and ease of use of the platform (Yim et al. 2019). Through the understanding of these learners' PO states to the virtual learning platforms, the teachers are able to adjust their teaching plans to optimise the online learning process and motivate the students to engage the online learning content.

In social and political psychology research context, CPO mediates between ingroup identification and reconciliation expectations. Individual's perception of CPO

of a territory can indeed be accompanied by lower reconciliation intention and expectation in territorial conflicts (Stora et al. 2020). This research helps politicians predict how the local residents feel about their country and their lands and their attitude to the territorial conflicts. Specifically, the understanding of CPO benefits them with planning for reconciliation negotiations.

Social psychological theory and research on intergroup relations also discussed CPO that is rooted in the psychology of possessions. It is related to intergroup benefits to group members' daily life. For example, It binds the group members together, increases the group members' commitment to the social group, stimulates group members' collective action to work together, also defines group's collective responsibilities and works against social loafing (Verkuyten & Martinovic, 2017).

Economic Research in behavioural finance has discussed a special circumstance that people intend to place a higher value on their possessions than the same objects they don't own. The research also confirmed that the emotional and symbolic significance of the possessions to the owners (Knetsch, 1989; Kanhaneman, et al.,1991). This special circumstance was named as endowment effects the reflect individuals' evaluation bias to the owned possessions. Decision research also found that the valuation of an object related to the feeling of ownership. Increased owners' feeling of ownership lead to a higher valuation of an object (Lerner, et al., 2004). But when the owners developed an experience of disgust with the object, which prevented the development of the ownership feeling, then it leads to lower validation of the objects (Reb & Connolly, 2007).

2.3.3 Negative effects

In contrast to the positive and beneficial effects of PO, it may also have negative effects, causing individuals to feel a need to retain exclusive control over the PO target possession (Pierce et al., 2003). Brown et al. (2005) also caution that dark side effects of PO might trigger an individual's protective behaviour towards PO targets. Some behaviour, such as blocking other peoples' access to the ownership targets, being unwilling to share possession with others, or hiding PO targets, can be explained by PO dark side effects (Bare & Brown, 2012; Brown & Robinson, 2007; Pierce et al., 2009). In a group context, PO may lead individuals to become preoccupied with their psychological possessions (Pierce et al., 2003). Some research has reported that

employees' PO might result in rejecting other colleagues' contributions to target objects or rejecting others' efforts, ideas, feedback, and changes (Bare & Brown, 2012; Choi & Levine, 2004; Pierce et al., 2009). These behaviours might further influence group cooperation, work completion, and group well-being (Pierce et al., 2009).

Materialism research has shown that PO may lead to individuals shifting control from within to outside the self. It has been noted that when people have strong ownership feelings towards extrinsic possessions, their self-concept might be minimised, because the external self that relates to the possessions might be emphasised (Kasser & Ryan, 1993; Pierce et al., 2009). Further, PO may also be associated with individuals' behaviour of refusing to accept changes in PO target possessions. When people feel a target as being theirs, if any changes happen to the target, they may feel they are losing control of the possession. In extreme cases, they might feel frustration or stress from these changes (James, 1890; Pierce et al., 2009). It is suggested that PO has complicated positive and negative effects (Pierce et al., 2003, 2009). These effects can promote changes in PO targets when PO owners make that change. However, when others impose the changes, the owners of the target are more likely to resist these changes in the target of PO. Thus, it is essential to understand the conditions under which people may both promote and resist changes in PO targets (Pierce et al., 2009).

2.4 Reviewing psychological ownership research in the marketing discipline

In the previous section, PO conceptualisation and effects in the work-related research context were reviewed. While PO study in work-related contexts is developing, marketing studies have examined the PO construct and theory in some depth. There has been growing research interest in the past years in marketing research (Hulland et al., 2015; Jussila et al., 2015; Kirk et al., 2015). This section surveys the PO literature in marketing research to identify research gaps and to introduce the foundation of the present research. The literature review starts from PO conceptualisation to its effects in marketing research.

2.4.1 PO Definition and dimensionality

Almost all marketing scholars have adopted the PO definition from Pierce et al.'s (2001) organisational research. Other researchers have claimed adopting the PO definition from Van Dyne and Pierce's (2004) research (Chang et al., 2012; Harmeling et al., 2017) which is identical to Pierce et al.'s (2001) conceptualisation, and the definition of the collective level of PO from Pierce and Jussila's (2010) work

(Gineikiene et al., 2017; Kumar, 2019; Kumar & Nayak, 2019). The majority of marketing studies have remained attentive to the individual level of PO study, as the collective level of PO conceptualisation is still emerging in the marketing literature. Thus, a large amount of research has used the concept of PO to reflect individual consumers' PO state.

The terms that are used to describe PO in marketing research abound. Some researchers have adopted the phrase 'psychological ownership' from work-related research (e.g., Felix & Almaguer, 2019; Fuchs et al., 2010; Gineikiene et al., 2017; Hair et al., 2016; Harmeling et al., 2017; Hillenbrand & Money, 2015; Hulland et al., 2015; Kim et al., 2016; Kuchmaner et al., 2019; Kumar, 2019; Sinclair & Tinson, 2017; Zhang et al., 2014) while some research has used the terms 'feeling of ownership' or 'feeling of owning' to describe PO (Ainsworth, 2020; Carrozzi et al., 2019; Karahanna et al., 2015; Kirk, 2019; Kirk et al., 2015; Lessard-Bonaventure & Chebat, 2015; Reb & Connolly, 2007; Yuksel et al., 2019). The term 'perceived ownership' has also been used in some research to describe the situation before consumers officially own the products (Atasoy & Morewedge, 2017; Brasel & Gips, 2014; Kim, 2017; Kirk et al., 2018; Peck & Shu, 2009; Pirkkalainen et al., 2017; Zhao et al., 2016). Some other terms such as 'an experimental sense of ownership' (Kamleitner & Feuchtl, 2015), 'individual psychological perspective on ownership' (Jussila & Touminen, 2010), and 'sense of ownership' (Sembada, 2018) have been used in the research interchangeably. In general, the same concept with the same definition has utilised different terms in marketing research.

The majority of marketing studies have either entirely or partially adopted the PO concept from organisational research. For example, in some research, PO has been adopted as a research lens (Baxter et al., 2015; Sinclair & Tinson, 2017) or a framework (Fuchs et al., 2010) and researchers have described PO as a psychologically experienced phenomenon (Ainsworth, 2020). In these studies, PO has been completely adapted from organisational research and used as an underpinning theory to structure the studies. Similarly, Jussila et al. (2015) directly adapted PO theory from Pierce et al. (2001, 2003) to the marketing context. They conceptualised PO by proposing a theoretical model that includes the underlying motives, causes, target attributes, and consequences of PO (see Figure 2.1). Jussila et al.'s (2015) model borrowed Pierce et al.'s (2001) underlying motives of PO entirely in their marketing research, including developing routes, with the only change being in PO's causes. Other research has adapted PO

theory from work-related research to conceptualise PO as a state reflecting consumers' close connection with a product (Guo et al., 2016; Hulland et al., 2015; Jussila & Touminen, 2010; Kirk et al., 2018; Lee & Suh, 2015; Yuksel et al., 2019). These studies have focused on the relationship that consumers have with PO targets in order to test the PO effects on consumers' behaviour and attitude. Many marketing scholars have considered PO as a single variable. For example, it has been considered as a factor increasing loss aversion for a product (Lessard-Bonaventure & Chebat, 2015), an association between targets and self-identity (Gineikiene et al., 2017), a predictor of consumer behaviour (Chang et al., 2012; Gineikiene et al., 2017), and a motivational factor to influence consumer behaviour (Harmeling et al., 2017; Hilken et al., 2017; Hsu, 2013; Karahanna et al., 2015; Kim et al., 2016; Kuchmaner et al., 2019). In the marketing research, PO has been adopted as a distinctive concept or as a variable playing a role in marketing models.

The majority of the marketing research has not discussed the dimensionality of PO. Some researchers have partially borrowed Avey et al.'s (2009) PO dimensions (Karahanna et al., 2015) or developed their own PO dimensions (Ainsworth, 2020). Recent studies have adopted a collective level of PO from the organisational literature, including its definition, dimensionality, and conceptualisation (Felix & Almaguer, 2019). The collective level of PO has been conceptualised as a social phenomenon and defined as a collective state of mind (Kumar, 2019; Kumar & Nayak, 2019) to reflect shared group identity in the research (Gineikiene et al., 2017). Again, at the collective level of PO, study is still emerging in the marketing literature, with only a few studies contributing to its conceptualisation.

Theory of Psychological Ownership in a Marketing Context

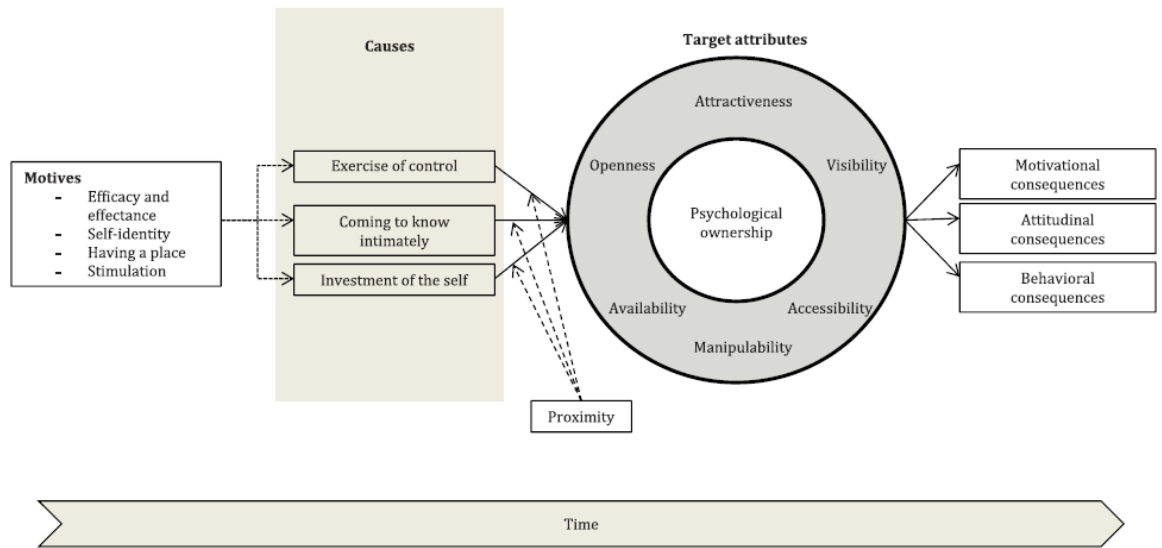


Figure 2.1 Theory of psychological ownership in a marketing context

(Jussila et al., 2015, p. 122)

2.4.2 PO Measurement in marketing literature

In marketing research, PO has been measured with several scales that were previously used in marketing research (see Table 2.2). First, several marketing researchers adopted Van Dyne and Pierce's (2004) measure from organisational research. They borrowed the measuring items either entirely (Folse et al., 2012; Fuchs et al., 2010; Kumar & Nayak, 2019b; Lee & Chen, 2012; Sembada, 2018; Zhang et al., 2014) or partially (Gong, 2018), or modified the items to fit their marketing research context (Asatryan & Oh, 2008b; Chang et al., 2012; Yuksel et al., 2019).

Pierce et al. (2001) have also been cited in marketing research (Guo et al., 2016; Kumar & Nayak, 2019a; Peck & Shu, 2009). These studies have claimed that the PO scale they used was derived or adapted from a measure developed by Pierce et al.'s research in 2001. However, in their study, Pierce et al. (2001) discuss PO conceptualisation and its theoretical and managerial implications in organisational research, but do not mention PO measurement. Thus, the marketing researchers who have claimed they adopted a measure from Pierce et al.'s (2001) paper might need to provide an explanation. Similarly, another well-referenced scale is from Peck and Shu's (2009) work that has been cited in many other marketing studies (Atasoy & Morewedge, 2017; Carrozzi et al., 2019; Hilken et al., 2017; Kamleitner & Feuchtl, 2015; Kim, 2017; Kuchmaner et al., 2019; Lessard-Bonaventure & Chebat, 2015). Peck

and Shu (2009) define PO as perceived ownership before owning a product. The scale developed in their research also uses possessive words to form the measuring items (example items include ‘I feel like this is my product.’ ‘I feel like I own this product.’). Again, these items are claimed to be adapted from a measure of PO used in Pierce et al.’s (2001) research. As discussed above, no measure was developed by Pierce et al. (2001) in that research. An explanation of how Peck and Shu (2009) adopted a scale from Pierce et al.’s (2001) research or an examination of this scale development is lacking. Therefore, although Peck and Shu’s (2009) scale reported a significant Cronbach’s α value, the scale adoption process needs caution. When comparing it with Van Dyne and Pierce’s (2004) measurement items, it is more likely that Peck and Shu (2009) adapted the first three items from Van Dyne and Pierce’s (2004) scale, rather than Pierce et al.’s (2001) research. Again, a clarification of this scale development might be considered.

Another PO measure was provided by Fuchs, Prandelli, and Schreier (2010), who combined the measures of Van Dyne and Pierce (2004) with Peck and Shu’s (2009) scale, and applied a six-item measurement in their research to test PO effects on touchable products (T-shirts). This scale has also been adopted in other studies (Kumar & Nayak, 2019; Hair et al., 2016; Kirk et al., 2018; Yuksel et al., 2018). The measuring items are listed below (Fuchs et al., 2010, pp.70-71). However, when comparing these three scales, it is easy to see that the item “Although I do not legally own these (targets) yet, I have the feeling that they are ‘my’ (product)” is similar to both Van Dyne and Pierce’s (2004) and Peck and Shu’s (2009) first item. And, the item “It is difficult for me to think of these (the product) as mine (reversed)” is similar to Van Dyne and Pierces’ (2004) last measurement item. Apart from that, all the rest of the items from Fuchs et al. (2010) appear to be new and different from either Van Dyne and Pierce’s (2004) or Peck and Shu’s (2009) scales (see Table 2.1). Thus, there might be a need to know how these items were developed; otherwise, the validity and reliability of this scale might be questioned. Also, as discussed above, the scale from Pech and Shu (2009) might need further investigation in terms of scale development validity and reliability, and combining this scale to form a new scale might need caution.

Several marketing researchers have supported Avey et al.’s (2009) PO conceptualisation and dimensionality and have adopted or modified their scale in their studies (Kumar, 2019; Lee & Suh, 2015). There are also a number of new scale developments in the marketing literature based on the definition of PO, its underlying

motives and PO developing routes, adopted from Pierce et al.'s (2001) PO theory. For example, based on the definition of PO, Reb and Connolly (2007) used a single item to measure PO that asked consumers how much they felt like they owned a product. Some researchers have also developed a scale based on the five underlying motives of PO (Karahanna et al., 2015) or based on the three developing routes of PO proposed by Pierce et al. (2001) in their research (Kim et al., 2016). However, these researches have misused PO development motives and developing routes as PO dimensions to measure PO effects.

As discussed above, Van Dyne and Pierce's (2004) scale containing both the individual possessive words of 'mine' or 'my' and the collective vocabulary 'our' has been adopted in the marketing literature to measure overall PO effects. Other scales discussed in this section have mainly been used in marketing research to measure the individual level of the PO construct. Recently, the collective level of PO has become a research interest for some marketing scholars, and a collective level of PO measurement adopted from Pierce et al. (2017) has been used in the research (Kumar, 2019; Kumar & Nayak, 2019). Other researchers have also developed their own collective level of PO scales (Gineikiene et al., 2017). Compared with the individual level of PO study in the literature, the collective level of PO marketing research still appears to be only in its infancy.

2.4.3 PO antecedents in the marketing literature

PO antecedence studies in the marketing literature have mainly focused on the individual level of PO in the marketing context. Some marketing researchers have directly adopted Pierce et al.'s (2001) PO underlying motives (Karahanna et al., 2015) and development routes (Jussila et al., 2015), or Avey et al.'s (2009) dimensions (Lee & Suh, 2015) from organisational research as PO antecedences in their studies.

A stream of marketing research has discovered that control or perceived control is a critical driver of PO development (Asatryan & Oh, 2008a; Atasoy & Morewedge, 2017; Brasel & Gips, 2014; Kirk, 2019; Peck & Shu, 2009). These studies have identified that consumers' control or touch of a physical product increases positive emotions, resulting in PO of the object (See Table 2.3). However, controlling over PO targets is regarded as one of the developing routes of PO and explains how PO has emerged in the literature. It is a process by which individuals practice communication with the PO target. In these marketing studies, the results seem to confirm that

controlling a product can help the development of PO towards the product. However, theorising control over the PO target as an antecedent variable of PO development might cause confusion about the PO antecedents and PO developing routes.

Another stream of research has highlighted that consumer participation experiences in product selection, design process, and product assembly can induce PO (Carrozzi et al., 2019; Franke et al., 2010; Fuchs et al., 2010; Hair et al., 2016; Sembada, 2018). The research has shown that consumers involved in product creation or the customisation process develop a feeling of empowerment from these activities, which influences them to form PO towards the products. This stream of research confirms that consumers' investments and efforts in product creation lead to PO development towards the product. This contributes to an understanding of PO formation and highlights consumers' PO towards products derived from their product making participation experiences.

2.4.4 PO effects in marketing

Marketing scholars have examined PO's direct effects on positive behaviour or behaviour intention such as enjoying using a product, high demand for a product, willingness to pay a higher price (Asatryan & Oh, 2008; Folse et al., 2012; Hair et al., 2016; Peck & Shu, 2009; Walasek et al., 2017), spreading positive word of mouth (Aspara, 2009; Hair et al. 2016), product or brand engagement (Harmeling et al., 2017), consumer participation intentions (Kumar & Nayak, 2019b), predicted monetary valuations (Reb & Connolly, 2007), and competitive resistance (Barnard et al., 2016; Kirk et al., 2016). It has also been reported that PO influences consumers' attitudes, such as positive attitudes towards volunteering and volunteering intention (Ainsworth, 2020), or recycling and purchasing green products (Felix & Almaguer, 2019), and consumer satisfaction (Lee & Suh, 2015). Brand research has also discovered PO's effects on brand-consumer behaviour such as consumer's brand consideration, brand enhancement (Chang et al., 2012), and brand engagement (Kumar & Nayak, 2019a; Kumar & Nayak, 2019). It positively influences consumer behaviour in terms of brand protection and rejecting competitive brands (Zhang et al., 2014).

Apart from the direct effects of PO, there is a stream of research emphasising PO's mediation role in marketing models. Scholars have linked PO to consumers' relationships with tangible objects, such as consumers' product touch experience (Lessard-Bonaventure & Chebat, 2015; Peck & Shu, 2009); advertising image appeals

(Folse et al., 2012; Kamleitner & Feuchtl, 2015), and consumers' sense of brand image (Claus et al., 2012). The research results demonstrate that PO as a construct mediates advertising messages and consumers' product attitude, word-of-mouth, and willingness to pay a higher price (Folse et al., 2012; Kamleitner & Feuchtl, 2015), consumers' endowment effects and product valuation and choice (Brasel & Gips, 2014; Shu & Peck, 2011), the relationship between touching products and consumers' willingness to pay premium price (Lessard-Bonaventure & Chebat, 2015), the relationship between corporate branding and brand citizenship behaviour (Chang et al., 2012), and ownership distance effects (Kim, 2017) and the effects of perceived network centrality on the likelihood of brand recovery (Kuchmaner et al., 2019).

2.4.5 PO in online marketing literature

PO study in online marketing is still emerging. The majority of online PO marketing research has been conducted in online brand community contexts (Gong, 2018; Kim et al., 2016; Kuchmaner et al., 2019; Kumar & Nayak, 2019a; Kumar & Nayak, 2019b; Kumar, 2019; Kumar & Nayak, 2019; Lee & Suh, 2015; Özbölük & Dursun, 2017; Pirkkalainen et al., 2017; Zhang et al., 2014). Other scholars have set their research in more general marketing contexts, such as a virtual world (Lee & Chen, 2012) or social media (Hulland et al., 2015; Karahanna et al., 2015). Some research has been set in more specific research contexts, such as a company's social network (Guo et al., 2016), or music streaming platforms (Sinclair & Tinson, 2017).

Various online PO targets have been addressed in these studies, such as virtual space (Lee & Chen, 2012), online brand communities (Gong, 2018; Kuchmaner et al., 2019; Kumar, 2019; Kumar & Nayak, 2019; Lee & Suh, 2015; Özbölük & Dursun, 2017; Zhang et al., 2014), consumer-created social media contents (Karahanna et al., 2015; Kim et al., 2016; Sinclair & Tinson, 2017; Zhao et al., 2016), social media accounts (Guo et al., 2016), digital goods/products (Atasoy & Morewedge, 2017), augmented reality (AR) technology (Carrozzi et al., 2019; Hilken et al., 2017), and online shared knowledge (Pirkkalainen et al., 2017). These studies show that various online possessions have been considered as PO targets in online marketing research. Among these targets, the online brand community has been considered as a common PO object in the literature.

Similar to other marketing research, online marketing researchers have also adapted the PO definition (both the individual level of PO and the collective level of

PO) from Pierce et al.'s (2001) works (Atasoy & Morewedge, 2017; Gong, 2018; Kuchmaner et al., 2019; Kumar & Nayak, 2019; Lee & Chen, 2012; Zhang et al., 2014). Only a couple of studies have adopted the PO definition from other well-cited marketing papers such as Pack and Shu's (2009) research (Brasel & Gips, 2014; Hilken et al., 2017).

Furthermore, in online marketing research, PO has been operationalised as a theoretical framework (Kumar & Nayak, 2019b; Sinclair & Tinson, 2017), a consumer mental process (Carrozzi et al., 2019), a psychologically experienced phenomenon (Lee & Chen, 2012), a theoretical variable, such as a factor to maintain consumer relationships (Guo et al., 2016), a driver of online consumer product evaluation (Hilken et al., 2017), and a motivation factor for online participation sharing (Kumar, 2019; Kim et al., 2016). It appears that these studies have attempted to use the same definition to operationalise PO through different scopes in the research.

2.4.5.1 Dimension and measurement

PO dimensions and measurement have also been adopted in online marketing research (see Table 2.2). Most of the online research has measured PO as a unidimensional construct without addressing PO multidimensionality; instead, the research has entirely adopted Van Dyne and Pierce's (2004) scale in the marketing studies (Gong, 2018; Kumar & Nayak, 2019b; Lee & Chen, 2012; Zhang et al., 2014; Zhao et al., 2016). A few studies have also adopted either PO development routes as their online PO dimensions (Kim et al., 2016) or used underlying PO motives as the dimensions to measure online PO in their research (Karahanna et al., 2015). However, Hulland et al. (2015) caution that these scales are not directly applicable in the online marketing context.

Some marketing researchers have mixed Pierce et al.'s (2001) PO definition and Avey et al.'s (2009) dimensions in the online brand community context to test PO's antecedents and effects (Lee & Suh, 2015; Kumar, 2019). However, as discussed before, Pierce et al. (2001) and Avey et al. (2009) have not reached agreement on PO dimensionality and its measurement. The scale and items adopted from these two studies might cause some theoretical confusion of the concept.

In addition, some researchers have adopted Peck and Shu's (2009) scale (Atasoy & Morewedge, 2017; Helken et al., 2017; Carrozzi et al., 2019; Kuchmanner et al.,

2019), or adopted Piece et al.'s (2001) scale (Guo et al., 2016. Kumar & Nayak, 2019a) from the management literature. However, as discussed in the previous section, there is no evidence supporting how these scales have been developed in these studies yet. The adoption of these scales in online marketing research might influence online marketing research validity.

2.4.5.2 Antecedents and indicators

In addition, researchers have identified the antecedents of PO only in the marketing research (see Table 2.3). Five underlying PO motives borrowed from Pierce et al.'s (2001) works have been found to play a role in the formation of PO motivation (Karahanna et al., 2015). Marketing researchers have also found other factors influencing PO formation and examined several PO antecedents in an online context. For example, online member autonomy and self-discrepancy in an online brand community have been found to be factors that influence PO formation in the community (Lee & Suh, 2015). Controlling online space and self-investment have been identified as the key PO antecedents in an online brand community (Lee & Chen, 2012). Significant effects have been reported in regards to perceived control and self-investment in PO, but the findings suggest that the effects should be coupled with other variables, such as perceived familiarity and social influence in order to affect PO within social media (Zhao et al., 2016).

In line with the social influence antecedent, researchers have identified two main factors that positively affect PO formation – consumers' online network structural embeddedness, and relational embeddedness in the network (Zhang et al., 2014). Zhang et al. (2014) found that how close a person is to the network and with other consumers are the key antecedents for PO formation. Similarly, Kuchmaner et al. (2019) found that consumers who perceive centrality in an online brand community report a higher level of PO. It appears that these researchers all believe that social influence or the centrality perceived by consumers in the online brand community are key indicators of PO formation.

2.4.5.3 Online PO effects

Marketing scholars have studied the effect of PO on marketing related outcomes such as consumers' online consumption and sharing experience (Carrozzi et al., 2019; Sinclair & Tinson, 2017), consumers' involvement in product design (Hair et al., 2016), consumers' PO development in an online brand community (Lee & Suh, 2015), and

consumers' online brand experience (Kumar & Nayak, 2019a; Kumar & Nayak, 2019b). Specifically, marketing research has identified a positive link between online PO and consumers' engagement. For example, consumers' online PO has been reported as a key antecedent to consumers' engagement and loyalty to a company (Zhao et al., 2016). Further, it has been found that consumers' PO of shared music streams can influence their engagement in social media use (Sinclair & Tinson, 2017). Consumers' online PO of the brand has also been found to be positively associated with their brand engagement (Gong, 2018; Kumar & Nayak, 2019a; Kumar & Nayak, 2019b.) and further affects their brand attachments, brand loyalty (Kumar & Nayak, 2019a), and brand purchase intentions (Kumar & Nayak, 2019b).

Research has also reported that PO has a positive link with other consumer attitudes and behaviour in online brand communities. For example, consumers' online sense of PO towards the online brand community influences their satisfaction with the community, their self-esteem, and the quality of their knowledge contributions in the online brand community (Lee & Suh, 2015). PO is identified as a key factor to influence community members' intention to share their work and knowledge (Kim et al., 2016; Guo et al., 2016; Pikkalainne et al., 2018), their future visit intention (Lee & Chen, 2012), and to stay within the community (Lee & Suh, 2015). PO positively affects online members' interaction intention (Guo et al., 2016); both the individual level of PO and the collective level of PO positively influence online community members' brand purchase intentions and positive word of mouth about the community (Kumar, 2019). Research has also found that brand PO positively impacts brand-related behaviour intentions such as brand protection and resisting competitive brands (Zhang et al., 2014). However, while studies support the positive effects of online PO on consumers' behaviour and attitude, there are a number of theoretical concerns identified in the literature. The following section presents these concerns and highlights the research gaps in the online marketing literature.

2.5 Theoretical concerns about PO in the online marketing discipline

Most studies in the marketing literature have adopted the PO concept from organisational research. However, the PO theory developed in organisational research is based on a context in which individuals communicate with PO targets in an offline situation. The PO theory development in organisational literature might not consider how this concept needs to be theorised in an online context. It has been reported that

there is uncertainty about how consumers control and develop ownership of online possessions (Belk, 2013).

There are significant differences between the possessions owned in the online world and those of the offline world. First, the common offline possessions of the past, such as photos, videos, music, and books, are now largely available in digital format (Belk, 2013). Although online possessions may appear to keep some of the key features of offline possessions such as colours, shapes, and structure, they lack the characteristics that might invite people to connect with them (Denegri-Kottm & Molesworth, 2010). The existence of these dematerialised possessions raises a number of questions: whether consumers can develop PO of immaterial possessions in an online format as they can with material possessions; whether consumers find online possessions as meaningful to them as they do material possessions; whether consumers feel connected to online possessions in the same way as they do to material possessions; whether consumers can control online target possessions in the same way as offline possessions; and whether the feeling of PO consumers develop towards these online possessions is the same as they experience with offline possessions. Belk (2013) suggests a need to extend self-theory to the online context. This leads to another question: whether consumers can link their self to online possessions in the same way they can to offline possessions. Thus, there is need to revisit PO theory adapted from organisational research and to extend it to the online context.

Apart from the significant change in possessions in the online context, people who are involved in online activities are different from who they are in real life in that they become reembodyed in the online environment with avatars, words, videos, pictures, emojis, and photos (Belk, 2013). The online context enables them to have new identities or to be who they want to be (Belk, 2013). These changes might influence how people use online possessions to investigate the self, express their self-identity to other online users, and use the possessions to maintain the continuity of self-identity in the online context. In other words, the way people own online possessions and the way they link these online possessions to their self-identity is different from their offline possession behaviour. Thus, consumers' PO of online possessions in an online context may be different from their offline PO experience. Hence PO theory adapted from organisational research may not be completely applicable in the online context. The PO in the online context may have different meanings compared to offline PO.

Furthermore, the online context enables people to share information. Although sharing is not new, the online context enables consumers to share more information with more people than ever before (Belk, 2013). This sharing behaviour in the online context may create a collective context for PO to develop among consumers. Specifically, consumers' sharing behaviour provides opportunities for a collective level of PO development in the online context that could be different from the offline organisational context – which has previously been the PO focus in the literature. Thus, the PO theory developed in offline organisational research might not fully cover the PO meaning in such a highly collective context. In summary, the above differences prompt a rethink of PO theory in the realm of online possessions and online consumer behaviour, rather than just assuming that the same PO feeling examined in the offline organisational research applies in the online context.

There is also concern over the PO concept in online marketing research. A recent organisational behaviour study warns that the conceptual issue relating to PO is that the “theoretical foundations of the construct, its measurement, the factors that influence its development, and when and how it influences outcomes are areas of continued debate in the literature” (Dawkins et al., 2017, p.163). Evidently, the conceptual understanding of PO remains vague in the organisational behaviour literature, let alone its conceptual meaning in the online marketing literature. Two enduring problems seem to hinder the progression of theoretical advancement and empirical research in online marketing research. The first concern is the concept of PO in online marketing research. The majority of marketing researchers have either entirely or partly applied a PO definition taken from organisational or management literature to their research, including the underlying motives and dimensions of PO. As discussed previously, the PO concept developed in organisational research does not consider the online context. Although marketing scholars have cautioned against using the offline concept in online marketing research, limited empirical attention has been given to the conceptualisation of PO and its dimensionality in the online context. It remains unclear whether the conceptualisation of PO adopted from organisational research is appropriate for an online marketing study. Further, PO research in the online marketing discipline is still emerging. Marketing researchers are trying to bridge the construct with exciting theories. However, as the definition and dimension of PO arose from work-related research in the marketing research context, it was operationalised as both unidimensional and multidimensional concepts and described in various terms without a

clear explanation relating to the online marketing context. Its underlying motives and developing routes have been used as dimensions in marketing research interchangeably. This situation adds another layer of complexity in PO theorisation in the online marketing research process. Moreover, past marketing research has largely studied the concept of PO at an individual level and the collective level of PO study is lacking. The collective level of PO has been identified as a distinct concept from the individual level of PO in the previous literature, but how the collective level of PO should be conceptualised in online marketing remains unclear. Again, the online context (e.g., the online brand community) is more collaborative, whereby online consumers share personal experiences with others. Both levels of PO might play a role in explaining consumer behaviour. Again, both the individual level of PO and the collective level of PO in terms of the concretisation, operationalisation, and definition borrowed from work-related contexts might not be fully applicable in the highly collaborative online context. To sum up, the lack of a precise conceptualisation of what exactly PO is in the online context is a hindrance to the progress and advancement of marketing theory and research. These ongoing problems continue to discourage the application of PO in online marketing settings. Further, as theory, research, and practice interact, PO theory implication for marketers might also be influenced by these research problems.

The second concern is related to the measurement of PO. Marketing researchers (e.g., Hulland et al., 2015) have strongly questioned the adoption of PO measurements from the organisational research discipline, maintaining that it is not suitable for marketing and consumer behaviour applications. Researchers have emphasised that it is not appropriate to approach PO research in an online context with the exact same set of measurements that are used in a work-related context. This is because PO measurements developed in the work-related context do not address the meaning and application of PO in the online context. Moreover, the dimensionality of PO in organisational research remains debated (Dawkins et al., 2017). The measures originating from these organisational studies contain different measurement items. As a result, these scales that have been adopted or adapted into marketing research are not consistent with each other. There are several scales used in marketing research. Some of these measures lack clarification in regards to the scale development process. Thus, using these scales in online marketing research might cause research validity concerns.

2.6 Can the online community be a PO target?

To address the above theoretical concerns, the online brand community has been considered as a typical online marketing research context, where the online brand community members stay in a community to interact and share brand-related information, building up the community. The following section discusses whether an online community can be a PO target.

2.6.1 PO target attributes

PO can be experienced towards either physical entities or non-physical entities such as ideas, words, artistic creations, and thoughts. This implies that PO can occur for any objects – tangible or intangible (Pierce et al., 2003), but there is a need to consider when PO can occur or when PO might be absent in certain situations. The attributions of a PO target play a role in determining PO development (Pierce et al., 2003). Pierce, et al. (2003) point out that the PO target itself needs to have the potential to satisfy PO development motives, serving as a foundation for PO development, and have the capacity to allow PO to emerge. Some attributes of a target as proposed by Pierce et al. (2003) are attractiveness, accessibility, openness, and manipulability. At the very least, the target needs to be visible to capture people's attention and interest. It also needs to be accessible and open to the individual; he or she can then have a chance to experience the target. The target needs to be manipulable by the individual to serve the underlying PO motives. Moreover, the target attributes need to be able to facilitate PO development routes. The target must have attributes that enable the individual to know and understand it, to have control, and to be able to invest self into it. On the other hand, if the target attributes cannot serve the individual's underlying motives, or the attributes cannot facilitate an individual to travel down the path to PO, the individual cannot develop a state of PO towards the target.

There are six necessary target attributes identified in the marketing literature that are important for PO development: attractiveness, visibility, accessibility, manipulability, availability, and openness (Jussila et al. 2015). PO targets in the marketing context (e.g., products or services) should attract consumers, should be open to consumers, and should be visible and accessible enough for each consumer to experience them as their 'own' targets. Also, the targets must have attributes that the consumer can control such as customisability or justifiability. If there is a lack of these attributes in the products or services, consumer PO is unlikely to develop. Most marketing studies are limited to tangible and physical PO targets. The following section

discusses how an online brand community has the attributes to facilitate online members' PO development.

2.6.2 Online brand community

The definition of an online brand community is taken from the general concept of brand community, that is, a “specialised, non-geographically bound community, based on a structured set of social relations among admirers of a brand” (Muniz & O’Guinn, 2001, p. 412). An online brand community is therefore a brand community that takes place online, and brand admirers interact through the internet (Fuller et al., 2009). Some researchers have also suggested that these online communities are new forms of online groups or organisations for consumers (Faraj et al., 2015; Zammuto et al., 2007).

Past research has reported that online communities enable individual behaviours that would be different in traditional organisations (Bagozzi & Dholakia, 2002; Brown et al., 2007; Dahlander & Frederiksen, 2012; Ren et al., 2012). First, as consumers in online brand communities interact via the internet, they can easily browse community discussion content or register their membership in the community. Some communities are formed on social media platforms such as Facebook, which hosts millions of brand communities online (De Vries et al., 2012). These online communities are always open to the public and are easy for consumers to access, visit, and participate in. Also, as online brand communities have no geographical boundaries, the setting of the communities is more likely to be at a global scale, in which consumers can communicate with others from different time zones and from all over the world (Hook et al., 2018). Therefore, online brand communities have a high level of openness, availability, and accessibility for consumers, enabling them to communicate by breaking through place and time limitations with the brand, other consumers, marketers, and the products (Brown et al. 2007; Ren et al., 2012).

Secondly, online brand communities have social media influence elements in the customer-centric model (see Figure 2.2) (Laroche et al., 2013). The consumer is the focus of online brand community interactions (McAlexander et al., 2002). An online brand community also offers other characteristics. Muniz and O’ Guinn (2001) maintain that consumer consciousness involves shared rituals and traditions, as well as a sense of responsibility in online brand communities. Online community members know the connections among them, deriving a feeling of belonging from their membership to the

brand community (Algesheimer et al., 2005). They share their stories and experiences and create community culture (Seraj, 2012), such as community language and signs (Casalo et al., 2008). They also feel responsible for helping and supporting each other in the community (Muniz & O'Guinn, 2001). All of these characteristics play a role in forming an online brand community. Thus, the online members and their participation constitute the community itself. Moreover, the online members are the creators of an online brand community. Another research stream has found that online brand community members co-create brand identity as well as community and a consumer identity that all link to consumers' participation and brand community commitment (Black & Veloutsou, 2017; Demiray & Burnaz, 2019; Kornum et al., 2017). These online brand community characteristics all play a role in attracting consumer participation and commitment.

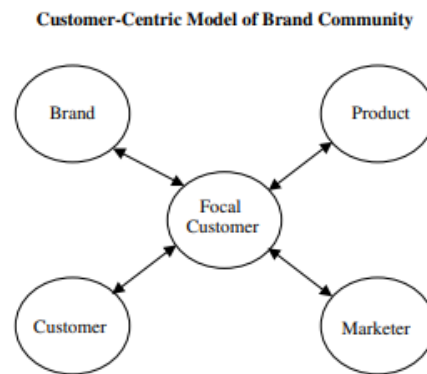


Figure 2. 2 Customer-centric model of brand community

(McAlexander et al. 2002, p. 39)

Online brand communities are built on consumers' voluntary participation, where there is no central authority within the community as there is in traditional communities (Liao et al., 2017; Ren et al., 2012) and consumers have full control over when they want to join or quit the community. Thus, online communities enable individual consumers to control and manipulate their participation time and discussion continuity. As the social structure within the online brand community is created by the online community members' interaction dynamics (Johnson et al., 2015), the shifting membership leads to online communities developing a fluid structure (Johnson et al., 2015). From this point, the online community members are the owners of the community who collectively control the community structure.

Online brand community members can participate in the online brand community by posting, replying, spending more time in the community, organising group buying activities (Chen et al., 2015; Kumar, 2019), or browsing, without visible interaction occurring (Madupu & Cooley, 2010). As online community members are anonymous, they have freedom to control the way they want to describe themselves and to participate in community discussion and chats. They can also control how they share their personal information, personal evaluations of the brand or the products, personal experience of the products, and their attitudes towards other community members' opinions, ideas, and suggestions (Kaiser & Bodendorf, 2012; Kumar, 2019). Overall, in online brand communities, individual consumers can control their discussion participation, their online contribution content, and their self-expression, and collectively decide the discussion topics and overall community contents.

Furthermore, online brand communities offer many opportunities for consumers to build and develop friendships and to nurture close relationships based on the community members' shared interests, values, and beliefs (Balasubramanian & Mahajan, 2001). Online communities can also resemble reference groups such as friends and family members, as well as colleagues and co-workers (Bagozzi & Dholakia, 2002). Further, consumers involved in an online brand community are generally interested in a specific brand (Casalo et al., 2008; Muniz & O'Guinn, 2001). They express their passion for the brand, exchanging brand information and brand knowledge (McAlexander et al., 2002). Hence, the online brand community enables members to find and to communicate with other people who also are passionate about the brand (Casalo et al., 2008). The online brand communities offer a virtual "place" for these people to interact with the brand, sharing brand related information (Hook et al., 2018).

More interestingly, during communication with other online community members, the individual consumer is able to understand themselves better, promoting their identification with the community (Algesheimer et al., 2005). The individual consumer sees themselves as part of the community, categorising themselves into the community (Carlson et al., 2008; Madupu & Cooley, 2010) to form a social identity (Bagozzi & Dholakia, 2006; Hook et al., 2018; Morandin et al., 2013). From this point, online communities enable individuals to discover themselves and to form their identity.

Moreover, research has found that consumers want to join an online brand community because they can gain benefits such as social support (Sanchez-Franco et al., 2012), information about the product and brand (Jung et al., 2014; Madupu & Cooley, 2010), entertainment (Kou & Feng, 2013), and special offers (Sung et al., 2010) from the online brand community. These benefits that develop in online brand communities attract and stimulate consumers to actively or passively participate in the communities. In addition, some of the online brand communities offer a group level of benefits (Dholakia et al., 2004), which also attract online consumers to participate in the communities.

In summary, online brand communities have PO development attributes, such as attractiveness, openness, accessibility, manipulability, visibility, and availability, enabling online brand community members to satisfy their motives, such as having a place, stimulation, self-identity, and self-efficacy. The community enables online members to develop PO of the brand through the following routes: intimately knowing the online brand community, investing self in the community, and controlling the community.

2.6.3 Consumer participation in online brand communities

The online brand community has been identified as a marketing medium by scholars and marketing practitioners (Muniz & Schau, 2011). Marketing research has confirmed that consumers' participation and commitment are key to building a successful community. One research stream has explored online community members' attitudes and behaviour towards the online brand community and the brand. Research has found that online community participation can lead to brand loyalty (Casalo et al., 2010; Hajli et al., 2017; Hur et al., 2011; Luo et al., 2015; Munnukka et al., 2015), opposition to competing brands (Madupu & Cooley, 2010), brand purchase and purchase intention (Ho, 2015; Lee et al., 2011; Munnukka et al., 2015), positive word of mouth about the brand and the community (Hedlund, 2014; Luo et al., 2015), and brand community engagement (Brodie et al., 2013; Islam & Rahman, 2017). Research has also found that online brand community participation positively influences consumer commitment and loyalty to the community (Casalo et al., 2008; Chen & Ku, 2013; Munnukka et al., 2015; Woisetschlager et al., 2008). This research has highlighted the importance of building a successful online brand community.

Recent online brand community research has emphasised the importance of online consumers' psychosocial experience in developing a successful brand community (Lin et al., 2019). For example, positive emotions have been identified as enhancing consumers' brand identification (Lin et al., 2019). Past research has also argued that understanding consumer experience in the brand community should be the focus when unpacking consumer relationships within the community (McAlexander et al., 2002). It has been found that online brand community members develop a psychological sense of community that positively influences the relationship between online consumers and the community (Carlson et al., 2008). Studies have shown that studying consumers' psychological experience in the online brand community is crucial for understanding consumers' relationships in the community and achieving success in its development.

2.7 Research objectives and questions

The present thesis uses the consumer social relationship lens to study PO in online brand communities. The first research priority is to define the PO concept in an online marketing context. The thesis aims to unpack the theoretical meaning of PO to provide a clear definition of the concept. This should also suggest whether online PO in a marketing context is the same as PO in work-related research. Further, both the individual level of PO and the collective level of PO need to be defined to clarify the theoretical similarities, differences, and relationships between the two levels of PO in an online marketing context. Secondly, the dimension(s) of the concept also needs to be clearly identified. Specifically, the dimensionality of both the individual level of PO and the collective level of PO needs to be addressed. This will help to differentiate PO dimensions, its underlying motives, and its development routes. It helps to understand what constitutes consumers' PO state, why it develops, and how it develops in an online marketing context. Moreover, the measurement instruments for the PO concept need to be established through the proposed dimensionality. Similarly, if the collective level of PO is found to be different from the individual level of PO, both levels of PO need to have their own measures, which should be clearly developed and validated. This will help in establishing a consistent and reliable measure for progress within marketing empirical research on PO.

To sum up, three research objectives for the present research address PO theory concerns in the marketing context, especially in the online marketing context where PO theory might be interpreted differently by consumers. The research objectives are to: 1)

explore the theoretical notion of PO in an online brand community context; 2) develop and validate a multidimensional measure of PO in an online community; and 3) test PO's effects in the online brand community.

The present research focuses on consumers' online brand community experience to study consumers' psychological state of PO within the community. Specifically, this study takes a consumer-centric view and focuses on online communities that are socially oriented and built on the social interactions that occur between the consumers and the brand, the products, other consumers, and marketers. In order to address the objectives, the present research seeks to answer the following research questions:

- (1) What is the meaning of PO in an online brand community?
- (2) What are the dimensions of PO in this context?
- (3) How should PO be measured in an online brand community?
- (4) How does PO impact consumers' online community commitment, brand commitment, and brand attachment in an online brand community context?

2.8 Chapter conclusion

This chapter surveyed the literature of PO in management, organisational, and marketing research. It reviewed PO's concept origin, definition, dimensionality, and measurement. The literature suggests PO in the online brand community has not been studied thoroughly; therefore, there remains confusion concerning its dimensions and how to measure it, which prevents further research in this area. Three research objectives and four research questions were proposed in the chapter.

The following chapter will present the research design and methodology used to achieve the research objectives and answer the research questions. The aim is to conceptualise the meaning of PO in the online context, determine its measurement, and test its impact on the brand community and the brand.

Table 2. 1 PO in Marketing Context-Definition, Terms, and Operationalisation

Author & Year	Definition	Term used in the study	Operationalisation
Ainsworth (2019)	Pierce et al. (2001)	Feeling of ownership	Underpinning of a continuous relationship with the objects
Asatryan & Oh (2008)	Pierce et al. (2003)	Psychological element of ownership	
Jussila & Tuominen (2010)	Pierce et al. (2001)	Individual psychological perspective on ownership	
Jussila et al. (2015)	Pierce et al. (2001)	PO	An appropriate process variable A potential persuasive advertising message appeal
Reb & Connolly (2007)	Pierce et al. (2003)	Feeling of ownership or subjective ownership	
Peck & Shu (2009)	Pierce et al. (2003)	Psychological or perceived ownership	
Fuchs et al. (2010)	Pierce et al. (2003)	PO	
False et al. (2012)	Pierce et al. (2001)	PO	
Hsu (2013)	Pierce et al. (2001)	The ownership feeling	A holistic approach
Brasel & Gips (2014)	Peck & Shu (2009)	Perceived ownership	
Baxter et al. (2015)	Pierce et al. (2001)	PO	
Kamleitner & Feuch (2015)	Pierce et al. (2003)	Experiential “sense” of ownership	A factor increases loss aversion
Lessard-Bonaventure & Chebat (2015)	Pierce et al. (2003)	The feeling of owning	
Hair et al. (2016)	Pierce et al. (2003)	PO	An underlying process
Gineikiene et al. (2017)	Pierce & Jussila (2010)	Domestic PO	
Stoner et al. (2017)	Pierce et al. (2003)	PO	
Kirk et al. (2018)	Pierce et al. (2003)	PO, or perceived ownership or feelings of ownership	
Pirkkalainen et al. (2018)	Pierce et al. (2001)	Emotional PO	A perception
Sembada (2018)	Pierce et al.,2001)	Sense of PO	
Yuksel, et al. (2018)	Pierce et al. (2003)	Feeling of ownership	
Felix & Almaguer (2019)	Pierce et al. (2003)	PO	
Kirk (2019)	Pierce et al. (2003)	Feelings of ownership, or PO	

Pinto et al. (2016) Chang et al. (2012)	Pierce et al. (2001), Pierce et al. (1991, 2001); Van Dyne & Pierce, (2004)	Psychological sense of ownership Brand PO	
Hillenbr& & Money (2015) Harmeling et al. (2017)	Pierce & Jussila, (2011) Van Dyne & Pierce (2004)	PO PO	
PO in online marketing literature			
Lee & Chen (2012) Karahanna, et al. (2015)	Pierce et al. (2001) Pierce et al. (1991), Pierce et al. (2001, 2003).	PO PO	An intriguing phenomenon
Hull et al. (2015) Guo et al. (2016)	Pierce & Jussila (2011) Pierce et al. (2001).	PO PO	Driving factor to maintain relationship
Sinclair & Tinson, (2017) Gong (2018) Kumar & Nayak (2019)	Pierce et al. (2003). Pierce et al. (2001, 2003) IPO: Pierce et al. (2001, 2003). CPO: Pierce & Jussila (2010).	PO PO Sense of IPO Sense of CPO	A framework A theory for decision making
Zhang et al. (2014) Zhao et al. (2016) Kim et al. (2016)	Pierce et al. (2003) Pierce et al. (2001) Pierce et al. (2001, 2003); Pierce & Rodgers (2004)	PO PO PO	An important predictor of behaviour
Kumar & Nayak (2019) a Kumar & Nayak (2019) b	Pierce et al. (2001) Pierce et al. (2001, 2003).	PO Brand PO	Psychological experiences

Atasoy & Morewedge (2017)	Perceived ownership's NA	Perceived ownership	As a theory
Lee & Suh (2015)	Pierce et al. (2001)	PO	
Kumar (2019)	IPO: Pierce et al. (2001, 2003) CPO: Pierce & Jussila (2010)	PO	
Carrozzi et al. (2019)	Pierce & Jussila (2010).	PO	
Kuchmanner et al. (2019)	Pierce et al. (2003)	PO	

Table 2. 2 PO in marketing literature-Dimensionality and Measurement

Author & year	Dimensionality	Measure
Ainsworth (2019)	Multidimensional	A six-item scale developed for this study,
Asatryan & Oh (2008)	Unidimensional	which was composed of items from Jussila et al. (2015) and Pierce et al. (2001) Van Dyne & Pierce's (2004) scale was adapted for this study with slight modifications
Reb & Connolly (2007)	Unidimensional	Measured with single item that was developed in the research: How much do you feel like you own the chocolate bar (even if you don't legally own it)? On 7-point scales
Peck & Shu (2009)	Unidimensional	Adapted a measure from Pierce et al. (2001)
Fuchs et al. (2010)	Unidimensional	Adapted a measure from Van Dyne & Pierce (2004) and Peck & Shu (2009)
Folse et al. (2012)	Unidimensional	Adapted a measure from Van Dyne & Pierce (2004)
Hsu (2013)	Unidimensional	Adopted a measure from Higgins et al. (2001)
Brasel & Gips (2014)	Unidimensional	No reference, five measure items used to measure PO
Kamleitner & Feuch (2015)	Unidimensional	Adapted a measure from Peck & Shu (2009)
Lessard-Bonaventure & Chebat (2015)	Unidimensional	Adapted a measure from Peck & Shu (2009)
Hair et al. (2016)	Unidimensional	Adapted from Fuchs et al. (2010) and Van Dyne & Pierce (2004)
Gineikiene et al. (2017)	Unidimensional	Scale development to measure domestic PO as a reflective, one-dimensional scale
Stoner et al. (2017)	Unidimensional	Adapted a measure from Peck & Shu (2009)
Kirk et al. (2018)	Unidimensional	Adapted from Fuchs et al. (2010) and Peck & Shu (2009)
Pirkkalainen et al. (2018)	Unidimensional	New scale developed
Sembada (2018)	Unidimensional	Adapted from the seminal work of Van Dyne & Pierce (2004).
Yuksel et al. (2018)	Unidimensional	Adapted & modified from Fuchs et al. (2010); Van Dyne & Pierce (2004)
Felix & Almaguer (2019)	Unidimensional	Adapted from Pierce & Jussila (2011).
Kirk (2019)	Unidimensional	Adapted from Kirk et al. (2018); Peck & Shu (2009); Fuchs et al. (2010).
Pinto et al. (2016)	Multidimensional	Adapted from Avey et al. (2009)
Chang et al. (2012)	Unidimensional	Brand PO (Br& PO) scale: A 10-item scale adopted from Pierce et al. (2001) and Van Dyne & Pierce (2004) is modified & applied

PO in online Marketing literature

Lee & Chen (2012)	Unidimensional	Adapted from Van Dyne & Pierce (2004)
Karahanna, et al. (2015)	Unidimensional	Developed new scales to measure the five PO needs as dimensions.
Guo et al. (2016)	Unidimensional	Adopted from Pierce et al. (2001)
Gong (2018)	Unidimensional	Adapted from Van Dyne & Pierce (2004)
Kumar & Nayak (2019)	Unidimensional	IPO scale adapted from Fuchs et al. (2010) CPO scale adapted from Pierce et al. (2017)
Zhang et al. (2014)	Unidimensional	Adapted Van Dyne & Pierce (2004)
Zhao et al. (2016)	Unidimensional	Adapted and modified from Lee & Chen (2011)
Kim et al. (2016)	Unidimensional	Developed new scale from Dwyer & Ganster, (1991), Pierce, et al. (1992), Van Dyne & Pierce (2004).
Kumar & Nayak (2019) a	Unidimensional	Four items derived from Pierce et al. (2001)
Kumar & Nayak (2019) b	Unidimensional	Adapted from Van Dyne & Pierce (2004)
Atasoy & Morewedge (2017)	Unidimensional	Adapted from Peck & Shu (2009) and Shu & Peck (2011),
Lee & Suh (2015)	Unidimensional	Adapted from Avey et al. (2009) and modified
Kumar (2019)	Multidimensional	IPO scale adapted from Avey et al. (2009) CPO scale adapted from Pierce et al. (2017)
Carrozzi et al. (2019)	Unidimensional	Adapted 3-item measure by Peck & Shu (2009)
Kuchmanner et al. (2019)	Unidimensional	Adapted from Peck & Shu (2009)
Hilken et al. (2017)	Unidimensional	Adapted from Peck & Shu (2009)

Table 2. 3 PO in marketing context-Antecedents and Effects

Author & year	Antecedents	Effects		
Ainsworth (2019)	Control, consumer participation, consumer-company identification. Sense of belonging.	Positive antecedent of attitude to volunteering		
Asatryan & Oh (2008)		Positive effects on relationship intention, WOM, willingness to pay more, and competitive resistance		
Reb & Connolly (2007)		Predicted monetary valuation		
Peck & Shu (2009)		Ability to touch, coming to know and investing the self		
Fuchs et al. (2010)	Empowerment	Mediation effects on empowerment and product demand effect		
Hsu (2013)	Naming product increases PO	Result in high attitudes to the advertising		
Brasel & Gips (2014)		Endowment effects		
Lessard-Bonaventure & Chebat (2015)		Mediating touching product and consumers' willingness to pay warranty		
Gineikiene et al. (2017)		Predicted consumer behaviour to domestic product		
Stoner et al. (2017)		Mediating naming product and consumers product evaluation		
Pirkkalainen, et al. (2018)		Having a place, community commitment		
Sembada (2018)			Sense of power	
Yuksel et al. (2018)				Mediation effects on consumers' work (participation in crowdsourcing) and consumer citizenship behaviour
Felix & Almaguer (2019)				Positively related to recycling intention and group products purchase intention
Kirk (2019)		Perceived control		Consumers' emotional attachments to the products
Kim (2017)	Perceived control	Perceived PO mediates the ownership distance effect		
Chang et al. (2012)		Brand consideration, brand sportsmanship		
Harmeling et al. (2017)		Positively related to effectiveness of engagement		
PO in online marketing context				
Lee & Chen (2012)	Cognitive appraisal, affective appraisal, and perceived control	Future visit intention		

Guo et al. (2016)		Positively influence human interactivity, information sharing, and WOM referral
Sinclair & Tinson (2017)	Controlling the targets, investing the self, coming to intimately know	
Gong (2018)	Brand familiarity, participative brand development	
Kumar & Nayak (2019)		Online brand community participation intention
Zhang et al. (2014)	Network embeddedness positively impacts PO	Impacts consumer behaviour of protecting relevant brand and repelling competitive brands
Zhao et al. (2016)		Customer loyalty
Kim et al. (2016)		Impacts facilitating remix
Kumar & Nayak (2019a)		Positively associated with brand engagement
Kumar & Nayak (2019b)		Positively associated with brand engagement
Lee & Suh (2015)		Influences consumers' self-esteem, knowledge contribution quality
Kuchmanner et al. (2019)		Mediation effects on perceived network centrality and likelihood to help the brand

Chapter Three: Research Design

3.1 Introduction

This research aims to achieve three objectives: 1) to explore the theory of PO in an online marketing context; 2) to develop and validate a PO measurement instrument in an online context; 3) to test PO's effects in the online marketing context. The research aims to answer the following research questions: (1) What is the meaning of PO in an online brand community?; (2) What are the dimensions of PO in this context?; (3) How should PO be measured in an online brand community?; and (4) How does PO impact consumers' online community commitment, brand commitment, and brand attachment in an online brand community context?

This research was undertaken in three phases with a mixed research method. The first phase was a qualitative research study to achieve the first objective, that is, to determine the meaning of PO in the online brand community context and to establish the concept of PO in online brand communities. The second research phase used a conductive quantitative approach to develop the measurement instrument for the concept. The third research phase tested PO effects on consumers' community commitment and brand attachment and commitment.

This chapter comprises seven sections. Following the introduction, section two discusses the research paradigm and its justification. Section three addresses the overall research methodology rationale. Section four focuses on the qualitative research phase and discusses the choice and justification of the research methodology. Section five explains the quantitative research method choice and its justification in research phases two and three. The details of the research aim, samples, data collection method, and data analysis method in each study are provided. Section six presents the ethics requirement and considerations for this thesis across three research phases. This is followed by section seven of the chapter and conclusion.

3.2 Research paradigm

By looking at the nature of the present research questions and objectives, consideration was given to which research paradigm was best to achieve the research objectives and answer the research questions.

There are four research paradigms: positivist, interpretivist, post-positivist, and critical theory (Guba & Lincoln, 2005). Among them, the post-positivist approach

balances both the positivist and interpretivist approaches and focuses on participants' experience related to the research issues (Panhwar et al., 2017). Post-positivism believes in critical realist ontology whereby the “real world” is assumed based on human perceptions of it (Pickard, 2013). However, due to the limitations of the human intellect, people's perception and understanding of the real world are imperfect (Guba & Lincoln, 2005; Pickard, 2013). In other words, post-positivists believe that reality can only be approximated and exists beyond researchers' ability to understand the world (Creswell, 2013). Thus, post-positivists are objectivists who criticise the truth of the findings and always subject findings to falsification. As a flexible research perspective, post-positivism allows researchers to use more than one method to carry out the research in order to study the subject from different angles (Clark, 1998; Miller, 2000).

The present research aimed to establish a solid theoretical foundation for the PO concept by examining multiple resources to support its conceptualisation and to develop a scale for the concept. Methodologically, post-positivists view knowledge as conjectures with strong support (Creswell, 2013; Panhwar et al., 2017). The post-positivist retains the experimentation and hypothesis-testing procedures from early positivism (Guba & Lincoln, 2005). This allows the researcher to identify and manipulate variables and measure the relationship between variables by using statistical techniques (Pickard, 2013). Equally, post-positivism accepts that all discovery is subject to interpretation, and believes that “prior” knowledge can impact quantitative results (Pickard, 2013). Thus, it is common for post-positivists to use mixed methods to test and support their research findings (Creswell & Poth, 2018).

The present research includes multiple research questions and comprises the qualitative aspect of exploring the meaning of PO in the online brand community context, as well as the quantitative aspect of measure establishment and scale assessment of the construct. In general, a post-positivist paradigm allows the researcher to use a mixed-method research design that includes both qualitative and quantitative studies, to better achieve the research objectives and answer the research questions. Further, this approach is common in marketing research, where qualitative study plays a complementary role to quantitative study (Creswell, 2013). The present research used the qualitative study to inform the quantitative study, providing an item pool for quantitative scale development, examination, and analysis. The following section explains both qualitative and quantitative inquiry in detail.

3.3 Research methodology

Appropriate research design can address the central issue of research validly (Bryman & Bell, 2007). The main issue of this research is that the meaning of PO in the online brand community context is not clear. It is necessary to consider how best to investigate the philosophical meaning of the PO construct and its underlying dimensions. Qualitative research is a suitable method to understand consumers' in-depth feeling and behaviour in the research setting in order to capture the meaning of the construct (Creswell & Poth, 2018). Thus, to understand the meaning of the PO construct, a qualitative research method was considered. There is also an issue of knowing how the construct should be measured and its impacts on a consumer's brand attachment and brand commitment. To address this issue, a qualitative research method was needed to gather information about the construct, while a quantitative research method was the best choice to study the variables within a large sample to validate the measurement and test the relationship between the variables (Amaratunga et al., 2002). In the research process, a qualitative research not only contributes knowledge on the topic and the variables, but it also informs the quantitative research method. Thus, to best address these two issues, a mixed research method was needed as a qualitative research method helps build on PO theory in the online brand community context, while the quantitative research method is more suited to test the theory. The research methodology overview is presented below and the three research phases are outlined in Figure 3.1. Justifications for each research phase are detailed in the following sections.

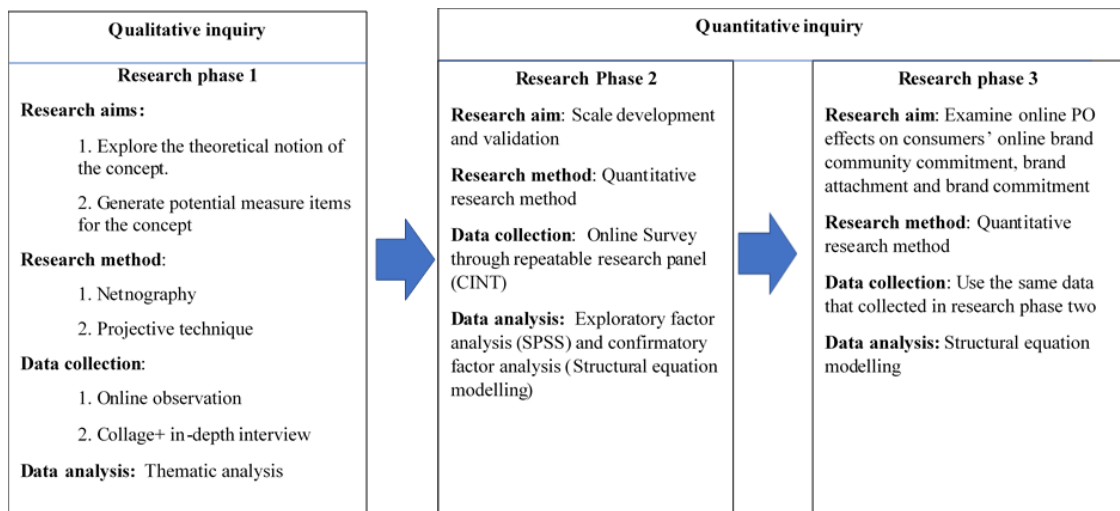


Figure 3. 1 Research methodology overview

3.4 Research phase one - Qualitative research enquiry

The first research phase addresses the first research objective and answers the first research question. It aims to understand the theoretical notion of the PO construct in the online brand community context. At the same time, the results from this research phase also aim to identify the potential dimensions of PO to help generate an item pool to measure PO. These dimensions and item pool intend to inform the second research phase for the scale development and validation.

3.4.1 Qualitative research method justification

To explore the meaning of PO, inductive qualitative research methods were more appropriate for several reasons. First of all, Creswell and Poth (2018) emphasise that a qualitative research method should be considered when “a problem or issue needs to be explored” (p. 47), as it enables researchers to discover a contextual depth to the research interest (Guba & Lincoln, 1994). The PO construct is a relatively new concept in online brand community study (Pierce et al., 2018), and its meaning and measurement are not very clear. Thus, an exploratory qualitative research method was appropriate to explore online PO meaning. Further, Creswell and Poth (2018) point out that qualitative research is suitable when the research questions need to be answered from people’s experiences and stories, especially when variables cannot be easily measured or when the researcher needs a detailed understanding of the research question which can only be established by directly talking with people. Thus, a qualitative research method was regarded as suitable for the present research inquiry that aims to explore the meaning of PO in the online brand community context.

3.4.2 Qualitative research design

The qualitative research phase used two main qualitative research methods: netnography and projective techniques (see Table 3.1). The two qualitative research methods aimed to collect two different sets of data from two different resources to address the first research objective and the first research question. The next section presents the justifications of both research methods in detail.

3.4.2.1 Netnography approach Justification

As the present research needs to be conducted in an online context, a research method that suits online marketing research needed to be considered. Netnography is identified as a common research method of doing ethnographic work in online communities in consumer and marketing research (Kozinets, 2010, 2018). It is

described as a qualitative method devised specifically to investigate the consumer behaviour in online brand communities (Kozinets, 2010, 2018). Further, the use of the netnography approach is ‘consumer-centric’ (Kozinets, 2010). It is applied to business and marketing research to look for a deep connection between consumer’s needs, wants, feelings, and experiences in the online context (Kozinets, 2010). Therefore, the researcher used this approach to simply observe the online brand community members' communication in order to identify members who had PO feeling towards the community, and then later to collect their on-line posts for data analysis.

Table 3. 1 Qualitative Research Design Overview

Qualitative research method	Netnography	Projective technique
Sample size	9 FerrariChat online brand community members	10 participants from different online brand communities
Data collection	Online observations and online post collection	Collage-making and in-depth interviews
Data analysis	Thematic analysis	

3.4.2.2 Netnography participants identification and data collection

To observe community members’ behaviour, a specific online brand community needed to be selected. According to Kozinet’s (2010, 2018) online community selection criteria, the online community selected in marketing research needs to be live and have high traffic posting among members. The community should contain larger numbers of discrete message posters. The members should post descriptive messages, and the interrelations between members should be active (Kozinets, 2010, 2018). These evaluations require an important adaptation of netnography to the online brand community research. Therefore, according to these online community selection criteria and the nature of the research question, the target online brand community should be an open, accessible, and attractive online community that allows members to develop PO in this context. Based on these community selection criteria, the Ferrari online community (FerrariChat.com) was found to fit the research. It is an online brand community of Ferrari car owners as well as people who are big fans of Ferrari cars. This community has 163,580 members who discuss different aspects of Ferrari cars. The product owners, as well as non-owners, share their experiences and the charms of the

cars with each other, creating a half-million discussion threads in the online brand community. Most importantly, there are community members who show PO feelings towards the community, which specifically fits the present research context.

FerrariChat is open to the public to visit. The community members' posts are also available to online visitors. Online observation took place to identify the participants. The researcher first observed the communications among the online brand community members and identified the individuals who actively contributed to the group discussion and consistently claimed the community to be 'mine' or 'ours'. Based on the literature (Dyne & Pierce, 2004; Pierce et al., 2001), the possessive words 'my community' and 'our community' were used to identify those online members who potentially qualified for research participation.

Once the primary researcher had observed these posts to identify potential research participants, observation focused on those who claimed the community to be 'mine' or 'ours' to collect the interaction history with similar others. From the observations, the primary researcher was able to identify those who continually claimed the FerrariChat community to be 'my community' or 'our community', or similar comments (e.g. the community is 'mine' or 'ours'), which reflected their PO feeling towards the online brand community. In total, nine online members were identified as participants for the research. Their online brand community posts were retrieved, collected, and documented for thematic data analysis.

3.4.2.3 Projective technique justification

Under the post-positivist research paradigm, more data resources were required to address the first two research questions. Thus, this qualitative phase also adopted another inductive research approach from a person-centred perspective to understand the research participants' own online brand community experiences, thoughts, and feelings to reveal aspects of the PO phenomenon. PO reflects an individual's psychological state which is affective and cognitive. In some cases, online brand community members might be unaware of their psychological feelings and their underlying motives. Projective techniques can help to understand consumers' real thoughts, feelings, and motivations, and to access members' unspoken values by getting them to comment on the research issue indirectly (Donoghue, 2000; Haire, 1950).

Collage-making is an expressive projective technique that allows research participants to convey their experiences, feelings, and emotions by combining various

materials such as images, photographs, or words to create a collation of items (Belk et al., 1997; Costa et al., 2003; Koll et al., 2010). Collage construction is relevant to this study for several reasons. First, the collage method makes representation of the mental state available to the researcher (Koll et al., 2010), where consumers' thoughts and feelings are image-based, rather than word-based (Zaltaman & Coulter, 1995). Therefore, the use of collage-making can help researcher to gather consumers' innermost feelings and their insights to achieve the research objectives.

Moreover, the collage method can help researchers avoid consumer reluctance, rationalisation, and social desirability (Belk et al., 1997; Koll et al., 2010). For example, some research participants would rather not tell their innermost feelings to the researcher as they don't feel comfortable communicating with strangers (Donoghue, 2000). Thus, they may be reluctant to share their true feelings with the researcher. Sometimes, the research participants are unaware of their innermost feeling, underlying motives, psychological states and their sentiments of the research questions (Donoghue, 2000). Therefore, it's hard for them to provide reliable responses to the research questions. Moreover, in some typical research, the participants tend to offer their responses that they believe to be socially acceptable and able to satisfy the researcher's desires of a reasonable answer. Thus, their answers may influence the data accuracy of the research. On the other hand, collage method is one of the projective techniques to use indirect materials to covert the participants' innermost feeling to the third party of research objects (e.g. images, photographs). This method helps to overcome these research participants' communication barriers (Donoghue, 2000; Koll et al., 2010). Thus, this research method can help researcher to reach the participants innermost feelings to understand their psychological experiences, offering accurate data to the research.

Past studies have utilised this technique in online consumer behaviour research to uncover consumers' latent insights, such as to identify consumer innermost desire or self-identity (Belk et al., 1997), consumer knowledge (Koll et al., 2010), consumer hidden needs (Costa et al., 2003), and the meanings of online consumption to consumers (Cotte & LaTour, 2009). Therefore, this technique was regarded as appropriate to discover online consumers' psychological state through direct comments and elaboration of the research topic.

The collage method is often combined with in-depth (Belk, 2016) or focus group interviews (Costa et al., 2003) or a short explanation of the collage in a verbal (Havlena & Holak, 1996; Koll et al., 2010) or a written form (Belk et al., 1997). In-depth interviews enable a higher quality of research sampling compared to other methods (Boyce & Neale, 2006; Johnson, 2011), and is useful when researchers want to explore new issues in depth (Boyce & Neale, 2006). Seidman notes that “at the root of in-depth interviewing is an interest in understanding the lived experience of other people and the meaning they make of that experience” (2013, p. 9). An in-depth interview seeks a “deep” understanding of real-life phenomena in certain events or places (Johnson, 2011). The in-depth interview was seen as helping the researcher gain a deep understanding of the PO concept through conversations with the online brand community members concerning their real-life experience in their communities. Further, in-depth interviews are often used with other data to provide a complete picture of the research issue (Boyce & Neale, 2006). Combining face-to-face in-depth interviews with the netnography data provided a greater understanding of participants' perspectives on their PO feeling. Additionally, the collage projective technique provided a more detailed context for consumers' PO states.

3.4.2.4 Projective technique participants identification and data collection.

To select the right participants for the projective technique research process, people who were a member of any online brand community were targeted. At the same time, a set of selection criteria was applied to participant selection for the collage-making task and in-depth interviews. Based on the PO literature (Dyne & Pierce, 2004), several specific statements (as listed below) were used to identify those online members who were potentially qualified for participation:

This is MY brand community.

I sense that this community is OUR community.

I feel a very high degree of personal ownership of this brand community.

I sense that this is MY (brand) community.

This is OUR community.

Most of the people that are in this community feel as though they own the community.

It is hard for me to leave MY/ OUR community.

A recruiting advertisement that contained the research introduction, research aims, research recruitment criteria, and researcher contact details was posted on

Facebook and various online brand communities to recruit participants. To further confirm the eligibility of research participants, the researcher also asked for potential participants' online community posts that contained statements similar to the above criteria as evidence. The participants were also recruited using snowball sampling until it reached the point at which theoretical saturation was achieved (Glaser & Strauss, 1967). In total, 10 participants were recruited for the collage task and in-depth interviews.

In total, 10 semi-structured interviews were conducted to collect data. Open-ended questions were used throughout the interview. A semi-structured interview guide containing four aspects of the interview questions was used. The collage-creating session and in-depth interviews were conducted in a private interview room at Auckland University of Technology. The process lasted one to one and a half hours.

During the interviews, a set of general questions about participants' online brand community participation experience was asked to warm up the interview setting gradually. As PO is an affective and cognitive concept, the opening questions also aimed to help the participants recall their online brand community life and stories, and slowly approach their sense of PO towards the community. Next, a collage task was given to the participants, allowing them sufficient time to collect photos or images from the sources of their choice without time pressure. The participants were given instructions and were asked to choose pictures or photos that described their understanding of PO towards the community as part of creating a personal collage that represented their understanding of the PO feeling. Once the participants understood the collage-making instructions, the researcher walked away to give participants time, space, and freedom to create the collage without time pressure. The participants used their creativity to decide what pictures or photos to include and how the collage was to look. Once the collage creation was completed, the researcher was informed and came back to continue the interview.

Subsequent in-depth interviews were then conducted to discuss the meanings of the collages, participants' sentiments, and their stories behind the chosen pictures or photos of their collages. The interviews were about 45 minutes to one hour in duration, with an average time of one hour per interview. The pictures and photos that the informants chose were used as a prompt to guide the conversation as well as to draw out key information from the participants as they endeavoured to interpret the image

(Harper, 1998, 2002; Heisley & Levy' 1991; Ryan & Ogilvie, 2001) based on their understanding of the meaning of PO of the online brand community.

After the collage part of the interview, the researcher also asked the participants to summarise their understanding of PO, by using words and phrases to describe the key meaning of PO. This was expected to prompt further discussion on the nature of PO feeling with the community and to give the researcher keywords to summarise the key dimensions of the concept (the full interview guide is attached in Appendix B). The order of questions from the interview guide was not set. The interview guide contained broad-ranging questions to lead the conversations; commonly, probing questions were used to clarify and further elaborate on the participants' responses to an interview question, such as "What do you mean?" "Why do you say that?" "How do you feel about it?" "Can you tell me more about it?". The interviews were audio-recorded and transcribed for data analysis.

To summarise, the first research inquiry included two qualitative research methods: netnography of online brand community observation and a collage projective technique with in-depth interviews. Data were gathered and analysed with NVivo software. The following section details the data analysis process.

3.4.2.5 Data analysis for the qualitative research enquiry

The two qualitative data sets were combined and analysed by using thematic analysis to identify potential themes used by participants to express PO in the online brand community. NVivo12 software was used to manage the unstructured data as well as to link and search the different sources of the data.

3.4.2.5.1 Thematic analysis justification and process

Thematic analysis was chosen for several reasons. First, thematic analysis can help researchers to identify the key themes related to the research topic and to reveal the true meaning of a concept (Braun et al., 2018). It is a good approach to analyse a set of qualitative data (Braun et al., 2018). As one of the aims of the present research was to explore the meaning of online PO, this data analysis process was suitable for the qualitative research and was able to help the researcher explore the conceptual meaning of PO within the chosen context. Secondly, this data analysis approach can be used to describe the lived experiences of particular social groups (Braun et al., 2018). The present research chose to study a particular social group, that is, online brand community members and their lived experience, and to unpack their understanding of

their PO feeling towards the community. Thus, this analysis approach was appropriate for the data analysis inquiry.

Braun et al. (2018) describe thematic analysis as “a method for identifying, analysing and reporting patterns (themes) within the data” (p. 79). The present research also aimed to discover the online dimensions of PO. This data analysis process helped the researcher to discover the PO dimensions from the emerged themes and to establish the PO dimension structure from the qualitative dataset. A reflexive thematic analysis approach was chosen in the present research. A group of themes were coded as meaning-based patterns. These themes were then conceptualised based on the output of coding to help the researcher to develop an understanding of the patterned meaning of PO across the datasets.

Further, the data were analysed at the latent level of thematic analysis, which went beyond the semantic content of the data (Braun et al., 2018). The researcher took an active role in the interpretative works by identifying and examining the underlying meanings, assumptions, and conceptualisation in order to theorise the meaning of PO in the online brand community context. The researcher followed the thematic analysis guide recommended by Braun et al. (2018) (see Figure 3.2 below).

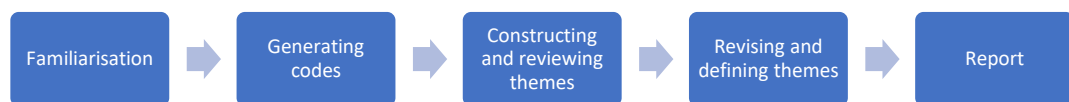


Figure 3. 2 Thematic analysis process

The first step in the thematic analysis process is familiarisation. The researcher listened and relistened to the interview audio data, then read and reread the transcripts and the online posts to engage with the data, making notes of the interesting features of each piece of the dataset. By having the research questions in mind, the researcher became familiar with the data and considered the links between the research participants, the data, and the literature.

After becoming familiar with data, the coding process was continued with a focus on the meaning throughout the two datasets to generate codes from the data. The researcher started from the data with an inductive orientation of the “bottom-up” process to identify the meaning of the data conveyed (Terry et al., 2017). The coding moved from a semantic level, which looks at the surface and explicit meanings of the

data, to the conceptual level of meaning, which is the deeper and simpler meaning of the data, to extract underlying connotations of the themes beyond the obvious.

After the coding process, potential themes were developed. The construction of the themes started by collating similar codes. A thematic map was used to explore potential themes and subthemes. Based on the meaning of each code the candidate themes were merged at an earlier stage. The candidate themes were then reviewed based on their relation to the research question and the nature of the data set, with an aim to keep the good themes that revealed an insightful story about the data and the research questions.

Once the themes were constructed and reviewed, the phases of revising and defining the themes began with the aim of understanding the central organising concept and boundaries of each candidate theme (main theme and subthemes). Each theme was reviewed and revised to make sure the codes were related to a single central concept. The primary researcher also discussed the themes with a panel that contained 11 marketing lecturers in her department to gain more opinions on the topic. This process helped the researcher to clarify the essence of the themes and the scope of the themes. The themes were given definitions and names based on the central meaning of the themes and their scope, to ensure these themes captured the meaning of the data and addressed the research questions.

When starting to write the results, the research questions and the data were linked and considered. The data analysis results will be reported in Chapter 4 to answer the research questions.

3.4.2.6 Trustworthiness of the qualitative research enquiry

A two-dimensional framework was used to identify appropriate validity procedures for the present study. Creswell and Miller (2000) suggest using different validity procedures in qualitative research inquiry, that is, different perspectives from a paradigm lens – the lens of the researcher, the lens of the study participants, and the lens of people external to the study. Triangulation, member checking, and audit trail procedures were used in the present research (Creswell & Miller, 2000) to support the research reliability and validity.

Triangulation is a validity procedure where the researcher uses different sources of data to form themes in the research (Creswell & Miller, 2000). The present study was

undertaken under the post-positivism research paradigm assumption/lens and was designed to use different data resources to address the research questions.

Member checking has been suggested as a crucial technique for establishing the credibility of qualitative research (Lincoln & Guba, 1985; Marshall & Rossman, 2014). It requires taking data back to the participants to confirm the credibility of the information in the qualitative study. There were two types of data collected in the present research. The online data were directly retrieved from the FerrariChat online brand community using the research participants' original posts. The researcher retrieved these original posts without changing any content. A comparison of the raw data and the original posts confirmed data validity. The collage and interview data were transcribed and shown to the participants to comment on the accuracy of the raw data. The researcher also emailed participants 1, 2, and 10 in order to review the thematic analysis emergent themes, to check the realistic and accurate aspects of the research results, and to validate the credibility of the data interpretation.

An audit trail is the third way to involve externals to validate qualitative data analysis. This process is aimed to determine the trustworthiness of the research findings (Creswell & Miller, 2000; Lincoln & Guba, 1985; Marshall & Rossman, 2014). In the present research, a second coder became involved in the thematic coding process. NVivo software was used to track the memos of the analysis process from these coders and to maintain a trail of pieces of evidence of coding. The research results from coders were compared and discussed to validate the codes and themes. Once the themes and codes were finalised by these two coders, a judging panel of 11 senior marketing researchers from the Marketing Department of Auckland University of Technology was involved in evaluating the face validity of the item statements developed in the qualitative phase of the research. The researcher presented the qualitative codes, themes, and potential scale item pool to the judging panel who provided an external audit trail to these documents.

3.5 Research phases two and three – Quantitative research enquiry

This section explains the quantitative research design which covered two research phases. Research phase two aimed to address the second research objective of PO scale development. Research phase three focused on the implication of the scale to test the effects of PO on consumers' online brand community commitment, brand attachment, and brand commitment.

3.5.1 Method justification

The scale development process aims to establish a measurement for the construct. Measurement is defined as the assignment of numerals which is perceived as objective, quantitative, and statistical in nature (Golafshani, 2003). The process of measurement involves “rules for assigning numbers to objectively represent quantities of attributes” (Nunnally, 1967, p. 2). Thus, during the measurement development and validation process, a quantitative research method is more suitable to assess the statistics and numbers to determine the validity and reliability of the scale and the model (Amaratunga et al., 2002). Further, a quantitative research method allows a broader study to enhance the generalisation of the results (Singh, 2007). The present research developed both PO dimensions and item statements measuring online PO though a qualitative study. It was essential to use a quantitative research method to further test validation and reliability by using a larger sample to enhance the accuracy of the results and support the generalisation of the results.

Similarly, to achieve the third research objective, the present research needed to use the scales developed in the literature and the present study to examine the relationship between these constructs. This involved statistical estimation and mathematical modelling and examining the relationship between variables. The quantitative research method is suggested to be especially useful to test and examine this statistical information (Amaratunga et al., 2002). It also allows the researcher to use a predetermined scale to test hypotheses (Golafshani, 2003). The use of the quantitative approach fit the nature of the third objective in which the relationship between PO (a scale development from phase one of this study) and constructs including online brand community commitment, brand attachment, and brand commitment (measured by pre-determined scales adapted from the existing literature) was examined.

To sum up, the quantitative method fit the nature of the second and third research objectives. It was used in phase two and phase three of the research. The following sections detail the quantitative research design including the scale development inquiry and the PO effect testing inquiry.

3.5.2 Research phase two–Scale development enquiry

This section covers two research phases – scale development inquiry in research phase two and PO effects testing inquiry in research phase three. Considering that the scale development process combines qualitative and quantitative methods (Hair et al.,

2010; Hair et al., 2019), the finding from the qualitative phase informed the conceptual domain of the construct and potential measurement items pool for each dimension. For scale development, a deductive approach of quantitative research methods was employed.

Factor analysis has the advantage of measuring the relationships between measuring items and the proposed constructs (Hair et al. 2019). The marketing literature uses factor analysis to determine the number of dimensions underlying a construct (Churchill, 1979). Specifically, exploratory factor analysis (EFA) can be used to identify the broader underlying dimension of a construct, to achieve the primary purpose of defining the underlying structure among the potential items in the analysis to inform a proposed scale (Hair et al., 2010; Hair et al., 2019). Confirmatory factor analysis (EFA) can be used to purify and validate the proposed scale (Hair et al., 2010; Hair et al., 2019). The present research utilised these two factor analysis methods to develop and validate a measure for the online PO construct.

Churchill (1979) suggests a scale development procedure involving eight specific steps: specify the domain of construct; generate a sample of items; collect data; purify the measure; collect data; assess reliability; and assess the validity and develop norms. The present study was designed based on this procedure.

3.5.2.1 Specify the domain of the PO concept

The first step of the procedure was specifying the domain of the PO construct, which required consulting the literature to define the construct. In this thesis, the past PO literature guided the primary researcher to design a qualitative research query to explore the theoretical meaning of PO within the online brand community, as described above in section 3.4.3. The results of the qualitative study aimed to provide an explanation of the PO definition and its theoretically domain.

3.5.2.2 Generate a sample of items

The second step in the procedure is to generate the items that capture the domain as specific (Churchill, 1979). Again, the results from the previous qualitative phase in the present research suggested the potential dimensionality of the construct. The thematic analysis results of the themes and codes helped to identify the specific keywords and phrases from the posts and the interview transcripts to represent a sample of items to measure the construct. This set of items tapped each of the dimensions of the construct.

Churchill (1979) suggests that this sample of items needs to be refined or to include more items with slightly differentiated shade meaning. Thus, this item list was forwarded to a research panel that included 11 marketing scholars from the Marketing Department of Auckland University of Technology. The items were reviewed for their ability to capture the widest range of possible descriptors of the possible dimensions of the construct. The panel evaluated the list for completeness and discussed adding or removing items from the list. Based on the input of the expert panel, the list of items was refined.

Churchill (1979) suggests reviewing the literature on the constructs to see how the variables are defined and measured to support the item generation process (1979). Specifically, in this thesis, the literature relating to the proposed dimensions was reviewed alongside the list of items generated in the process of finalising the pool of items representing the construct of PO and its dimensions. In summary, a set of items was generated from a qualitative study and the past literature for further scale development.

3.5.2.3 Purify the measure – Exploratory factor analysis

DeVellis (2017) noted that “a set of items is not necessarily a scale” (p. 143). The items that load to no variable or many variables need to be purified through factor analysis. To determine the unidimensionality of this set of the measurement items, EFA and CFA were conducted on the PO scale development to purify and validate the proposed measuring items of the construct. The following section details the factor analysis study. As the pool of items was a mixture of the qualitative research results and the items developed from the existing literature, it was necessary to explore the data to check if these items were grouped under each measured dimension. The exploratory factor analysis aimed to purify the sample of items and examine the PO dimensionality by checking if these items were grouped under each measured dimension, and to identify problematic items. This process also enabled the researcher to check the reliability of the qualitative results by seeing the dimensionality of the construct and consistency of drafted measuring items.

3.5.2.3.1 Sample and data collection

Hair et al., (2010, 2019) suggest sample size rules of thumb must be more observations than variables, and require at least 50 observations. The desired ratio of five observations per variable has been suggested for EFA (Hair et al., 2019). In total,

there were 42 measuring items finalised from the scale development step. Therefore, a data size of 210 responses was adequate for the EFA analysis.

A survey was designed and contained six main parts: 1) information of community participation experiences (e.g., the name of the online brand community, participation time, and frequency); 2) two screening questions; 3) items to measure the individual level of PO; 4) items measuring the collective level of PO; 5) scales measuring consumers' online brand community commitment, brand attachment, and brand commitment; 6) the demographic information of the survey informants. All measure items asked participants to indicate how much they agreed with the item statements on a 7-point Likert scale (see questionnaire in Appendix F).

The questionnaire was designed using Qualtrics survey tools. The survey link was sent to the reputable research company panel CINT to recruit participants from the United States (US) with a diversity of demographic backgrounds and various online brand community participation experiences. CINT hosts 50 million registered consumers worldwide. It maintains 1,500 panels and community owners for sharing and accessing consumer data. Consumers can create accounts on CINT's platform by providing their profile information and contact details voluntarily. The survey links were sent through the panel to the registered consumers via emails or the OpinionAPP when the consumer profile matched the requirements of the survey.

Consumers who had online brand community participation experiences were invited to join the survey. Participants started the survey by clicking the survey link to give their answer to each question. The screening questions ensured that only people who reported having PO feelings towards their online community were able to complete the survey. The survey link was also connected to the research company recruiting panel to ensure the number of completes was controlled. Once the number of enquired responses was achieved, the researcher downloaded data from Qualtrics to analyse the data. Eventually, a sample of 418 responses was collected from the research panel. Based on the EFA desired data size, the sample was split into two subsamples. For EFA, a subsample of 212 responses was randomly split from this sample and was used to explore the dimensionality of the construct.

3.5.2.3.2 Data analysis

EFA was conducted to help the researcher to achieve data summarisation by examining the dimensionality of the construct (Hair et al., 2010). Based on the EFA

results, the researcher was able to view the set of items to check how the individual items were grouped and how they represented collectively in the expression of the relevant concept of PO at two levels (Hair et al., 2010). The researcher adopted an EFA development process guide from Hair et al. (2010) as stated below:

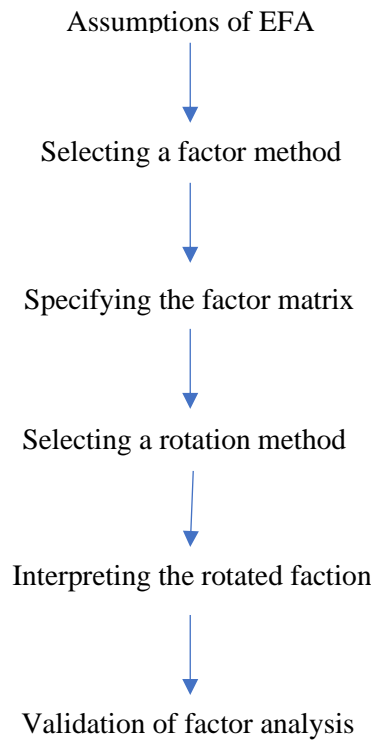


Figure 3. 3 The EFA development process guide

3.5.2.3.3 Test assumptions of EFA

Missing data could cause pervasive problems in data analysis (Tabachnick & Field, 2007). The present research data were collected through the CINT research panel and the number of completes of the survey was controlled by the researcher. There were missing data for the participant demographic information, but no missing data for other survey questions.

Univariate detection was used to examine the outliers from the distribution of each variable in the dataset; the standard score was calculated for each variable. According to Hair et al. (2010), for a small sample that contains 80 or fewer observations, a standard score of 2.5 or greater is used to identify the outliers, but for larger samples like the present research (213 observations), the threshold value of the

standard score can be increased to 4. Thus, the threshold value of ± 4 was used in the present study to detect the univariate outliers from the data.

Multivariate detection was examined by using the Mahalanobis D^2 measure to assess each observation across a set of variables (Hair et al., 2010). It is used in a situation when multiple variables need to be objectively measured, and the multidimensional position of each observation is related to some common points (Hair et al. 2010). Higher D^2 values represent observation distant from the general distribution in the multidimensional space, which can be identified as an outlier from the dataset. Further, it is suggested to use t value ($t = D^2 / df$) to check the conservative level of the significance of outliers. The rule of thumb of the t-value for a small sample is less than 2.5 to detect outliers, and in a larger sample, 3 or 4 are the threshold value (Hair et al., 2010). By considering the size of this dataset, 3.5 was decided as a threshold value for the significance level of an outlier in this multivariate detection.

Hair et al. (2010) also suggest four important statistical assumptions that potentially affect the accuracy of the test results. Before running any multivariate analysis (e.g., EFA or CFA), four important statistical assumptions need to be tested in the dataset – normality, homoscedasticity, linearity, and absence of correlated errors.

Normality has been discussed as a fundamental assumption for multivariate analysis. It is decided by the sample size and the shape of the distribution of the data measured by kurtosis and skewness (Field, 2018; Hair et al., 2010; Hair et al., 2019). Both Hair et al. (2010) and Field (2018) suggest that in large samples (e.g., 200 or more), the normality matters less (sometimes not at all) and the test of normality is more likely to be significant, causing issues with the dataset. Field (2018) suggests that “if your sample is large, do not use significance tests of normality” (p. 187). Curran et al. (1996) suggest that significant problems only arise with higher than univariate skewness of absolute value >2.0 and kurtoses of >7.0 in multivariate normality test with a large sample (200 and more). The sample size of the present study was 212, which is larger than 200. Thus, the normality of the data would not affect the factor analysis results if the skewness and kurtosis were lower than the cut off values.

Homoscedasticity is the assumption that “the variables exhibit an equal level of variance” (Hair et al. 2010, p. 74). It is tested graphically in multiple regression by examining the dispersion of the degree of variation between variables in boxplots. Hair et al. (2010) suggest that most cases of heteroscedastic are the result of non-normality in

one or more variables, but may not be needed based on the sample size. Again, the present research recruited a sample size of 212 – bigger than 200 – so that the impact of homoscedastic was diminished. Correlated errors arise from the process that might create substantial bias in the results (Hair et al., 2010). This assumption needed to be addressed during the factor analysis process.

Linearity is normally examined with bivariate scatterplots of the variables to identify no linear patterns in the data (Hair et al. 2010). However, the present study included a large number of variables. It was a practical challenge for the researcher to compare each pair of variables. Thus, the researcher randomly selected some of the variables to examine the linear relationship among these variables (Ullman, 2014). These scatterplots showed a linear relationship among variables (see Appendix G).

Before factor extraction, the researcher used two main tests to assess the suitability of the data for factor analysis. A statistically significant ($p < .05$) Bartlett's test of sphericity was retained to ensure the measurement of sufficient correlations among the variables. A Kaiser-Meyer-Olkin (KMO) test was conducted to measure sampling adequacy, in which the value must exceed 0.50 for each item, and for the overall construct, a higher value of 0.8 is desired to confirm the sample adequacy and sufficiency.

3.5.2.3.4 Selecting factor method

The two most common factor extraction methods to define the factors or components to represent the constructs are principal components analysis (PCA) and common factor analysis (PAF) (DeVellis, 2017; Hair et al., 2010; Hair et al., 2019). Among them, PCA captures much of the original data information from a larger set of items; the components extracted by using this technique are characterised as weighted sums of the original items (DeVellis, 2017; Hair et al., 2010). Thus, the extracted components from the data are the products of the items, as they are defined by how the relevant items are answered. On the other hand, PAF captures the composites that represent a hypothetical variable and estimates the structure of this error-free variable determined by a set of items. Therefore, the factors extracted by using this technique are the estimates of hypothetical variables that represent causes of the item scores but not their effects (DeVellis, 2017). The significant difference is that the PCA explains the portion of total variance among the items, whereas PAF accounts for the shared or common variance among the variables (DeVellis, 2017; Hair et al., 2010). It has been

suggested the computational difference between these two techniques is minor (DeVellis, 2017).

When the objectives for this study and the prior knowledge of the variance in the variables were considered, PCA was the best choice, as it allowed the researcher to look at the total variance (Hair et al., 2010) of each dimension of PO, and to summarise the structure of the measuring items developed from previous research phases related to the variables. It helped the researcher to predict how well the items developed from the qualitative research phase could explain the components (dimensions) for the PO construct to confirm that the dimensionality from the qualitative research phase makes sense. Again, as the two factor extraction methods are widely used in marketing research, PAF was also used to compute the shared variance among the items to compare with the findings from PCA to see if they could produce identical results.

As the qualitative research results suggested the number of factors to extract for both levels of the PO construct, the EFA analysis used this extract number as the predetermined number to extract the factors. At the same time, the researcher also compared the results from the initial factor solution with eigenvalue (> 1.0) to see how many factors were needed to represent the data best.

3.5.2.3.5 Selecting rotational methods

A factor ratio can help researchers to simplify the factor solution and the analysis results before interpreting the factors or components and the grouping of the items (Hair et al., 2010; DeVellis, 2017). However, Hair et al. (2010) suggest that there are no specific rules in selecting one method over another. Two common rotation methods were considered: orthogonal rotation and oblique rotation (Hair et al., 2014; De Ville, 2017). However, choosing between these two rotation methods depends on theoretical considerations. If theory strongly suggests the concepts are correlated in the literature, the oblique rotation technique is the best choice, as it is useful when the underlying latent variables are believed to correlate with one another. Alternatively, the theory might suggest orthogonal factors where they are independent of each other. In the present research, the oblique rotation method made sense in this case, as it has been often used in human behaviour research (DeVellis, 2017). Also, some of the constructs in this study have been discussed as correlated to each other, such as a sense of belonging, trust, and pride. Thus, oblique rotation was selected as the factor rotation

method for the construct of the PO as it was regarded as more appropriate for this research.

3.5.2.3.6 Judging the significance of factor loading

Hair et al. (2010) suggest that the variables with a loading range between ± 0.3 and ± 0.4 are considered to meet the minimal level for interpretation of structure, and ± 0.5 or higher are considered practically significant. DeVellis (2017) suggests a sustainable factor loading of $> .65$ to decide if the items tap on one variable. It is also recommended that the significant factor loading needs to be considered based on sample size. In a larger sample (> 200), a factor loading of $.40$ and above is considered necessary for significance (Hair et al., 2010). Therefore, based on these suggestions, the rules of thumb for judging the significance of factor loading in this research are:

- 1) The items with factor loading greater than 0.5 are considered to be significant; if the factor loading was greater than 0.7 , these items can be identified as very important items. Thus 0.7 is desired the factor loading cut off value in this analysis.
- 2) If an item shares a factor loading above 0.4 on two factors, it can be identified as a cross-load item.
- 3) If items fail to load on any factor significantly (0.4), the item is considered to be removed from the item pool and EFA is rerun.

3.5.2.4 Assessing reliability and validity

According to Hair (2014), scale convergent validity, reliability, and discriminant validity should be examined to assess and validate scales. After EFA, the items were tested with internal reliability. This is an assessment to test the consistency between multiple measuring items of one variable (Hair et al., 2010, 2018). Based on the EFA results, Cronbach's alpha of each item and its total correlation for the factor were checked (Cronbach's alpha $> .7$, item to total correlation $> .5$) to ensure the internal consistency of each dimension (Hair et al., 2010, 2018). The closer Cronbach's alpha coefficient is to 1.0 , the higher the internal consistency of the items in the scale to confirm the reliability of the scale. Further, the convergent validity of the measurement with a standardised factor loading to each construct must exceed $.70$. Also, the value of the Average Variance Extracted (AVE) should be greater than 0.5 . The reliability of the scale was verified with Composite Reliability (CR), which must be greater than 0.70 .

The discriminant validity is measured with the square of the corresponding correlation coefficient between any two constructs, which should be lower than the AVE value for each construct. Alternatively, the discriminant validity can also be measured by setting the value of relationships between two constructs of 1.0 (Hair et al., 2010). The researcher can also change the model to one in which all the items are indicators of only one latent construct to compare the model fit with the original model fit indices. If the differences are significant, it suggests the model has discriminant validity. In the present study, the researcher compared the AVE value of any two constructs with the square of the correlation between these two constructs to determine the discriminant validity. An alternative technique for setting the relation between constructs to 1.0 was also used to support the discriminant validity of the construct.

3.5.2.5 Confirmatory factor analysis

To assure the validity of the scale, CFA was applied by using Structural Equation Modelling (SEM) to evaluate the scale and to assure the factor structure relation was satisfactory. The most direct method to validate the results from EFA is confirmatory analysis (Hair et al., 2010).

Hair et al. (2010) suggest CFA as a tool to enable researchers to either confirm or reject the preconceived scale. It is used to confirm the pattern of relationships that develop from the theory or previous analytic results (DeVellis, 2017). Especially in scale development, it is used to test the extent to which the theoretical pattern of the factor loadings on each factor represents the actual data. The results from CFA can inform researchers how well the theoretical specification of the factor matches the reality. The CFA was applied to this study to provide a confirmatory test of the measurement theory proposed from EFA.

EFA was used as a first step to look at the dimensionality of the construct PO in the research context. After EFA results reported on how measured variables logically and systematically represent each factor, the CFA was used to examine factor analytic problems (Gorsuch, 1983, p.134) that had been identified from EFA, and to further purify the measuring items for each factor and modify the whole scale to achieve a good model fit to the data.

3.5.2.5.1 Sample and data collection

The sample of 212 responses was used to explore the dimensionality of the construct using EFA as described in the previous section. Since the measuring scale had

not changed anything from the data, the same set of data was used in CFA. Thus, this sample of 212 participants was used to further purify the measuring scale accuracy. Again, as these participants were from a range of online brand communities and diverse backgrounds, it reflected the generalisability and quality of the sample for this study.

During the CFA analysis, the researcher paid attention to the factor problems to further purify the measurement scale. Note that the CFA analysis was designed to focus on the five key dimensions for the individual level of the PO construct and three key dimensions for the collective level of the PO construct.

3.5.2.5.2 Specifying the measurement model

The SEM confirmatory technique is used in the measurement purification process as it allows the researcher control over how to place items and factors when analysing a hypothesised model, and how to examine the competing model to identify which hypothesised model fits the data better (Hair 2019). In this research, the CFA was conducted using SEM software – IBM Amos 25 – to set the scale of the latent factors. The study began with the graphical interface to draw the model, drag the measuring variables into the model, and run the analysis.

Each construct was examined by computing the co-relationship value between the measure items and the latent factors to assess the identification of the constructs. Once the constructs were specified, the dimensions of the individual level of PO and the collective level of PO were put into the software to specify the measurement model. In the proposed scales, all measured items were hypothesised as reflective; the direction of causality was from the latent constructs to the measuring items and was allowed to load on only one construct. The sample size was computed ready for model estimation.

3.5.2.5.3 Assessing measurement model validity

Once the measurement model was specified and sufficient data collected, testing of model validity proceeded based on the goodness-of-fit (GOF) model and the evidence of construct validity (Hair et al., 2010, 2014).

Hair et al. (2010) recommend using multiple fit indices to assess the model fit and to include the critical value of Chi-square of GOF, one absolute fit measure, one incremental fit, one goodness fit index, and one badness of fit indices. Specifically, in the present study, a combination of the χ^2 GOF statistic, CFI, SRMR, and the RMSEA value could provide enough information to evaluate the model fit in the SEM program.

By considering the sample size of n=212, the value of 0.90 and above was expected, and a less than 0.9 SRMR value and a less than 0.8 RMSEA value were expected to be combined with the CFI value to suggest a desired model fit (see Table 3.2).

Table 3. 2 Criteria for Assessing the Fit of the CFA Solution

Characteristics of different fit indices	GOF
χ^2	Significant p-value expected
CFI	Above 0.90
SRMR	Value <0.08
RMSEA	Value <0.08

(Hair et al. 2010)

Construct validity of the dimensions was also assessed to examine the extent to which a set of the measuring items reflected each latent construct. Hair et al. (2010) suggest examining convergent, discriminant, and nomological validity to confirm the construct validity of the measurement.

Convergent validity begins by examining the standardised factor loading. If all loadings in the model are highly significant, the result provides a convergent validity of the measurement model (Hair et al. 2010). In the present study, the rule of thumb for the standardised loading is at least 0.5, and preferably 0.7 and above to ensure convergent validity. The discriminant validity was examined by comparing the AVE values with the correlation coefficient between constructs or setting the relationship among the items to form different models and to identify the significant difference between these models (see section 3.5.2.5). It has been suggested that the correlation matrix is used to check the nomological validity of the construct (Hair et al., 2010). The correlation factor score for each construct should be positively related to one another. In the present study, the correlation factor score of each scale item was calculated and compared to support nomological validity.

3.5.2.6 Assess reliability and validity of CFA

To further validate and confirm the scale for measuring PO, the CFA measurement model was replicated without further model modification to cross-validate the findings. A second sub-dataset containing a sample of 206 responses, which initially was divided from the 418 samples, was used in this cross-validation CFA analysis.

This CFA scale validation procedure was identical to the previous CFA analysis procedure. The data were examined to identify missing data and outliers, assess normality, linearity, and homoscedasticity among the variables, and were ready for the CFA analysis. Again, SEM was used as the data analysis method to confirm the measures of the PO measurement model.

The model fit results were compared with previous CFA results to validate the scales. If the results from the second sub-dataset are relatively consistent with each other, it is easier to assume these values on the scale are not distorted by chance (DeVellis, 2017). Hence, the validity of PO dimensionality and scales were confirmed. The results from this research phase addressed the second research objective and answered the third research question.

3.5.3 Research phase three–PO effects testing enquiry

The previous research phase validated measurements of both the individual level of PO and the collective level of PO in online brand communities. The third research phase aimed to use these validated scales from the previous research phase to test PO's effects on consumers' online brand community commitment, brand attachment, and brand commitment. Four main hypotheses were developed and a conceptual framework was presented. A structural model was developed to present the theoretical model of PO with the constructs of consumers' online brand community commitment, brand commitment, and brand attachment. In the model, the individual level of PO, the collective level of PO, and the dimensions were hypothesised to have positive effects on consumers' online brand community commitment. The online brand community commitment was proposed to have a mediation effect on the relationship between PO and brand commitment and brand attachment. IBM Amos 26 SEM software was used to set the model.

The two sub-datasets that were used in the previous scale development process (in research phase two) were combined to test the hypotheses. In total, a sample of 418 responses was used in this research phase to test the online PO effects. Again, the sample was collected through a reputable research panel (CINT) to ensure the quality of the sample for this study. The participants were from a range of online brand communities and diverse backgrounds to reflect the generalisability of the sample.

The data were examined to identify missing data and outliers. The data were also assessed to determine the normality, linearity, and homoscedasticity among the

variables. The internal consistency of the PO measure was examined and confirmed on the combined data. The other measures adapted from past research that related to brand community commitment, brand attachment, and brand commitment were also examined and confirmed by the data. SEM was used to examine the regression weights in the structural model to test the hypotheses. The test results informed the effects of PO on the consumers' brand community commitment, brand attachment, and brand commitment to address the third research objective and to answer the last research question.

3.6 Ethics requirement

The previous four sections have laid out the details of a mixed-method research design for both qualitative and quantitative studies. The research design aimed to best address all the research objectives and to answer all the research questions. Through the overall process, ethics was considered as a crucial part of this research.

First, the posts of the FerrariChat online brand community participants were accessible, as community access is open to the public. Although information on the FerrariChat online community members was obtained, their online brand community IDs were replaced by 'FC participant' in this thesis to protect their online identifications.

Second, no personal information was requested from the collage and interview participants. All of the participants were provided with a participation sheet that included the purpose of the study, the use of data, and the research practice principles before the interviews and the collage making task (see Appendix D). Permission was gained at the beginning of data collection to ensure voluntary participation (see Appendix C). The participants' names were omitted and replaced by a common term 'participant' in the thesis to preserve confidentiality and anonymity.

Third, the quantitative research participants were recruited by the CINT research company. Their confidentiality was also protected by that research company. The researcher was unable to access, obtain, or use any of the participants' personal information. Thus, the participants' confidentiality and anonymity were assured. All the ethical approval documents needed to conduct each of these studies were obtained from the Auckland University of Technology Ethics Committee (see Appendix A & E).

3.7 Chapter conclusion

This chapter has presented a discussion on how best to investigate the research questions and achieve the research objectives. A mixed research method was applied across three research phases, commencing with a qualitative research study to investigate the theoretical notion of the PO construct in the online brand community. A quantitative study with two research phases developed a scale and measured PO effects on online brand community commitment, brand attachment, and brand commitment.

The research design was outlined with a detailed description of the justification of the qualitative and quantitative methods, and the procedures were used in the research. The following chapter will present the results of the qualitative inquiry phase.

Chapter Four: Qualitative Research Results

4.1 Introduction

To recount, the qualitative study aimed to explore the theoretical notion of PO in the online brand community context. Netnography and a projective technique were used to collect qualitative data, including collecting online community members' posts and collage and in-depth interview transcripts. The interview data were collected from 10 participants, who claimed to have PO towards their online brand communities. Online posts were collected from nine FerrariChat online brand community members who were observed to have PO towards the community. The two types of data were analysed by using NVivo software. This chapter presents the results of the qualitative research.

This chapter contains eight sections. Following this introduction, the second section describes two types of research sample. After this, the themes generated from the data are presented in the third section to answer the first research question relating to the notion of PO in the online brand community. The fourth section is a discussion considering the two levels of PO, the underlying motives, the development routes, and their difference from PO conceptualisation in work-related research. Section five presents a PO conceptualisation model. Section six discusses the potential influence of community factors on PO development, followed in section seven by a discussion of two views on PO in online brand communities. Section eight summarises and concludes the chapter.

4.2 Description of the sample

4.2.1 Collage and in-depth interview samples

In total, 10 participants were recruited for in-depth interviews. The selection of these participants was conducted with a purposive criterion sampling procedure. These participants were selected based on their self-reported PO state to "their" online brand community.

Among these participants, half of them were male, and the other half were female (gender ratio: 1:1). They ranged in age from 19-45 with an average age of 32 years old. Participants included three New Zealanders, two Chinese, one Sri Lankan, one Briton, one Samoan, one Vietnamese, and one Egyptian. They had been participating in their online community over a time range from 2 months to 5 years and with an average time of 28.1 months (or about 2 years and 4 months). The online brand

communities that they claimed to have PO towards were a variety of brand categories that included two sports brands, two game brands, two beauty product brands, one clothing brand, one fitness brand, and one online service brand. They visited their community every day to check the community updates or to communicate with other members. In order to protect the anonymity of the research participants, they were named participant 1, participant 2 and so on (see Table 4.1).

Table 4. 1 Collage and In-depth Interview Samples

Participant id	Participant age /gender	Nationality	Online brand community name	Participation time
Participant 1	21/male	New zealand	Bro fc	5 years
Participant 2	22/male	China	Supercell clash royal	2 year
Participant 3	19/male	China	Nike	Half-year
Participant 4	30/male	New zealand	Wot	3-4 years
Participant 5	21 /female	Sri lanka	Nature perfume	5 months
Participant 6	38/female	Egypt	Airbnb	2.5 years
Participant 7	21/female	Vietnam	Tarte	3 years
Participant 8	45/male	United kingdom	Juicy body	4 years
Participant 9	42/female	Samoa	Dream trips	9 months
Participant 10	26/female	New zealand	Vestaire	2 years

4.2.2 FerrariChat online brand community samples

Nine FerrariChat members were observed and identified from the FerrariChat online brand community. As members can hide their true identity by using their online IDs or limiting access to their online profiles to others, the researcher was unable to identify accurate demographic information such as name, age, and gender. They were mainly from the US (8) and Germany (1), with an average participation time of 14.5 years in their brand community, ranging from 8-18 years.

The FerrariChat online community offers a reward of trophy points for valuable posts. The nine members had earned rewards points with a range from 50 to 845 points. They had contributed a total of 98,409 messages over the history of the community discussion, with a wide range of 75 to 49,094 messages and an average of 10,934 messages by each of them. However, not every post was liked by community members. Some of the participants gained hundreds of Likes, but two of them only received 0 or 1 Like (see Table 4.2). Their posts were retrieved from the online community for data analysis.

4.3 Overview of the participation experience

The online community was called a “second life” by the research participants. It was perceived as a place, or a ‘virtual society’, where online community members can explore life together with a group of people who know the same brand. Similar to reality, in this ‘online society’, the community members share their knowledge, opinions, skills, and real-life moments with each other. They discuss information about the community, products, the brand, news, politics, and anything they want to share. They agree and disagree with each other; they like or dislike each other’s posts; they argue and support each other’s opinions; they tease and laugh at each other; they help and remind each other, and so on.

Sometimes, these conversations are highly related to the products and the brands, for example, product usage, product evaluation, and new product introduction. However, along with community development, members feel comfortable with each other so that the topics shared can be more about their daily life, their life experience, or some vital life moments. The product and brand become a cue to bridge their life with other community members.

Table 4. 2 FerrariChat Online Brand Community Samples

Participants ID	Location	Messages	Likes received	Trophy points	Participation time
FC Participant 1	Los Angeles	5326	17	140	15 years
FC Participant 2	New Orleans	75	0	31	8 years
FC Participant 3	Dallas Texas	3205	235	150	15 years
FC Participant 4	Wash Dc	6246	322	195	16 years
FC Participant 5	San Diego	11355	92	250	16 years
FC Participant 6	Charlotte				
FC Participant 6	South Lake Tx	49094	2882	845	18 years
FC Participant 7	Phil Suburbs	5393	68	170	12 years
FC Participant 8	Heidelberg, Germany	16743	49	235	16 years
FC Participant 9	Chicago	972	1	50	15 years

Many participants mentioned that, at the very early stage of joining the community, they were not familiar with anyone in the community. After some time, even though they were still unaware of other community members' real names, real ages, even real appearances, they started to get to know the community members from their online IDs and posts, learning about who they were, what kind of person they were, and their personality. Some participants claimed that they sometimes could ‘tell’

and even predict some ‘particular’ members' reactions and opinions from the posts as they were so familiar with them.

The participants also reported that each community member became familiar with the community characteristics, the community's internal and external relations with other people, and other communities. They also related this information to themselves, and discovered the things they could be involved with, the areas they wanted to approach, and the problems they might have, and the things they were good at. The community gave them a chance to explore themselves and their lives, which made them feel that the community is “their” place and the PO state towards the community formed through this complex process (for full results see Table 4.3).

Table 4. 3 Themes and Codes

Individual level of PO dimensions	Codes	
<u>Sense of gratification</u>	Informational gratification	Fulfil the craving for information
	Companionship gratification	Friendship
		Kill time
	Psychological gratification	Motivation
		Ambitions, desires, opportunity
		Relax
	Entertainment gratification	Funny posts
		Joke with each other
<u>Sense of belonging</u>	Community acceptance	Always invite me
		Accept my idea or opinion
	Responsiveness and support	Always respond to my posts
	Tacit understanding	Work with community members better than others
<u>Sense of trust</u>	Freedom of expression	A safe place to express true feeling
		Express my opinion without being judged
	Reliability	Can rely on community members' suggestions
		Can rely on community members' support
<u>Sense of pride</u>		

<u>Sense of duty</u>	Authentic pride	Be proud of becoming a better person
	Hubristic pride	Be proud of my identity Be proud of helping others Be proud of being capable
		Have a role in the community Feel can help the community
Collective level of PO dimensions	Codes	
<u>Sense of affinity</u>	Closeness	Close to each other Everyone is important
	Mutual benefits	We benefit each other in the community
	Same goal and value	Similar goals Value similar things Share similar characteristics Face similar problems
<u>Sense of unity</u>	Community cohesion	Close like a big family Closely united
	Co-construct and protect	Co-construct the community
<u>Sense of power</u>		Co-protect the community
		Can do things bigger
		Share more resources
		Can overcome the bigger problems

4.3.1 Individual-level of PO

The individual level of PO has been defined as an individual consumer feeling that the target possession is “Mine” (Pierce et al., 2001). For online brand community members, the state of PO can format a very personal moment when they realise that the community is “their” community, which might be triggered by an extraordinary event. It also can be a personal evaluation result after comparing their community with other communities or other people, or an evaluation result of themselves. The data suggests that the individual level of PO towards the community is understood objectively from the consumer’s personal perspective on how the individual consumer feels tightly bonded with the community.

4.3.1.1 Sense of gratification

The first emergent theme from the data was the sense of gratification that individual consumers experience in the online brand community. Research participants

reported that many online brand communities are open to the public, and individual consumers have the choice to join, participate, stay, and leave. The majority of the research participants claimed that they used to be members of other different types of online brand communities, but decided to stay in their “own” community because they felt gratified with the community and its members.

4.3.1.1.1 Informational gratification

When they were asked to describe their PO to the community, all of the participants recalled some stories about how they had benefited from the community and how they felt gratified with all the benefits. They described the experience as “this is my community”, as the state of being gratified by their online brand community participation experiences. This sense of gratification was described in several aspects based on their personal experiences.

For example, participants described their PO towards the community as feeling gratified when other community members fulfilled their needs. By receiving these immediate benefits from the community, they felt satisfied with the gratification of the community members.

“If I just throw a topic or just post a help message, the people in the community will give me all kinds of information and opinions. Then I can analyse and compare this information to solve my problems I can always get things quickly, it’s cool.” (Participant 4-interview)

“In this community, I am like a fish living in this water; I can get what I want. It’s also like there are a lot of creatures in the ocean. There are a lot of things in this community, like the brand and product information, news, prices, product availability and service quality and personal experiences, etc. So, this community can give me all of these, at all the time.” (Participant 7-interview)

“It feels like when I want to buy [shoes], I [would] have to search for relevant information to understand the fashion concept and design of the product [shoes] by myself. Yes, I know I can find it by yourself, but this community can provide all the information and all resources into my search scope. I only need to find the right information from these members. It saves a lot of time and I can directly find the things I need. It’s like if you want to get your stuff, you need to go from here to there, right? But with this community, you can go straight through and get there, very straight, but without it, like you will spend much much more time and detours for many many times to get there. You know, I just love it.” (Participant 3-interview)

This situation was also observed in the FerrariChat online community, where a member asked for a recommendation of a car insurance service, and a group of members gave

immediate responses (within one minute). One participant showed his appreciation in posts.

“Guys, wanted to thank you for all your help and the great suggestions. I ended up going with [name of followers]. It's been a minute... am hoping it is yours!!” (FC participant 1-online observation)

These participants claimed that they were able to find useful information within the community in a quick time. This informational gratification gives a feeling of being in “my place”, and the possessive word of “mine” reflected how the community members fulfilled their information searching needs, reflecting their PO towards the community with happiness and gratification for receiving these informative benefits from the online brand community.

4.3.1.1.2 Companionship gratification

Some of the participants reported that the online community was a place for them to find friends. One participant commented that *“For me, the community is me and my friends”*. They reported that the community contained members who were from different time zones and had different working timetables. They could easily find a friend from the online brand community whenever they wanted to or needed to. They felt happy with the community by knowing that there was always someone available for them.

“Of course, the company. There is always someone playing with me. I always have a companion to chat, talk, someone to accompany. When I get bored, I can find someone to talk to. In fact, there are no actual benefits. A mainly psychological and mental company that I enjoy.” (Participant 2-interview)

Apart from community member companionship, some participants also reported that the information and community contents in the community supported them when they were bored and lonely. The existence of the community allowed them to pass the time away.

It's the world's fastest news site [in the subscribed sections], and most folks here are smarter than me ... which is good for a bored insomniac.” (FC participant 3-online observation)

To sum up, these participants reported that the online brand community not only enabled them to find companionship from the people in the community but also enabled them to access interesting information to kill boredom. Their PO towards the community was reflected by their gratification in being accompanied by these community members and the community contents.

4.3.1.1.3 Psychological gratification

All participants reported that they checked their online brand community updates frequently either on their mobile phones or PCs. Sometimes, they actively took part in the community discussion of specific topics or followed up with group conversations. Sometimes they observed community members' conversations or checked relevant information. Nevertheless, all of them reported that visiting the community had become an essential part of their lives. The existence of the online community enabled these consumers to fulfil their psychological needs. Some of them reported that participation in the online brand community gave them positive influences and energy.

When they were asked for the meaning of PO, participants used the pictures of a pressure release button to illustrate their feelings of PO (as illustrated in Figure 4.1). They further described it as a sense of gratification for the psychological benefits that they received from the community members through online community participation. These psychological benefits included the motivation and the feeling of relaxation they received from the community.

"It's like a burst of sunshine in the dark, nasty day. It's like a special power, that when you were upset or down or feeling blue, the post makes you smile and makes you inexplicably happy." (Participant 5-interview)

"The online community is nice because everyone can get side-tracked during the week, it does pull everyone into a good group, you can remember why you are doing this business. It's hard to work from home on your own when you don't have the environment of people, so day by day, someone can think oh I feel a little bit on my own. Once, twice, three times a week, we will come online together, and it gives you energy, like yes!!! I can do this!" (Participant 8-interview)

"I feel my life is very stressful. But I can get on this community to release it. When I am under pressure, this group has become the hidden cloth that enables me to run away from the stress, run away from the real world. I relieve my stress there. I can press the stress release button and come out as a new me." (Participant 4-interview)



Figure 4. 1 Psychological gratifications from the community 1

The possessive word “my” reflected their appreciation of the positive psychological influences that they received from the community. This psychological gratification made them feel that participation in the online brand community was their way to get positive energy, and the community was “their” place to recover from a negative situation.



Figure 4. 2 Psychological gratifications from the community 2

Some community members reported that they enjoyed the online world because the community gave them a broader space to discover their inner ability, desire, and ambitions (see Figure 4.2), which they had never revealed to other people in the real world. They believed that the sense of ownership of the community was the gratification of their need to confirm their hopes, their capability, and their confidence. For example, some participants reported that, in the community, they were highly motivated by seeing other people's success through online community conversations, which made them feel more confident in their own life.

“I can see people there have the business longer than I have, the Lamborghini and Ferraris and nice houses, you know, I would love all of that. Absolutely, that makes you happy, so being part of the community does, just to see where your business can go, what can you achieve. changed a lot.” (participant 8-interview).

One participant described his confusion about the future; however, by seeing other people's posts and knowing other people's life experiences, he could understand that everyone faces difficulties. These people's posts were also used as references to foresee his future and predict some of the possible challenges in his life stages. By knowing this, he felt happy that he could gain a bit of control of his life through these posts, which eased his worry and confusion about his life. This sense of gratification was included in participants' understanding of PO towards their online community, which was a place for the participants to find information to ease their concerns.

“From the people of this community, I have seen infinite life possibilities, directions, and path. I will choose a certain direction of my future, this is a matter of my life.... I feel that from their conversation I can see what I need to pay attention to at each stage. What I do need to care about. My focus for the next five years and ten years will be absolutely different, so I can get more experience from them.” (Participant 1-interview)

A young participant commented that he had never had a management role in his life, but in the online brand community, he was given a chance to manage a subgroup. The community provided him with a special opportunity to explore his potential that made him happy and satisfied with the community.

“I feel the community is a place where I could bring my talent into it. Because I don’t have that kind of opportunity in my everyday life. This community provides an opportunity for me to play, so it’s helpful and I also feel happy with helping others. It’s a place that gets this feeling.” (Participant 2-interview)

The participants said they gained positive influences from their communities – it added positive aspects to their lives, making them feel good about themselves, their life, and the future. These psychological gratifications that they gained from the community made them believe the community was “their” place.

4.3.1.1.4 Entertainment gratification

Participants also commented that community members shared funny pictures, videos, text, and emojis. The members also joked with each other to create a fun environment for the community. The participants described the entertainment and enjoyment related to the community. They felt that the community entertained them in their daily life, and the continued enjoyment of the fun place gave them a feeling of it being “my” place to have fun.

“They always post funny things, when you read these texts or watch these pics or videos, you will be very happy.” (Participant 5-interview)

“Sometimes I talk to them, sometimes I watch them talk, and sometimes I post a few words to laugh at them while watching them; just for fun. A lot of funny messages here, they are more open to jokes or funny things than I am. They often post funny videos or gifs in the community, or bicker with each other, like very close friends.” (Participant 1-interview)

4.3.1.2 Sense of belonging

The third theme that emerged from the data is a sense of belonging. When they were asked to explain the meaning of PO towards the community, all of the participants recalled one or more moments when they felt a belonging to the community.

Participants recalled situations, such as difficulty in finding a good companion in life or in maintaining a friendship or a good group of people to share similar interests in life, or how meeting up with friends could be costly. The online brand community became a solution in these circumstances to meet their social needs. Some of them compared their feeling when they first joined the community with their feeling of a close relationship with the community members now, describing PO as a sense of belonging to the community.

4.3.1.2.1 Community acceptance

Specifically, PO towards the community was described as the feeling of being accepted, invited, and included. Participants described moments of feeling close with community members during enjoyable moments, such as celebrating community achievements with community members and enjoying funny jokes with others (see Figure 4.3). Being accepted, welcomed, and invited by the community members made the participants feel warm and comfortable about being part of the community. When many people welcomed and invited an individual into an online brand community, the individual felt they had joined the “right” group that was “my “place and “my people” for “me”.

“From the very beginning, I was unfamiliar with everyone, did not dare to speak. But now I have a good relationship with everyone, they always invite me, to everything.... They were very, very enthusiastic to me and very kind to me.” (Participant 1-interview)

Some participants also reported they had been in the community for a long time. They had developed a deep connection with the community. Their ideas and their experiences were accepted and acknowledged by other community members. They were followed and asked to answer members’ questions. The acceptance here reflected people’s feelings of being accepted as group members, where opinions were accepted and appreciated by community members.

“In the beginning, they helped me to learn how to play the game. Later, I slowly became one of them. Now, there is always someone asking me these questions and I become the one who answers others’ questions. My roles in the community have totally changed or swapped.” (Participant 5-interview).



Figure 4. 3 Community acceptance

4.3.1.2.2 Responsiveness and support

Some participants viewed PO as a feeling of being continuously supported or liked or responded to by community members. Participants shared their experiences of posting in the community and described how other community members willingly responded to their posts. They explained that the supportive responses that they received from the community were a reason for staying in the community. Some of them shared their excitement of having followers and supporters in the community, which had never happened in other communities. Some of them described how community members always responded to their questions and gave good comments or advice and suggestions. They described the feeling of how always being followed or supported and receiving responses from the community made them feel good to be in the community.

“It’s how I can say “who has the time to play with me?” at all times in the community. And I can ask for help from friends I know or from those who I don’t know as well. I know that they will go with me, and they will help me, and ... when I ask, there will always be a group of people from the community to respond and come online to be with me.” (Participant 4-interview)

“I am the original poster, I feel good, because people are backing me up, they like my idea, and no one said or against my idea. You know, people supporting and people against. But I feel if I post anything, people will support me, I like to be supported, I feel that people like my idea, it gives me pleasure, like “nobody hates it’ or people like it. I feel good about it; I feel have a strong connection with the community.” (Participant 10-interview)

When members experienced being followed and supported by other community members, they felt “liked” and “valued” by the community, and that the community was the place where they belonged, that the community became “their” place to stay.

4.3.1.2.3 Tacit understanding

Participants also recalled stories when they cooperated with community members. They shared experiences of working with community members compared to working with people who were not from the community. The strong contrast between

the failure of working with non-community members and the success of working with community members provided a firm conclusion that they could cooperate better with people from that community than with others. These contrasts and evaluations gave the participants a strong feeling that the community members were the right people to stay and work with.

“Sometimes you are randomly peered, sometimes you just play with people from all over the world, they are not from our community, and I don’t even know them. Once, my friends [online community] have not been online yet, I was just randomly paired with another player. We lost several games in a row. I was very disappointed.... Then we lost more games, after about a dozen losses, I was extremely sad. But when my friends [online community] showed up there, we immediately won a game. It felt like I finally found the right person or a good person to play a game and we finally won a good game together. I could not wait to celebrate with my friends, right away, to share such feelings with them. It was a great feeling of accomplishment.” (Participant 2-interview)

These experiences made this participant believe that only the people from “my” community could truly understand their mind and truly connect with them; only the people in “their” community were the “right” people to stay with and the “right” group to belong to.

4.3.1.3 Sense of trust

4.3.1.3.1 Freedom of expression

Another theme that merged for the individual level of PO was a sense of trust. Some participants in the study recalled a similar experience when they shared their emotions or opinions with online community members. The participants revealed that it was sometimes hard to communicate their true thoughts and feelings with their loved ones. In particular, when they failed in some aspects of their lives, they did not want to disappoint their family and friends, or they did not believe their family and friends could truly understand them. Sometimes, they did not know how, or were not ready, to share these true feelings with their family and friends. However, they needed a place to release their opinions, emotions, and feelings. The online brand community, therefore, became that “safe” place where they could express their true feelings and emotions without the worry of being judged.

“It’s truly my place [the online brand community], there is no family concern, so we don’t have to worry about what can be said, what can’t be said, or about whom we can talk about or who should we not talk about. We can talk about anything to anyone we want to. It feels like there is a lot to say, but there is no place to say it, these words may not be said to my family, or at work, but only in this community.” (Participant 4-interview)

4.3.1.3.2 Reliability

Some participants also reported their experiences of helping other community members and the experiences of being helped by the community members. They shared that whenever anyone posted any problems or concerns, other members always supported them. Therefore, based on these experiences, they concluded that when they expressed themselves in their community, they believed that community members understood and cared about them and gave honest suggestions and helped them to get over the problems. For example, some participants shared stories of upset about a failure in their life, and the community members helped them with an analysis of their weaknesses and strengths, where the good sides and bad sides of the consequences were shared with many strategies and experiences. Eventually, they achieved success with those members' help. They reported that these experiences brought them a feeling that the community was a place they could trust to get supportive feedback and useful suggestions. They could also trust and rely on the feedback and suggestions to overcome their difficulties.

“Some other members saw my tactics and suggested me to be patient, to take time to wait for others, be a conservative member. They told me that I was too eager to win the game. These also reflected in my life. For example, I understand that I cannot be very aggressive and radical and rash, because it causes a lot of troubles. Be patient, be calm and be peaceful. I would be able to handle my life better and it benefits my life a lot.” (Participant 2-interview)

“if you have a question or a problem that is not in your knowledge field, or something you are not familiar with because you don't have any experience of it...They [the community members] might have such experiences or knowledge to help you to solve the problem or answer the questions or give you advice and suggestions. OR sometimes when you feel like you are stuck at something, they give me some new ideas or new angles. This kind of help is very important. It feels like you 've got a very new direction of it.” (Participant 1-interview)

Some participants used pictures to describe online community members as online brothers. They also recalled a time in their life where they desperately needed help or a situation where another community member needed help, where the community supported them first-hand and helped them to solve problems quickly (see Figure 4.4). For example, a participant shared a story of breaking down on the road. Once he posted a message in his online community, members in that area gave him immediate help. He did not even know their real names and nor had he met them before. Another participant shared a moment where community members supported him when he left his family. These experiences gave participants a belief that, whenever they

needed help, the community members would try their best to help them like brothers or family members. To some extent, they felt they could rely on the community members to back them up and to give them correct and immediate help whenever they needed it. These beliefs created an ownership feeling, where they knew the community was full of “their” people who would be there for them.

“If there is anything happening, or anyone needs help and posts it to the group, as long as someone or anyone can see it, immediately, someone will reply to you. There’s always someone there to reply. That’s what I am trying to say. It’s like there is always, always someone there for you.” (Participant 9-interview)

“I chose Band of Brothers to describe it, just like a brother in arms, people I can trust. When I am alone, I need to pay attention to every aspect of the game, but when I have my friends with me, I can rely on them to back me up, so I can be more focused and confident in achieving my targets. I can rely on my friends to drive the victory of the entire battle.” (Participant 4-interview)

“During my car search, many of you offered to look at cars I was interested in all over the country. Others contacted me when they saw cars they thought might interest me. When I finally found my car, f-chatters who lived on my route home, Pym’s me with their phone numbers and addresses in case I broke down.” (FC participant 3-online observation)



Figure 4. 4 Reliability

4.3.1.4 Sense of pride

4.3.1.4.1 Authentic pride

Participants reported that while they were communicating with the online community members, they thought about the meaning of the information and linked it to their own life. They not only read the posts in the community but also further processed the information, the opinions, and the group discussion by using their knowledge, experience, or creativity to interpret their own meaning of these posts. At the same time, they argued, expressed themselves, and interacted with other community members. This two-way communication process allowed them to compare, evaluate, review, and discover their own values, attitudes, personalities, life situation and, eventually, themselves.

During this complex process, the majority of the participants in this study reported that they had become more and more confident about who they were through communication with community members. They described the PO they held toward the online community as a positive feeling about themselves. One participant recalled a time in his life where he was completely confused about his identity and was struggling with the labels his social surroundings gave him. By interacting with his community members, he gained more understanding of his group and his community members' characteristics and identification, and of himself. Eventually, he became proud of his identity (see Figure 4.5).

“People in this community, they have jobs, have families. Gamers are not like otakus [a young person who is obsessed with computers to the detriment of their social skills.], or like people normally imagined. They are all well-educated, have families, have stable jobs and income, so they have spare money to spend on games. They also care about their families. Although they spend lots of time playing games, they will take time off to look after their loved ones. I found out that a gamer is different from what most people think. From the chat with these people, I began to redefine that the gamer is not an otaku. I used to define myself as an otaku when I was in high school. I didn't like to go out. At that time, I played games at home every day. There was no such name or definition for a game player, and I was directly labelled as otaku. I went to school every day, did my homework. But I definitely played games when I was free. Now, by knowing all the members here, if someone calls me a gamer, I will be very proud. This is not an ugly name.” (Participant 4-interview)

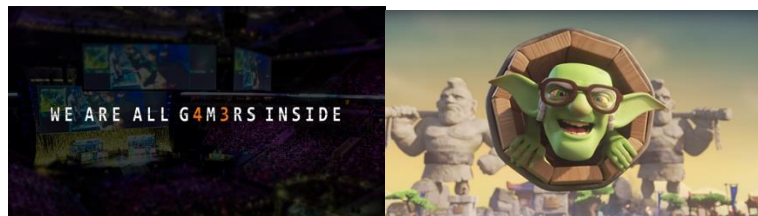


Figure 4. 5 Consumers' authentic pride in identity

The communication that occurred in the community gave the members a chance to understand both community members and themselves. When they identified positive characteristics from members who were similar to them, they felt that they shared the same positive characteristics with the members. As they felt good about these members, they also felt good about themselves.

The participants reported that they not only found information about the brand and products, but learned wisdom from the community. Some participants further explained that the things that they learned had changed or were changing them to become a better person. Some of them used a picture of a train on the rail and smiling

face to illustrate how they had become a better person (see Figure 4.6). These positive changes triggered a positive evaluation of themselves and the online brand community. The sense of pride derived from the community and their positive self-evaluations made them feel proud of themselves and proud of the community. Thus, this sense of pride was identified as part of their PO towards the community.

“I am much more patient than I used to be. Yeah, I am reading a lot of more, and praying a lot of more, I must admit, I used to just stay with my family and not very sociable, but now I just enjoy with people, I just came out of my old me, I like my new me. Yeah... much more than before.” (Participant 8-interview)

“They [community members] told me that I was too eager to win the game. This also reflected in my life. I understand that I cannot be very aggressive or radical and rash, because it causes a lot of troubles. Be patient, be calm and be peaceful. And now, I feel I am able to handle my life in a better way, I feel I become better and strong.” (Participant 2-interview)



Figure 4. 6 Consumers’ authentic pride in a better ‘me’

4.3.1.4.2 Hubristic pride

Some participants also recalled their experiences of helping others in their communities. They described that when they helped others, they felt good about themselves (see Figure 4.7). They further explained that helping others made them feel capable and useful. They felt proud when they could help others or others asked for help from them, and felt confident to give others “expertise” information or suggestions in that community. In these situations, they reported that they were more confident when in the community than in other places. Therefore, they claimed this proud feeling about themselves in the community as part of the PO they developed towards the community.

“I feel that I am more useful because I can help a lot of people here. I can help others..., like to help others to know [shoes] or to buy shoes, and I feel particularly useful... When you can help others, you will feel very capable. You can feel yourself and knowing yourself here and knowing that you can help others.” (Participant 4-interview)



Figure 4. 7 Consumers' hubristic pride

These special proud feelings about who they were and what they could do in the communities created a close bond between the individual online brand community member and the community. The online community members felt that the community was “my community” and felt proud of being useful and capable of helping others.

4.3.1.5 Sense of duty

When defining PO, participants described their roles in the community and positioned themselves as an important person by using social figures of police, judge, doctors, and teachers to illustrate themselves (see Figure 4.8). They described their PO feeling in multiple scenarios, including helping other members, solving group conflicts, handling complaints, leading the discussion, answering questions, and organising community events. They explained that the PO feeling included a strong sense of duty to the community and willingness to take responsibility in the community.

“It feels like I am protecting them, it's [the community] like my baby, we grow the community so much, and I saw the community grow, so it is like my baby, and I want to nurture it, and it is also like a plant, cos I saw it grow. That it's the thing resembled in my head. It's like a baby or a plant that you see grow, and you need to nurture and look after.” (Participant 10-interview)

“It's like you're one of the managers of the community, you can help others solve problems and lessen the trouble in their life.” (Participant 3-interview)

“Feeling like I am there to support you, to back you up, like 100% and give me a feeling of love, keep going. It is not easy. A lot of times, where you are consoling other teams, they might have something happened that discourages them, you are there is more like to courage, and support them, comfort them, like, it's okay, we get over it, and you move on.” (Participant 9-interview)

“Congratulations man. Sometimes the greatest careers come from internships. You know if you need any references for the next step, there are an awful lot of us that would be glad to write you one. Please keep us informed as to your progress and adventures in Bugatti Land.” (FC participant 2-online observation)



Figure 4. 8 Online community members’ sense of duty

Participants reported that the sense of duty that they had towards the community made them feel that they were contributing to the community and looking after the community. They believed that their contributions could influence the community environment or members, and that their contributions to the community made them part of the community, where they felt it was “my” community.

4.3.2 Collective level of PO

At the individual level, PO towards the online brand community manifested in personal feelings of exclusive ownership – this is ‘MY’ community. During the interviews, almost all the participants realised that community existence is a result of every members’ existence. Without the members and their contributions, the community would not grow and evolve. The participants described the community as “our community”, as the collective level of PO that reflected their relationship with the community.

4.3.2.1 Sense of community affinity

When they were asked to explain the meaning of PO, participants described the close relationship between members of the community to explain the collective level of PO towards the online brand community. Some participants compared their “owned” community with other communities, pointing out that the main difference was the affiliation among the members that they could feel from “their” community.

4.3.2.1.1 Closeness

Participants used the relationship between a country and the whole world to describe the collective level of PO, which reflected that they felt each member was important to the community and an owner of the community (see Figure 4.9). These participants believed everyone was important to the community and stayed together

naturally and closely to make the community as a whole. They explained this feeling of closeness as being like a magnet to bond members from different places with different backgrounds, making the community members feel that the community was “ours.”

“You represent yourself in this group, you think you are important in this group, this group cannot be a perfect group without you. you are irreplaceable. Similarly, others also feel the same way. They also believe they are an irreplaceable part of this community. So, I think I am very important to this community, and others are also important to this group.” (Participant 3-interview)

“Each of us uses different characters, such as the eagle, the pig or the cow. It’s like we are different people but we can get together and enjoy a beautiful time together. All of us are friendly, equal, we are like a big diverse colourful family.” (Participant 8-interview)

The FerrariChat community members also described their close feeling as reflecting the friendship of being with each other in the community.

“I didn’t think all of us would see this and I think it’s worth the thread to let everyone know. This is a community based around more than just cars! We celebrate and grieve together and that’s what friends do!” (CF participant 2-online observation)



Figure 4. 9 Online community members being together with each other

The closeness among these members created a sense of a group, making the members feel that they were a group forming the community, hence, the community was seen as “our” community.

4.3.2.1.2 Mutual benefits

Participants recalled a few stories of how the community members helped each other to create mutual benefits. They described situations of how they benefited from the community, and other members benefited from their contributions. They used collective pictures such as a team and holding hands to describe their relationship with each other (see Figure 4.10). The community provided an environment for members to benefit each other and enjoy these benefits with each other.

“Fine, the community is massive, and network marketing around the world is huge. You got a way. For instance, I have a friend who sells makeup like eyeliner, so my wife buys off her. She buys off us. So, we are shopping for ourselves. It’s great. You don’t need to go anywhere. I make money, and my friend makes money. You know, she has five children, she is working from home and making money. It’s great. Within the community, different neighbours sell different products.” (Participant 8-interview)

“If there is anything happening, or anyone needs help and posts it to the group, as long as someone or anyone can see it, immediately, someone will reply to you. There’s always someone there to reply. That’s what I am trying to say. It’s like there is always, always someone there for you.” (Participant 1-interview)

“I wanted to remind as many of you as I can through this message that we have huge riches to enjoy. That our families, our friends, our ability to exchange ideas and learn, all add a dimension to each of our lives that enriches each of us enormously, and makes each of our lives a little better, a little more interesting, a little more of an adventure.” (FC participant 6-online observation)

As these mutual benefits were provided and received by people within the community, it created an invisible close connection among the members, which made the members feel that they were more connected with each other. This connection created a collective sense of shared ownership of the community.



Figure 4. 10 Online community members’ sense of community affinity

4.3.2.1.3 Shared goals and values

Participants also highlighted that the majority of community members did not know each other in their offline lives. However, in their online brand communities, most community members knew each other well by understanding each other’s online posts, their online discussion behaviour, and their sentiments around discussion topics. When they were asked to explain the meaning of PO, it is interesting to note that participants commented that the members of the online brand community shared some similarities. For example, some participants reported that the majority of their community members wanted to achieve similar goals, valued similar things, shared a similar characteristic, or faced similar problems (see Figure 4.11). The members believed that, because they shared these similarities, they could understand each other

better and stay together better than with other people. Knowing “our” similarities bonded these community members together to support each other to develop “our” discussion topics, research “our” solutions, establish “our” community culture, and create a sense of “us”. The community that contained this information also became “our” community. This sense of affinity among these community members made them feel that community members shared ownership of the community.

“We are willing to try, and they are willing to go forward without turning or stopping until we achieve that goal. We value wins and losses. We are all the same kind of people. We just spend a lot of time together sharing these feelings and doing different tasks together to achieve one goal. We are responsible for each other, very brave being together, we have great courage and we have the same goal to achieve. We all work hard together to achieve these goals. The same goal and same faith that makes us feel like enjoying work with these people.” (Participant 4-interview)



Figure 4. 11 Online community members share the same goals and values

4.3.2.2 Sense of unity

4.3.2.2.1 Community cohesion

When participants described shared PO, they used a family picture (see Figure 4.12) as a metaphor to illustrate the relationship between individual members and the community. They described the community as being like a family, rather than individuals. Some participants described certain situations where community members worked closely together to achieve a goal.

“We say that it is second nature to us, we are one, we are a united front. That we are all one, together, working together for the same vision to achieve the same goal. “When you say that when you feel you belong to the other. Like my friend, my family, like we all come to a decision together. Not only these are the rules of the community, but also what bond us together; we just come together naturally.” (Participant 8-interview)



Figure 4. 12 Online brand community cohesion

“Because we are one team, we are together in this, we are believing in one. We might come from different cultures or different backgrounds. But when it comes to hosting, we all share the same opinion. And when it comes to the group, we are all close and closely united in this room.” (Participant 10- interview)

The community cohesion that they created through these activities made them feel that they were one unit. They believed the community was shared with every community member, and also owned by the whole group. Thus, the collective level of PO towards the community was understood as a sense of unity in the community.

4.3.2.2.2 Co-construct and protect

Participants emphasised that the diversity of the community was an outcome of all community members' cooperation, and everyone was part of the ownership of the community. They recalled stories of how the community members worked together to build, grow, maintain, and protect the community (see Figure 4.13).

“Because this community is not only one person’s individual effort, but because everyone works hard here to build it up, and all together we make it beautiful and warm.” (Participant 6-interview)

“This group is like a seed. If there are only seeds, it is an empty group, no others, it is useless. Each of us is an individual or like a seed. we can't survive or develop without an environment for communication, just like seeds need soil to take root. ... We can get what we want in this group and or get even more than what we want.” (Participant 4-interview)

“Finally, we voted together and decided to kick him out of the group... Kicking people out of the group may seem unfriendly, but we are trying to make the community unity, a friendly environment, by making an unfriendly decision on him. ... kicking this person out of the community was a good decision to all our group members, also for the better development of this community. (Participant 3-interview)

“Only the people who share the same interest and are willing to chat with us can fit into this group. No matter how good you can play the game, you are a member of the group. No matter what decision is made, we all made it together, share it in the community, and agree or disagree together.” (Participant 1-interview)



Figure 4. 13 Online brand community members co-construct and protect the community

The online brand community allowed community members to grow the community, manage it together, and make decisions together. The cooperation among these members created a bond where all these members contributed to community growth, development, and maintenance. Thus, these cooperation activities made these members believe each member of the community played a role in the community evolution process. Hence, the community was jointly owned by these members.

4.3.2.3 Sense of power

Almost every participant acknowledged that the community was powerful when the members stayed together (see Figure 4.14). Participants explained that the community members were from different industries, had a variety of knowledge and skills, and thus shared various resources in the community. They believed that the more community members shared valuable resources and discussion, the stronger the community would become, the more powerful the community would be, and the more benefits each member could get from the community.

“This community opens an avenue to build your business faster, make it bigger, also learn about some cultures like some countries, like exploring. Moreover, communication is faster.... Feel like we know something can be done, the only way to do it is by having this community.” (Participant 7-interview)

The community members felt empowered to have these valuable resources within the community and powerful in using these resources to mutually benefit their lives. Thus, these members felt that community power was collectively given and received by all of the community members.

One participant also described a situation when their community faced a government policy change that might impact on their rental income. In this instance, the whole community “stayed” together tightly to argue this issue against the policy. Being together, having the support and backing of each other, enabled the community as one

group to stand against the challenges. The stronger the community stayed, the stronger the sense of “our” right and “our community”.

“We are all on the same page, and we all want the same thing. We want to be able to host in our home. Why not? In our home, we can do whatever in our home.... I am not alone and know that we can do something and an opinion can become something real. With others, we can make something work.”
(Participant 10-interview)



Figure 4. 14 Consumers’ sense of power

The sense of power, in this case, reflected that each member felt empowered through being backed up by many people who shared similar problems and were not scared of standing up for themselves as a group. The collective level of PO here reflected that these members felt empowered to achieve greater goals that could not be completed on their own.

4.4 Discussion

4.4.1 PO conceptual foundation

The results suggest that online PO is derived from online community discussion dynamics. PO in an online marketing context is different from in work-related contexts. For PO in an offline context, especially with tangible targets, the communication between the “owner” and the objects relies on physical touch, use, even abandonment and destruction. However, the online brand community is a virtual space for the online community members; PO of an online brand community indeed relies on the communication dynamics and individual consumers’ interpretations of the community, its members, and the community discussion dynamics. Therefore, the communication dynamics that occur in the community are the essential environment for online PO development.

Further, online PO development involves an online community member's cognition. As the communication among the members goes through texts, pictures, videos, and emojis, without physical contact with each other, PO development in an

online context requires a lot of personal decoding and interpretation of the contents. Because communication in an online community allows the community members more time to repeatedly pondering the meaning of the content, it involves cognitive effort to organise posting and tagging and to comment on others' communications (Karahanna et al., 2015). Therefore, PO development in an online brand community might involve more cognitive effort than offline; thus, this cognitive effort is also strongly link to co-constructing the self (Belk, 2013).

The findings from this study showed that both the individual level of PO and the collective level of PO were reported by individual consumers. Thus, the individual level of PO and the collective level of PO were understood as dual-level PO from an individual consumer perspective. PO was a personal feeling that occurred at both the individual level and the collective level. Psychology researchers have defined feeling as "a sensation that has been checked against previous experiences and labelled; it is personal and biographical" (Shouse, 2005, p. 3). Marketing researchers have also suggested it "reflects an individual's awareness, thoughts, and beliefs regarding the target of possession and the associated personal meaning and emotion or affect" (Jussila et al., 2015, p. 123). Therefore, the meaning of PO is how individuals feel about the target objects themselves and about how other people feel about the target objects. Specifically, in an online brand community, an individual community member's PO state towards the community is how this individual online community member feels about the community is "theirs" and about other community members' PO state towards the community.

To summarise, in an online brand community, the individual community member is the focal 'PO subject', and the specific online brand community is the PO target. The online members' PO state is developed from the community members' interactive dynamics and the community members' cognitive interpretation. It also reflects the community members' awareness of their affective connection with the community forms this feeling of a close bond to the community.

4.4.1.1 Individual level of PO and collective level of PO differences

Pierce and Jussila (2010) suggest the individual level of PO and the collective level of PO are two different concepts. However, how these two concepts differ is not clear, and how the collective realisation is formed also needs further explanation. The present research attempts to provide some explanation on this aspect.

First of all, the individual level of PO is all about an individual's self-feeling towards the community. It is objective and personal, cognitive and emotional, and about the individual's self-awareness of 'this is MY online brand community', in which the individual consumer feels the community is 'theirs'. Thus, it reflects the self-awareness of personal relationships that bond members with the community. The individual level of PO is a result of an individual's self-awareness, self-reflection, self-evaluation, and self-realisation of their relationship with the community. Therefore, the individual level of PO comes from an individual's internal self, where they can say that 'this is MY community', or 'this community is Mine'. Thus, it can be proposed that individual level of PO is an *intrapersonal* concept.

On the other hand, although the collective level of PO is also a personal feeling, it involves an understanding of other people's PO states towards the community, to achieve a collective realisation of the shared individual level of PO among the community members. Once the individual is aware that one or more people also have PO towards the community, they are aware of a shared PO that exists across the community. Therefore, the collective level of PO also comes from an individual's realisation of the existence of other people's PO towards the community. Again, this realisation can be either the awareness of one community member's individual level of PO or multiple community members shared collective level of PO. As long as the individual is aware that other people share the PO state towards the community, collective level of PO develops.

How can an individual understand other people's PO feeling to form collective level of PO? If one or more community members refer to their PO towards the community explicitly through shared messages, the individual community member is able to understand their feeling immediately. However, sometimes the individual community member needs to evaluate the authenticity of the claim of PO, based on members' online behaviour, such as their posting initiatives, their contributions to the members and the community, their response to different opinions or ideas, the consistency of their opinions, and their attitudes to other members and the community.

An individual consumer needs to interpret people's posts in order to understand the communication meanings among other community members through the dynamic of the community interactions in order to identify others' PO states. Therefore, the collective level of PO development involves the process of interpretation or even a

prediction of other online members' PO states. Even if someone claims their PO state in the community clearly, through words and messages, the community members still have the chance to evaluate the reliability of their PO statement. Thus, the collective level of PO is derived from the interaction dynamics of the community members and the interpretation of other community members' PO feelings towards the community. Therefore, the collective level of PO is more of an *interpersonal* concept than an individual level of PO.

However, these two concepts may overlap in meaning. For example, an individual consumer might sense other online community members' PO states towards the community, based on their online participation experiences and understanding of these experiences, and on community members' interactions. Sometimes this sense can be evidenced by other community members' post contents, but sometimes it might only be the individual's personal interpretation of the phenomenon. More specifically, if they believe shared PO exists, based on their judgments, then it exists to them, and they can report it from their personal perspective. However, doing so does not mean that every community member can identify the collective level of PO in the same way.

4.4.1.2 Online collective level of PO form condition

Pierce and Peck (2018) reviewed the theory of the collective level of PO and suggest that two simultaneous conditions are needed to enable the collective level of PO to exist: "1) each member of the group needs to experience themselves as psychological owner 2) couple with the awareness that through their independent experience, they are party to a shared possessive mindset-set toward a particular object" (p. 10). The findings of this study are in line with the second point in that it was found that the nature of collective level of PO is formed through individuals' independent experiences and shared with other individuals among a group of members.

However, the present research results seem to question the necessity of the first condition, that is, that each member of the group or the community needs to experience themselves as the psychological owner of an object to meet one of the essential conditions of the collective level of PO. The applicability of this condition in an online brand community context is challenged.

The online brand community is an open space for online consumers. The community members come and go at any time at their discretion. There are no particular rules or regulations for them to stay or leave. This is common in large-sized online

brand communities that may contain hundreds or thousands of members with many visitors per second. Therefore, the likelihood of every community member experiencing themselves as a psychological owner of the same online brand community at any one point in time, or for a long period, is low.

Recognising this fact about an online brand community, the research participants from different online brand communities reported their collective level of PO towards their communities. The results seem to suggest that, if a consumer experiences PO towards an online community and realises that one or more online members also have PO towards the same community, the condition of collective level of PO formation is met. Thus, the collective level of PO existing in the online brand community does not require all the community members to have an individual level of PO towards the community.

4.4.1.3 PO definition in online brand communities

Based on the literature review of the PO concept and the present qualitative research findings, PO in the online community can be understood as an online community member's psychological state of feeling that 'this is MY/ OUR community' in general. Specifically, it comprises multiple affective and cognitive concepts. Accordingly, the present research suggests the following definition for the individual level of PO:

The individual level of PO reflects individual consumers' intrapersonal realisation of a sense of gratification, sense of belonging, sense of trust, sense of pride, and sense of duty that fosters a sense of "this is MY community".

Based on the present research, collective level of PO can be defined as follows:

The collective level of PO reflects individual consumers' interpersonal realisation of a sense of affinity, sense of unity, and sense of power which are collectively shared by one or more other community member and foster a sense of "this is OUR community".

4.4.2 The roots of PO in the online brand communities

Pierce et al. (2001) proposed three underlying motives for PO development – self-efficacy, self-identity, and having a place. Later, this research team identified a fourth motive – stimulation (Pierce & Jussila, 2011; Pierce et al., 2003). These four

underlying motives are regarded as the force that sets individuals on the path to developing PO (Jussila et al., 2015). It is interesting to find out if they are still applicable today in an online brand community context.

4.4.2.1 Individual level of PO underlying motives

4.4.2.1.1 Self-efficacy through being recognised

Pierce et al. (2001, 2003) argue that when an individual explores a new environment around them, they are motivated to explore their ability to control the environment, which gives rise to a feeling of efficacy and pleasure and promotes PO formation. In an online brand community environment, the majority of consumers join the community at the beginning as an observer in order to familiarise themselves with the community contents, members, and discussion topics. Slowly, when they feel confident in communicating with other members, they become more engaged in community discussion dynamics. As discussed in the previous section, PO is derived from community dynamics, where the online community members can form a feeling of “this is MY/OUR community”. Therefore, it can be argued that the motivation for developing PO in an online brand community should be related to the person’s confidence level in participating in the community.

The present research results have revealed that the individual level of PO comprises a sense of belonging, sense of trust, sense of pride, and sense of duty; it is a result of an individual being recognised by other community members. An individual community member can receive support, responses, and the attention from the other community members through their posts. When they feel that they are noticed, or recognised, or can gain social status in the community, they feel that they can influence other community members’ opinions, decisions, behaviour and even the community’s development through their postings. As a result, they feel confident within the community itself, and feel confident with their relationship with the community, gaining a feeling of “control over” the community. Therefore, in this case, it can be argued that the confidence of the individual consumer in their capacity to gain attention from community members and thus to influence the community is one of the underlying motives for PO development in the community.

4.4.2.1.2 Self-identity

As discussed previously, online PO is highly relevant to the self. All the dimensions suggested from the results of the present research indicate individual online

community members' self-awareness of their relationship with the community. Thus, both individual level PO and collective level of PO are highly relevant to the self. This is supported by Pierce et al. (2001, 2003), who argue that possessions play a role in the understanding of self, as individuals are motivated to define themselves through their possessions. Individuals can establish, maintain, reproduce, and transform self-identity and self-definition through their interaction with their possessions (Pierce et al., 2001, 2003). Thus, Pierce et al. (2001, 2003) suggest that self-identify is one of the underlying motivations of PO development. Other research has also suggested that self-identify is one of the underlying motives for PO in an online brand community (Zhang et al., 2014).

4.4.2.1.3 Having an online place

It has been suggested that individuals are motivated to identify a possession that provides some form of personal security, and to form a psychological “theirs” feeling (Pierce et al., 2001, 2003). Online community members in the present study reported that their community is “their place” to gain companionship, positive power, and energy, to secure their “secrets” and emotions, and to give their opinions without concern, to thus enjoy multiple benefits. This underlying motive seems also applicable in the online context.

4.4.2.1.4 Stimulation

Pierce and Jussila (2011) suggest that stimulation is the fourth motive for PO development. They explain that human beings have arousal needs which motivate them to search stimulation. It is also the reason why individuals sometimes want to step away from their current possessions, seeking out new possessions. Results from the present research suggest there is a comparison between the “owned” community and other communities a consumer has tried before. This comparison might reflect that an individual consumer wants to join a new online community because they need stimulation. However, the present results did not identify a stimulation motive. Rather, when the community members were stimulated by external forces, their feeling of PO was influenced. From this point of view, stimulation could be an underlying motive for PO development.

In sum, four underlying motives from Pierce and Jussila’s works (2011) have been discussed in an online context. The present research results suggest that self-efficacy as a result of being recognised, self-identity, having a place, and stimulation are

considered to be PO development motives in an online brand community. These four motives might be activated at different times and in different circumstances. Again, these roots are seen as the reason for the existence of PO in the online community, but not necessarily the essential dimensions of PO.

4.2.2.2 Collective level of PO underlying motives

4.2.2.2.1 Social comparison

As the collective level of PO involves a realisation of other community members' individual level of PO or collective level of PO states in the community, it requires an individual community member to discover the individual level of PO or collective level of PO among the community members. The community members interact with each other to express their own opinions, feelings, and ideas. During the communication, they also compare other community members' views, abilities, attitudes, knowledge, or even lifestyle, values, and apparent intelligence. Festinger (1954) proposed the social comparison theory to describe the phenomenon of how people evaluate their own ability or opinion compared to other people. Similarly, when a community member forms an individual level of PO, they want to compare themselves with others to see if others also have a similar feeling. Alternatively, when a community member notices other people have PO towards the community, they might compare themselves with these people to determine if they also share such feelings. This social comparison motive triggers individual community members to recognise PO among other community members. Therefore, it can be proposed that social comparison is one of the potential reasons for the collective level of PO development.

4.2.2.2.2 Community identity

As online brand community members group in relation to the brand and the products, there is an initial similarity among the community members, as they know that they are all interested in the brand. Thus, the brand name has a symbolic meaning to the community members, helping them to understand what the community is about and who the community members are. Therefore, the online brand community is a collective of people who identify with each other and know that the community is a set of interrelated individuals who are also involved in brand-related and integrated activities. This similarity promotes a realisation amongst community members that they have something in common with other online communities, and "their" community is a representation of their community identity.

Further, an online brand community is a mixture of the communicating members' appearance and community dynamics. Online brand community members derive value from the community interactions to the extent that they can compare “their” community with other communities. In this way, community members are motivated to establish and maintain a community distinctiveness from other communities which are not “theirs”. Thus, community identity motivates community members to build and maintain “their” unique community through their online interactions. It can therefore be proposed that the motivation for the collective level of PO in an online brand community is grounded, in part, in community identity.

4.4.3 The route of PO development in an online brand community

Pierce et al, (2001, 2002) took initial steps towards the development of a theory of PO emergence. They proposed three significant routes to explain how PO emerges within the organisational context (2002): 1) controlling the ownership target; 2) coming to intimately know the target; and 3) investing the self into the target. This section discusses if these routes also reflect how PO emerges in an online brand community context.

4.4.3.1 Gaining influence in the online brand community

Pierce et al. (2001) integrated the theory proposed by Furby (1978) and view control as a core feature of ownership; people control an object, which gives rise to a feeling of ownership of the object. Based on this understanding, control over an online brand community might give rise to a feeling of ownership of the community. However, compared to control over a physical object, there are few physical objects that can be controlled in an online brand community, except for the community members' posted messages. An online community member can control what words they want to use, how they want to organise the text structure, and when they want to post their message. However, while the control of their post message might give rise to a feeling of ownership of the message, it can not necessarily give rise to a feeling of ownership of the community. To control the community, influence on the community is the key. An individual online community member influences other members through posts that gain them support, responses, feedback, or attention. This gives the individual a feeling of “control”, which then gives rise to a feeling of ownership of the community. Thus, the process of gaining influence over the online brand community may be one of the routes for PO emergence.

4.4.3.2 Coming to intimately know the community and the members

Pierce et al. (2001, 2002) suggest that people become psychologically bonded to an object because of their active participation or association with it. The more information about the target object is obtained, the more intimate becomes the connection with the object and the greater the feeling of self-attachment to the object. Similarly, when an individual community member continuously participates in community discussion and events or is associated with community and community members, they come to understand more about the community and the community members and are able to connect themselves with the community and the members. Consistent with Pierce et al.'s (2001, 2002) work, it can be proposed that coming to intimately know the community and the members is another route to PO emergence.

4.4.3.3 Investing the self into the community

Identity has been discussed as one of the crucial underlying motive for PO development in an online brand community (Karahanna et al. 2015; Sinclair & Tinson, 2017). The process of investing the self into the community is notable as a route for PO development. The present research results suggest the existence of both an individual level of PO and a collective level of PO in an online brand community. There are also two routes for investing the self in the community: investing “myself”, and investing “us”. These two routes are mutual, and develop independently at both the individual level of PO and the collective level of PO emergence.

When community members see a message, they need to decode and interpret it to understand the meaning and the logic flow in terms of their knowledge and experiences and how it relates to their life circumstances. Therefore, messages play a role in self-awareness development, allowing members to evaluate themselves to know who they are, who they should be, what should they do, or how they should act. At the same time, when they post a message in the community, they also want to express their ideas, story, opinion, and so on. These messages also reflect their psychographics, values, personalities, and attitudes. Thus, while posting their message, they review their reasons for posting, and predict how others will respond and how other people will perceive their personalities. Therefore, investing “myself” during the process is the key route to an individual level of PO development. Similarly, the more messages an online member processes, the more they know about the community and community members as individuals and a group. This cognitive process triggers the establishment and

maintenance of an online community identity as “us”. Therefore, coming to know oneself in the community is one of the PO development routes.

4.5 Online PO conceptualisation model

In the model proposed by Jussila et al. (2015), PO development routes are considered as causes for PO development. However, the research results support the fact that PO development routes can be used to explain the PO emergence process, or to answer the question of how PO emerges or in what way. Therefore, these routes should not be considered as either the dimensions or the causes of PO. Indeed, based on the present research results and discussion, a conceptual model is proposed (see Figure 4.15) that unifies PO’s underlying motive, emergence routes, and the dimensionality of the two levels of PO in the online context, to address the first research objective.

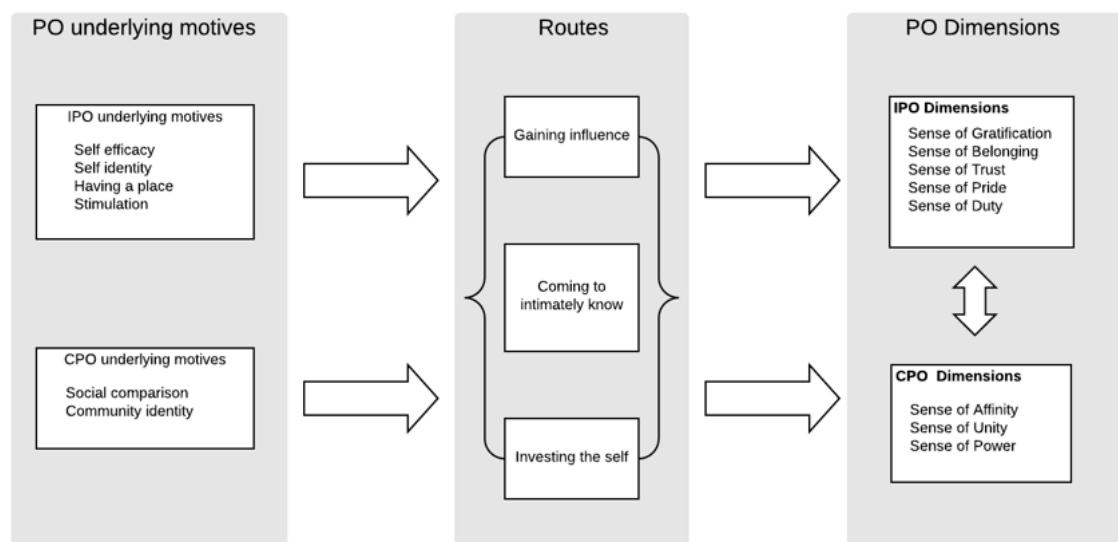


Figure 4. 15 Online psychological ownership process model

4.6 Community factors

In the qualitative research phase, it was noticed that different brand communities have different features and focus. The two levels of PO in these communities might also differ. For example, in a travelling company’s online brand community, the members need to organise trips together to gain extra discounts from the company. The collective level of PO of a sense of affinity and unity in the community might be highlighted. Similarly, the Airbnb online brand community members who are facing government tax regulations have grouped together against any tax policy on Airbnb hosts. The community members’ sense of empowerment of being together might be stronger than in other communities.

For the majority of communities, like NIKE's online brand community in this research, the members regularly share product evaluation opinions, gathering information about new products and sharing information on cloth matching of the products. Both levels of PO slowly emerge through time and community discussion dynamics. In a games brand community, the members sometimes team up to achieve the same game's goals or play against other game teams. Both individual and collective levels of PO towards the community could be active at the same time.

4.7 Is PO a natural phenomenon or a practice result in an online context?

Online community members have their instinct motives for exploring their online context. The PO development process seems to happen naturally when individuals explore relationships with the community and community members. Therefore, from this point, it is believed that the PO emergence process in an online context is a human instinct phenomenon. This perspective aligns with Pierce et al.'s (2001, 2003) conceptualisation of PO in the management research context.

On the other hand, PO development occurs through three routes in the online brand community – gaining influence, intimately knowing the community and members, and investing self into the community (see section 4.4.3). During these processes, extra forces might be able to influence the PO emergence process. For example, the present research results suggest that the “control” feeling can be obtained if some members are more influential in the community, or a “more influential” feeling can be gained through more community support, while the availability of more thoughtful posts in the community might trigger community members' thinking about the community and themselves. In other words, the PO emergence process might be affected by more “practices” with the online brand community. This point of view tends to reflect Avey's (2009) practice perspective of PO in the management literature.

To summarise the above two perspectives, from a consumer-centric point of view, PO can be seen as a human instinctual phenomenon to fulfil consumers' online brand community participation motives. Alternatively, from a community management perspective, PO is a psychological state that develops through individual consumers' continuous participation with the online brand community through PO development routes. This gives the marketing manager a chance to intervene in the consumer's online brand community participation experience, and thus influence online brand community members' PO towards the community.

4.8 Chapter conclusion

This chapter detailed the thematic analysis results that reveal the theoretical meaning of PO in an online brand community at two levels, including five dimensions of the individual level of PO and three dimensions of the collective level of PO.

PO development's underlying motives and routes relevance have been discussed in previous PO research to further establish PO conceptualisation in an online brand community context. Specifically, four individual levels of PO's underlying motives and two collective levels of PO's underlying motives were proposed, with a discussion of PO emergence routes in an online brand community.

In the following chapter, the scale development results in the second research phase are presented. An item pool for PO measurement was developed from the qualitative research results and tested with EFA and CFA to establish the measurement instrument of the PO in the online brand community to address the second research objective.

Chapter Five: PO Scale Development

5.1 Introduction

The previous chapter presented the results from the qualitative study to explore the theoretical notion of PO in an online brand community. The findings suggested eight PO dimensions that include five individual levels of PO (IPO) dimensions and three collective levels of PO (CPO) dimensions. This chapter furthers the process of PO scale development from the qualitative study to establish and validate a PO scale in online brand communities. This study followed the procedure suggested by Churchill (1979). The results from the previous chapter suggested the domains of the PO construct. This chapter reports the results of scale item generation, scale purification, and scale reliability and validity.

This chapter includes seven main sections. Section two presents a generated item from both the qualitative component of this research and the existing literature on each dimension. Section three describes the scale purification results from the EFA analysis, followed by the results from CFA in section four for scale validation. Section five discusses the model fit comparison across two datasets. Section six presents the discussion of the results. Section seven concludes the chapter.

5.2 Item generation

5.2.1 Content analysis of item generation

Qualitative data analysis results suggested five potential dimensions of the individual level of PO and three potential dimensions of the collective level of PO. Based on the thematic analysis results, the keywords and phrases from the qualitative data that express participants' PO were selected to form a pool of potential scale items that includes 40 items for the individual level of PO and 23 items for CPO measurement (see Tables 5.1 and 5.2 below).

5.2.2 Content validity check by an expert panel

The dimensions and the item list were forwarded to an expert panel of 11 marketing academics from Marketing department of Auckland University of Technology for comment on the content validity of the item pool. The use of an expert panel had two purposes: 1) to get feedback on the content validity of the items, and 2) to reduce the large pool of potential PO items. Feedback was collected from the expert panel. The item list was adjusted based on the panel comments (see Table 5.1 below).

Table 5. 1 IPO Measurement Item Pool

The individual level of PO measurement item pool	
<u>Sense of gratification</u>	
1.	I can get the information that I want from this community.
2.	There's always someone in the community to update the information I need.
3.	I get lots of fun from this community.
4.	This community is my place to get friendship from.
5.	I can get companionship from this community when I feel lonely.
6.	I can find someone to be with me in this community.
7.	I am motivated by the community members when I feel down.
8.	This community provides me with an opportunity.
<u>Sense of belonging</u>	
1.	I am welcomed by the community.
2.	I have good friends in this community.
3.	I am always supported by community members.
4.	Community members invite me to group events.
5.	Community members respond to my posts.
6.	I feel the community members are the right people to communicate with.
7.	I feel I cooperate better with people in this community than with people from other communities.
8.	I feel community members are like my family or friends.
9.	I think the relationship I have with my community is better than in most other communities/groups I have been with before.
<u>Sense of trust</u>	
1.	I feel safe in the community.
2.	I feel safe to say anything in my community.
3.	I know that whenever I have questions or problems, the community members will help me.
4.	I can freely share my experience with the community members without any concern.
5.	I trust the people here.
6.	I have friends in this community who I can depend on.
7.	I believe community members would help me if I needed help.
8.	If I have a question or a problem, even people I don't know well in my community would be willing to help.
<u>Sense of duty</u>	
1.	I am needed by the community.
2.	I feel that I help other people through communication in this community.
3.	I have a role in the community.
4.	I feel I can help more community members.
5.	I will help if anyone from the community needs me.
6.	I will help anyone in the community if I can.
<u>Sense of pride</u>	
1.	This community helps define me better.
2.	I am proud of who I am after communicating with the community members.
3.	This community helps me to be a better person.
4.	I feel I am becoming better and better because of this community.
5.	I feel great when I help other community members.
6.	I learned who I should be from community members.
7.	I feel proud of being part of the community.

Table 5.2 CPO Measurement Item Pool

CPO measure item pool
<u>Sense of affinity</u>
1. Community members always talk to each other.
2. Community members help each other.
3. Community members are the same kind of people.
4. Community members agree on the same things.
5. The members of the community all value similar things.
6. All the community members are together to achieve the same goal(s).
7. All community members face a similar problem(s).
8. Community members are closed.
9. Community members value similar things (identity).
10. Community members benefit each other within the community.
<u>Sense of unity</u>
1. All the community members are together as ONE big group.
2. The community members decide on community rules together.
3. The members construct the community together.
4. All the members are together to create a diverse community.
5. All the members are together to protect the community.
6. The community is a result of every community member's contribution.
<u>Sense of power</u>
1. Community members believe they are powerful together.
2. Community members believe that being together we can solve problems faster.
3. Community members believe that being together we can achieve something.
4. Community members believe that being together we can overcome difficulties more easily.
5. Community members believe that being together we can share resources more effectively.
6. Every member can get more benefits when community members are together.

Table 5. 3 IPO and CPO Item Pool Validation Results

Individual level of PO
<u>Sense of gratification</u>
1. I can get the information that I need from this community.
2. I get lots of fun from this community.
3. I can get friendship from this community.
4. The community makes me relaxed.
5. I can learn new things from this community.
6. I am motivated by the community members when I feel down.
7. This community gives me an opportunity to use my talent(s).
<u>Sense of pride</u>
1. This community helps to define me better.
2. I feel great when I help other community members.
3. I feel proud of being a better person with community members' help.
4. I feel proud of being part of the community.
<u>Sense of belonging</u>
1. Community members always invite me.
2. I have good friendship in this community.
3. I feel that community members are like my family or friends.
4. I feel I cooperate better with people in this community.
5. I feel like I belong to my community.
<u>Sense of trust</u>
1. I feel safe in the community.
2. I feel safe to say anything in the community.
3. I trust the people here.
4. I believe community members would help me if I needed help.
<u>Sense of duty</u>
1. I feel that I help other people through communication in this community.
2. I have a role in the community.
3. I will help if anyone from the community needs me.
4. I will help anyone in the community if I can.
Collective level of PO
<u>Sense of unity</u>
1. All the community members are together as ONE big group.
2. The members construct the community together.
3. All the members are together to create a diverse community.
4. All the members are together to construct and protect the community.
5. The community is a result of every community member's contribution.
<u>Sense of power</u>
1. Community members believe they are powerful together.
2. Community members believe that being together we can solve problems faster.
3. Community members believe that being together we can achieve something bigger.
4. Community members believe that being together we can overcome difficulties more easily.
5. Community members believe that being together we can share resources more effectively.
<u>Sense of affinity</u>
1. Community members help each other.
2. Community members are the same kind of people.

3. The members of the community all value similar things.
 4. All the community members are together to achieve the same goal(s).
 5. Community members value similar things.
-

5.2.3 Justification of potential measuring items from prior research

After the content validity was checked by the expert panel, an item pool that contained 46 measuring items was formed. A literature review of the individual level of PO and the collective level of PO dimensions was conducted to justify the definition of these dimensions and the potential items.

The majority of the dimensions were derived from the qualitative study including sense of gratification, trust, belonging, and affinity, which have been well studied in the marketing literature and measured with scales that contain particular items. The researcher collected the top marketing journal articles researching these dimensions either in an online marketing context or in online brand community studies, to justify these PO dimensions' definitions and measurement items.

5.2.3.1 Individual level of PO dimension justification

5.2.3.1.1 Sense of gratification-Definition and measurement

The construct of gratification has been particularly well studied in media research. It has been examined and tested based on the use and gratification theory. Lim and Kumar (2017) identified four main themes to measure consumers' gratification in relation to the online brand community on Facebook. These themes include information gratification (Dholakia et al., 2009), incentives gratification (Sun et al., 2010), entertainment gratification (Sun et al., 2010), and connectedness gratification (Dholakia et al., 2009; Lim & Kumar, 2017). The majority of these themes are supported by the qualitative research findings of the present research, such as information gratification and entertainment gratification. Connectedness gratification shares some similarities with the companionship gratification theme also found in the qualitative study.

However, the incentive gratification has been defined as “consumers [using] a medium that fulfils their specific needs, and gratification of these needs leads them to repeat their media experience” (Hausman & Siekpe, 2009. p. 203). These gratification items have been used to measure consumers' gratification for vouchers and discounts from a broad medium, such as emails, texts, or other printing media. This phenomenon might often occur in a company-built community, but is less common in consumer-built

online brand communities. In particular, the qualitative research findings did not suggest an incentive gratification theme. Thus, this theme was not included in the final item list. Eventually, the researcher integrated and justified some items from past research and the qualitative results from the present research, to finalise an item pool for measuring sense of gratification (see Table 5.4 below). This research adapted and justified this definition to a specific online brand community context. Sense of gratification in this research reflects the degree to which a community member feels gratified by the online brand community that fulfils their needs.

Table 5. 4 Sense of Gratification Measure Items

Sense of gratification: the degree to which a community member feels gratified by the online brand community that fulfils their needs
<u>Information gratification</u>
1. I can get the information that I need from this online brand community.
<u>Entertainment gratification</u>
2. I feel this online brand community is enjoyable.
<u>Connectedness</u>
3. In the online brand community, I get to know other people who are interested in the brand.
<u>Opportunity gratification</u>
4. The online brand community provides an opportunity to use my talents.
5. The online brand community provides an opportunity to learn new things.
<u>Psychological gratification</u>
6. The online brand community members motivate me when I feel down.
7. The online brand community makes me relaxed.

5.2.3.1.2 Sense of pride - Definition and measurement

The construct of sense of pride is a controversial concept in the marketing literature, as some researchers believe that it is related closely to sense of self-esteem and might support positive behaviour (Herrald & Tomaka, 2002). However, others have linked it to interpersonal problems, relationship conflicts, and maladaptive behaviour (Lewis, 2000). Tracy and Robins identified some distinctive aspects of sense of pride and developed two facets of pride – “I am proud of what I did”, and “I am proud of who I am” (2007). They highlight that the first facet of pride is authenticity, and highlight that it is a feeling of self-worth based on personal accompaniment. The second facet of pride is hubristic and involves a process of self-evaluation.

These two facets of sense of pride were also supported by the qualitative research results. The measure items for these two facets were then adopted in the present research and integrated and justified with the qualitative research results to form the measuring items relating to this online brand community. Therefore, based on the above discussion, in the present research setting, the concept of sense of pride reflects the degree to which a community member feels proud of what they have done in the online brand community or with online brand community members, or feels proud of who they are in the community or with online brand community members. The potential item pool for sense of pride is listed below (see Table 5.5).

Table 5. 5 Sense of Pride Measure Items

Sense of pride: the degree to which a community member feels proud of what they have done in the online brand community or with the online brand community members, or feels proud of who they are in the community or with the online brand community members.	
<u>I'm proud of what I have done</u>	
1.	I feel proud of helping other members in the online brand community.
<u>I'm proud of who I am</u>	
2.	I feel proud of who I am in the community.
3.	I feel proud of being part of the online brand community
4.	I feel proud of being a better person with help from the online brand community.

5.2.3.1.3 Sense of trust - Definition and measurement

Sense of trust has been discussed as a critical factor in online brand community research. It is crucial to facilitate communication among community members and plays an important role in enhancing community development (Bruhn et al., 2014). Kang, Shin, and Gong (2016) adapted the trust definition from Casaloe et al. (2008) and Shin's (2013) research, developing an online brand community trust definition: this trust is a "sense of safety and security arising from the honesty, reliability, and trustworthiness of a brand community" (p. 585). This definition emphasises the sense of safety and security arising from an online brand community, which is regarded as a whole unit by individual community members.

The results from the qualitative study of the present research also reported a sense of safety and a sense of reliability amongst participants. Without changing any other items, the researcher integrated and adjusted these similar themes and adapted new measure items from past research, such as community care and community honesty evaluation items, to form the final measure item pool for sense of trust in this study (see

Table 5.6). As the definition was developed in the online brand community context and fit the present research, the definition was also adapted for the present research. Thus, sense of trust in the present study is defined as the degree to which a community member feels safe due to the honesty, reliability, and trustworthiness of a brand community.

Table 5. 6 Sense of Trust Measurement Items

Sense of trust: the degree of a community member's sense of safety and security arising from the honesty, reliability, and trustworthiness of a brand community	
1.	Based on my experience with my online brand community, I know it cares about community members.
2.	Based on my experience with my online brand community, I know it is honest.
3.	Based on my experience with my online brand community, I feel safe in the online brand community.
4.	Based on my experience with my online brand community, I feel safe to express myself in the community.
5.	Based on my experience with my online brand community, to some extent, I can rely on the community members when I need help.

5.2.3.1.4 Sense of duty - Definition and measurement

Sense of duty has always been linked to moral responsibility in the online brand community literature. Muniz and O’Guinn (2001) found that online brand community members have “a felt sense of duty or obligation to the community as a whole, and its members” (p. 413). It manifests in two community missions: 1) “integrating and retaining members”; and 2) “assisting brand community members in the proper use of the brand” (p. 424).

However, there is no existing scale available to measure sense of duty in online brand community research. Only one scale was found, for civic duty research, which contributed to a few measure items (Perry, 1996). The majority of items developed from the qualitative study in the present research remained. Only some similar items were slightly adjusted based on past research. A finalised item pool to measure sense of duty is listed below (see Table 5.7).

The qualitative result in the present research confirmed that PO reflected a sense of duty amongst the community members. The researcher adopted the definition from Muniz and O’Guinn’s (2001) research to define sense of duty as the “sense of obligation to the online brand community as a whole, and its members” (Muniz & O’Guinn, 2001, p. 413).

Table 5. 7 Sense of Duty Measure Items

Sense of duty: the degree of a community member's sense of obligation to the online brand community as a whole, and its members.	
1.	If I take a role in the community, I will accept obligations to help the community.
2.	I am willing to contribute to the community.
3.	I am willing to help my community members.
4.	I will help any community members if I can.

5.2.3.1.5 Sense of belonging - Definition and measurement

The measurement instrument of sense of belonging in the online brand community literature is extensive. The construct of sense of belonging has always been aligned with online brand community commitment or online brand community identity. To avoid confusion, the researcher reviewed the origins and measurement of sense of belonging from the psychology research.

Both inclusion and exclusion perspective items were identified from past research (Glenn, Malone, Pillow, Augustine, & Osman, 2012; Hagerty & Patusky, 1992; Lee & Robin, 1995). The items developed from the inclusion perspective were used to assess an individual's sense of belonging in general, and exclusion perspective items were used as reversed items.

However, past PO research has not identified any link between feeling of exclusive and PO. The present qualitative research results only suggested the feeling of inclusion amongst the participants in the community to reflect PO towards the community. The exclusive perspective items were useful to measure belonging, but might not be relevant to consumers' PO feelings towards the community. Thus, the inclusion measurement of sense of belonging was reviewed in the current research. The majority of the items remained the same, but two more items were added to the list from the literature to form the final item pool (see Table 5.8 below).

A sense of belonging has been defined in psychological research as a "sense of personal involvement in a social system so that persons feel themselves to be an indispensable and integral part of the system" (Anant, 1966, p. 21). Both online and offline community research has adopted this definition to explain an individual's sense of belonging to the targeted community (Hagerty & Patusky, 1995; Zhao et al., 2012). This definition was adopted and slightly justified to fit in the present research context. As a result, sense of belonging in an online brand community was defined as the degree

to which a community member feels that they belong to the online brand community by feeling themselves to be an integral part of the online brand community.

Table 5. 8 Sense of Belonging Measure Items

Sense of belonging: the degree to which a community member feels that they belong to the online brand community by feeling themselves to be an integral part of the online brand community	
1.	I feel I am always included by the community members.
2.	I feel I have close bonds with the community members.
3.	I feel accepted by other community members.
4.	I feel a strong sense of belonging to the community.
5.	I feel I am important to the community.
6.	I feel I cooperate better with people in this community than others who are not part of this community.

5.2.3.2 Collective level of PO dimension justification

5.2.3.2.1 Sense of unity- Definition and measurement

The concept of sense of unity has not been studied in an online marketing context. The construct's definition and measurement have not been developed in online brand community research. A definition of this construct was provided in Zander, Stotland, and Wolfe's (1960, p. 464) group research as "the degree to which a number of persons (including the one who might identify with it) constitute a whole". Based on this definition, a general item "Our community members feel united" was added to the list.

The definition of sense of unity remained as the degree to which the community members feel that they are together as one. The measurement items adopted from this paper were also integrated with the results of the qualitative study to finalise the measurement items (see Table 5.9 below).

Table 5. 9 Sense of Unity Measure Items

Sense of unity: the degree to which the community members feel that they are together as one	
1.	Our community members feel united.
2.	Our community is united as one.
3.	Our community members are always together as one big group.
4.	The community is a result of all members' contributions.
5.	Community achievement is a result of all community members' contributions.

5.2.3.2.2 Sense of power - Definition and Measurement

Past research has studied an individual's sense of power, but collective power measurement has not yet been studied. Consumer empowerment in the online brand community has been defined as consumers' critical understanding of the social forces that shape social circumstances, and their awareness of the collective resources required to make a social change (Wathieu et al., 2002; Petric & Petrovcic, 2014).

This definition suggests two dimensions of collective empowerment: the first dimension addresses the individual's recognition that the collective power of the community is based on mutual support and coordination of community members. The second dimension addresses the importance of interpersonal relationships within the communities, which is the community members' subjective awareness that individuals can be more powerful only through relationships with other members of the community. Base on this definition, the PO items list was slightly modified. Sense of power was defined as the degree to which the community members understand community power is the connection of each other to feel powerful together. As the measure items are similar to the results, there was little adjustment to the item list (see Table 5.10 below).

Table 5. 10 Sense of Power Measure Items

Sense of power: the degree to which the community members understand that community power is the connection between each member that allows them to feel powerful together	
1.	Our community is powerful when we are together.
2.	Our community can be powerful only by working together.
3.	We know the community power is collective, not individual.
4.	We believe that being together we can share resources more effectively.
5.	We believe that being together we can achieve something bigger.

5.2.3.2.3 Sense of affinity - Definition and Measurement

Sense of affinity has been defined as a complex concept that contains the three dimensions of "familiarity, attraction, and similarity that strengthen the social relationship by fostering a sense of closeness among people" (Moreland & Beach, 1992, p. 255; Morland & Zajone, 1982). The present qualitative research results also suggested a set of similar items with three dimensions of familiarity, attraction, and similarity, combining to produce a sense of affinity psychologically. These dimensions illustrate the online brand community members' relationships as described by the research participants. Based on this definition and measurement instrument, sense of affinity in an online brand community was defined as the degree to which the

community members feel familiar, attractive, and similar to one another. These dimensions were similar to the results of the qualitative study – only a couple of items were slightly reworded to form the final item pool (see Table 5.11 below).

Table 5. 11 Sense of Affinity Measure Items

Sense of affinity: the degree to which the community members feel familiar, attractive, and similar to one another	
1.	Most community members know each other.
2.	Most community members are familiar with each other.
3.	We help each other if we can.
4.	We enjoy our time being together.
5.	We have similar goals.
6.	We value similar things.

In total, a 42-item pool that contains 26 individual levels of PO measure items and 16 collective levels of PO measure items was finalised. Factor analysis was conducted to examine these items to establish and validate a scale for PO in an online brand community. The scale development results are reported in the following section, which includes both EFA and CFA study results.

5.3 Formative or reflective

When the items have been developed for each underlying construct, it is suggested that the measurement model needs to specify the relationship between latent construct and measures before the analysis of the structural model (Anderson & Gerbing, 1982). There are two types of models, formative and reflective models, that have been largely used and discussed. Coltman et al. (2008) propose three theoretical considerations to decide whether the measurement model is formative or reflective.

The first theoretical consideration is the nature of the construct. In a reflective model, the latent construct exists independently of the measure. Whereas, in a formative model, the latent construct depends on the measurement instrument to exist (Coltman et al. 2008). In the present study, the online brand community members' psychological ownership state to the online community is an independent latent construct as it is innate and naturally developed through the online brand community communication dynamics. The existence of the PO state does not depend on the measurement instrument developed in the present study. Thus, considering the nature of the PO construct in this study, the reflective model is more proper than the formative model.

The second key consideration to decide whether the measurement model is formative or reflective is the direction of causality between measurement items and the latent construct. Reflective models assume that causality flows from the construct to the indicator, while in formative models, the causality flows from the measure items to the construct. The present study aims to establish a measurement for the construct PO by using the indicators that developed from the qualitative phase. As the indicators were developed from the research participants who have developed PO to their online brand communities, they are more reflective in nature to explain the participants' PO states. Thus, these indicators are caused by the online brand community members' PO to the community. Thus, the reflective models, in this case, are considered as more appropriate than formative models.

The last key theoretical consideration to define the measurement model is the characteristics of indicators. In a reflective model, researchers are able to include or exclude one or more indicators to the latent construct without changing the domain of construct and its content validity. This is due to the interchangeability of the indicators that share a common theme of the construct in reflective models. However, in formative models, adding or removing any of the indicators can change the domain of the construct, as the indicators play a role of defining the latent construct. The latent construct in the present research is online brand community members' PO state that developed, the indicators don't define the construct but reflect the construct in the research context. Thus, reflective models are suitable for the present research.

In summary, the present research would consider a reflective model to suit the theoretical relationship between latent constructs and measures before the analysis of the structural model (Anderson & Gerbing, 1982). A reflective model for PO in the online brand community will be presented in a later section.

5.4 Scale Purification-Exploratory Factor Analysis

5.4.1 Sample

A sample of online brand community consumers from the US who self-reported to have PO feelings towards their online brand communities completed the survey. In total, a sub-dataset of 212 participants completed the questionnaires; data were collected through Qualtrics online. The data set of 212 responses was sufficient for EFA of 42 items, as it provided a minimum of five responses for each item (Hair et al., 2010).

Some missing information about participants' demographic details was identified; however, there was also some missing data in the scale items questions. As the questions were designed in 'forced-choice' mode for rating the measure items, there was no missing data for those measure items. The participants' details are listed below (see Table 5.12) The number of male and female participants in this study was well spread (100:102). More than half of the participants (53.4%) were aged 25-44, with two other equal-sized groups aged 45-54 (14.7%) and 55- 65 (14.5%). The age range 25-65 years comprised nearly 83% of the total responses. Just over two-thirds of participants identified as Caucasian at 68.3%. In terms of educational background, 29.9% of participants had a Bachelor's degree and 46.1% had some level of high school or college education. The income level among the participants remained relatively flat, and a similar rate was found across all the age groups.

Table 5. 12 EFA Participants' Demographic Details

Demographic	Options	Percentage	N=
Gender	Male	49.3	100
	Female	50.2	102
	Other	0.5	10
	Missing		0
Age	18-24 years old	10.8	22
	25-34 years old	24.5	50
	35-44 years old	28.9	59
	45-54 years old	14.7	30
	55-64 years old	14.2	29
	65-74 years old	6.9	14
	Missing	4.2	8
Ethnicity	Asian	7.9	16
	Black/African	14.9	30
	Caucasian	68.3	138
	Hispanic/Latino	5.9	12
	Native American	1.5	3
	Other	1.5	3
	Missing	5.1	10
Income	\$0-\$19,999	11.4	23
	\$20,000-\$34,999	18.3	37
	\$35,000-\$49,999	17.8	36
	\$50,000-\$74,999	21.8	44

	\$75,000-\$99,999	14.9	30
	Over \$100,000	14.4	29
	Prefer not to answer	1.5	3
	Missing	5.1	10
Education			
	12th grade or less	2.9	6
	Graduated high school or equivalent	21.6	44
	Some college. No degree	24.5	50
	Associate degree	11.3	23
	Bachelor's degree	29.9	61
	Post-graduate degree	9.8	20
	Missing	4.2	8
Online brand community participation duration			
	Less than 1 year	18.6	38
	1-2 years	27.0	55
	3-5 years	29.4	60
	6-8 years	6.4	13
	9--10 years	11.8	24
	11-15 years	1.5	3
	More than 15 years	5.4	11
	Missing	4.2	8
Online brand community visit frequency			
	Many times, every day	46.7	99
	About once a day	25.9	55
	Once a week	17.9	38
	A couple of times a month	6.1	13
	Rarely	3.3	6
	Missing	0.5	1
The online brand community built			
	By customers	40.5	77
	By the company	55.2	105
	Others	0.42	8
		10.7	22

The participants also reported their online brand community participation time, with a range of less than one year to more than 15 years. More than half of participants claimed that they had been involved in their community for one to five years (56%). Interestingly, nearly 20% of the participants had only joined their communities within the past year (19%), while about 10% of the participants had been in the community for about 10 years, and 7% of them had more than 10 years online brand community

participation experience with their communities. Nearly three-quarters of the participants (73%) claimed that they visited the online community every day, and nearly half of them (47%) visited their community several times per day.

5.4.2 Data examination

According to Hair et al. (2010), before conducting data analysis, the data need to meet all of the requirements of multivariate assumptions, as complex assumptions demand much more from the dataset. Thus, the data were examined before any further analysis, to ensure validity and accuracy.

5.4.2.1 Missing data

As the data were collected from a reputable marketing research panel, the researcher controlled the number of surveys completed. There were some missing data for the participants' demographic information, but there were no missing data for rating the measuring variables from the participants. The data were then ready for outlier detection.

5.4.2.2 Outlier detection

Univariate detection results showed that only the cases 56, 69, 88, 137, and 207 exceeded the threshold on more than one variable, with a z value ranging from 4.05 to 4.86 (see Table 5.13). Therefore, these variables were removed from the dataset due to the potential effects on analysis accuracy.

Table 5. 13 Univariate Outlier Detection of Study Two

Univariate outlier's detection results	
<i>Case with a standardized value exceeding ± 4</i>	
Gratification 2	207, 37
Belonging 1	88 , 136, 207
Belonging 3	56, 137
Belonging 4	56, 137
Duty 3	69
Duty 4	69, 207
Trust 4	96, 207
Pride 1	69, 88
Pride 2	69
Pride 3	69, 103
Affinity 3	69, 88
Affinity 4	69, 88
Affinity 6	69
Unity 1	69
Unity 4	151
Power 1	151
Power 2	88
Power 4	51

The Mahalanobis distance value was computed for the 42 variables with 212 responses. The results suggested the Mahalanobis distance value ranged from 3.35 to 130.87. Thus, the t value of D^2/df ranged from 0.08 to 3.12, with no case exceeding the threshold of 3.5. Therefore, it can be concluded that no multivariate outlier was identified in the dataset.

5.4.2.3 Testing the assumption of multivariate analysis

The normality test was conducted by examining the level of skewness and the kurtosis for each measuring item in the dataset. However, according to Field (2018) and Hair et al. (2010), in large samples (200 or more), the normality matters less, and sometimes not at all, and the test of normality is more likely to be significant, causing concern about dataset normality. Field (2018) suggests that “if your sample is large, do not use significance tests of normality” (p. 187). Currant et al. (1996) suggest that there are only significant problems arising with univariate skewness of absolute value 2.0 and kurtoses of 7.0 in multivariate normality test with a large sample (200 and more).

The skewness values of the present dataset ranged from -0.726 to -1.761, with no case exceeding the absolute threshold value of 2.0. The kurtosis values ranged from -0.113 to 4.428, which were all well below the cut-off point of absolute value 7.0. Therefore, there was no concern about the normality of the data. The normal probability plots are shown in Appendix G.

5.4.3 Exploratory factor analysis results

5.4.3.1 Testing assumptions of factor analysis

According to Hair et al. (2010), the overall measure of intercorrelation of the data is examined to ensure the data is appropriate for the factor analysis. The results from the Pearson correlation coefficient R matrix suggest that the majority of the variable correlations were close to or above $r=0.30$. The results reported that each variable correlated with at least one other variable, with R -value at least at 0.30 and above. These results indicated reasonable factorability from the data. At the same time, there was no correlation coefficient higher than 0.7, which indicated the data matrix was suited to factor analysis.

Table 5. 14 Sample Adequacy for Factor Analysis

KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.932

Bartlett's Test of Sphericity	Approx. Chi-Square df Sig.	6305.846 861 .000
-------------------------------	----------------------------------	-------------------------

Further, the KMO value was .936, which was well above the recommended value of 0.5 (Hair et al., 2010, 2018). Bartlett's test of sphericity results (Chi-square χ^2 (212) = 6305, df =861, p <.001) indicated that the data supported the use of factor analysis and suggested that the data provided an adequate sample for further analysis (see Table 5.14).

5.4.3.2 Factor extraction and assessing the overall fit

To repeat, the qualitative study suggested five dimensions to measure consumers' individual level of PO to the community. As planned, the purpose of the EFA study was to check the structure of the dimensions that developed from the qualitative research phase. Firstly, the PCA factor extraction with eigenvalue (>1) was used in the EFA to examine if the EFA results produced the same number the dimensions as the qualitative study results. Then, the PCA factor extraction method and oblique rotation method were used with a fixed number 5 to further explore the dimensionality of the concept.

5.4.3.3 EFA results of the individual level of PO

The results of the individual level of PO EFA analysis suggested that the majority of the correlations among the variables were greater than 0.3. The KMO value was .926 – above the recommended value of 0.5 (Hair et al., 2010, 2018). Bartlett's test of sphericity results (Chi-square χ^2 (212) = 3243, df =325, p <.001) indicated that the data supported the use of factor analysis (see Table 5.15).

Table 5. 15 Sample Adequacy for the IPO Scale Factor Analysis

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.926
Bartlett's Test of Sphericity	Approx. Chi-Square df Sig.	3243.561 325 .000

Table 5. 16 Principal Component Solution for the IPO Scale

Component	Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	11.289	43.418	43.418	4.404	16.938	16.938
2	1.770	6.809	50.227	4.251	16.350	33.288
3	1.547	5.948	56.175	3.260	12.538	45.825

4	1.119	4.302	60.478	2.993	11.510	57.335
5	.965	3.713	64.190	1.782	6.855	64.190

Initially, the principal component analysis was applied in EFA without choosing any rotation method (see Table 5.16). The results supported the five individual level of PO dimensions from the data, which confirmed the dimensionality of PO that was developed from the present qualitative research. This result gave the researcher the confidence to further look at the structure of these dimensions to see if the rotation results could further confirm the qualitative research results.

The researcher also used the eigenvalues (above 1) to determine the number factor extraction, and the principal component factor extraction method with the oblique rotation method was used in EFA to explore the dimension structure. However, the results suggested only four main dimensions from the data. (See Table 5.17).

Table 5. 17 Principal Component Solution for IPO Scale with Eigenvalue (>1)

	Pattern Matrix ^a			
	Component			
	1	2	3	4
Duty 3	.906			
Duty 4	.821			
Duty 2	.789			
Pride 1	.591			
Pride 3	.537			
Pride 2	.479			
Duty 1	.433			
Pride 4	.406			
Belonging 6		.761		
Gratification 6		.720		
Belonging 4		.702		
Belonging 5		.667		
Belonging 3		.566		
Belonging 2		.470		
Gratification 7		.457		
Gratification 1			.736	
Gratification 5			.731	
Gratification 2			.630	
Gratification 3			.627	
Gratification 4			.481	
Belonging 1			.442	
Trust 2				.813
Trust 3				.670
Trust 4				.612
Trust 1				.533
Trust 5				

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.^a

a. Rotation converged in 12 iterations.

As expected, the results showed that the majority of the measuring items that were developed from the qualitative research phase were naturally grouped. Specifically, the sense of trust dimensions were correctly grouped with good factor loadings value to one factor. The majority of the measuring items under the dimension of sense of belonging and sense of gratification were also well grouped. On the other hand, the dimensions of sense of duty and sense of pride overlapped in the data. It was also noticed that the item of 'Trust 5' did not lead to any of the factors under this factor extraction method.

Table 5. 18 Principal Component Solution for the IPO Scale with Five Factors

	Pattern Matrix ^a				
	Component				
	1	2	3	4	5
Duty 3	.922				
Duty 4	.831				
Duty 2	.813				
Pride 1	.593				
Pride 3	.529				
Duty 1	.464				
Pride 2	.453				
Pride 4					
Belonging 4		.774			
Gratification 6		.759			
Belonging 6		.730			
Belonging 3		.581			
Gratification 7		.504			
Gratification 2			.757		
Gratification 1			.757		
Gratification 3			.634		
Gratification 5			.558		
Belonging 1					
Trust 2				.810	
Trust 3				.638	
Trust 4				.567	
Trust 1				.506	
Trust 5					
Gratification 4					.876
Belonging 5		.432			.497
Belonging 2					

Extraction Method: Principal Component Analysis.

Rotation Method: Oblimin with Kaiser Normalization.

a. Rotation converged in 10 iterations.

The EFA was conducted again with a fixed factor extraction number 5 for the individual level of PO, and the PCA extraction method with the oblimin rotation method was used again in the factor analysis. The results are presented in Table 5.18 and are similar to the previous EFA results, where the majority of the dimensions were naturally grouped. Again, the sense of duty dimension and the sense of pride dimension loaded to one factor, which suggests that the correlation between these two factors might be high. The item ‘gratification 4’ did not group with other gratification items but loaded to factor 5. Further, the item ‘belonging 5’ had a cross-loading problem. ‘Trust 5’ and ‘belonging 2’ did not load to any factors. These items were considered for removal from the scale in later CFA factor analysis.

Each variable’s community value was also examined to assess if each item met acceptable levels of explanation with .50 as the threshold (Hair et al., 2010). As can be seen in the table below, all the items had a communality value greater than .5, indicating a sufficient explanation of the construct. As noticed, the item of gratification 4 had a high community value in the data (see Table 5.19).

Table 5. 19 IPO Scale Communality

Communalities	
	Extraction
Gratification 1	.696
Gratification 2	.755
Gratification 3	.630
Gratification 4	.821
Gratification 5	.612
Gratification 6	.653
Gratification 7	.547
Belonging 1	.554
Belonging 2	.603
Belonging 3	.588
Belonging 4	.755
Belonging 5	.693
Belonging 6	.581
Duty 1	.533
Duty 2	.643
Duty 3	.767
Duty 4	.709
Trust 1	.576
Trust 2	.730
Trust 3	.587
Trust 4	.602
Trust 5	.583
Pride 1	.602
Pride 2	.616

Pride 3	.668
Pride 4	.585
Extraction Method: Principal Component Analysis	

5.4.3.4 Individual level of PO EFA result interpretation

By using different factor extraction and rotation methods, the EFA analysis results confirmed that the underlying structure of the individual level of PO measuring items was similar, and also confirmed the present qualitative study results. The majority of the dimensions were naturally grouped. However, two dimensions, sense of pride and sense of duty, overlapped in the data. The overlap might be because the sense of pride dimension measured an individual's feeling of pride in what they could do or what they had done for the community, which is close to the meaning of sense of duty whereby people felt that they could do something for the community. These two dimensions were theorised and defined differently in the qualitative study of the present research. Thus, the researcher decided to keep these two dimensions separately, but examined the model fit by combining these two dimensions as one factor in CFA analysis.

It was noticed that when five factors were extracted from the data, 64.2% of the total variance was explained by those five dimensions. However, when four factors were extracted from the data, only 60.5% of the total variance of data was explained by the four factors. Comparably, five factors were still better at explaining the data than four factors. Thus, the five dimensions were retained in the research. The four-factor model was also assessed in the CFA study. Some problematic items were also identified from the data. In further factor analysis, these items were the first consideration to be removed from the scale.

5.4.3.5 EFA results of the collective level of PO

The results of the collective level of PO EFA analysis suggested that the majority of the correlations among the variables were greater than 0.3. The KMO value was .909 – above the recommended value of 0.5 (Hair et al., 2010, 2018). Bartlett's test of sphericity results (Chi-square χ^2 (212) = 2161, df=120, $p < .001$) indicated that the data supported the use of factor analysis (see Table 5.20).

Table 5. 20 Sample Adequacy for the CPO Factor Analysis

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.909
Bartlett's Test of Sphericity	Approx. Chi-Square	2161.553
	df	120
	Sig.	.000

Table 5. 21 Principal Component Analysis for the CPO Scale with Eigenvalue (>1)

Component	Total Variance Explained					
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.223	51.393	51.393	8.223	51.393	51.393
2	1.283	8.019	59.412	1.283	8.019	59.412
3	1.047	6.547	65.959	1.047	6.547	65.959

Extraction Method: Principal Component Analysis.

Similar to the individual level of PO EFA analysis, the three collective levels of PO dimensions were analysed by using the PCA factor extraction method with eigenvalue (>1), to explore the structure of the CPO dimension structure. The results suggested a three-factor model from the data without any rotation. These three factors explained 65.96% of the total variance of the data (see Table 5.21). The results also suggested that the majority of the items loaded to the first factor, and cross-loading problems occurred with five items: affinity 1, affinity 2, affinity 6, power 2 and power 3 (see Table 5.22).

Table 5. 22 Component Solution for CPO Item

	Pattern Matrix ^a		
	Component		
	1	2	3
Affinity 5	.886		
Affinity 6	.884		
Affinity 3	.560		
Unity 2	.519		
Affinity 4	.511		
Power 4	.478		.477
Unity 1	.401		
Affinity 1		.897	
Affinity 2		.835	

Unity 3		.514
Power 2		.843
Power 3		.838
Power 1		.657
Unity 4		.558
Power 5	.408	.525
Unity 5	.409	.504

Extraction Method: Principal

Component Analysis.

Rotation Method: Oblimin with Kaiser

Normalisation.

a. Rotation converged in 13 iterations.

In contrast, when the direct oblique rotation method and eigenvalue (>1) were used in the EFA analysis, the results also suggested three factors (see Table 5.23).

Among them, the dimension of affinity loaded on two factors. Explicitly, the item of affinity 1 and affinity 2 tightly loaded to factor 2, but affinity 3, 4, 5, and 6 loaded together on factor 1.

The dimensions of sense of power grouped well. However, the items of sense of unity spread and loaded on to three different factors. It was noticeable that the items of unity 4 and 5 loaded on factor 3 together with power items. Power 4 had a cross-loading problem. The results suggested that the factor of unity and power were mixed up and highly correlated in the data.

Table 5. 23 Component Solution for CPO scale with Oblique Rotation

	Pattern Matrix ^a		
	Component		
	1	2	3
Affinity 5	.874		
Affinity 6	.869		
Affinity 3	.543		
Affinity 4	.519		
Unity 2	.490		
Unity 1			
Affinity 1		.896	
Affinity 2		.836	
Unity 3		.514	
Power 3			.844
Power 2			.842
Power 1			.664
Unity 4			.603
Power 5			.562
Unity 5			.558
Power 4	.416		.533

Extraction Method: Principal Component Analysis.
 Rotation Method: Oblimin with Kaiser Normalization. ^A

a. Rotation converged in 15 iterations.

The results from the principal component with an oblique rotation analysis suggested that the collective level of PO measuring items are complex. Among the six affinity items, four items grouped well, but two affinity items loaded to another factor. Among the five sense of power items, three of them grouped with significant factor loading values, but the other two power items stayed together with the four unity measuring items and four affinity items. ‘Power 4’ cross-loaded to two factors. ‘Unity 1’ did not load to any factor. To further investigate this problem, the researcher had to run the EFA dimension by dimension to look at the details of the underlying structure of each dimension.

Table 5. 24 CPO Three Dimensions Communalilty

Component Matrix ^a		Component Matrix ^a		Component Matrix ^a	
Component 1		Component 1		Component 1	
Affinity 3	.821	Unity 2	.859	Power 2	.788
Affinity 4	.802	Unity 4	.835	Power 1	.787
Affinity 6	.773	Unity 5	.812	Power 3	.786
Affinity 5	.745	Unity 1	.805	Power 5	.776
Affinity 2	.737	Unity 3	.755	Power 4	.735
Affinity 1	.714	Extraction Method:		Extraction Method:	
Principal Component Analysis.		Principal Component Analysis.		Principal Component Analysis.	
a. 1 component extracted.		a. 1 component extracted.		a. 1 component extracted.	

Although the factor loading results suggested that there were cross-loading problems among the variables, the commonality assessment results for each collective level of PO variables suggested that all the variables with communality greater than 0.5 were sufficiently explained by the data. This showed that each item on this scale played a role in explaining the construct (see Table 5.24 and Table 5.25).

5.4.3.6 Collective level of PO EFA result interpretation

It can be seen that the sense of affinity measurement items were reasonably grouped. The main problem was the high correlation of measurement items for sense of

unity and sense of power. Sense of unity measured the online brand community members' feeling of being together as one, and sense of power measured the online brand community members' belief that being together as one is powerful. Logically, these two constructs are related to each other, but the meanings of these two constructs should be independent. These items were either developed from the qualitative study or adopted from reliable resources and well-established existing scales. Therefore, at this stage, the researcher decided to keep all the measuring items. The cross-loading and no-loading problematic items also once again identified; these problematic items were considered to be eliminated from the scale in the CFA.

Table 5. 25 CPO Scale Communalities

Communalities	
	Extraction
Affinity 1	.822
Affinity 2	.762
Affinity 3	.663
Affinity 4	.566
Affinity 5	.713
Affinity 6	.764
Unity 1	.596
Unity 2	.608
Unity 3	.611
Unity 4	.665
Unity 5	.641
Power 1	.608
Power 2	.642
Power 3	.722
Power 4	.590
Power 5	.580

Extraction Method: Principal Component Analysis.

5.4.3.7 Reliability tests of both the individual level of PO and the collective level of PO scales

There are a variety of scale reliability test forms, Hair et al. (2010) suggest looking at the correlation of each item to the summated scale score, which should exceed 0.5, and inter-item correlation, which should exceed 0.30. The research results suggested that the majority of the item-to-total correlation values exceeded .5. Only two items, gratification 4 and belonging 6, were slightly below .5, with values at 0.492 and 0.498 respectively. All the inter-item correlations exceeded 0.3 (see Table 5.26).

Further, the coefficient alpha is regarded as one of the most important indicators of a scale's quality (Devellis, 2017; Field, 2018; Hair et al., 2010, 2018). The value of

the Cronbach Alpha coefficient normally ranges between 0 and 1 to indicate the internal consistency reliability of scale items. Hair et al. (2010) suggest that the threshold of reliability score measured by Cronbach's Alpha should exceed 0.7 in the scale development. The results from this research suggested that all the Cronbach's Alpha scores ranged from 0.818 to 0.871 for both individual and collective level of PO scales, so were well above 0.7. The reliability of both individual level of PO and collective level of PO scales was supported (see Table 5.26). A CFA reliability test is discussed in the following section.

Table 5. 26 IPO & CPO Reliability Test Results

IPO DIMENSION	Scale means	items	Cronbach's Alpha	Item-total correlation
Sense of Gratification	41.65		.82	
		Gratification 1		.53
		Gratification 2		.59
		Gratification 3		.62
		Gratification 4		.49
		Gratification 5		.60
		Gratification 6		.55
		Gratification 7		.58
Sense of Belonging	34.58		.85	
		Belonging 1		.57
		Belonging 2		.68
		Belonging 3		.65
		Belonging 4		.73
		Belonging 5		.69
		Belonging 6		.50
Sense of Duty	24.08		.84	
		Duty 1		.59
		Duty 2		.69
		Duty 3		.71
		Duty 4		.72
Senses of Trust	29.41		.83	
		Trust 1		.63
		Trust 2		.68
		Trust 3		.61
		Trust 4		.61
		Trust 5		.59
Sense of Pride	23.95		.85	
		Pride 1		.65
		Pride 2		.75
		Pride 3		.70

CPO DIMENSION	Scale means	Pride 4 items	Cronbach's Alpha	.64 Item-total correlation
Sense of Affinity	33.899		.85	
		Affinity 1		.61
		Affinity 2		.65
		Affinity 3		.70
		Affinity 4		.68
		Affinity 5		.60
		Affinity 6		.63
Sense of Unity	28.778		.87	
		Unity 1		.69
		Unity 2		.76
		Unity 3		.63
		Unity 4		.72
		Unity 5		.69
Sense of Power	29.767		.83	
		Power 1		.65
		Power 2		.64
		Power 3		.65
		Power 4		.59
		Power 5		.64

5.5 Scale Validation-Confirmatory Factor Analysis

5.5.1 Confirmatory analysis results

A confirmatory analysis was undertaken to further test, modify, and validate the scale of PO on both levels. As no significant modification was made from EFA, the researcher decided to keep using the same sample to further validate the scale. A measurement model for PO was constructed in AMOA 25 software, still using the 42 items identified from the qualitative study.

5.5.1.1 CFA results of the individual level of PO

Note that the initial model of 26 measuring items with five dimensions were used to measure the individual level of PO in the online community. The CFA results reported the individual level of PO model fit indices at $\chi^2=773.92$, $df=289$, $p<0.001$; CFI =.842, SRMR= .0654, RMSEA=0.089. Considering the sample size of $n=212$, the p-value was expected to be significant. CFI value was .842, slightly lower than the desired value of 0.9. However, the values of both SRMR and RMSEA were higher than the expected value of 0.8. Therefore, the model fit the data reasonably well, but the results did not suggest a perfect model fit for the individual level of PO measure scale.

As can be seen in Figure 5.1, standardised indicator loading estimates of all the measuring items were 0.5 and higher. Among them, most factor loadings to the sense of trust, sense of duty, sense of belonging, and sense of pride were at or above the desired value of 0.7. However, the factor loadings to the latent variable sense of gratification were slightly lower than the desired value of 0.7. Specifically, the factors gratification 1 and gratification 5 had a lower indicator loading at 0.59 and 0.54 respectively to the dimension. Belonging 6 had a factor loading of .54. These factors were removed from the scale for a better fit model.

After modifying the model by deleting the eight items from the initial item pool that included the problematic items identified from EFA results and the lower factor loading identified from the CFA results, 18 items were retained for five measuring dimensions for the individual level of PO. The model fit indices at $\chi^2=245.488$, $df=108$, $p<0.001$; CFI=.931, RMSEA=0.078, SRMR=0.0488 met all the model fit indices thresholds and suggested a good model fit for measuring the individual level of PO.

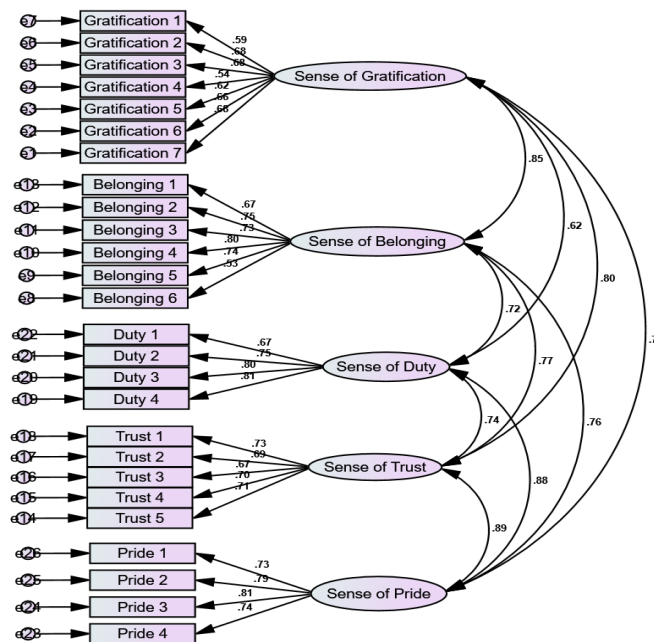


Figure 5. 1 CFA of the IPO scale solution

5.5.1.2 Construct reliability and validity for the IPO scale

According to Hair et al. (2010), scale convergent validity, reliability, and discriminant validity are examined to assess the construct validity of scales. Specifically, to achieve acceptable convergent validity, the standardised factor loading values to each construct must exceed 0.5. The results showed that standardised factor loading values of each construct ranged from 0.7 to 0.82, and all exceeded 0.7. This confirmed that the convergent validity of each item represented the dimension well and could be used to measure the construct. Further, the AVE value of the items ranged from 0.51 to 0.63, and all exceeded the threshold of 0.5. Therefore, the convergent validity of all 17 items was confirmed (see Table 5.27).

In addition, the reliability of the scale was examined by the construct composite reliability value, which ranged from 0.73 to 0.85, with all exceeding a minimum value of 0.7. This indicated the adequate convergent and internal consistency of the constructs. Thus, the reliability of the scale was verified (see Table 5.13).

Table 5. 27 IPO Scale Convergent Validity and Reliability

Construct and dimensions	St. factor loading	Cronbach's Alpha	Composite reliability	AVE
Sense of Gratification		0.71	0.74	0.58
Gratification 6	0.79			
Gratification 7	0.73			
Sense of Belonging		0.84	0.84	0.56
Belonging 2	0.73			
Belonging 3	0.72			
Belonging 4	0.81			
Belonging 5	0.74			
Sense of Duty		0.83	0.84	0.63
Duty 2	0.74			
Duty 3	0.82			
Duty 4	0.82			
Senses of Trust		0.80	0.81	0.51
Trust 1	0.74			
Trust 2	0.71			
Trust 3	0.71			
Trust 4	0.70			
Sense of Pride		0.85	0.85	0.59

Pride 1	0.75
Pride 2	0.80
Pride 3	0.78
Pride 4	0.74

Third, discriminant validity is a measure of the criterion that the square of corresponding correlation coefficients of each construct should be less than the AVE value. Table 5.14 shows that the AVE estimates, which ranged from 0.51 to 0.63 for the constructs, were greater than the square of the correlation value between any two constructs that ranged from 0.15 to 0.50. This therefore confirmed the discriminant validity (see Table 5.28). The fit indices and the construct validity and reliability values indicated that the specified measurement model had a much better fit to the data than the initial measurement model.

Table 5. 28 IPO Scale Discriminant Validity

Constructs	Sense of gratification	Sense of belonging	Sense of duty	Sense of pride	Sense of trust	AVE.
Sense of gratification	0.76	0.42	0.15	0.30	0.24	0.58
Sense of belonging		0.75	0.31	0.39	0.33	0.56
Sense of duty			0.79	0.50	0.32	0.63
Sense of pride				0.77	0.47	0.59
Sense of trust					0.72	0.51

Alternatively, the EFA also suggested four components from the data for the individual level of PO scale (see section 5.3.3.2). A four-factor model was tested to compare it with the current five-factor model. The EFA suggested that sense of duty and sense of pride were loaded on one component. Therefore, these two dimensions were combined as one factor to run the CFA analysis again. The results suggested the model fit indices were $\chi^2=295.386$, $df=112$, $p<0.001$; CFI=.907, RMSEA=0.088, SRMR=0.0552. As can be seen, the CFI was satisfactory at above .9, and SRMR was below 0.8, however, the RMSEA value failed to achieve the good fit threshold value. The Chi-square difference value $\Delta\chi^2=49.898$, $\Delta df=4$, $p<0.001$ suggested these two models were significantly different. Therefore, it was decided to keep the five-factor model as it was a significantly better fit to the data.

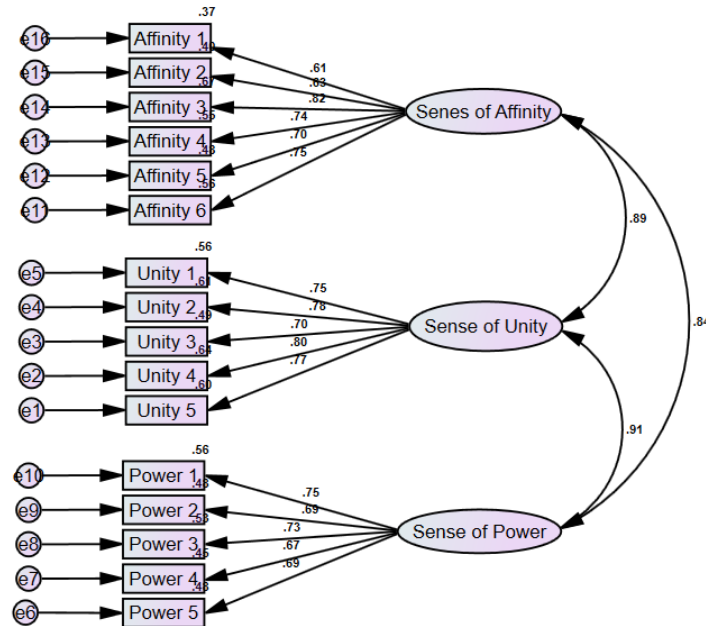


Figure 5. 2 CFA of CPO scale solution

5.5.1.3 CFA results of the collective level of PO scale

Similar to the individual level of PO scale CFA analysis results, the confirmation analysis reports that the initial CPO model fit indices were $\chi^2=295$, $df=101$, $p<0.001$; CFI=.613, RMSEA=0.095, SRMR=0.1340. Considering the sample size $n=212$; the p-value was expected to be significant. However, the value of both SRMR and CFI were much lower than the cut-off value of 0.9 and the RMSEA value was higher than 0.8. Therefore, the results did not suggest a good model fit.

It can be seen that some factor loading values were lower than the desired cut-off value of 0.7. For example, the items affinity 1 and 2 had a factor loading value of 0.61 and 0.63 respectively. Item power 2 and 4 had a factor loading value of .69 and 0.67. These items were removed from the measure item pool to further improve the model fit. On the other hand, the correlation between the constructs was very high. Specifically, the correlation value was .89 between sense of affinity and sense of unity, while sense of affinity correlated with sense of power at 0.84. More significantly, the correlation between sense of unity and sense of power was 0.91. This may have influenced the discriminant validity results of the scale.

To improve the model fit and reduce the correlation value among these constructs, the researcher removed the three low-factor loading items – affinity 1 and 2 and the item power 4. The modified CPO model fit indices suggested a much better fit model ($\chi^2=70.265$, $df=31$, $p<0.001$; CFI =.966, SRMR=.0059, RMSEA=0.077). The correlation values between the three constructs were also reduced to 0.8 and 0.84 respectively. This result supported retaining the other 10 items in the model.

5.5.1.4 Construct reliability and validity of CPO scale

The CPO scale convergent validity, reliability, and discriminant validity were examined to assess the validity of the scales (see Table 5.29). Specifically, all the standardised factor loading values for each construct were significant – all above 0.5 and ranged from 0.70 to 0.87. Indeed, all the standardised factor loadings were well above 0.7. This provided evidence that each item represented the dimension that it was intended to measure and achieved acceptable convergent validity.

Further, the AVE values of the construct ranged from 0.56 to 0.59 and were all well above the cut-off value of 0.5. The construct composite reliability ranged from 0.79 to 0.85 and exceeded the minimum value of 0.7, which indicated adequate convergence and reliability of the scale.

Table 5. 29 CPO Scale Validity and Reliability

Construct and dimensions	St. factor loading	Cronbach's Alpha	Composite reliability	AVE
Sense of affinity		.85	0.85	0.59
Affinity3	0.82			
Affinity4	0.73			
Affinity5	0.73			

Affinity6	0.8			
Sense of Unity		.84	0.79	0.56
Unity 2	0.72			
Unity 4	0.77			
Unity 5	0.75			
Sense of Power		.74	0.79	0.56
Power 1	0.79			
Power 4	0.74			
Power 5	0.71			

Discriminant validity was measured with the criterion that the square of corresponding correlation coefficients of each construct should be less than the AVE value. However, Table 5.30 shows that the AVE estimates, which ranged from 0.52 to 0.59 for the constructs, were less than the square of the correlation value between any two constructs that ranged from 0.64 to 0.68. This result confirmed the discriminant validity (see Table 5.30). The fit indices and the construct validity and reliability value indicated that the specified measurement model had a better fit to the data than the initial measurement model.

Table 5. 30 CPO Scale Discriminant Validity

	Sense of affinity	Sense of unity	Sense of power	AVE
Sense of affinity	0.77	0.64	0.67	0.59
Sense of unity	0.80	0.74	0.69	0.55
Sense of power	0.82	0.83	0.73	0.53

The main problem identified was the strong correlations between these constructs. As can be seen, after removing the low-factor loading items, the correlation among the three dimensions was still high, at or slightly above 0.8. The correlation between sense of power and sense of unity had the highest correlation value at 0.83. Based on Hair et. al. (2010), to further explore the discriminant validity of the model, the correlation between sense of power and sense of unity was defined by using covariance value “1” to test discriminant validity (Hair, 2010). The model fit indices were $\chi^2=88.742$, $df=32$, $p<0.001$; CFI =.951, SRMR= .0332, RMSEA=0.92. The Chi-square differences were $\Delta\chi^2=18.477$, $\Delta df=1$, $p<0.001$ ($p=1.71967E-05$), which indicated that even though the correlation values between the latent variables were high, the differences between the constructs and the two models were significant. Therefore, the discriminant validity of the two constructs was confirmed.

Alternatively, as expected, the EFA results reported a high correlation between sense of power and sense of unity. CFA was conducted again by combining these two constructs as one component to test a two-factor model. The model fit indices were $\chi^2=102.216$, $df=33$, $p<0.001$; CFI =.94, SRMR= .057, RMSEA=0.1. The fit indices value suggested a reasonably good fit model. The value of CFI and SRMR were all at a good fit range, but the RMSEA value failed to achieve the cut-off value of 0.8. Compared with the three-factor model, the difference between the two models was significant at $\Delta\chi^2=31.951$, $\Delta df=1$, $p<0.001$. However, as the three-factor model had a better fit than the two-factor model, the modified three-factor model was preferred.

Similarly, a one-factor model was also tested with the model fit indices where $\chi^2=145.86$, $df=34$, $p<0.001$; CFI =.902, SRMR= .052, RMSEA=0.12. Similarly, the value of CFI and SRMR were all at a good fit range, but the RMSEA was much higher than the 0.8 threshold value. The one-factor model and the three-factor model were significantly different at $\Delta\chi^2=75.235$, $\Delta df=3$, $p<0.001$. Again, the three-factor model had much better fit indices, and was confirmed as the collective level of PO measuring model in this research.

5.5.1.5 Combined PO scale validity

Five individual levels of PO dimensions and three collective levels of PO dimensions were put together in the AMOS software to test the overall PO model fit to the data. The model fit indices suggested a good fit model where $\chi^2=636.418$, $df=295$, $p<0.001$; CFI =.904, SRMR= .064, RMSEA=0.074. Even though the CFI was lower than both the individual level of PO and the collective level of PO measuring models, it was still above 0.9. SRMR and RMSEA were both lower than 0.8, achieving a good fit value. Further, for the individual estimate value for each item, all the specified loadings were statistically significant to the model. Therefore, the measurement model was confirmed as ready for the cross-validation exam. In sum, there were 17 items for the individual level of PO scale and 10 items for the collective level of PO scale, in total, 27 items for the overall PO measurement model.

5.5.1.5.1 Individual level of PO and collective level of PO as a second-order factor

After model validation for measuring the individual level of PO and the collective level of PO, the factors were interpreted as dimensions of the individual level of PO and the collective level of PO. The factors were constituted as less abstract, and were interpreted as dimensions or components of the individual level of PO and the

collective level of PO, which were more abstract as second-order concepts (Bagozzi & Yi, 2012). The second-order concepts of the individual level of PO and the collective level of PO represented the overall individual level of PO and the collective level of PO towards the online brand community, arising from the online brand community interactions (See Figure 5.3 and Figure 5.4). The model fit results suggested a good fit index for the individual level of PO measurement model comprising five dimensions ($\chi^2=300.5$, $df=113$, $p<0.001$; CFI =.903, SRMR= .062, RMSEA=0.09). The measurement model for the collective level of PO comprising three dimensions also provided a good fit to the data ($\chi^2=70.5$, $df=31$, $p<0.001$; CFI =.97, SRMR=.0447, RMSEA=0.079).

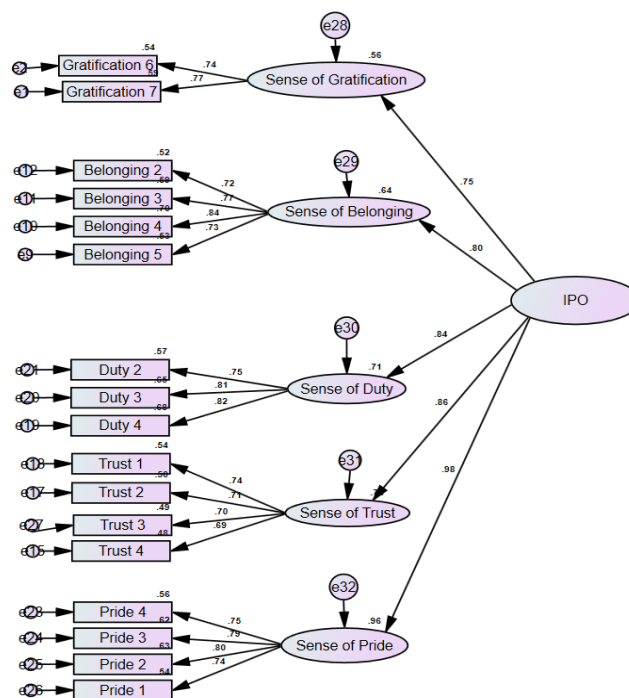


Figure 5. 3 IPO as second-order factor measurement models

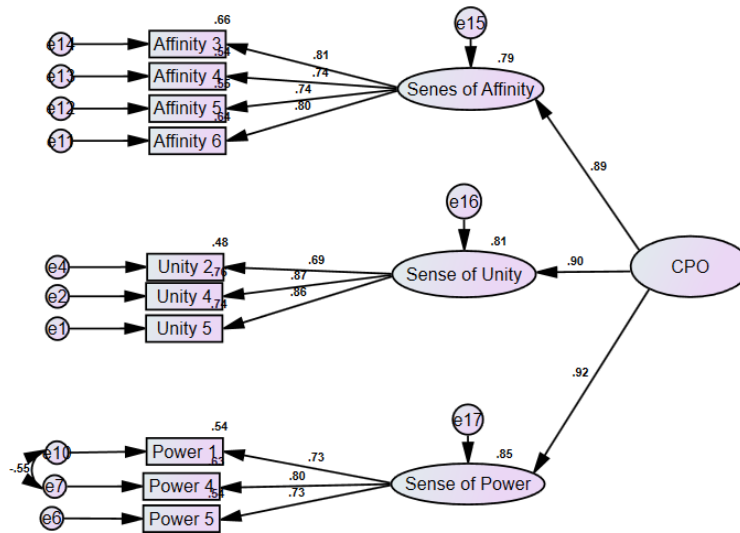


Figure 5. 4 CPO as second-order factor measurement models

In summary, after factor analysis of both EFA and CFA, 17 items in the individual level of PO scale were retained, and 10 collective level of PO scale items were retained. In total, 27 items were retained to measure PO in the research. Both models met reliability, validity, and discriminant validity tests with a good fit index. The following section examines these two models again to further validate the scales.

5.5.2 Cross-validation of the model

5.5.2.1 Sample

The second sub-sample of 206 online brand community consumers from the US who self-reported PO feelings towards their online brand communities was used in this cross-validation CFA factor analysis. The dataset was the second half of the data that were collected through a reputable research panel. The dataset contained 206 responses, which provided a minimum of five responses for each one of the 27 items (Hair et al., 2014). Therefore, the data were sufficient for a CFA analysis of given items.

Again, there was missing information from demographic questions, but no pattern was identified in the missing data. Since the questionnaire was designed in a forced-choice mode for the measuring items, there were no missing data for those items. The participants' details are shown in Table 5.31.

Table 5. 31 Participant Information of Cross-validation CFA

Demographic	Options	Percentage	Numbers
Gender	Male	51.3	101
	Female	48.7	96
	Other		
	Missing	4.4	9
Age	18-24 years old	16.2	32
	25-34 years old	24.9	49
	35-44 years old	21.8	43
	45-54 years old	15.2	30
	55-64 years old	14.2	28
	65-74 years old	7.1	14
	Missing	4.4	9
Ethnicity	Asian	9.7	20
	Black/African	17.5	36
	Caucasian	60.2	124
	Hispanic/Latino	7.3	15
	Native American	1.5	3
	Missing	3.9	8
Income	\$0-\$19,999	12.1	25
	\$20,000-\$34,999	15	31
	\$35,000-\$49,999	18	37
	\$50,000-\$74,999	18	37
	\$75,000-\$99,999	16	33
	Over \$100,000	15	31
	Prefer not to answer	1.5	3
	Missing	4.4	9
Education	12th grade or less	1.5	3
	Graduated high school or equivalent	20.4	42
	Some college. No degree	23.8	49
	Associate degree	11.2	23
	Bachelor's degree	27.2	56
	Post-graduate degree	12.1	25
	Missing	3.9	8
Online brand community participation duration			
	Less than 1 year	26.7	55
	1-2 years	25.24	52
	3-5 years	25.24	52
	6-8 years	9.2	19
	9-10 years	4.4	9
	11-15 years	2.91	6
	More than 15 years	0.97	2
	Missing	5.3	11
Online brand community visit frequency			
	Many times, every day	49	101
	About once a day	31.1	64

Once a week	14.1	29
A couple of times a month	3.9	8
Rarely	1.9	4
Missing	0	0
The online brand community built by		
Customers	39.3	81
The company	45.6	94
Others	1.5	3
Missing	13.6	28

The numbers of male and female participants were only slightly different (101: 96). Regarding age, 25-44 years old participants provided the most responses (46.7%), followed by three roughly equal groups representing 18-24 (16.2%), 45-54 (15.2 %) and 55- 65 (14.2%) years old. In total, people between 25-65 years old were the main participants for this survey, contributing more than 90% (92.3%) of the responses. Of the total participants, 60.2% were Caucasian, with 17.5 % Black /African American. Participants' income level was similar across the sample.

In relation to education background, 38.4% of the participants had a Bachelor's degree or associated degree, and 44.2% of participants had some high school or college education. The participants also reported a community participation time of less than one year to more than 15 years; 50.48% of them claimed that they had been involved in their community for 1-5 years, 26.7% of the participants only joined their community within one year, 9.2% of the participants had been in the community for 9-10 years, and 4.4% of them were long-term community members participating the community for more than 10 years. The majority of participants (80.1%) claimed that they visited the online community every day, while 49% of them visited their community many times per day. A minority (39.3%) of participants reported that consumers built their online communities, and 45.6% reported that their communities were built by the company.

5.5.2.2 Preliminary DATA examination

According to Hair et al. (2010), when conducting data analysis, the data need to meet all of the requirements, which demands much more from the dataset for complex assumptions. Thus, the present data were examined before any further analysis, to ensure the data analysis was truly valid and accurate.

5.5.2.2.1 Missing data

The data were collected from a reputable marketing research panel (CINT), and the researcher controlled the completion of the responses. The measuring variable survey questions were set in forced-choice mode. Thus, although there were some missing data for participants' demographic information, there were no missing data for the measuring variables. The data were then ready for outlier detection.

5.5.2.2.2 Outlier detection

According to Hair et al. (2010), for a small sample that contains 80 or fewer observations, a standard score of 2.5 or greater is issued to identify the outliers, but for larger samples like this research (206 observations), the threshold value of the standard score could be increased to 4. Therefore, the z score was computed for each item. The following table contains the univariate outlier detection results. The results suggested that the majority of the cases were within the ± 4 threshold. Cases 60, 123, 125, 135, and 147 exceeded the threshold on more than one variable, the z value ranging from 4.06 to 5.06 (see Table 5.32). The researcher decided to remove these cases as they might affect the overall measurement of the variable.

Table 5. 32 Univariate Outlier Detection of Cross-validation Dataset

Dimensions	Case number	Absolute z value
Gratification 2	125	5.36
Gratification 3	147	4.12
Gratification 5	147	4.83
Belonging 1	125	4.4
Duty 1	135, 147, 13	4.13
Duty 2	125	4.97
Duty 3	125, 123	4.06
Duty 4	123, 99, 147	4.62
Trust 1	174	4.63
Trust 2	147	4.57
Trust 4	123	4.74
Affinity 5	30	4.33
Affinity 6	125, 135	4.43
Power 4	176	4.41
Power 5	24	4.32

Hair et al. (2010) suggest using Mahalanobis D^2 value to assess each observation across a set of variables for multivariate detection. Specifically, higher D^2 values represent observation far distance from the general distribution in the multidimensional space, which can be identified as an outlier from the dataset. Further, it is suggested to use t value ($t = D^2/df$) to check the conservative level of the significance of outliers. The

rule of thumb of the t-value for a small sample is less than 2.5, and in a larger sample, 3 or 4 is the threshold value to detect the outliers (Hair et al., 2010). By considering the size of this dataset, 3.5 was decided as a significant threshold value for the outlier detection in the data.

The Mahalanobis distance value was computed for the 42 variables with 206 responses. The results indicated Mahalanobis distance value ranged from 3.35 to 130.87. Thus, the t value of D^2/df ranged from 0.08 to 3.12 with no case exceeding the threshold of 3.5. Therefore, no multivariate outlier was identified in this dataset.

5.5.2.3 Testing the assumption of multivariate analysis

5.5.2.3.1 Normality

The normality test was conducted by examining the level of skewness and the kurtosis of each measuring item in the dataset. However, according to Field (2018) and Hair et al. (2010), in large samples (200 or more), normality matters less, and sometimes not at all. Currant et al. (1996) suggest using skewness of absolute value 2.0 and kurtoses of 7.0 in multivariate normality testing for large samples with more than 200 responses. Therefore, by reviewing the dataset, the skewness values ranged from -0.726 to -1.761, with no case exceeding the absolute threshold value of 2.0. The kurtosis values ranged from -0.113 to 4.428, all well below the cut-off point of absolute value 7.0. Therefore, the normality of the data was supported. The normal probability plots are shown in Appendix H.

5.5.2.3.2 Homoscedasticity and linearity

Homoscedasticity refers to the assumption that the dependent variable exhibits equal variance across the range of predictor variables (Hair et al., 2010). The plots show that the relationship between the variables was normally distributed. Further, the points spread followed the regression straight line to show the linearity of the data (see Appendix H).

5.5.2.4 Testing the assumption of multivariate analysis

According to Hair et al. (2010), the overall measure of intercorrelation of the variables is examined to ensure the data is appropriate for the factor analysis. The majority of the correlations ranged from 0.3 to 0.7. Only three correlations were below 0.3, but not on one specific item. This indicated the reasonable factorability of the data.

The KMO value was .928, well above the recommended value of 0.5 (Hair et al., 2010, 2018). Bartlett's test of sphericity results ($\chi^2(212) = 3434$, $df = 351$,

$p < .001$) indicated that the data were sufficient and supported factor analysis (see Table 5.33).

Table 5. 33 Cross-validation Sample Adequacy

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.928
Bartlett's Test of Sphericity	Approx. Chi-Square	3433.828
	df	351
	Sig.	.000

5.5.2.5 Cross-validation of CFA results

5.5.2.5.1 Cross-CFA results of IPO scale

To repeat, a scale of 17 items with five dimensions was validated to measure the individual level of PO in the preview section. The results from cross-validation confirmation analysis reported the individual level of PO model fit indices at ($\chi^2=331.65$, $df=108$, $p < 0.001$; CFI =.886, SRMR= .052, RMSEA=0.102). As can be seen, the CFI value was .885, which is slightly lower than the expected value of 0.9, and RMSEA was higher than the expected value of 0.8. However, the SRMR value was in a good fit range. Therefore, the model fit the data reasonably well, but the results did not suggest a perfect model fit for the individual level of PO measure scale. However, the cross-CFA of the individual level of PO model fit index was similar to the individual level of PO model in the previous section at $\Delta\chi^2=80$, $\Delta df=0$, $p=n.s.$

5.5.2.5.2 Cross-CFA results of CPO scale

The results from cross-validation confirmation analysis reported the collective level of PO model fit indices at ($\chi^2=76.6$, $df=31$, $p < 0.001$; CFI =.95, SRMR= .042, RMSEA=0.086). The CFI and SRMR values suggested a good fit model for the cross-validation data. However, the RMSEA value was slightly higher than the expected value of 0.08. Therefore, the model fit indices suggested a reasonably good fit model again, although not perfect. The cross-CFA collective level of PO model fit was similar to the collective level of the PO model from the previous section ($\Delta\chi^2=6.1$, $\Delta df=0$).

5.5.2.5.3 Cross-CFA results of IPO and CPO as a second-order construct

The measurement model for the individual level of PO, comprising five dimensions as a second-order construct, provided reasonably good fit to the second-subset data ($\chi^2=352$, $df=113$, $p < 0.001$; CFI =.88, SRMR= .057, RMSEA=0.10). The

CFI value was slightly below the expected value of 0.9, and the RMSEA value was slightly higher than the expected value of 0.08.

Similar results were reported for the collective level of PO as a second order measurement model ($\chi^2=76.6$, $df=31$, $p<0.001$; CFI =.95, SRMR= .042, RMSEA=0.086). The results suggested a reasonably good fit model but not a perfect fit to the data.

5.5.2.5.4 Cross-CFA results of the whole PO scale

The results from cross-validation confirmation analysis reported the whole PO model fit indices at ($\chi^2=719.202$, $df=294$, $p<0.001$; CFI =.85, SRMR= .056, RMSEA=0.084). The CFI was slightly lower than 0.9, and the RMSEA value slightly exceeded the expected value of 0.08. Again, the model fit indices suggested a good but not perfect model fit to the data. The cross-CFA whole model fit was similar to the results in the previous section ($\Delta\chi^2=79.3$, $\Delta df=0$, $p>.1$), but the model fit in the first sub dataset better than this dataset (see Table 5.34).

Table 5. 34 Model Fit Comparison

Fit indices	Initial IPO model fit	Cross-CFA IPO model fit	Initial CPO model fit	Cross-CFA CPO model fit	Initial whole model fit	Cross-CFA whole model fit
χ^2	249.62	331.65	70.53	76.60	639.94	719.20
Df	108	108	31	31	294	294
CFI	0.93	0.89	0.97	0.95	0.90	0.85
RMSEA	0.78	0.102	0.079	0.086	0.076	0.084
SRMR	0.049	0.052	0.044	0.044	0.052	0.056
$\Delta\chi^2$		82.032		6.068		79.267
Δdf		0		0		0

5.6 Model fit comparison across two datasets

Comparing the model across two datasets, the model fit indices suggested that three models developed from the confirmatory analysis fit reasonably well in the new dataset (see Table 5.34). Even though there were some differences between the values of the fit indices, there were no significant differences between the models. Therefore, the three models that measured the individual level of PO, the collective level of PO, and overall PO models were deemed to be valid. These models and measuring items

were confirmed and were used in the hypothesis test in the next chapter. The whole model is presented below (see Figure 5.5):

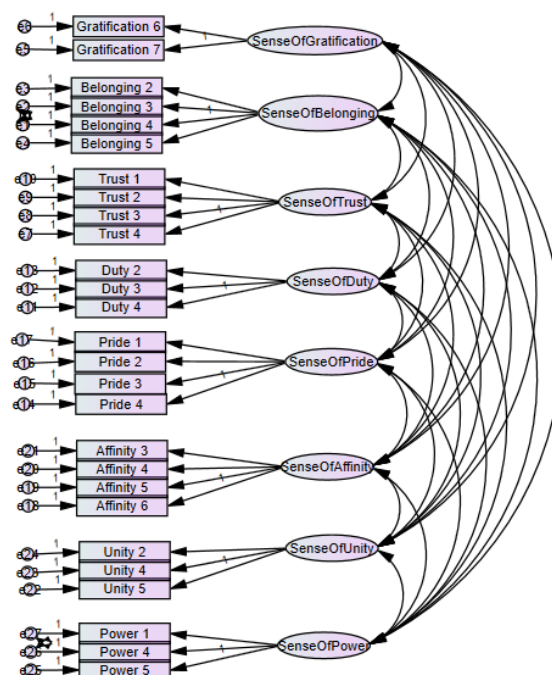


Figure 5. 5 Finalised model for measurement

5.7 Chapter discussion

5.7.1 Discussion of the PO dimensionality

The qualitative research suggested five dimensions for the individual level of PO and three dimensions for collective level of PO, with 42 items to measure PO in an online brand community. The factor analysis results suggested some of the items grouped well, but some of the items had a cross-loading problem. This section discusses the potential reasons for these problems.

Sense of gratification was proposed as the first dimension of the individual level of PO concept. Initially, seven items were developed to measure the construct of sense of gratification. However, the first five items were deleted to further improve the model fit. These five items related to how online members are gratified by receiving benefits from the community. However, during the factor analysis, the participants did not include these items in the meaning of PO. They might have felt that they could receive these benefits from any other online community or platform. Thus, these items may not have related to their essential feeling of PO towards the community. For example,

consumers can gain similar benefits from other resources, but may not form a feeling of PO feeling towards those resources. Thus, the consumers seemed to enjoy the benefits provided by these communities, but these benefits could not ensure PO development in these consumers.

On the other hand, psychological benefits from “their” community were highly appreciated. The last two measuring items seemed to be more relevant to consumers’ realisation of the psychological state, rather than the gratification feeling, that they received from online media consumption. The consumers seemed to believe these psychological supports were more important for them in forming a feeling of PO. This might reflect that the consumers interpreted PO as a more profound cognitive and affective feeling than the feeling of gratification that they received from the benefits. If this assumption is valid, the dimension of sense of gratification in PO might be perceived as a stronger sense than referred to in gratification theory, which explores a more generalised feeling of gratification amongst consumers.

The majority of sense of belonging measuring items remained in the model. Item 6 – “I feel I cooperate better with people in this community than others” – was deleted from the item pool due to a low factor loading value. This item was originally developed from the qualitative research results. The reason for the item’s removal might be because two participants in the qualitative research phase were from online game brand-related communities. These online communities usually share game-related topics or invite people to play online games together; therefore, the feeling of “cooperating better” with their “own” members than others was more often highlighted by these participants. However, during the factor analysis studies, the samples were collected from various online brand communities where the majority of the communities were social communication oriented. The “cooperation experience” among these online brand community members may not have been perceived to be as important as it is amongst game brand-related community members.

Similar to the dimension of sense of belonging, the majority of sense of pride measure items remained in the item pool. Only the last item – “I feel proud of becoming a better person with the community members’ help” – was removed. This item might have been perceived to be similar to another item – “I feel proud of my improvement” – as both of the items emphasised the person’s feeling of “getting better” with community members’ help. Moreover, as this item – “I feel proud of becoming a better person with

the community members' help" – involved an evaluation of other community members' help, the consumer might have interpreted it as a dependent self-accomplishment. Thus, although the two items shared similar meanings, the item "I feel proud of my improvement" seemed to emphasise sense of pride more strongly and directly.

Initially, six items were developed to measure the dimension sense of trust, but one item was removed from the model. The removed item – "To some extent, I can rely on the community when I need help" – was originally developed from the qualitative research results, where participants recalled some situations when one online community member received immediate support from other community members. As this item was developed based on the participants' memory of these "special situations", when surveying a larger proportion of online brand community members, this kind of situation might not be very common. In addition, immediate help may not be requested often in an online brand community. The majority of the population may still contact their family or friends when they need help. This might be the reason that there was a low factor loading value for this item.

One of the senses of duty items was also deleted from the model. The first item – "If I take a role in the community, I know I accept the obligation to help the community" – was adapted from the existing literature where it is used to measure online consumers' roles in the community. The qualitative research participants also shared the stories of their obligation to look after the community. However, this item was removed from the list due to a low factor loading value. This might be because only a small number of people in their online communities played a role of helping and managing the community, while the majority of the online community members did not have any given roles, but simply participated in the community. Apart from this item, all other items remained in the measuring pool.

Sense of community affinity is one of the collective levels of PO dimensions. The items "Most community members know each other" and "Most community members are familiar with each other" were removed from the item pool. These two items were adapted from the existing literature, and have been well tested to describe the familiarity among online brand community members. However, in the present research, the factor loading values of these items were lower than other items. It might be because to be "familiar" and to "know" each other in an online community do not directly reflect the PO feeling towards the community. Also, to be "familiar with" and

to “know” others may represent different conceptual continuums. For example, when you know someone, you can know the person very well, or know them only a little. These two items might be more meaningful to PO when an online community member knows or “is familiar with” their community very well.

Similarly, two items under another collective level of PO dimensions relating to sense of unity were also removed. The items “Our community members feel united” and “Community members are always together as one big group” were removed from the item pool measuring sense of unity. These two items reflect the status of community members when they are together. However, the members of an online brand community constantly come and go, and only the main contributors to the community stay and care about the community. Among the stayers, only the members who feel a high level of PO towards the community might care about the community from a manager or team carrier’s perspective and consider all community members as one big group. In contrast, people who have a low level of PO feeling towards the community or only enjoy the community participation experience might not care if the community members are united or not, and hence respond to these two items differently.

Two sense of power items – “Everyone can have power in this community only by working with other community members” and “Community members believe power is collective, not individual” – were removed from the item pool. These two items both emphasise group power over individual online community members. These two items might be hard to rate for a participant who has a strong belief in individualism. The sample was collected from US residents who live in an individualistic culture, so their response could have influenced the factor loading to the construct. The limitations of the sample were discussed in the last chapter.

Overall, the eight dimensions were all reasonably confirmed from the scale development studies. The majority of the measuring items were retained from the EFA and CFA factor analysis. These eight dimensions were then confirmed as PO measuring dimensions. The first five dimensions were used to measure the individual level of PO, and the last three dimensions were used to measure the collective level of PO.

In summary, the CFA results suggested consumers’ psychological gratification measure items remained in the model. Thus, the construct of sense of gratification is renamed as sense of psychological gratification with specifically explain consumers gain psychological supports and benefits from their community.

5.7.3 Validity discussion

The CFA results suggested a good model fit for both the individual level of PO and the collective level of PO measuring models. The individual level of PO model was fully confirmed and validated with robust results. However, there was difficulty in confirming the discriminate validity of the items for the CPO scale by comparing the AVE value with the construct correlation values, due to the high correlation among the three factors. The validity was confirmed by applying an alternative analysis. The results also confirmed a better fit with the three-factor model than the two-factor model or the one-factor model. But, comparing AVE values with correlation values is still a more robust test to confirm the validity of the scale (Hairs et al., 2010).

5.7.4 Cross-validation CFA discussion

The cross-validation results did not suggest a perfect model fit index for either the individual level of PO and the collective level of PO scales, which may have been caused by the differences between the two sub-datasets. Although the two-sample data set was randomly split up from the original data, it is noteworthy that the sample was different in age, ethnicity, and online brand community participation duration.

The second sub-dataset included more younger participants. For example, 5% more participants aged 18-24 completed the survey in the second sub-dataset than the first sub-dataset. On the other hand, more than 7% of the participants (7.7%) aged 34-44 years old responded to the survey in the first sub-dataset rather than the second sub-dataset. In total, 8% more Caucasian people completed the survey in the first sub-dataset, while a further 4% of Asian and Black/African Americans participated in the survey in the second sub-dataset. Similarly, a further 8% of the participants in the second dataset had less than 1-year participation duration compared to the participants in the first dataset – while they appeared to visit their online brand community more often than the participants in the first dataset. These differences may have caused different evaluations of the scale items in the datasets.

5.8 Chapter conclusion

This chapter presented a PO measurement item generation process. In total, a 42-item pool that contained 26 individual levels of PO measurement items and 16 collective levels of PO measurement items was generated from the qualitative study of this research and finalised by consulting a research panel and past literature. Factor

analysis was undertaken with two sub-datasets. The results from EFA confirmed the number of dimensions of PO in an online brand community. The CFA analysis validated the scales to measure both the individual level of PO and the collective level of PO in the research context. Although the cross-validation results did not suggest a perfect fit confirmation, the results confirmed the general theoretical direction and reported a reasonably good fit index of both scales with a new sub-dataset. Both validated scales were applied in the third research phase to test PO effects on online brand community commitment and the brand. The following chapter will present the results of the test.

Chapter Six: Hypothesis Development and Testing

6.1 Chapter introduction

In the previous chapter, the results of a scale development process informed a validated measurement of PO in online brand communities to address the second research objective. Both individual level of PO and collective level of PO scales were established and validated. They were applied to test PO effects on consumers' online brand community commitments, brand attachment, and brand commitment to achieve the third research objective, answering the last research question.

The third research phase aimed to investigate PO as a psychological factor that influences consumers' online behaviour, testing out PO effects in the online context. This chapter presents hypotheses and a conceptual framework, reporting the results of testing those research hypotheses.

This chapter is organised into seven sections. After the introduction, section two presents hypothesis development. Section three presents the conceptual framework. The fourth section presents the hypothesis testing details including the measurement assessment, sample details, and data examination. The fifth section reports the results of the hypotheses testing, and a discussion is provided in the sixth section. Section seven concludes this chapter.

6.2 Hypothesis development

6.2.1 Online brand community commitment

Scholars have suggested that the real success of an online brand community relies on the community members' commitment to the community (Astakhova, 2016; Greguras & Diefendorff, 2009; Shen et al., 2018). Online brand community commitment has been identified as an essential concept in marketing research (Akroun & Nagy, 2018; Bagozzi & Dholakia, 2006; Kim et al., 2008; Raies et al., 2015; Shankar et al., 2006). The concept of commitment can be used as a predictor of members' actual behaviour in an online brand community, such as participating in the community activities, helping other online consumers, or helping the community (Akroun & Nagy, 2018; Raies et al., 2015). The qualitative study participants in the present research also reported their commitment to their community, with phrases such as “this is the only group I have been with for such a long time... I won't quit this group ...”. (Participant 1-interview). This research aimed to test whether online community members' PO towards the community can influence their online brand community commitment. The

following section explores the relationship between PO and consumers' online brand community commitment.

6.2.1.1 The relationship between PO and commitment

Online brand community commitment refers to “the extent of members’ psychological attachment to an online community and their belief in the value of the relationship” (Kim et al., 2008, p. 412). In the online brand community, consumers’ commitment to the community has been interpreted as the continuing desire to maintain a valued relationship with the community (Moorman et al., 1992), asking the question “Should I maintain my membership in this online brand community in the future?”. In simple words, online brand community commitment reflects the consumer attitude of continually staying in the community and committing to the community participation.

PO has been tested and confirmed as a predictor of organisational commitment in work-related research (Dyne & Pierce, 2004; O'Driscoll et al., 2006; Pierce & Furo, 1990). PO has been evidenced as positively related to organisational commitment; employees who have PO towards the organisation are more likely to stay with the company (Dyne & Pierce, 2004). Past marketing research has also reported that commitment, as a behavioural concept, can be influenced by not only community-related constructs but also by psychological constructs such as consumers’ psychological sense of community and their normative pressure (Algesheimer et al., 2005; Carlson et al., 2008). Thus, PO as a psychological construct may influence community members commitment to the community as well.

Dyne and Pierce (2004) and Beggan (1992) reported that people are more attached to the things that they “own” than other things that they do not feel they possess. Similarly, in this present research, when online brand community members feel they have “ownership” of the online brand community, the online brand community becomes an important part of the extended self. They can find meaning from the community that represents or maintains their extended self. Also, when individual consumers develop PO towards the community, the online brand community become their virtual ‘home’, the sense of belonging, sense of trust, sense of duty sense of pride and sense of gratification that they develop in the community make them feel the community is ‘their’ own place to stay. Thus, they may decide to keep their membership with the community for a better feeling of the self. Also, the collective sense of PO to the community makes them feel that they are closely connected with their community members. Whenever they feel lonely, they may want to participate in

the community to gain a close feeling from the community members. Overall, these senses developed from community participation may make the community members feel psychologically attached to the community and with a desire to maintain their membership in the community in the future. Thus, it can be predicted that there is a positive relationship between PO towards the online brand community and online community commitment as detailed in the following hypothesis:

Hypothesis 1: Consumers who have PO towards a community are more likely to commit to their brand community.

6.2.1.2 The relationship between PO dimensions and online brand community commitment

Consumers' PO to the online brand community involves an overall concept including a number of dimensions. Based on the above discussion, if consumers' PO is positively related to their online brand community commitment, each underlying dimension might also positively relate to consumers' commitment to the community. The following section discusses the relationship between each PO dimension and the online brand community commitment.

6.2.2 Individual level of PO and online brand community commitment

6.2.2.1 Sense of gratification and online brand community commitment

Use and gratification theory suggests that when consumers use a medium that fulfils their specific needs, the feeling of gratification leads them to repeat their experience (Hausman & Siekpe, 2009; Katz et al., 1973). Simply, consumers want to visit and revisit online brand communities because they anticipate receiving benefits that fulfil their needs (Nambisan & Baron, 2009). When these community members want to receive such benefits, they are more likely to continue their membership with the community.

In the present research, when the online brand community members find the community is a place where they can receive encouragement and motivational support, a place that helps them to gain positive energy and relief from anxiety and depression, they are likely to want to repeat their online brand community participation experiences. In particular, when they feel upset and demotivated in their life, to have people from the community supporting them and encouraging them makes them feel psychologically attached to the community.

Also, when these community members' needs are fulfilled by the community, they feel happy and satisfied with their community participation experience. These positive participation experiences make them feel the community is the 'right place' to stay and they want to continue their participation in the community. Also, based on these positive participation experiences, the online community members might think that the community can fulfil their other needs in the future. Especially when they know that the community shares different types of resources among the members, they might want keep their membership with the community for later gratification needs. Thus, sense of gratification might positively relate to consumers' commitment to the community. Thus, the following is hypothesised:

Hypothesis 1a: Sense of gratification will positively influence consumers' online brand community commitment.

6.2.2.2 Sense of belonging and online brand community commitment

Marketing scholars have reported that consumer commitment to the online brand community emerges because of the community members' emotions and the closeness among the community members (Royo-Vela & Casamassima, 2011). Past research has demonstrated that consumers who belong to an online brand community develop higher levels of commitment than those not belonging to any online brand community (Royo-Vela &, 2011; Casalo et al. 2008).

In the present research, an individual's sense of belonging is derived from their feeling of being included, accepted, and supported by the community members. It is also derived from the feeling of the community's importance and a close bond with the community members. The sense of belonging gives community members a feeling of 'being part of the community family' or 'being with their friends'. They feel that they are welcomed and accepted by the community members, and also feel that they fit in the group. This feeling makes them feel a psychological attachment to the community. The community becomes "their" place of meeting up with their friends and catching up with them. Whenever they want to find their friends, they need to login to the community. Therefore, they might want to continue to visit and to remain in a relationship with the community members by continuing their membership with the community. It can be predicted that when consumers feel they belong to the community, they want to stay with the community. Thus, this study tests whether the sense of belonging positively influences consumers' online brand community commitment, based on the following hypothesis:

Hypothesis 1b: Sense of belonging will positively influence consumers' online brand community commitment.

6.2.2.3 Sense of trust and online brand community commitment

Commitment and trust theory suggests that trust and commitment are positively related and trust is a major determinant of relationship commitment (Morgan & Hunt, 1994). This is consistent with marketing research that has found that consumers' trust significantly affects their commitment to the service provider relationship (Moorman et al., 1993). Specifically, the stronger the trust a consumer feels towards a service provider, the stronger the affective commitment they have to the service provider (Bansal et al., 2004). Online brand community members' trust in the community has been discussed as one of the most critical predictors of community commitment (Hur et al., 2011).

In this research, sense of trust was examined through the consumers' feeling of safety provided by the online brand community members. Individual members feel that the community cares about them and they can receive trustworthy suggestions and support from the community. In turn, this feeling of trust may encourage them to stay in the community as a trusted space and stay with the community members as trusted people they can communicate with. The community is therefore a place where they can release their hidden emotions and thoughts, or communicate with trusted people about their ideas, their feelings, and their situation. This trust that community members perceive in the community makes them believe that the community is the right place to stay and they seek to maintain their relationship with the community and members. The following hypothesis was therefore developed:

Hypothesis 1c: Sense of trust in an online brand community will positively influence consumers' online brand community commitment.

6.2.2.4 Sense of pride and online brand community commitment

Pride has been identified to be a predictor of commitment and loyalty in the sports community and commitment has also been found to be one of the major consequences of pride (Decrop & Derbaix, 2009). According to Decrop and Derbaix (2009), when sport fans feel proud of "their" sport team and fans, they are more committed to the team and the community. In the present research, two aspects of pride were used to measure consumers' sense of pride: "I am proud of myself" and "I am proud of what have done". When individuals feel proud of themselves in the

community, the community becomes a place for them to feel satisfied with self. Similarly, when they feel proud of what they have done in the community, the community becomes a place for them to recognise their achievements. An individual's sense of pride can be recognised by other community members, which strengthens the individual's confidence in front of other people in the community. They might feel satisfied with the community and less likely to leave it. This reasoning is consistent with other organisational research that has confirmed that the concept of pride is directly and positively associated with affective organisational commitment (O'Driscoll et al., 2006). Therefore, the following is hypothesised:

Hypothesis 1d: Sense of pride will positively influence consumers' online brand community commitment.

6.2.2.5 Sense of duty and online brand community commitment

Similarly, when an online brand community member feels a duty to the online brand community, they feel responsible for "my" community. They want to take care of the community. To cope with this sense of duty, the community member may closely check the community updates and search for opportunities whereby they can do something for the community. As a result, this sense of duty leads them to commit to participating in the community and maintaining an ongoing relationship with the community.

When a community member contributes to the community, in turn, they receive the appreciation and respect of other community members, which might reinforce their sense of duty to the community. They might wish to continue to serve others in order to receive the respect of other members, and therefore continue to be involved and participate in the community.

At the same time, they also likely to perceive the importance of their contributions to the community's development and other community members. They feel some parts of the community are the results of their contributions. Thus, they might also want to continually check how the community is developing with their participation and how others contribute to the community. Thus, the following is hypothesised:

Hypothesis 1e: Sense of duty will positively influence consumers' online brand community commitment.

6.2.3 Collective level of PO and online brand community commitment

Marketing scholars have noted that consumer commitment to an online brand community emerges because of the community members' emotions and the closeness among the community members (Royo-Vela & Casamassima, 2011). When community members find out that they all share similar goals and value similar things, they help each other, enjoy time being together; they can feel the affinity among the members. This sense of affinity among the members encourages them to stay with each other as a close group to share mutual support and enjoy the mutual benefits together. Therefore, community members' sense of affinity might lead to their community commitment.

Similarly, when the community members feel that they are united as a big group, they all contribute to community development and community achievements. They feel that each member is an essential part of the community and that together they grow and nourish the community to achieve the same goals. This collective sense of bonding encourages the individual consumer to unite with the community members and to continue to commit to the community and maintain a close relationship with the community.

Research has also reported that community members realise that participation in the community enables them to interact with each other in order to share valuable resources and to do or achieve the things that they find challenging to do or to achieve on their own (Amichai-Hamburger, 2008). Thus, they might feel the community is a place for them to stay with others, to gain the power to achieve their goals. To consume these valuable resources, to develop a feeling of community power, and to achieve their goals, the individual consumers might want to continue their relationship with the community and also commit to participating in the community to increase the sense of power. Based on the above discussion, the following three hypotheses are presented:

Hypothesis 2: CPO will positively influence consumers' online brand community commitment.

Hypothesis 2a: Sense of affinity will positively influence consumers' online brand community commitment.

Hypothesis 2b: Sense of unity will positively influence consumers' online brand community commitment.

Hypothesis 2c: Sense of power will positively influence consumers' online brand community commitment.

6.2.4 Online brand community commitment and brand commitment and brand attachment

Online community commitment has been identified in the marketing literature as an antecedent of brand relationship quality (Akrouf & Nagy, 2018), and also found to lead to consumers' commitment to the brand (Kim et al. 2008). More research has confirmed this relationship between online brand community commitment and brand commitment (Chaudhuri & Holbrook, 2002; Kim et al., 2008; Walsh, et al., 2010; Tuskej et al., 2013).

It has been reported that online community members share their experience with a brand and related products, at the same time as sharing their understanding of the brand meaning and discussing their attitudes to the brand (Muniz & O'Guinn, 2001; Park et al., 2010). Committed online brand community members tend to actively participate in the brand and undertake product-related interactions with other members, which helps strengthen consumers' brand experience and brand value interpretation. Once online brand community commitment is established, online community members may perceive the information shared in the community as a more reliable source. Therefore, the online brand community may reveal stronger brand commitment; specifically, when online community members share favourable information about the brand or the products, other community members are more likely to review the products or brand positively (Kim et al. 2008). Therefore, the following hypothesis is proposed:

Hypothesis 3: Consumers' community commitment will positively influence their brand commitment.

Similarly, online community members are likely to share their experience of a brand and related products, while also sharing their understanding of brand meaning and positively discussing their attitudes to brand commitment (Muniz & O'Guinn, 2001; Zhou et al., 2012). Committed consumers discuss brand and product-related content while sharing their attitudes, preferences, and their relationship with the brand. As a result, their feeling of being "attached" to the community might be transferred to their understanding of the brand and their relationship with the brand (Jahn et al., 2012).

Therefore, once consumers develop a committed relationship with the online community, they might also transfer this relationship to the brand as a brand attachment. Thus, the following hypothesis is proposed:

Hypothesis 4: Consumers' community commitment will positively influence their brand attachment.

6.2.5 Online brand community commitment mediation effects

When combining H1, H2, H3 and H4, it can be predicted that community commitment plays a mediating role between the individual level of PO and the collective level of PO, as well as their underlying dimensions and brand commitment and brand attachment. Based on the above discussion on online brand community members' experience and their brand relationship, it is predicted that consumers' PO towards the community can influence their brand relationship through their community commitment. Specifically, PO reflects an online brand community member's close relationship with the community, and this relationship might also be transferred to the brand through the member's continued commitment to the brand community.

Brand attachment has been defined as the brand-self connection, which involves a cognitive and emotional connection between the brand and the consumer's self (Park et al., 2010). As previously discussed, consumers' PO states also involve thinking about self, and regarding the community as "mine" or "ours" (see Chapter 4). When an online brand community member forms a feeling of PO towards the community, the information shared in the community might also be perceived as "mine" or "ours". Therefore, when an individual maintains a relationship with the brand community, they continue to receive and interpret information about the brand and might also relate the information to themselves (Park et al., 2010). Subsequently, brand-related information from others who also feel PO towards the community might be more appreciated and related to the self.

The stronger the feeling of PO that community members form towards the community, the longer they continue to participate in the community and the more likely brand-related thoughts and feelings are stored in their minds and connected to themselves. Through their commitment to the community, they might build a connection between brand and self to form their brand attachment. During this process, the community commitment might mediate the relationship between consumers' PO and brand attachment. Community commitment might also mediate both the individual level of PO and collective level of PO and the effect of their underlying dimensions on consumers' brand attachment. The following hypotheses are therefore proposed:

Hypothesis 5: Brand community commitment mediates consumers' individual level of PO and CPO's positive influence on brand attachment.

H5a: Brand community commitment mediates sense of gratification's positive influence on consumers' brand attachment.

H5b: Brand community commitment mediates sense of pride's positive influence on consumers' brand attachment.

H5c: Brand community commitment mediates sense of trust's positive influence on consumers' brand attachment.

H5d: Brand community commitment mediates sense of belonging's positive influence on consumers' brand attachment.

H5e: Brand community commitment mediates sense of duty's positive influence on consumers' brand attachment.

H5f: Brand community commitment mediates sense of affinity's positive influence on consumers' brand attachment.

H5g: Brand community commitment mediates sense of unity's positive influence on consumers' brand attachment.

H5h: Brand community commitment mediates sense of power's influence on consumers' brand attachment.

Similarly, brand commitment reflects consumers' desire to maintain a relationship with a brand (Jahn et al., 2012). As discussed previously, PO is derived from the online brand community's discussion dynamics, and the brand-related interaction that includes consumers' brand experience and evaluation also occurs in this discussion. When community members form PO towards the community through the discussion dynamics, the brand-related information is also processed. When the community members build a close relationship with the community through continuous participation in the community, they might also want to maintain a continuous relationship with the brand.

The community commitment reflecting a close relationship with the community might be transferred to individuals' relationship with the brand through the brand-related interaction among the community members. Thus, community commitment might mediate both the individual level of PO and the collective level of PO and the

underlying effect of the dimensions on consumers' brand commitment. Therefore, the following hypotheses are proposed:

Hypothesis 6: Consumers' brand community commitment mediates their individual level of PO and collective level of PO's positive influence on brand commitment.

H6a: Brand community commitment mediates sense of gratification's positive influence on consumers' brand commitment.

H6b: Brand community commitment mediates sense of pride's positive influence on consumers' brand commitment.

H6c: Brand community commitment mediates sense of trust's positive influence on consumers' brand commitment.

H6d: Brand community commitment mediates sense of belonging's positive influence on consumers' brand commitment.

H6e: Brand community commitment mediates sense of duty's positive influence on consumers' brand commitment.

H6f: Brand community commitment mediates sense of affinity's positive influence on consumers' brand commitment.

H6g: Brand community commitment mediates sense of unity's positive influence on consumers' brand commitment.

H6h: Brand community commitment mediates sense of power's influence on consumers' brand commitment.

6.3 The research framework

As online brand commitment was reported by the qualitative participants, this study examined the effects of PO on consumers' online brand community commitment. Further, commitment has been examined as a mediating variable in the past literature (Dyne & Pierce, 2004; O'Driscoll, Pierce & Coghlan, 2006) and proposed as the link in the chain that binds members in an online community with the brand (Akrouf & Nagy, 2018).

Therefore, this research phase aimed to find out how PO affects brand community commitment and thus its influence on brand attachment and brand commitment. The following framework is proposed as a fundamental theoretical model for this research (Figure 6.1):

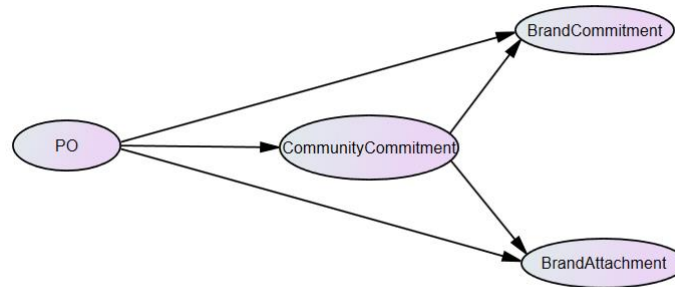


Figure 6. 1 PO effects model

Further, each PO dimension was considered as a cause of community commitment to investigate how these dimensions impact community commitment and brands. The following model is proposed (Figure 6.2):

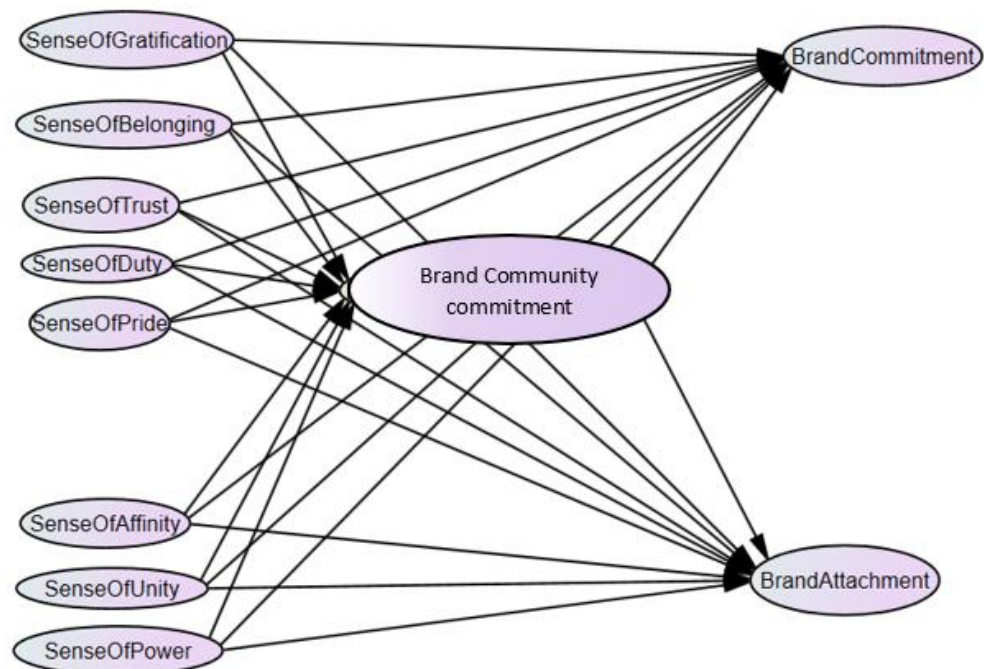


Figure 6. 2 PO dimension effects model

As PO has been discussed at two levels – the individual level of PO and the collective level of PO – the goal became to investigate how these two levels of second-order PO constructs influence consumers’ online brand community commitment and how these two levels of PO influence consumers’ relationship with the brand. A proposed model is presented below (Figure 6.3).

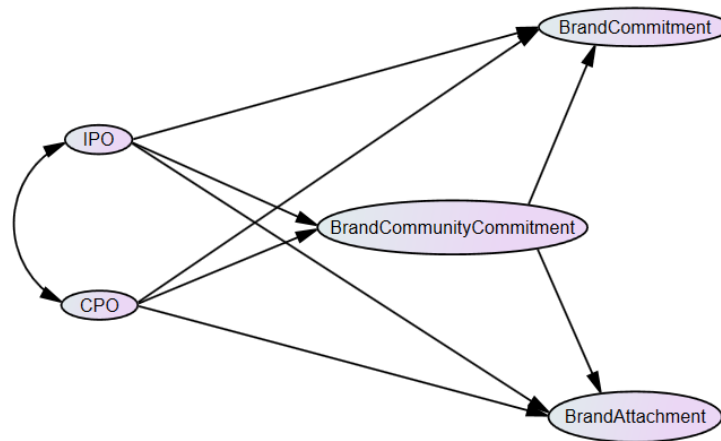


Figure 6. 3 IPO and CPO effects model

6.4 Hypothesis testing

6.4.1 Measurement and validity assessment

As discussed previously, both the individual level of PO and the collective level of PO were defined as second-order variables to be measured with a scale developed from previous research studies. Online brand community commitment was defined as online brand members' desire to maintain their relationships with the online brand community. A 5-item scale was adapted from Mathwick et al. (2008) and Wasko and Faraj (2005) to measure consumers' online brand community commitment. A 10-item scale was adapted from Thomson et al. (2005) to measure brand attachment, including the three first-order dimensions of affection, connection, and passion. In addition, a four-item measure was adopted from Chaudhuri and Holbrook (2001) and Evanschitzky et al. (2006). The measurements of the variables are listed below (see Table 6.1). The discriminate validity test results (see Table 6.2) suggested that PO in two levels are different from consumers' commitment to the community. Thus, the results also suggested consumers' PO to their online community and the consumers' commitment to the online community are two different concepts.

Table 6. 1 Variable Measurement and Validity Assessment

Measure item and validity assessment	Cronbach's α	SFL
<u>Brand Community Commitment</u>	0.859	
I would feel a loss if my band community was no longer available.		0.61
I really care about the fate of my brand community.		0.82
I feel a great deal of loyalty to my brand community.		0.8
The relationship I have with my brand community is one I intend to maintain indefinitely.		0.79
The relationship I have with my brand community is important to me.		0.75
Brand Attachment	0.925	
<i>Affection (Cronbach's $\alpha=.85$)</i>		
Brand X is affectionate.		0.69
Brand X is loved.		0.72
Brand X is peaceful.		0.69
Brand X is friendly.		0.72
<i>Connection (Cronbach's $\alpha=.85$)</i>		
I am attached to Brand X.		0.76
I am bonded by Brand X.		0.81
I am connected with Brand X.		0.75
<i>Passion (Cronbach's $\alpha=.85$)</i>		
Brand X makes me passionate.		0.79
Brand X makes me delighted.		0.79

Brand X makes me captivated.		0.75
<u>Brand commitment</u>	0.737	
I have a psychological attachment to the brand.		0.55
I want the brand to be continuously successful.		0.7
I think that using the brand is important.		0.75
I am a loyal customer of the brand.		0.77
<u>Individual level of PO</u>	0.93	
Sense of Gratification		0.75
Sense of Belonging		0.80
Sense of Duty		0.84
Sense of Trust		0.86
Sense of Pride		0.98
<u>Collective level of PO</u>	0.90	
Sense of Affinity		.89
Sense of Unity		.90
Sense of Power		.92

Table 6.2 discriminate validity test of PO and community commitment

	IPO	Community commitment	AVE
IPO		0.151	0.725
Community commitment	0.389		0.587
	CPO	Community commitment	AVE
CPO		0.111	0.828
Community commitment	0.334		0.587

6.4.2. Sample

Two sub-datasets collected by the CINT research company were combined and used in this study. In total, 418 participants (48.1% male and 47.3% female) responded to the survey. The majority (88.6%) were aged between 18-65. Nearly half of the sample were aged between 25-45 (47.9%). More than half of the participants were Caucasian (62.5%), and 15.75% were Black/African American. Regarding education, 27.9% of the participants had a Bachelor's degree, 23.6% had completed a college education, and 20.5% had high school experience.

Nearly half of the participants visited their online brand community many times per day (46.7%), and more than a quarter of the participants visited the community once a day. The community participation duration varied among the participants: 22.2% of them claimed to have less than one-year participation experience with their community, 25.5% of them had 1-2 years of participation experience, and 26.7% of them had 3-5 years participation experience with their community. A minority of the communities

(37.7%) were built by customers and 47.5 % of the communities were built by the company (see Table 6.3).

6.4.3 Data examination

6.4.3.1 Missing data

The data were collected from a reputable marketing research panel. The researcher controlled the survey completion numbers. There were some missing data for participants' demographic information. Apart from the participants' demographic information, all the other research questions were set in force mode in Qualtrics, so there were no missing data for rating the measuring variables. Thus, the data were acceptable in terms of missing data rate and were then ready for outlier detection.

Table 6.3 Sample Demographic for Testing PO Effects

Demographic	Options	Percentage	Numbers
Gender	Male	48.1	201
	Female	47.3	198
	Other	2.6	11
	Missing	2	9
Age	18-24 years old	12.8	54
	25-34 years old	23.6	99
	35-44 years old	24.3	102
	45-54 years old	14.3	60
	55-64 years old	13.6	57
	65-74 years old	6.69	28
	Missing	4.29	18
Ethnicity	Asian	8.59	36
	Black/African	15.75	66
	Caucasian	62.5	262
	Hispanic/Latinx	3.57	15
	Native American	1.43	6
	Other	2.62	11
	Missing	4.53	19
Income	\$0-\$19,999	11.45	48
	\$20,000-\$34,999	16.2	68
	\$35,000-\$49,999	17.4	73
	\$50,000-\$74,999	19.33	81
	\$75,000-\$99,999	15.99	67
	Over \$100,000	14.3	60
	Prefer not to answer	1.43	6
	Missing	4.7	20
Education	12th grade or less	2.14	9

	Graduated high school or equivalent	20.53	86
	Some college. No degree	23.62	99
	Associate degree	10.97	46
	Bachelor's degree	27.92	117
	Post-graduate degree	10.73	45
	Missing	4.05	17
Online brand community participation duration			
	Less than 1 year	22.2	93
	1-2 years	25.5	107
	3-5 years	26.7	112
	6-8 years	7.6	32
	9--10 years	7.9	33
	11-15 years	2.15	9
	More than 15 years	3.10	13
	Missing	4.8	20
Online brand community visit frequency			
	Many times, every day	46.7	200
	About once a day	25.9	119
	Once a week	17.9	67
	A couple of times a month	6.1	21
	Rarely	3.3	11
	Missing	0.5	1
The online brand community built by			
	By customers	37.7	158
	By the company	47.5	199
	Others	2.63	11
		12.1	51

6.4.3.2 Outlier detection

6.4.3.2.1 Univariate detection

The z score was computed for each variable (see Table 6.4). The majority of cases were within the ± 4 threshold. Cases 24, 99, 117, 123, 125, 135, 147, 158, 174, 261, 273, 293, 301, 308, 342, 346, 348, 356, 363, 366, 393, and 396 exceeded the threshold on more than one variable. Among these, cases 273, 293, 348, 125, 261, 293, and 342 exceeded the threshold on more than five variables. Cases 117, 123, 147, 158, 261, 301, 308, 342, 396, and 412 exceeded the threshold on more than three variables with a high z value. As a result, these cases were deleted from the data to avoid an extreme effect on the overall measure of the model.

6.4.3.2.2. Multivariate detection

Hair et.al. (2010) suggest using the Mahalanobis D^2 measure to assess each observation across a set of variables and the t value ($t = D^2/df$) to check the conservative level of significance of outliers. As rule of thumb, the t-value 3.5 for the present study

was decided as a threshold value for the significance level of an outlier in this multivariate detection. The results suggested the Mahalanobis distance value ranged from 0.204 to 211.51, with a freedom value of 61. Thus, the t value of D^2/df ranged from 0.003 to 3.47 with no case exceeding the threshold of 3.5. Therefore, no multivariate outlier was identified in this dataset.

Table 6. 4 Univariate Outlier Detection of PO Effects Test Data

Dimension	Case	Value z
Belonging 3	261, 342	4.23
Belonging 4	261, 342	5
Duty 2	125, 393	5.02, 4.01
Duty 3	273, 125, 123	5.27, 4.22
Duty 4	273, 123, 99, 147, 412	4.58
Trust 1	174, 273	4.47
Trust 2	147	4.67
Trust 4	123, 301, 412	4.67
Pride 1	293, 273	4.2
Pride 3	273, 308	4.09
Pride 4	117	4.2
Affinity 6	273, 125, 135	4.34
Unity 2	273, 346, 400	4.31
Unity 4	356	4.5
Power 4	256	5
Power 5	293, 24, 308	4.07
Community Commitment 2	273, 348, 301	4.52
Community Commitment 3	273, 348, 293	4.51
Community Commitment 4	348, 117	4.55
Brand Attachment 2	348, 396, 293	5
Brand Attachment 3	348, 363, 117	4.55
Brand Attachment 4	348	4.85
Brand Commitment 5	125	4.81
Brand Commitment 6	342, 158, 261, 436, 396	
Brand Commitment 9	158	4.6
Brand Commitment 10	158	4.18

6.4.3.3 Testing the assumption of multivariate analysis

6.4.3.3.1 Normality and linearity

Kurtosis and skewness were measured to examine the normality of the data (Field, 2018; Hair et al., 2019). Currant et al. (1996) suggest significant problems only arise with univariate skewness above absolute value 2.0 and kurtoses of 7.0 in a multivariate normality test with a large sample (200 and more). After reviewing the dataset, the skewness values ranged from -0.772 to -1.912 with no case exceeding the

absolute threshold value of 2.0. The kurtosis values ranged from 0.42 to 4.835, all well below the cut-off point of absolute value 7.0. Therefore, the normality of the data was supported. The linearity of the dataset was checked by the scatterplots that were drawn for a random sample of pairs of variables. The scatterplots did not show any curvilinearities among those variables (See Appendix 6). Thus, the linearity of the data was supported.

6.4.3.4 Testing assumptions of multivariate analysis

Table 6. 5 Sample Adequacy for Testing PO Effects

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.932
Bartlett's Test of Sphericity	Approx. Chi-Square	6305.846
	df	861
	Sig.	.000

The results from the Pearson correlation coefficient r matrix suggested that the majority of the variable correlations were close to or above $r=0.30$. Each variable correlated with at least one other variable with R -value of at least 0.30 and above, indicating reasonable factorability from the data. At the same time, there was no correlation coefficient higher than 0.7, which indicated the data matrix was suited to factor analysis.

Further, the KMO value was .936, which was well above the recommended value of 0.5 (Hair et al., 2010, 2018). Bartlett's test of sphericity results (Chi-square $\chi^2(418) = 6305$, $df=861$, $p<.001$) indicated that the data were adequate to support further analysis.

6.5 Results

6.5.1. PO and online band community commitment

The PO measurement model that comprises two second-order constructs and eight PO dimensions provided a good model fit to the data ($\chi^2=797.25$, $df=294$, $p<0.001$; CFI =.92, SRMR= .032, RMSEA=0.065). The fit indices of the overall model that includes two levels of PO, eight underlying dimensions and all other constructs, such as brand community commitment, brand commitment and brand attachment were acceptable ($\chi^2=2865.92$, $df=952$, $p<0.001$; CFI =.84, SRMR= .032, RMSEA=0.07). Regression weights were used to examine the structural equation model and test the hypotheses. Two of the individual level of PO dimensions significantly predicted brand community commitment: sense of belonging ($\beta=0.125$ $p=0.01$) and sense of pride

($\beta=0.337$, $P<001$). Hypotheses H1b and H1d were supported. However, the other three individual level of PO dimensions – sense of psychological gratification ($\beta=.11$, $p=.36$), sense of trust ($\beta=.068$, $p=.29$), and sense of duty ($\beta=.058$, $p=.21$), failed to show a significant relationship with brand community commitment. Thus, hypotheses H1a, H1c and H1e were not supported.

In the following two CPO dimensions, sense of affinity ($\beta=0.13$, $p<.1$) significantly predicted brand community commitment only marginally, while sense of power ($\beta=.39$, $p<.001$) significantly predicted brand community commitment. Hypotheses H2a was marginally supported and H2c was supported. However, sense of unity ($\beta=.078$, $p=.113$) failed to predict the online brand community commitment, so H1c was not supported.

Both the individual level of PO ($\beta=.65$ $p<.000$) and the collective level of PO ($\beta=.37$ $p<.000$) significantly predicted brand community commitment. Combined, they accounted for 56% of the variance of brand community commitment ($SMC=.56$). That is, a higher level of the individual level of PO and the collective level of PO towards the community led to a high level of brand commitment. Therefore, H1 and H2 were supported. It can be concluded that when online consumers develop an individual level of PO and a collective level of PO towards the community to a high level, they are more willing to commit to the community. Also, consumers who have an individual level of PO are more likely to commit to the community than are consumers who have a collective level of PO towards the community.

6.5.2. Online brand commitment and online brand attachment

The regression weights were examined to test H3 and H4. As expected, community commitment had a significant impact on brand commitment ($\beta=.946$ $p<.001$) and brand attachment ($\beta=.964$ $p<.001$). Thus, H3 and H4 were supported. A higher brand community commitment led to a higher level of brand commitment and brand attachment.

6.5.3 Identification of community commitment mediation role

This section presents the testing results of the community commitment mediation effects on the PO relationship with consumers' brand commitment and brand attachment. The section reports the PO's influence on brand commitment and brand attachment, then reports each underlying dimension's effects on brand commitment and

brand attachment. Integrating the testing results from section 6.5.1 and 6.5.2, the community commitment mediation role is identified.

6.5.3.1 PO with brand commitment and brand attachment

The second-order variables of the individual level of PO positively influenced both brand commitment ($B=.64, p<.001$) and brand attachment ($\beta=.54, p<.001$). The collective level of PO also positively influenced brand commitment ($\beta=.44, p<.001$), and brand attachment ($\beta=.47, p<.001$). Overall, the individual level of PO and the collective level of PO predicted 60% of brand commitment variance and 51% of brand attachment. Both the individual level of PO and the collective level of PO were significant predictors. Similarly, consumers who had an individual level of PO towards the online brand community were more likely to commit and attach to the brand than consumers who had a collective level PO towards the community.

The results showed that when community commitment was included in the relationship between the individual level of PO and brand attachment as a mediator, the p-value of the main effect remained significant ($\beta=.31, p<.001$). Similarly, when community commitment was included in the relationship between the collective level PO and brand attachment as a mediator, the p-value of the main effect remained significant ($\beta=.36, p<.001$). Thus, the results did not support the effects of community commitment mediation on the relationship between either the individual level of PO or collective level of PO and brand attachment. H5 was not supported.

Similarly, the results showed that when community commitment was included in the relationship between the individual level of PO and brand commitment as a mediator, the p-value of the main effect remained significant ($\beta=.0.29, p=.003$). Also, when community commitment was included in the relationship between the collective level of PO and brand commitment as a mediator, the p-value of the main effect remained significant ($\beta=.26, p=.002$). Thus, the results did not confirm the effect of community commitment mediation on the relationship between either the individual level of PO or the collective level of PO and brand commitment. H6 was not supported.

6.5.3.2 Community commitment mediation effects on PO dimensions with brand attachment

When the individual dimension was considered, the results showed that five dimensions significantly and directly related to brand attachment. Among them, three individual level of PO dimensions – sense of psychological gratification ($\beta=.291$

$p < .000$), sense of pride ($\beta = .267, p < .01$), and sense of trust ($\beta = .218, p < .05$) – and two collective level of PO dimensions – sense of affinity ($\beta = .204, p < .05$) and sense of unity ($\beta = .213, p < .05$) – had a significant impact on consumers' brand attachment. However, among these five dimensions, only sense of pride and sense of affinity were significantly related to community commitment. Therefore, only these two dimensions were shown to have community commitment as a mediator relating to brand attachment.

The results showed that the relationship between sense of pride and brand attachment was insignificant ($\beta = -.036, p = .705$) when the mediator of community commitment was included, but not in the relationship between affinity and brand attachment ($\beta = -.173, p = .004$). Therefore, it was clear that community commitment mediated the effect of sense of pride and brand attachment. Thus, only H5b was supported, while H5a, H5c, H5e, H5f, H5g and H5h were not supported.

On the other hand, the results did not support the impact of the other three dimensions – sense of power ($\beta = .077, p > 0.1$), sense of duty ($\beta = -.072, p > 0.1$), and sense of belonging ($\beta = .063, p > 0.1$) – on brand attachment. Thus, the community commitment mediation effects were not tested in the relationship between these three dimensions and brand attachment.

6.5.3.3 Community commitment mediation effects on PO dimensions with brand commitment

Similarly, among the eight dimensions, four dimensions were significantly related to brand commitment. Among them, three individual level of PO dimensions had significant effects on brand commitment – sense of trust ($\beta = .232, p < .05$), sense of duty ($\beta = .132, p < .05$), sense of pride ($\beta = .217, p < .01$), while one collective level of PO dimension – sense of unity ($\beta = .259, p < .000$) significantly impacted brand commitment.

Among these four dimensions, only sense of pride significantly related to community commitment. The mediation result showed that when community commitment was included in the relationship between sense of pride and brand commitment as a mediator, the p-value of the main effect became insignificant ($B = -.056, p = .526$). Thus, the community commitment mediation effect on the relationship between sense of pride and brand commitment was confirmed and H6b was supported, while H6a, H6c, H6e, H6f, H6g, and H6h were not supported.

On the other hand, another four dimensions did not have an impact on brand commitment: sense of psychological gratification ($\beta = 0.095, p > .1$), sense of belonging

($\beta=.039$ $p>.1$), sense of affinity ($\beta=.027$ $p>.1$), and sense of power ($\beta=.063$ $p>.1$). Thus, the community commitment mediation effects were not tested in the relationship between these four dimensions and brand commitment.

6.6 Discussion

6.6.1 PO and community commitment

The results revealed that, when online consumers developed both an individual level of PO and a collective level of PO towards the community, they were more likely to commit to the community. The results also supported that both the individual level of PO and the collective level of PO had a positive effect on consumers' community commitment. Specifically, when an individual consumer developed an individual level of PO or a collective level of PO towards the community, they felt the community was their "own" community, and they were more likely to want to continually participate in the community (see Table 6.5).

However, not all the dimensions had a direct positive effect on community commitment. Some dimensions, such as sense of trust, sense of duty, and sense of unity, failed to lead to consumers' commitment to the community. It was surprising that sense of trust did not have a positive effect on community commitment (see Table 6.5). Both trust and commitment have been recognised as essential for a successful long-term relationship and have been shown to be positively related to each other in offline contexts (Garburator & Johnson, 1999).

In general, a sense of trust reflects the individual's sense of safety and security arising from the honesty, reliability, and trustworthiness of an online brand community. From an individual perspective, a sense of trust is developed based on the group's community dynamic; however, it might not always reflect participation behaviour. While an individual might develop a sense of trust in their community and might trust the community members and the information provided, this might not reflect their commitment to the community. For example, there might be other communities better than the current community, or there might be other people in an individual's life who can give them a greater sense of trust than the people in the online brand community. Thus, even though the sense of trust gained within an online community is important to them, it does not replace their sense of trust within their overall life. The online brand community might be a small part of an individual's life, and the relationship with the community might not have significant meaning in other aspects of their life. Thus, the

sense of trust developed from this community does not directly predict their participation commitment to the community.

Similarly, sense of unity did not positively influence consumer's community commitment. Online consumers felt that the community members were together with each other as a big group, forming a sense of unity. However, the feeling of being together might also continue offline. For example, the online brand community members were from different time zones and might not always be available at the same time. Therefore, the sense of unity might largely depend on the message availability in the community, rather than the members' online status. Community members might form a sense of unity from the community, knowing that the community members are together with them; however, this might not determine their commitment to the community. Moreover, the community was only part of community members' life, and there might be many things in their life that influence their commitment to the community.

Table 6. 6 Hypothesis Testing Results

Hypotheses	Test results
Hypothesis 1. Consumers who have PO toward a community are more likely to commit to their brand community.	Supported
Hypothesis 1a: Sense of psychological gratification will positively influence consumer's online brand community commitment.	Not supported
Hypothesis 1b. Sense of belongings will positively influence consumer's online brand community commitment.	Supported
Hypothesis 1c: Sense of trust in an online brand community will positively influence consumer's online brand community commitment.	Not supported
Hypothesis 1d: Sense of pride will positively influence consumer's online brand community commitment.	Supported
Hypothesis 1e: Sense of duty will positively influence consumer's online brand community commitment.	Not supported
Hypothesis 2: CPO will positively influence consumer's online brand community commitment	Supported
Hypothesis 2a: Sense of affinity will positively influence consumer's online brand community commitment.	Marginally supported
Hypothesis 2b: Sense of unity will positively influence consumer's online brand community commitment.	Not supported
Hypothesis 2c: Sense of power will positively influence consumer's online brand community commitment.	Supported

Hypothesis 3: Consumers' community commitment will positively influence their brand commitment.	Supported
Hypothesis 4: Consumers' community commitment will positively influence their brand attachment.	Supported

Hypotheses	Test results
Hypothesis 5. Brand community commitment mediates consumers' individual level of PO and collective level of PO's positive influence on brand attachment.	Not supported
H5a: Brand community commitment mediates sense of psychological gratification's positive influence on consumer's brand attachment.	Not supported
H5b: Brand community commitment mediates sense of pride's positive influence on consumer's brand attachment.	Supported
H5c: Brand community commitment mediates sense of trust's positive influence on consumer's brand attachment.	Not supported
H5d: Brand community commitment mediates sense of belonging's positive influence on consumer's brand attachment.	Not supported
H5e: Brand community commitment mediates sense of duty's positive influence on consumer's brand attachment.	Not supported
H5f: Brand community commitment mediates sense of affinity's positive influence on consumer's brand attachment.	Not supported
H5g: Brand community commitment mediates sense of unity's positive influence on consumer's brand attachment.	Not supported
H5h: Brand community commitment mediates sense of power's influence on consumer's brand attachment.	Not supported
Hypothesis 6. Brand community commitment mediates consumers' individual level of PO and collective level of PO's positive influence on brand commitment.	Not supported
H6a: Brand community commitment mediates sense of psychological gratification's positive influence on consumer's brand commitment.	Not supported
H6b: Brand community commitment mediates sense of pride's positive influence on consumer's brand commitment.	Supported
H6c: Brand community commitment mediates sense of trust's positive influence on consumer's brand commitment.	Not supported
H6d: Brand community commitment mediates sense of belonging's positive influence on consumer's brand commitment.	Not supported
H6e: Brand community commitment mediates sense of duty's positive influence on consumer's brand commitment.	Not supported
H6f: Brand community commitment mediates sense of affinity's positive influence on consumer's brand commitment.	Not supported

H6g: Brand community commitment mediates sense of unity's positive influence on consumer's brand commitment.	Not supported
H6h: Brand community commitment mediates sense of power's influence on consumer's brand commitment.	Not supported

The hypothesis on sense of duty's influence on community commitment was not supported. These results might reflect the fact that an individual community member has a limited ability to influence or shape the community by themselves. Sometimes, their ideas and opinions may not always be accepted by the majority of the members or by the key influencers in the community. Therefore, even though an individual community member has a strong sense of duty to the community, they may decide that they do not want to continue their membership in the community if they feel other community members do not value them or appreciate their contributions. This may explain the result of sense of duty did not predict consumers' community commitment in this research.

6.6.2 Community commitment mediation effects

Online brand community commitment is a crucial mediator that has been discussed in past research. However, this study did not identify a significant mediation effect in the relationship between the individual level of PO or the collective level of PO and brand commitment or brand attachment. On the other hand, it was found that an individual level of PO and a collective level of PO as psychological concepts can directly influence consumers' relationship with the brand. That is, when consumers develop either an individual level of PO or a collective level of PO towards the online brand community through discussion dynamics, they also build up their relationship with the brand through the brand-related interactions in the community. Specifically, the results reported three underlying dimensions – sense of trust, sense of pride, and sense of unity – that can directly predict brand attachments and brand commitment without a mediator.

The results confirmed the mediation effect of consumers' community commitment on relationship of their sense of pride within their brand commitment, and brand attachment. When online community members form a sense of pride from the community, they intend to continuously commit to the community, and this close relationship can be transferred to consumers' brand attachment and brand commitment. This confirms that sense of pride as a self-related psychological construct, without the

accompanying consumer community commitment, cannot influence the consumers' brand commitment and brand attachment directly in an online brand community.

6.7 Chapter conclusion

This chapter examined the effects of PO on community commitment, brand commitment, and brand attachment. The results suggested that both the individual level of PO and the collective level of PO can directly influence consumers' online community commitment. The underlying dimensions of sense of pride, sense of belonging, sense of affinity, and sense of power, can also positively influence consumers' online brand community commitment.

The results also showed that the individual level of PO and the collective level PO can directly influence consumers' brand attachment and brand commitment. The underlying dimensions of sense of trust, sense of pride, and sense of unity also positively influence consumer's relationship with the brand.

However, the mediation effects of brand community commitment were not fully supported in the research; that is, it was found to only mediate consumers' sense of pride's influence on brand attachment, and brand commitment.

The results in this chapter answer the last research question. So far, three research objectives and four research questions have been addressed. The next chapter will conclude this thesis with the research contributions, research limitations, and future research directions.

Chapter Seven: Implication and Conclusions

7.1 Chapter Introduction

This thesis aimed to achieve three objectives: 1) to explore the theoretical notion of PO in an online brand community context; 2) to develop and validate a multidimensional measure of PO in an online community; and 3) to test PO's effects in the online brand community. In order to address these objectives, this thesis answered four research questions: (1) What is the meaning of PO in an online brand community? (2) What are the dimensions of the PO in this context? (3) How should PO be measured in an online brand community? and (4) How does PO impact on consumers' online community commitment, brand commitment, and brand attachment in an online brand community context?

This thesis undertook two studies across three research phases. A mixed-method study was applied in this thesis to achieve the above research objectives and answer the questions. Briefly, in the first research phase, a qualitative study that included online observation, the collage projective technique, and in-depth interviews was conducted to address the first objective of exploring PO meaning and dimensions in online communities and to answer the first two research questions. The results also informed a scale development item pool for the second research phase. A quantitative study using a survey was conducted to assess the proposed measurement in the second research phase which addressed the second research objective and answered the third research question. The validated scales were implemented in the third research phase to test the effects of PO on consumers' online brand community commitment, brand commitment, and brand attachment. The results from this research phase addressed the last research objective and answered the last research question.

This chapter concludes the thesis by summarising the researching findings and discussing the thesis contributions, research limitations, and future research directions. This chapter starts with a summary of research findings. This is followed by a discussion of the theoretical and methodological contributions of the thesis. Next, the implications of the research findings for marketers, individual consumers, and the wider community are addressed. The chapter then presents a discussion on the research limitations and future work. The chapter finishes with concluding remarks.

7.2 Summary of research findings

This thesis achieved the three research objectives and answered the four research questions across three research phases. The findings from the first research phase reported on the individual level of PO and the collective level of PO that emerged from the qualitative data. The two levels of PO were proposed as two distinct PO concepts. These findings of the qualitative phase addressed the first research question by providing definitions of both levels of PO to explain the meaning of PO in an online brand community. The research findings from the first research phase also suggested that both the individual level of PO and the collective level of PO are multidimensional constructs. This thesis proposed five individual levels of PO dimensions (i.e., consumer's sense of psychological gratification, sense of trust, sense of pride, sense of belonging, and sense of duty to their online brand communities) and three collective levels of PO dimensions (i.e., consumers' sense of affinity, sense of unity and sense of power to the community). These findings addressed the question of the dimensionality of PO in the online brand community posed in the second research question. The result discussion went beyond the PO concept definition, indicating that online PO is different from offline PO in terms of the developing environment, consumers' effort, and the means of communication. The research discussion also addressed PO's underlying motives to explain why consumers can develop PO towards the online brand community and discussed three routes explaining how PO emerges in communities. At end of the first research phase, a conceptual model (see Figure 4. 16) based on the above research results and discussion was proposed to illustrate the conceptualisation of PO and its theoretical meaning. Overall, these research results achieved the first research objective of exploring the theoretical notion of PO in an online brand community by providing the definition of both levels of PO, proposing their dimensionality, and describing both levels of PO's developing routes and underlying motives in the online community.

The results from the second research phase established and assessed the measurement instruments for the two levels of PO. The findings contributed sub-dimensions to represent both levels of PO. Two separate multidimensional scales were developed based on the proposed dimensions from the first research phase. These two scales were evaluated and validated to address the second research objective of developing and validating a multidimensional measure of PO in an online community,

and to answer the third research question of how PO should be measured in an online brand community.

In third research phase, a theoretical model of PO that included online brand community commitment, brand attachment, and brand commitment was proposed. The relationship between PO and these concepts was tested with SEM modelling. The results showed that both the individual level of PO and the collective level of PO as second order constructs can predict consumers' commitment to the community, as well as consumers' brand commitment and brand attachment. Specifically, the dimensions of sense of belonging, sense pride, sense of affinity, and sense of power were found to have positive, significant, and direct effects on consumers' community commitment. The dimensions of sense of psychological gratification, sense of pride, sense of trust, sense of affinity, and sense of unity were also found to have positive effects on consumers' brand attachment. Similarly, the dimensions of sense of trust, sense of duty, sense of pride, and sense of unity were found to have positive effects on consumers' brand commitment. These results achieved the last research objective and answered the last research question.

7.3 Theoretical contributions

7.3.1 Contribution to PO theory

This thesis explored PO theory in the online brand community context and extended the knowledge of PO theory in the online marketing context. This thesis clarified the theoretical domain of PO in an online context as opposed to an offline setting in three ways. First, the online brand community is a virtual space in which online community members can participate. The PO of an online brand community relies on the communication dynamics and individual consumers' interpretations of the community, its members, and the community discussion dynamics. Therefore, the communication dynamics that occur in the online brand community are essential for online PO development. Second, as the communication among the online brand community members occurs through texts, pictures, videos, and emojis, without any physical contact, PO development in an online context requires a great deal more personal decoding and interpretation of the contents than in an offline PO development context. Third, because communication in an online community allows the community members more time to repeatedly ponder the meaning of the contents, it requires consumers' ability to post comments and to tag the comments of others (Karahanna et al., 2015). Therefore, PO development in an online brand community involves more

consumer cognitive effort than in an offline PO development context. These findings show that the online PO development environment and the communications with online possessions are different from the PO development environment described in the organisational research. These findings further clarify the PO concept domain in the online brand community context and confirm the online and offline PO differences, suggesting the need for further online PO marketing research to address these differences and to discuss the PO theoretical notion within a specific context.

Furthermore, based on the qualitative study outcome, the thesis explored the meaning of PO and constructed a definition for both the individual level of PO and the collective level of PO in the online brand community context. Existing marketing scholars have used one definition to define both the individual level of PO and the collective level of PO in the literature, and distinguished these two levels of PO by using the possessive words 'my' and 'ours' in the definition (Pierce et al., 2001, 2003). Some marketing scholars have also used the PO definition to define the individual level of PO only in their research (Jussila et al., 2015). In this thesis, the individual level of PO towards the online brand community is defined as individual consumers' intrapersonal realisation of a sense of psychological gratification, sense of belonging, sense of trust, sense of pride, and sense duty, which together foster a sense of 'this is MY community'. The collective level of PO towards the online brand community is defined as individual consumers' interpersonal realisation of a sense of affinity, sense of unity, and sense of power, which are collectively shared by one or more other community member and foster a sense of 'this is OUR community'. These definitions distinguish the individual level of PO as an intrapersonal concept from the collective level of PO as an interpersonal concept. As these definitions also indicate the dimensions of two concepts, they clearly differentiate the two levels of PO as two separate concepts. These definitions extend the PO theoretical definition and clarify these two levels of the conceptual meaning of PO to avoid confusing the two concepts. These definitions can also provide marketing scholars with a definition reference in their future investigations of PO in online settings.

The thesis also explained the relationship between the individual level of PO and the collective level of PO, indicating that the individual level of PO and the collective level of PO should be understood as a dual-level PO from an individual consumer perspective. To the best knowledge of the researcher, this is the first study that attempts to define the theoretical relationship between these two levels of PO in online marketing

research, while also further clarifying the two concept's theoretical domain and their conceptual differences. This is an important theoretical contribution given the current PO theory development and prevalence of online community study. This thesis also contributes to the development of PO dimensionality in online marketing research. The results of this thesis suggested five individual levels of PO dimensions and three collective levels of PO dimensions. These dimensions offer a detailed expansion on the theoretical meaning of both the individual level and the collective level of PO, and enrich the understanding of both levels of PO in the online marketing context.

Furthermore, this thesis contributes to a particular understanding of the collective level of PO development. Past marketing research has largely focused on the individual level of PO. There is a lack of research that examines consumers' collective level of PO in the online marketing literature. This thesis provided a definition of the collective level PO and also explained the underlying motives of the collective level of PO development (i.e., social comparison and community identity) to make clear the reason for the collective level of PO development in an online brand community. This thesis also discussed three PO development routes to explain the way the collective level of PO emerges and the development conditions needed in the online brand community. Specifically, this thesis represents one of the first studies of CPO scale development in the online brand community research context. These results contribute to a conceptualisation of the collective level of PO in online marketing research by explaining the collective level of the PO concept in terms of its definition, its underlying motives, its developing routes, its developing conditions, its dimensions, and its measurement scale. Overall, this thesis enhances the understanding of PO theory from the individual level to the collective level in the online marketing context.

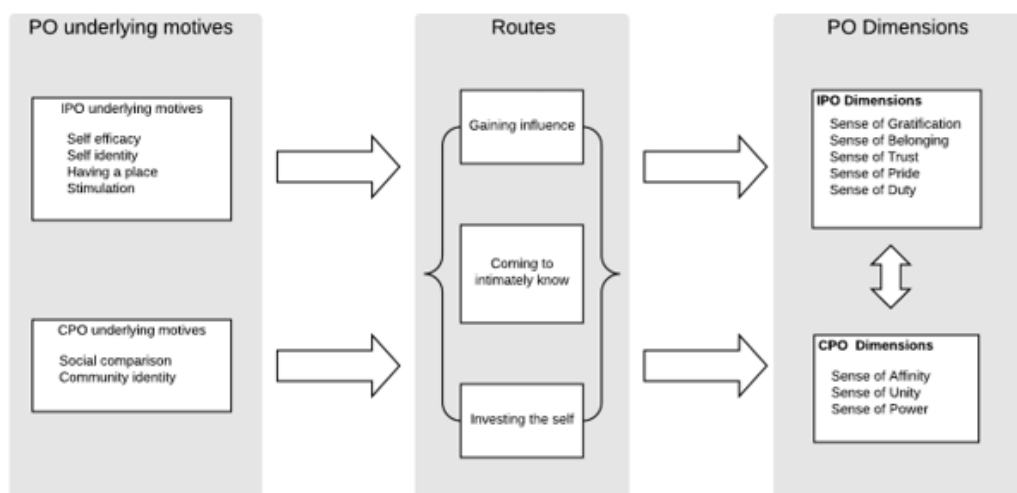


Figure 4. 15 Online PO process model

In addition, this thesis also contributes to the theoretical foundation of PO by developing a conceptual model that unifies PO's underlying motives, developing routes, and the dimensionality of the two levels of PO in the online brand community context (see Figure 4.16). The model illustrates four individual levels of PO's underlying motives (i.e., self-efficacy, self-identity, having a place, and stimulation) and two collective levels of PO's underlying motives (i.e., social comparison, community identity), explaining why online community members develop PO towards their community. The PO developing routes explain how PO emerges in the community. This model clarifies the confusion evident in past literature. For example, Jussila (2015) proposed a PO model that considered the online PO development routes as the antecedents of PO, whereas the present findings suggested that PO development routes should be used to explain the PO emergence process, and hence should not be considered as either the dimension or antecedent of PO. Thus, these explanations of online PO's underlying motives, developing routes, and PO dimensions have advanced the theoretical notion of PO in the online marketing research context.

In summary, this thesis theorised the consumer PO phenomenon in an online brand community context. The results of the thesis contribute to the meaning of PO, its dimensions that explain the PO phenomena, and the hidden PO development process – areas that have not been addressed in previous online marketing literature. Further, the scales that were developed in this thesis explain how the two levels of PO should be measured and implemented in online marketing research. The scale development process provides a validation of the theory in the online context that will enhance the credibility of PO studies in online marketing research. The theoretical model that was developed in this thesis provides a foundation for future PO research in an online brand community.

7.3.2 Contribution to PO outcomes

This thesis linked PO to online brand community commitment, which has been identified as “the core features of relationship marketing management” (Hur et al., 2011, p. 1197). It has been suggested that if consumers are committed to the online brand community, they are less likely to be attracted to competitors (Hur et al., 2011; Shen et al., 2018). Scholars have pointed out that the real success of an online brand

community relies on the community members' commitment to the community (Astakhova, 2016; Greguras & Diefendorff, 2009; Shen et al., 2018). This thesis investigated the effects of PO on brand community commitment and identified that both the individual level of PO and the collective level of PO can predict consumers' commitment to the community. The study further investigated online brand community commitment from a psychological angle to identify consumers' psychological experiences in the online community that influence their commitment to the community. The results of these investigations enrich the current research on brand community commitment and consumers behaviour in the online community.

Furthermore, the research also identified the mechanism by which PO affects community commitment. The results suggested that PO sub-dimensions of sense of belonging, sense of pride, sense of affinity, and sense of power can positively and significantly predict community commitment. The results, therefore, revealed the specific dimensions of PO that influence consumer commitment. The research further contributes to current PO research by measuring these specific dimensions when investigating the effects of PO on consumers' commitment behaviour in an online brand community. Future research might benefit from these results on the dimensions of PO when further exploring consumers' commitment in terms of other consumer behaviour concepts. Thus, the findings might be useful for studying consumer behaviour in an online context and the application of PO theory to this context.

This thesis also investigated PO's effects on brand attachment and brand commitment. The findings suggested that both levels of PO can also predict consumers' brand commitment and brand attachment. Three individual levels of PO dimensions – sense of psychological gratification, sense of pride, and sense of trust – and two collective levels of PO dimensions – sense of affinity and sense of unity – were found to positively influence consumers' brand attachment. Similarly, three individual levels of PO dimensions – sense of trust, sense of duty, and sense of pride – and one collective level of PO dimensions – sense of unity – were found to positively influence consumers' brand commitment. These findings contribute to consumer brand relationship research by looking at how consumers' psychological experience in the community affects their brand relationship. Also, these results confirm the effects of PO on consumers' brand relationship. Thus, understanding consumers' feeling of PO towards the community can predict their commitment and attachment to the brand.

These findings also confirm the useful application of PO theory to predict consumers' relationship with the brand.

To sum up, the results identified that consumers' PO towards the online brand community is the key driver of consumers' commitment to the community, and plays a significant role in the development of a strong relationship between the consumer and the brand. This thesis provides empirical evidences that consumers' PO towards the community can enhance their relationship with the community and the brand.

7.3.3 Methodological contribution

Another contribution to the theory is the development and testing of a PO scale that captures the consumers' perspectives. Past online marketing literature has largely adopted PO measurement from organisational research. Studies have used possessive words in items to measure PO as a unidimensional concept. This thesis developed and validated measurement scales for two levels of PO in online brand communities – that is, the individual and collective levels. These two PO scales enable other marketing researchers to further measure and analyse PO on these two levels. As these scales reflect the underlying dimensions of PO and measure the specific aspects of consumers' PO feeling, the scales represent consumers different psychological experiences that foster PO towards the community. Compared to the unidimensional scale in the organisational research that uses possessive words to measure PO, these scales aim to explain consumers' particular sense of PO within the online community rather than simply describing the feeling of 'my' or 'our' as a general sense of PO. Furthermore, online marketing researchers can use these scales to assess how consumers perceive their PO state towards the online brand community. These scales can also help researchers to find out which PO domains are of consumer interest. Thus, the scales developed from this thesis aim to provide PO measurement references for future online brand community research.

This research applied a mixed-method approach to address the research questions. Specifically, the qualitative research phase applied a combination of online observation and the projective technique, which enabled the researcher to interview various online brand community members directly and also collect online data from a real case of an online brand community. During the qualitative research phase, the multiple sources of data (i.e., online observation and in-depth interview data) allowed the researcher to understand the nature of online brand community contexts and to gain

insights into the meaning of the PO concept from the perspective of consumers. As discussed, PO is a psychological state amongst consumers that is hard for them to describe. In this regard, the use of the projective technique (i.e., collage) helped the researcher to uncover the innermost thoughts and feelings of the research participants (Donoghue, 2000). Specifically, the use of collage in this thesis helped the research participants to find a way to represent their PO feeling towards the community. The collages helped the research participants to organise the interpretation of their feeling and guided their elaboration of the online experience and sentiments they had developed toward the online brand community. Also, it has been suggested that in typical interviews, the interviewees do not always share their innermost feeling with the researcher due to social conventions or communication barriers (Donoghue, 2000). Instead of asking the interviewees questions directly, the use of the projective collage technique in this thesis enabled these participants to talk about the pictures and photo they had chosen as third-party objects to overcome these communication barriers in the interviews. As a result, unlike other scale development research, the initial qualitative phase of this thesis went into in-depth analysis to determine the underlying meaning of the PO experience from the perspective of the research participants. The results that emerged from this qualitative research helped to establish not only a PO definition and measurement item pool, but also identified PO's dimensionality, underlying motives, developing routes, and the PO development conditions. Thus, this research design enabled the researcher to gain an in-depth understanding of a psychological concept that might be useful in the study of other psychological phenomena.

7.4 Managerial implications

In past online brand community literature, scholars have identified the importance of consumers' psychological experiences in the success of brand community development (Casalo et al., 2008; Lin et al., 2019). This thesis provides marketers with a PO conceptualisation which will enhance their understanding of consumers' psychological state that develops in an online brand community. The results of the thesis may provide useful information for brand community managers.

Marketers can gain control over the online marketing context by monitoring the behaviour of online consumers (Goh, Hen, & Lin, 2013), such as clicks, visits, posting keywords, even their attitudes to specific business activities such as new product releases, exclusive sales, and product/service failures. However, marketers have less control over consumer-to-consumer connectedness in the community (Goh, Hen, & Lin,

2013). The findings from this thesis identified the dimensions and developing routes of PO to explain how PO emerged in the online brand community. Based on this knowledge, marketers can intervene in the PO development process to influence the development of the underlying dimensions, further influencing consumers' PO state in the community. Therefore, marketers can apply these results in their online brand community management to gain more knowledge on how their consumers connect so that they can design a marketing intervention strategy to gain more control of the community. For example, to retain consumers who have developed PO towards the community, the manager of the community could consider endowing these community members with more opportunities to help the community to develop a sense of duty to the community. The community manager could further support these members, establishing their social status in the community. This would further strengthen the relationship between the community and community members' extended self, to further motivate their commitment to the community.

Similarly, to retain consumers who do not have PO towards the community, the marketing manager may want to influence these consumers' PO development routes such as intentionally paying attention to these consumers, being more supportive and encouraging of these consumers, and involving these consumers in community decision-making, to create a sense of belonging and sense of psychological gratification within the community. The community managers can also organise online events such as group challenge games or online group competitions to motivate the sense of affinity and the sense of unity in collective level of PO development. Also, the manager of the community can have regular posts to celebrate both individual online members' achievements and the community's achievements to motivate individual consumers' sense of pride in themselves and the collective sense of power within the community in order to trigger their PO development towards the community. These activities would help intervene in the consumers' PO development process and encourage them to form PO towards the online brand community.

In the literature, a self-reported PO measurement from work-related research has provided a foundation for marketers to understand the phenomenon of PO (Dyne & Pierce, 2004). This measurement scale is unidimensional and based on the participants' self-report. In this situation, if marketers want to acknowledge or monitor consumers' PO status in their community, they might need to ask the community members to report their PO status personally. This would be more challenging in consumer-established

online brand communities where the marketers have less control than in company-established brand communities. The present thesis developed and validated a measurement scale which the marketer can use to assess the individual consumer's participation activities and the overall community's PO situation by measuring the underlying dimensions of the concept. This would give the managers more control over online brand community management and customer relationship management.

These findings also offer suggestions for managing consumers' online brand community commitment. An online brand community is an essential development for businesses that allows them to enhance the organisation's relationship with people, as these communities are not only concerned about consumers but also the wider public (Fournier & Lee, 2009; Zhou, 2011; Pentina et al., 2013). Consumers' participation in the community is the primary trigger for marketers to decide on allocating expenditure to online communication in order to enhance the communication between organisations and consumers (Pentina et al., 2013). Therefore, to formulate a successful internet marketing strategy, companies need a deeper understanding of how to retain customers within the community and how to effectively maintain consumer relationships with the brand. Algeshermer et al. (2005) suggest that "brand community membership is more useful as a customer retention device than as a customer acquisition tool" (p. 30). The present research results reported that PO development in the online brand community enhances a consumer's online brand community commitment to continuing community membership with the community. Marketers can use these results to formulate a PO strategy aimed at improving consumers' commitment to the community. Therefore, consumers' PO development in the community can be seen as a tactic to retain online consumers, to maintain consumers' relationship with the community, and to influence consumers' participation in the community.

The research results also contribute to brand relationship management knowledge. Research has reported that consumers' online community participation experiences affect their relationship with the brand (Zhou et al., 2012). The findings showed that consumers' psychological experience also influences their relationship with the brand. The findings contribute to an understanding of the positive effects of PO on consumers' brand attachment and brand commitment. Understanding these effects can help online community brand managers to motivate consumers to commit and attach to the brand by influencing their PO towards the brand community. As the results

indicated, the sub-dimensions can positively influence consumers' brand relationship. Marketers can target these sub-dimensions to directly influence this relationship. For example, marketers can enhance consumers' feeling of PO towards the community by promoting consumers' sense of trust, sense of pride, and sense of unity in the community to further strengthen their brand attachment and commitment. Thus, stimulating these dimensions of PO in the consumers' minds could enhance consumers' connection with the brand. From this viewpoint, building consumers' PO towards the online brand community is crucial for customer brand relationship management. This thesis suggests that enhancing consumers' PO towards the community can be a brand relationship management strategy for marketers.

7.4.1 For online consumers

The present thesis explored the PO phenomenon in the online brand community from a consumer-centric perspective (McAlexander, 2002). The results reflected online consumers' personal psychological experience. Thus, the results can potentially help other online members to understand their PO status and their online participation behaviour. For example, consumers can apply the developing underlying motives of PO and the knowledge of the PO emergence routes identified in this thesis to facilitate an understanding of why they want to commit to an online brand community, what motivates their communication in the community, and their relationship with other members. The results might also help consumers to understand other community members' behaviour (e.g., why other community members are more likely to take on extra obligations to look after the community; why some of them frequently log into the community, etc.). Online community members can also use PO knowledge to predict how other online community members might respond to community activities, discussion topics, and group decisions. Either way, the results might help online consumers to gain more understanding of their online participation, their psychological experience in the community, and their relationship with the community and the community members.

Further, the results of the study might help consumers to understand their relationship with the brand by linking it to their community participation experiences. In other words, the results might help them to understand what underlies their commitment and attachment to the brand through their participation in the community. Similarly, the results might also help them to understand how other community members developed their relationships with the brand.

7.4.2 For the community

Apart from marketing implications for the online brand community, the results might shed light on the maintenance and development of other social communities. There are a number of online social communities or online social support communities available, such as quit smoking, blood donation, and stop gambling communities, where government and professionals have put effort into community-building and promoting healthy lifestyles (Health People, 2010). The present research might provide some insights into developing a psychological bond with the target audiences to improve the efficiency of these communities. The findings from the thesis on the effects of PO on consumers' brand community commitment might assist in retaining participants in these communities or attracting targeted individuals to commit to the communities.

In addition, the results showed that PO positively influences online community members' commitment to a community, and contributed to an understanding of why and how consumers participate in the community. These results might potentially contribute to an understanding of the negative behaviours (i.e., cyberbullying, social network addiction) within an online community as well. For example, the results potentially provide some insights into why some individuals commit these negative behaviours in a community and their psychological motivations to commit these behaviours in an online context.

7.5 Research limitations

This thesis focused only on online brand communities that are socially oriented. This type of community facilitates online consumers' social communication about the brand. However, there are other types of online brand communities, such as transaction-oriented communities or communities built around an economic mission, which differ in nature from online brand communities that are built on the foundation of social interaction among online consumers. Therefore, the present findings might not be fully applicable to other types of communities. Further research can investigate other types of communities to discover the meaning of PO and its development process.

The interview data were collected in Auckland, New Zealand. Although the online brand communities involved in the research were open to the public worldwide and the interview participants shared different demographic backgrounds, the interview data might not be fully applicable to online community members from other regions or cultures. Similarly, the data collection for scale development and model testing relied on a reputable marketing research company to recruit respondents from the US market

only. As consumers' feelings and cognitive activities might be influenced by their cultural beliefs regarding the world (Feldman, 1988), the same participant segment from a different country might have reported different responses to the survey. Thus, the results might not be generalisable to other online communities from different regions.

7.6 Future research directions

This thesis tested the effects of PO in an online community and provided a theoretical foundation for future research into PO. However, the antecedents of PO have not yet been identified. Future research might want to further explore PO theory in the online context to determine its theoretical antecedents and to identify the key drivers of PO development in the online context.

More research is needed to testing the effects of PO on brand community related concepts. This research tested the effects of PO on online brand community commitment, thus reflecting an aspect of consumers' relationship with the community. The findings from this thesis confirmed the effects of PO on this relationship. Future research might want to examine the impacts of PO on other consumer relationships with the brand community. For example, online community scholars have reported that consumers' engagement behaviour in the online brand community is also crucial to relationship marketing and brand community development (Baldus et al., 2015). Consumers' online brand community engagement comprises cognitive, emotional, and behavioural dimensions that are derived from the interactive experience between consumers and the brand (Brodie et al., 2013). PO is also developed from the online brand community discussion experience, which also comprises cognitive and emotional components. These two concepts might relate to each other during consumers' online brand community participation. Thus, how these two constructs influence each other in an online brand community needs further research effort.

Furthermore, the present thesis results found that two levels of PO – the individual level of PO and the collective level of PO – are significantly related to consumers' community commitment. As discussed before, community commitment is a core factor in relationship marketing (Hur et al., 2011). Community commitment was tested to identify consumers' brand behaviours. For example, research has identified the effects of community commitment on brand loyalty (Hur et al., 2011; Jang et al., 2008), word of mouth, and brand purchase intention (Demiray & Burnaz, 2019). Future research may want to test the effect of PO on these brand concepts through the concept

of community commitment, to further understand the role of PO in consumer relationships marketing.

The negative side of PO has not yet been explored. The present research focused on the positive aspects of PO, for instance, its application in customer attraction and retention. Future investigations on how PO might influence people to reject other communities and brands may be helpful. In some cases, PO might be problematic. For example, when a company wants to change the online brand community, update the community platform, expand community storage, re-structure the community, justify a community logo, introduce new membership rules, the online members who have strong PO towards the community might resist these changes. Thus, further research can investigate how the dark side of PO impacts community development and consumers' behaviour towards this development.

In prior research, the emotion of pride has been found to have a potentially multifaceted relationship with PO in the online context (Kirk & Swain, 2019). However, the empirical evidence of its relationship with PO remains scarce (Sinclair & Tinson, 2017). The present research found that sense of pride is part of the IPO, which manifests a feeling of ownership in the online brand community. Pride has two facets – authentic pride attributed to effort, and hubristic pride attributed to the self (Tracy & Robins, 2007). Notably, in the online context, the likes, the number of followers, the support, the affirmation, and the praise that come from other community members all generate a feeling of 'I'm proud of what I did in the community', and a feeling of 'I'm proud of who I am in the community'. Tracy and Robins (2007) suggest viewing the pride concept as two or more distinct emotions and testing them separately. In the present research, the two facets appeared closely related and also related to how others respond to "MY" messages. Therefore, the two facets of the pride concept in the online brand community context might be too close to be tested separately. Future research is needed to confirm this observation.

Further, the research results also suggested that a sense of pride can effectively influence consumers' brand community commitment and can be mediated to influence the consumer-brand relationship as well. It was found that if a consumer feels proud about the self in the online brand community, he/she is more likely to commit to the community, and also more likely to commit to the brand and attach to the brand. These research results contribute to the investigation of pride's effects on consumers'

relationships with the brand. The results might open a research direction on how consumers' pride can impact on their online community participation behaviour. Further research may consider the relationship between pride and other brand-related behaviours, such as brand loyalty, brand purchase intention, and brand image.

PO has been discussed as highly relevant to "self." Consumers who are indifferent in terms of "mine-me" sensitivity might experience this psychological state differently (Weiss & Johar, 2016). For example, people who are sensitive about ownership may intend to justify what is "mine" or what is "others'" when they explore the online environment at an initial stage. In contrast, other people who are not sensitive about ownership might need to experience ownership through their rich participation experience. Thus, people's level of sensitivity concerning their ownership status might influence their understanding of the meaning of PO and their PO development process, which in turn, can impact their community behaviour. Future studies might want to experiment with this moderation effect to identify what kind of consumers are more willing to form PO in the online context and how different "mine-me" sensitivity levels impact on their PO towards the community.

Understanding the PO concept involves recognising different online consumer experience touchpoints throughout the whole consumer experience process. For example, reading and understanding brand/product-related information or consumers' usage stories and the relevant discussions in the online brand community might create brand-owned touchpoints, customer-owned touchpoints, and social touchpoints during the three stages of consumer experience (Lemon & Verhoef, 2016). Therefore, understanding PO in an online brand community context may shed light on consumers' psychological online experiences through these touchpoints. The results might suggest a multi-perspective view of the consumers' experiences, which might include a combination of online and offline experience, or a combination of tangible experience and intangible experience, or a combination of psychological experience and physical experience. Consumers' online experience might relate to their feeling of PO towards the community. Some questions related to consumers' online experience remain unknown, however, such as how PO in an online community can create certain touchpoints for individual consumers, what critical touchpoints relate to PO in the online brand community, how PO in the online community influences this overall consumer experience, and what role PO might play in influencing consumers'

experience. As PO is a relatively new topic in online marketing research, relating PO to online consumer experience might be a new direction in the marketing research.

7.7 Concluding remarks

In conclusion, this thesis explored the PO phenomenon in an online brand community to discover the definition of PO, its dimensionality, its measurement, and its effects. A mixed method research was designed to address the research objectives. The results showed that both an individual level of PO and a collective level of PO emerged from the data. The scale development process was carried out to establish and validate a scale to measure each level of PO in the research context. The findings revealed that consumers' PO towards the online brand community can positively influence their commitment to the community and also enhance their brand attachment and brand commitment.

This research contributes to PO theory development in online marketing research by extending the theory from offline to online and from an individual level to a collective level. The theoretical model that was developed from this thesis explained both levels of PO development and the underlying motives and the development routes that show why PO exists and how it emerges in online contexts. The intention of this thesis was to establish a theoretical research foundation for PO study in the online context. The findings also contribute to marketers' knowledge of consumers' psychological experience in an online brand community. The results may provide support for online brand community management strategies by explaining online consumers' PO towards the community. This thesis also recommends motivating consumers' PO towards an online brand community as part of marketing relationship strategy in order to retain existing online consumers and to build their relationship with the community and the focal brand. Future research may want to explore the PO phenomenon in other online contexts to advance the theory. More research is called upon to test the effects of PO on consumers' relationship with an online brand community and the brand.

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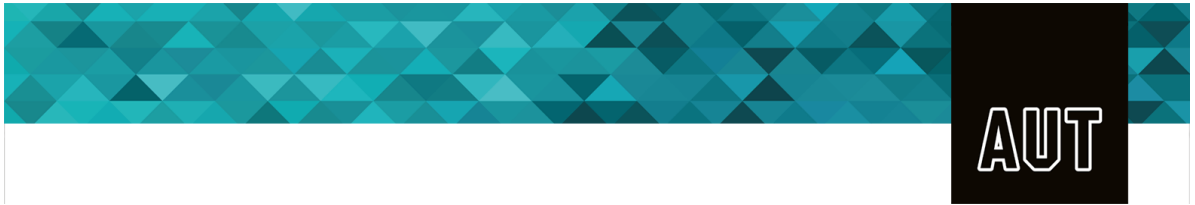
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Appendices

Appendix A: Qualitative study Ethics approval



Auckland University of Technology
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T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

27 February 2018

Crystal Yap
Faculty of Business Economics and Law

Dear Crystal

Ethics Application: 18/75 **PO in an online community**

I wish to advise you that a subcommittee of the Auckland University of Technology Ethics Committee (AUTEC) has **approved** your ethics application.

This approval is for three years, expiring 27 February 2021.

Non-Standard Conditions of Approval

1. Amendment of the Information Sheet to include further details of the inclusion criteria in the “why am I being invited to participate” section;

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study.

Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/researchethics>.

2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/researchethics>.
3. Any amendments to the project must be approved by AUTECH prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTECH Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTECH Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTECH grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries please contact ethics@aut.ac.nz

Yours sincerely,



Kate O'Connor

Executive Manager

Auckland University of Technology Ethics Committee

Cc: rongmei.zhang@aut.ac.nz; mark.glynn@aut.ac.nz

Appendix B: Interview Guide



Auckland University of Technology

Private Bag 92006, Auckland 1142, NZ

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www.aut.ac.nz

Introduction

1. The purpose of the interview is to understand your participation experience. I am interested in your personal feeling about the community and your choice of images or photos.
2. I would love and appreciate your stories and examples, please feel free to tell me more about it, and as specific as possible.
3. during the interview, I will record our conversation, carefully listen to your stories, but sometimes I might take or check my notes while you're speaking.
4. I won't ask for personal information.
5. The interview will be in three parts: the first part, I will ask you for some general information about your community. Then, you will create a collage. You can select any pic or photo to represent your relationships with the community and group. Then we will continue the interview to talk about your collage.

Starting questions: Open and descriptive

- This interview is going to focus on your online experiences,
 - Your age and ethnicity?
- How long have you been participating in this online community/group?
- Can you tell me a little bit about the community? What about the community members?
- What made you join the community?
- How often do you visit the community?

- Can you tell me a little bit about the posts in the community?
- What kind of information do you normally post?
- Tell me about your favourite posts?
- What about the community members? Who are they? How do you feel about these community members?
- Can you tell me your good/or bad experiences interacting with other community members?
- Have you attended any community event? (if no, what are the reasons for not attending)? How do you feel about it? Tell me about the last event you attended.

About the ownership feeling

You have posted messages in the community, some of the messages contain the statement of “MY/Our community/group/ team”

- What do you mean by “our team/group/community”?
- Who exactly owns the community?
- When you talk about “our team/group/community”, how do you feel about it?
- What kind of things do you think in your mind when you text such words?
- What makes you think “the team/group/community” is “Mine/ours”?
- What exact feeling do you have when you post these words?

Collage task interview questions

The overall feeling of the collage

- How do you feel when you’re making the collage?
- What do you love the most about your collage?
(Which image/photo do you like the most? Could you explain why you like it?)
- In what way do you think this collage represents the ownership between you and the community? Tell me more about it.
- Is there any specific order for this collage? And Why?

Individual image/photo

- Which image/ Photo do you want to talk about next? What this image/photo is about?
- What makes this image unique?
- How does this image/photo relate to your ownership of the community?
- How do you feel about this? How does it make you feel that? Why?

- What was in your mind when deciding to place/include image/photo?
- Is there any story behind this image/photo? Tell me the story.
- What does it mean to you?
- In what way do you think this pic reflects the ownership between you and the community and the community members?
- What makes you think that this image /photo should be placed here?

About the ownership feeling

- What do you mean by “our team/group/community”?
- What kind of expectation do you have when you send/text such words?
- How does this feeling make you feel about yourself?
- How is this feeling important when building a relationship with the community? In what way do you feel that the online community is important to you?
- In what way do you think this feeling influences your participation in the community?
- Do you think the feeling of “this is our community” change your understanding of the brand?
- In the online community, we normally text each other through words, emoji, or pics, videos. Do you feel when we say “our” is as same as when we say it in reality?

Collage summary questions:

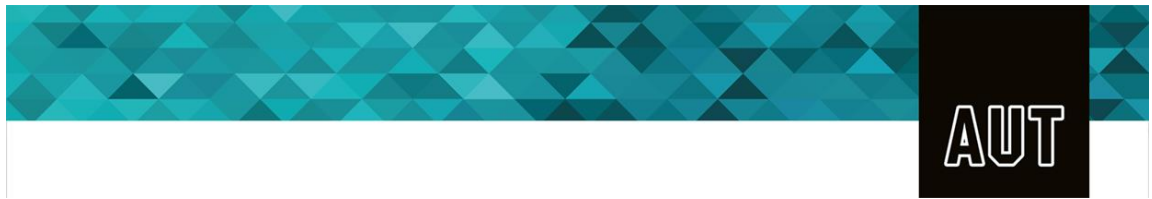
- Overall, what do you mean by “this is my community” and “we own this community”?
- After this conversation, how do you feel about the community now? Who owns the community?
- Now, if I ask you to use a few words to describe this ownership relationship with the community, what will be?

Concluding questions:

- How does this feeling make you feel about yourself?
- How is this feeling important when building a relationship with the community? In what way do you feel that the online community is important to you?
- In what way do you think the existence of the community in your life is important to you?

- In what way do you think your participation in the community is important to you and other group members?)
- If one day, this group disappeared without any reason, what would you do? How would you feel?
- If you know anyone else fits in my research, please let me know.

Appendix C: Consent form



Auckland University of Technology

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Consent Form

Interview, collage, and post collection

Project title: PO in an online brand community

Project Supervisor: Dr. Crystal Yap

Researcher: Rongmei Zhang

- I have read and understood the information provided about this research project in the Information Sheet dated 27 February 2018.
- I have had an opportunity to ask questions and to have them answered.
- I understand that the researcher will collect my posts from the online brand community.
- I understand that the researcher will conduct interviews in relation to my online brand community participation experiences. The researcher will be taking notes during the interviews that will be audio-taped and transcribed.
- I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- I understand that if I withdraw from the study then I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- I agree to take part in this research.
- I wish to receive a summary of the research findings (please circle one): Yes No

Participant's Signature:

Participant's name:

Participant's Contact Details (if appropriate):

.....

.....

.....

.....

Date:

Approved by the Auckland University of Technology Ethics Committee on 27 February
AUTEK Reference number 18/75

Note: The Participant should retain a copy of this form.

Appendix D: Participant Information Sheet



Auckland University of Technology
Private Bag 92006, Auckland 1142,
NZ T: +64 9 921 9999
www.aut.ac.nz

Participant Information Sheet

Date Information Sheet Produced:

Project Title

PO in an online brand community

An Invitation

My name is Rongmei and I am a Ph.D. student in the Marketing department at AUT University in Auckland, New Zealand. I would like to invite you to participate in my research on consumers' online brand community participation. Participation in this research is voluntary and all information collected will be kept confidential. You may withdraw your participation any time before the completion of the research project.

What is the purpose of this research?

This research explores consumers' online brand community participation experience. Within the online discussion, strong relationship with the community developed. It's important to understand how this strong relationship is established and how the relationship would be measured. I am conducting this study for my PhD thesis requirement at AUT University in New Zealand.

Why am I being invited to participate in this research?

You were initially identified as you are an active member of the online community, I would like to request your voluntary consent to participate in the study.

How do I agree to participate in this research?

You can agree to participate in this research by messaging me through the online brand community message system or emailing me your response at rzhang@aut.ac.nz. Attached along with this document is a copy of the participant Consent form. If you agree to participate in this research, please sign the consent form and email it back to me at rzhang@aut.ac.nz. Your participation in this research is voluntary (it is your choice) and whether or not you choose to participate will neither advantage nor disadvantage you. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used.

What will happen in this research?

Following your acceptance to take part in this study, you will involve in TWO research activities: a collage creation and an interview. The schedule of these two activities would be sent to you.

1) **Collage creation task:** you will be asked to create a collage that represents your relationships with your online brand community (FerrariChat).

- **Step 1:** You will be asked to place FerrariChat community logo on a PowerPoint slide or cardboard or any other display board of your choice.

- **Step 2:** you will choose photos or images that you believe they can represent your **relationships with FerrariChat** and place these photos or images on the same page with the logo. These photos or images can be collected from any resources of your choice.

You will control over the collage creation including the size and colour of your collage, the number of the photos/images being selected, the content of the photos/images, the place of the photos/images will be put, the colour or size of the photos/images, etc. So, be creative!!! The collage task normally takes 5-20 minutes, and you will have enough time to think, search and select photos/ images from the resources of your choice without time pressure.

- **Step 3.** When the collage task is completed, you should be able to email or message me a copy of the collage PowerPoint slide or a snapshot of the collage. Then, we can start the interview at your time of convenience.

2) **The interviews** usually take 45-60 minutes. There will be audio recording if you prefer the audio or video interview online. If you prefer online messaging interview, your messages will be noted. Interview questions will relate to your choices of the photos or images that explain your online participation experiences. You won't be asked to provide any personal identifying information, your face or online IDs or email address will remain confidential, and pseudonyms will be used in the final reporting.

Your posts on the online brand community will also be recorded for subsequent data analysis.

What are the discomforts and risks?

There won't be any discomforts and risks to participating the research.

- For the collage, you will be free to choose any images or photos from any resources, without time pressure.
- For the interviews, I can assure you that the questions are non-invasive as we are not seeking a level of detail that may identify you or create any discomfort.
- For the online posts, your ID will be omitted with pseudonyms to protect your confidentiality. You won't be identified from the report.

How will these discomforts and risks be alleviated?

Participation is voluntary and if for any reason you feel uncomfortable, you are able to decline answering certain questions, or even withdraw from the research project at any time prior to the study's completion without any consequences. Additionally, you will have the opportunity of choosing a suitable time for participation to take place.

What are the benefits?

This research aims to provide marketing researchers a theoretical foundation for marketing theory progress and research development in understanding consumers' online community participation experience. It also benefits marketing practice with the means to understand consumers' relationship with company's online community. The sponsors of the online communities will gain benefits by further understanding the online brand community's culture and the public value to better position the sponsorship within the community.

You will have the access to the results of the research and may use this information to add to your understanding of the community, helping the community development.

This research will also allow me as the primary researcher, to fulfil the requirement for the award of Ph.D. from AUT University in New Zealand.

How will my privacy be protected?

Participation in this study is strictly voluntary. Your identity will remain confidential and will not be disclosed to anyone except to the primary researcher and project supervisor. To ensure that privacy and the suggested limited confidentiality are respected, your name or online ID will be changed to pseudonyms and contact information will not be disclosed in final reporting. Any data that the researcher extracts from the interview or your posts is for academic use only and all reports or published findings will not, under any circumstance, contain names or identifying characteristics. All data will be stored on a password protected memory stick and consent forms will be stored in a password protected cabinet with the project supervisor after the project is completed. Data and consent forms will be deleted after a period of six years.

Contact details of the researcher and supervisor are provided in case of any concerns or complaints that need to be lodged.

What are the costs of participating in this research?

There are no costs to you other than your time to participate in the study. The collage creation task will take 5-20 minutes over the two-week period and a follow up interview will take 45- 60 minutes right after the collage completion at your time of convenience

What opportunity do I have to consider this invitation?

You can take your time to decide if you wish to participate in the research. However, it would be appreciated for you to respond within two weeks' time from the date the invitation is sent. You have the choice of selecting the most appropriate time from date options sent by the researcher for the interview to take place.

Will I receive feedback on the results of this research?

By completing a Consent Form or by responding to the invitation email, you may tick the box showing your interest in receiving feedback on the research's results. A result synopsis will be sent to you once the study is complete.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Crystal Yap, *crystal.yap@aut.ac.nz*, +64 9 921 9999 ext. 5800. Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTEK, Kate O'Connor, *ethics@aut.ac.nz*, +64 9 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Researcher Contact Details:

Primary Researcher: Rongmei Zhang *rzhang@aut.ac.nz*, +64 9 921 9999 ext 7563

Project Supervisor Contact Details:

Project Supervisors: Dr. Crystal Yap *crystal.yap@aut.ac.nz*, +64 9 921 9999 ext 5800

Associate Professor Mark Glynn *mark.glynn@aut.ac.nz*, +64 9 921 9999 ext 5813

Approved by the Auckland University of Technology Ethics Committee on 27 February 2018, AUTEK Reference

number 18/75

Appendix E: Scale development Ethic approval



Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics

9 May 2019

Crystal Yap
Faculty of Business Economics and Law

Dear Crystal

Ethics Application: 19/144 **PO in an online brand community**

I wish to advise you that a subcommittee of the Auckland University of Technology Ethics Committee (AUTEC) has **approved** your ethics application.

This approval is for three years, expiring 7 May 2022.

Standard Conditions of Approval

1. A progress report is due annually on the anniversary of the approval date, using form EA2, which is available online through <http://www.aut.ac.nz/research/researchethics>.
2. A final report is due at the expiration of the approval period, or, upon completion of project, using form EA3, which is available online through <http://www.aut.ac.nz/research/researchethics>.
3. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form: <http://www.aut.ac.nz/research/researchethics>.
4. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
5. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.

Please quote the application number and title on all future correspondence related to this project.

AUTEC grants ethical approval only. If you require management approval for access for your research from another institution or organisation then you are responsible for obtaining it. If the research is undertaken outside New Zealand, you need to meet all locality legal and ethical obligations and requirements. You are reminded that it is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard.

For any enquiries please contact ethics@aut.ac.nz

Yours sincerely,

A handwritten signature in black ink, appearing to read 'K O'Connor', written in a cursive style.

Kate O'Connor

Executive Manager

Auckland University of Technology Ethics Committee

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Appendix F: Survey questionnaire

Ownership feeling in online brand communities

Thank you for considering participating in this study. My Name is Rong Mei Zhang, a Ph.D. student from Auckland University of Technology. I am researching consumer's experiences in online brand community-such as the Apple Facebook group; Airbnb online community, NIKE WeChat group, and other community/groups on any type of social network.

I am surveying people who participate in online brand communities and have ownership feeling towards the brand community. The questionnaire comprises questions about your experience of participation and a few demographic questions.

By completing the questionnaire, you are consenting to participate in the research voluntary. You can withdraw from the study at any time by closing the browser. At the end of the survey, I will provide you with an email address where you can access the results of the study as soon as they are available. Participating in the survey will take about 20-30 minutes of your time. All answers will be recorded electronically and are fully anonymised to the researchers.

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor, Crystal Yap, Crystal.yap@aut.ac.nz, +64 9 921 999 ext. 5800. Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, Kate O'Connor, ethics@aut.ac.nz, 921 9999 ext. 6038.

If you require help with completing the survey, please email membersupport@cint.com.

S1. Are you a member of any online brand community (e.g. Apple Facebook group; NIKE twitter group; Coca WeChat group; Airbnb online group etc.; or/and any online form of branded group/community)?

☐ Yes

☐ No

S2. What is your most favourite online brand community's name?

S3. Your most favourite online brand community is established

☐ By customers

☐ By the company

S4. Think about your favourite online brand community that you indicated above; think about your experiences and feelings associated with this community, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
I feel like this is my community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a very high degree of personal ownership of the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel like I own this community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We (my community members and I) collectively agree that this is our community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We (my community members and I) collectively feel that this community belongs to US together.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We (my community members and I) feel a very high degree of collective ownership for this community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
All of the community members feel as though we own the community collective.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your participation experience in your most favourite online brand community, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagre e (2)	Moderatel y disagree (3)	Neutral (4)	Moderatel y agree (5)	Agree (6)	Strongly agree (7)
I can get the information that I want from this community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel this community is enjoyable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In the online brand community, I get to know other people who are interested in the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online brand community provides me an opportunity to use my talents.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online brand community provides me an opportunity to learn new things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online brand community members life me up when I feel down.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The online brand community makes me relaxed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite community, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
I feel I am always included by the community members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I have close bonds with the community members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel accepted by other community members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a strong sense of belonging to the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I am important to the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel I cooperate better with people in this community than others who are not part of this community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite community's members, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagr ee (2)	Moderatel y disagree (3)	Neutral (4)	Moderatel y agree (5)	Agree (6)	Strongl y agree (7)
Based on my experience with the online brand community, I know the community cares about community members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on my experience with the online brand community, I know it is honest.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on my experience with the online brand community, I feel safe in the online brand community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on my experience with the online brand community, I feel safe to express myself in the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Based on my experience with the online brand community, to some extent, I can rely on community members when I need help.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite online brand community, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
If I take a role in the community, I will accept its obligations to help the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to contribute to the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am willing to help my community members.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I will help any community member if I can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite online brand community, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
I feel proud of helping other members in the online brand community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel proud of who I am in the community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel proud of being part of the online brand community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel proud of becoming a better person with help from the online brand community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your most favourite online brand community members as a collective whole, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
Most community members know each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Most community members are familiar with each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We help each other if we can.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We enjoy time being together.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We have similar goals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We value similar things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your most favourite online brand community members as a collective whole, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
Our community members feel united.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our community is united as a big group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our community members are always together as one big group.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our community is a result of all community member's contributions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community achievement is a result of all community member's contributions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your most favourite online brand community members as a collective whole, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	moderately agree (5)	agree (6)	Strongly agree (7)
Our community is powerful when we are together.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Our community can be powerful only by working together.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We know the community power is collective, not individual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We believe that being together can share resources more effectively.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
We believe that being together we can achieve something bigger.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite online brand community, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
I would feel a loss if my Brand Community was no longer available.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I really care about the fate of my Brand Community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel a great deal of loyalty to my Brand Community.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The relationship I have with my Brand Community is one I intend to maintain indefinitely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The relationship I have with my Brand Community is important to me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite online brand community's BRAND, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	disagree (2)	Moderately disagree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
I have a psychological attachment to the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I want the brand to be always successful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I think that using the brand is important.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am a loyal customer of the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Consider your relationship with your most favourite online brand community's BRAND, please indicate the degree to which you personally agree or disagree with the following statements.

	Strongly disagree (1)	Disagree (2)	Somewhat agree (3)	Neutral (4)	Moderately agree (5)	Agree (6)	Strongly agree (7)
The brand is affectionate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The brand is loved.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The brand is peaceful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The brand is lovely.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am bonded by the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am attached to the brand.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The brand makes me passionate.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The brand delights me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The brand captivates me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Demographic questions:

D1. How long have you been a member of your most favourite online brand community?

D2. How often do you visit your preferred online brand community?

- ☐ Many times, every day
- ☐ About once a day
- ☐ Once a week
- ☐ A couple of times a month
- ☐ Rarely

D3. What is your ethnicity (select all that apply)?

- ☐ Asian
- ☐ Black/African
- ☐ Caucasian
- ☐ Hispanic/Latinx
- ☐ Native American
- ☐ Pacific Islander
- ☐ Other (specify)

D4. What is your gender?

- ☐ Male
- ☐ Female
- ☐ Other

D5. What is your total household income (in US \$)?

- ☐ \$0-\$19,999
- ☐ \$20,000-\$34,999
- ☐ \$35,000-\$49,999
- ☐ \$50,000-\$74,999
- ☐ \$75,000 to \$99,999
- ☐ Over \$100,000
- ☐ Don't know
- ☐ Prefer not to answer

D6. Which age range (in years) do you belong to?

- ☐ Under 18 years old
- ☐ 18- 24 years old
- ☐ 25- 34 years old
- ☐ 35- 44 years old
- ☐ 45- 54 years old
- ☐ 55- 64 years old
- ☐ 65 -74 years old
- ☐ 75 years old or over

D7. What is your highest degree completed?

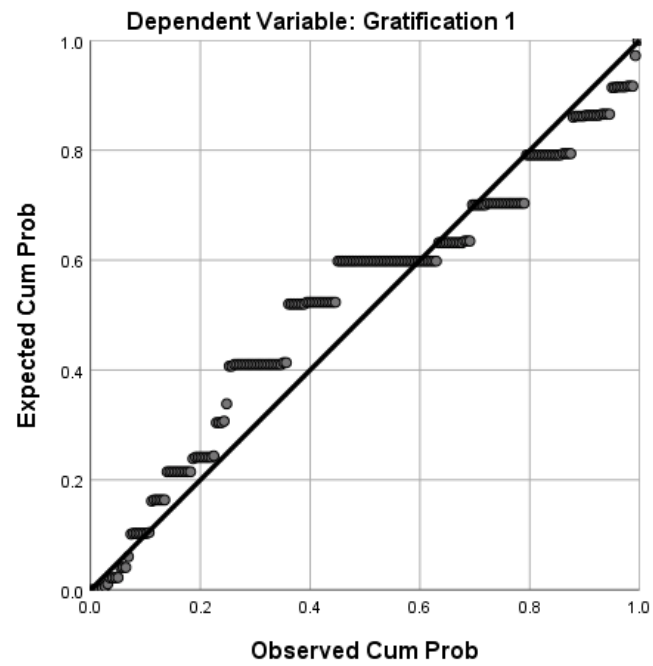
- ☐ 12th grade or less
- ☐ Graduated high school or equivalent
- ☐ Some college, no degree
- ☐ Associate degree
- ☐ Bachelor's degree
- ☐ Post-graduate degree

This is the end of the survey, thank you for your participation.

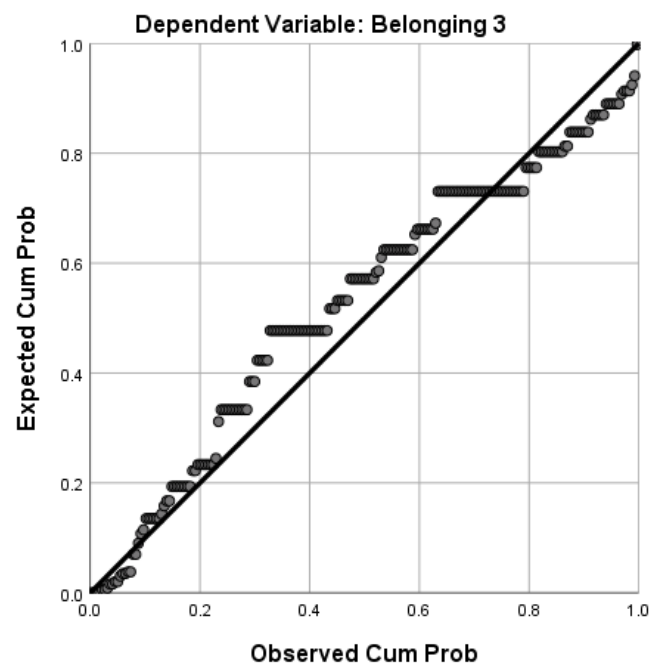
If you wish to receive a summary or abstract of the research, please email me at rzhang@aut.ac.nz.

Appendix G: linearity plots-first sub-dataset

Normal P-P Plot of Regression Standardized Residual

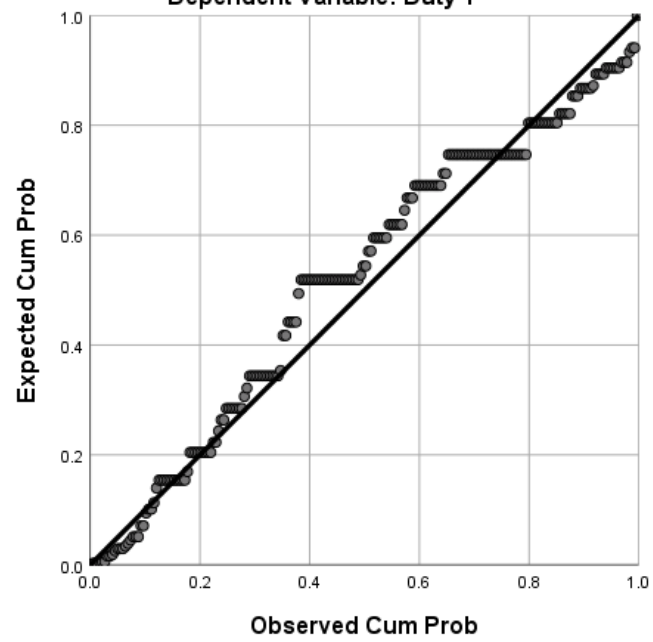


Normal P-P Plot of Regression Standardized Residual



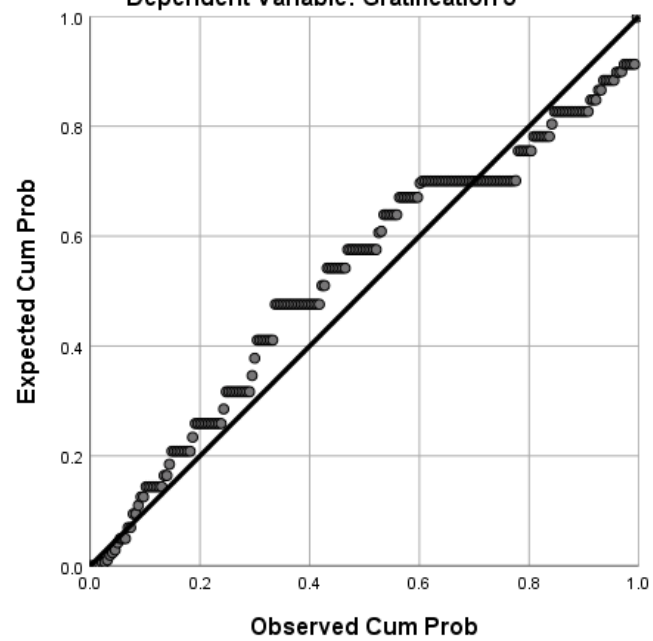
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Duty 1

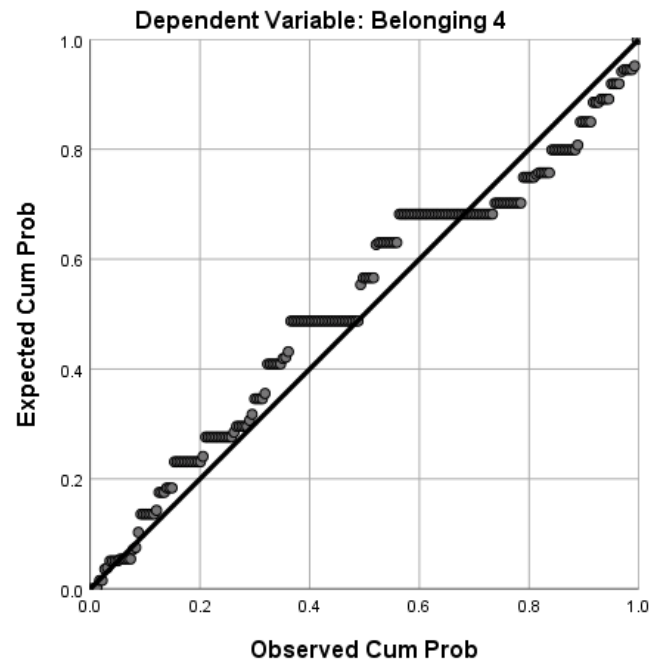


Normal P-P Plot of Regression Standardized Residual

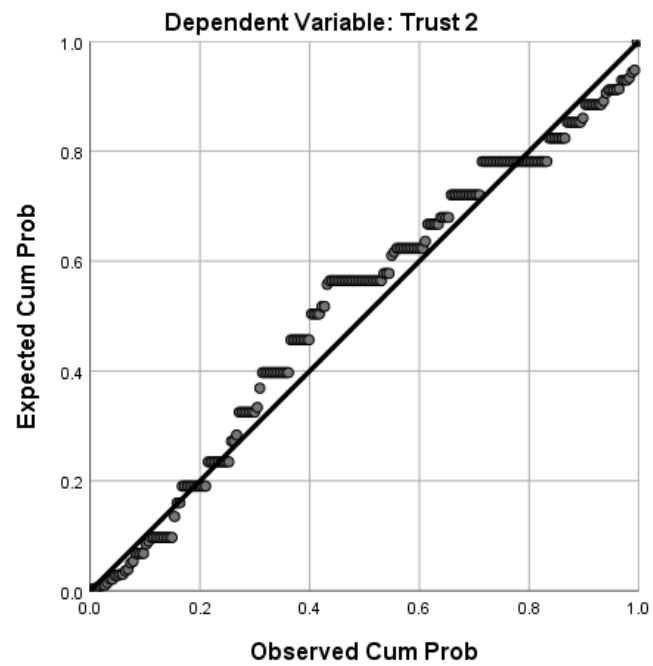
Dependent Variable: Gratification 5



Normal P-P Plot of Regression Standardized Residual

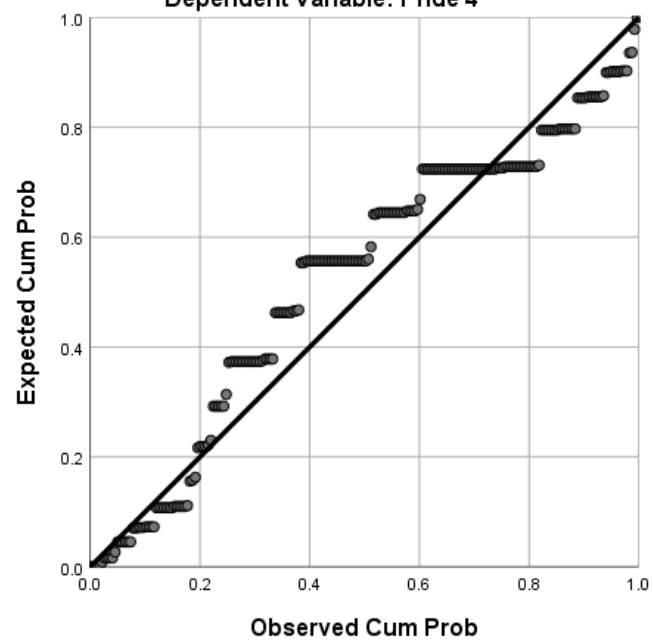


Normal P-P Plot of Regression Standardized Residual



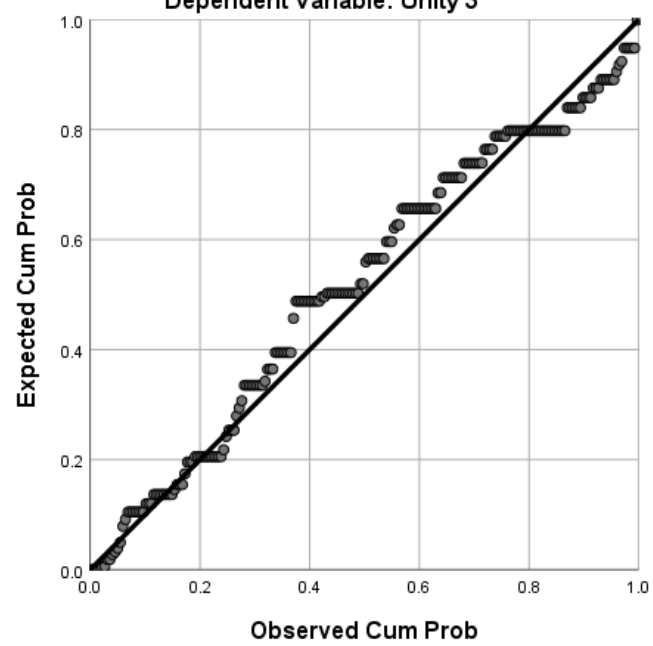
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Pride 4



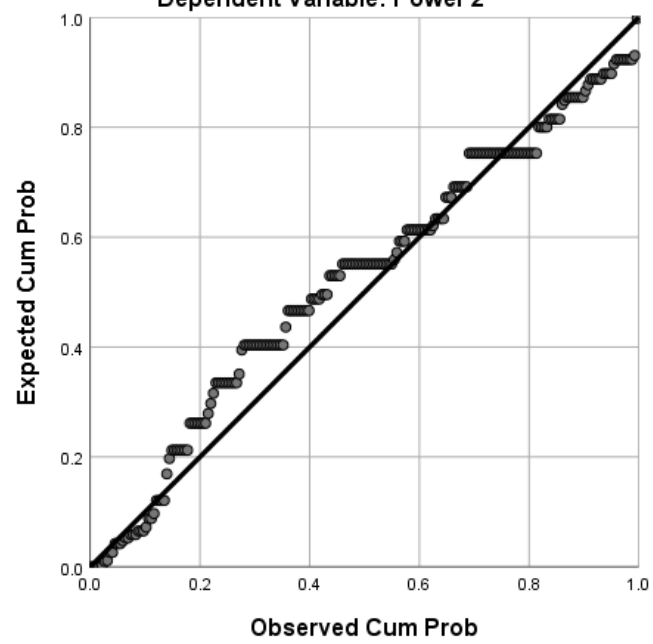
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Unity 3



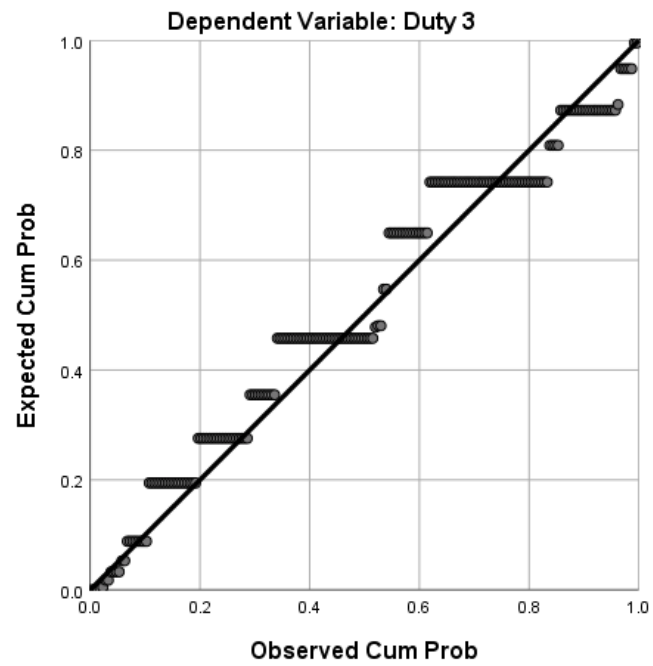
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Power 2

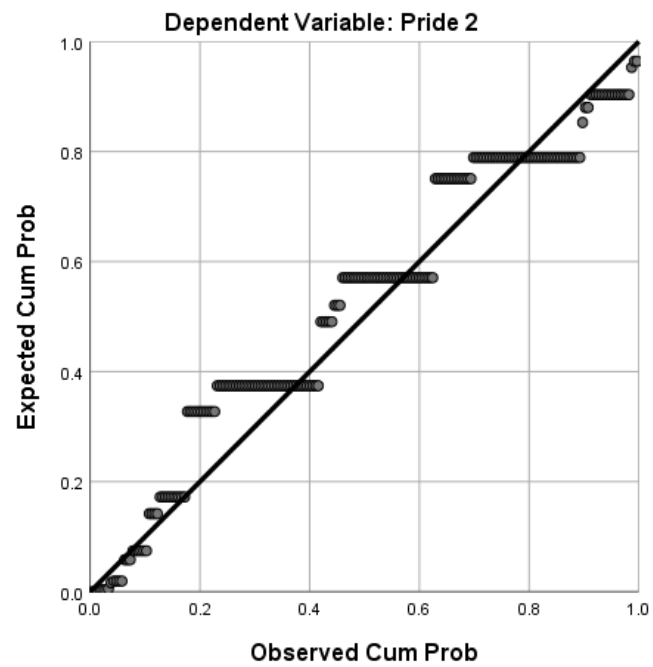


Appendix H: linearity plots-second sub-dataset

Normal P-P Plot of Regression Standardized Residual

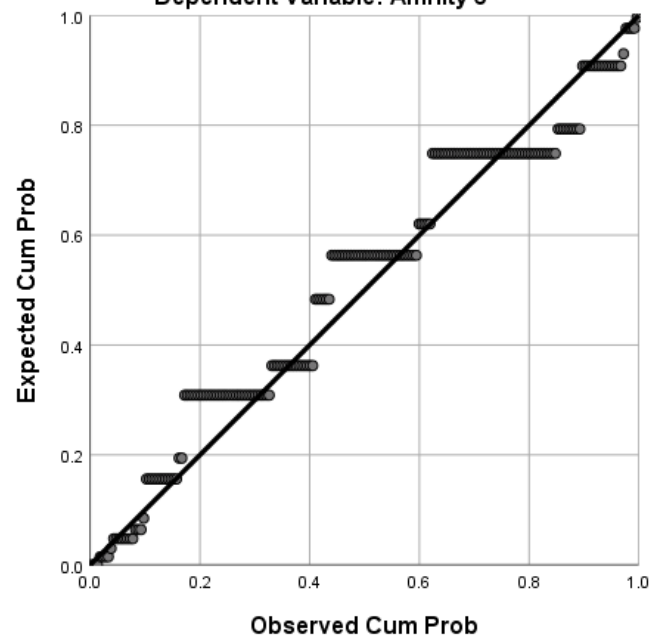


Normal P-P Plot of Regression Standardized Residual



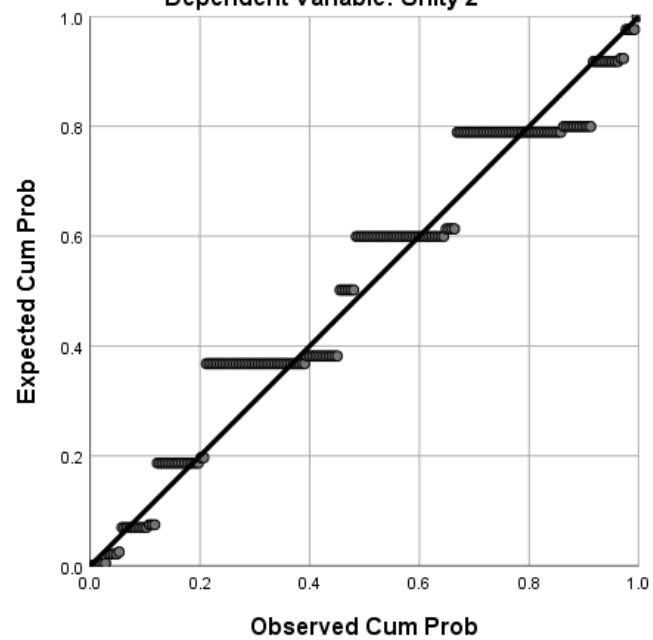
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Affinity 6

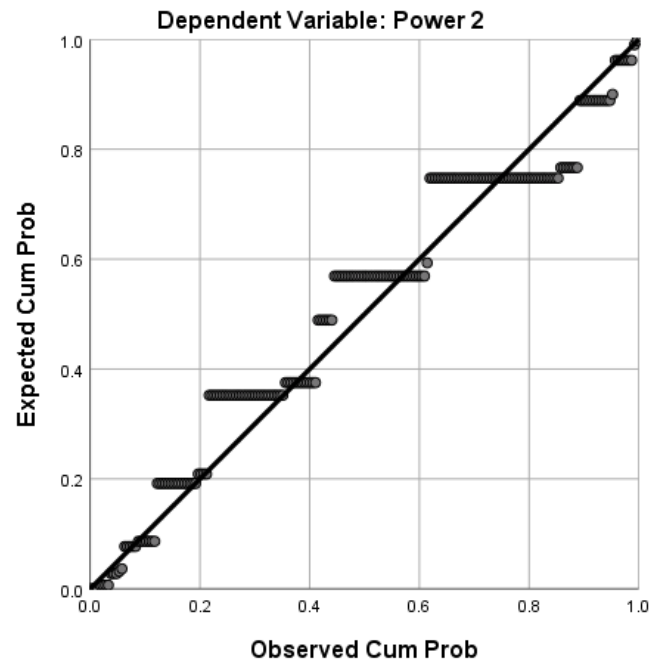


Normal P-P Plot of Regression Standardized Residual

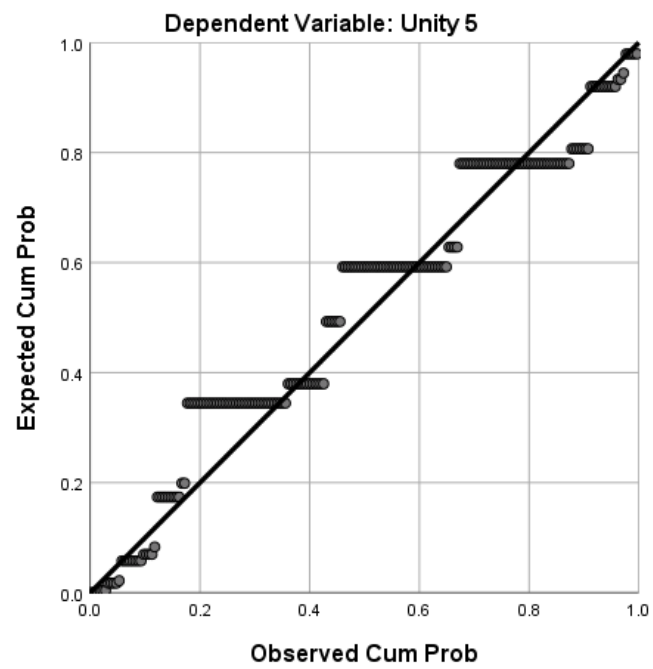
Dependent Variable: Unity 2



Normal P-P Plot of Regression Standardized Residual

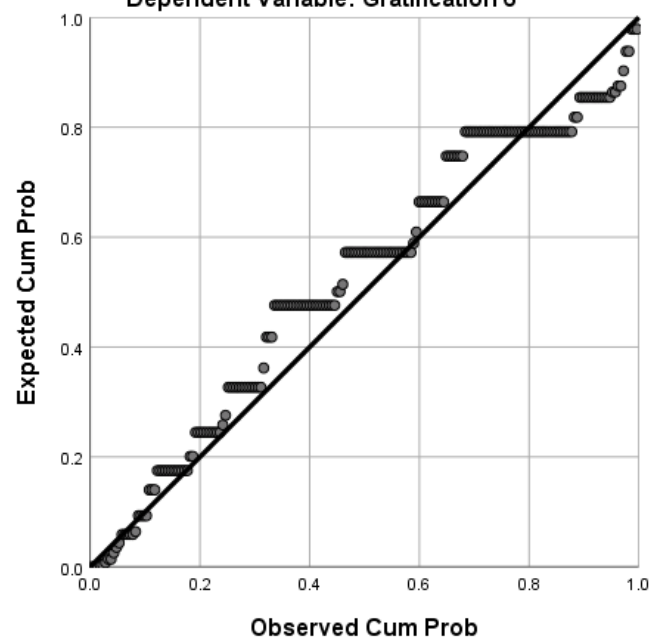


Normal P-P Plot of Regression Standardized Residual



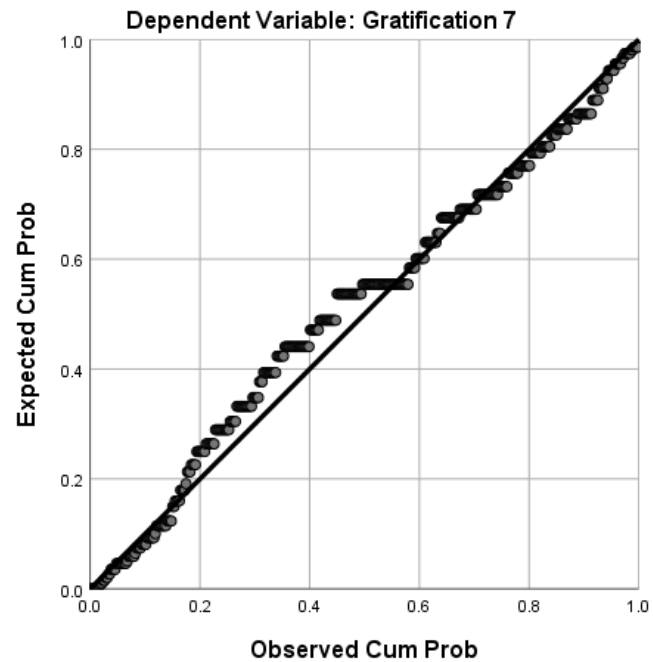
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Gratification 6

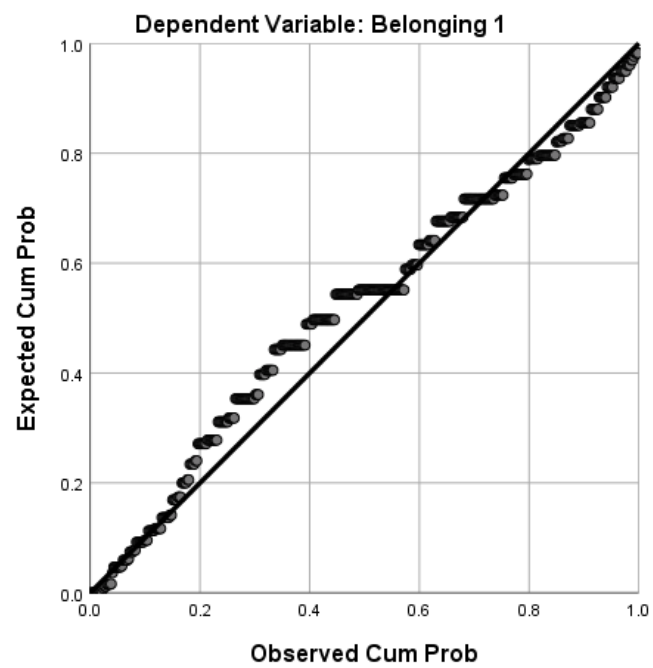


Appendix I: linearity plots- combined dataset

Normal P-P Plot of Regression Standardized Residual

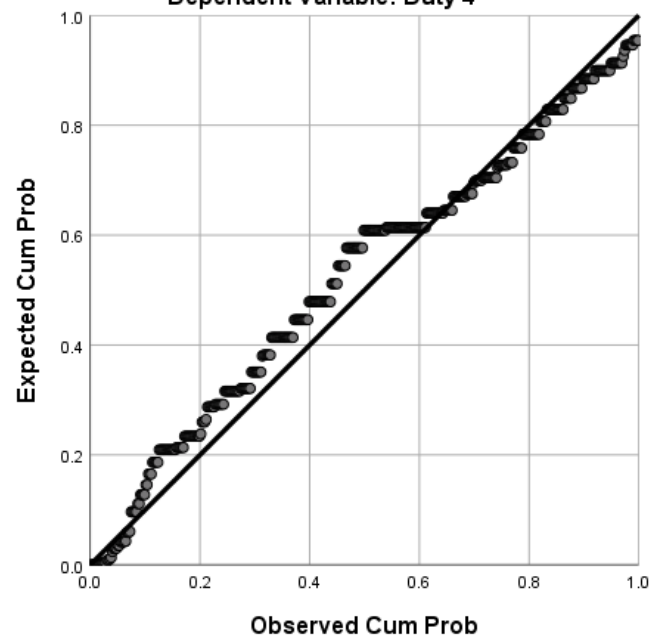


Normal P-P Plot of Regression Standardized Residual



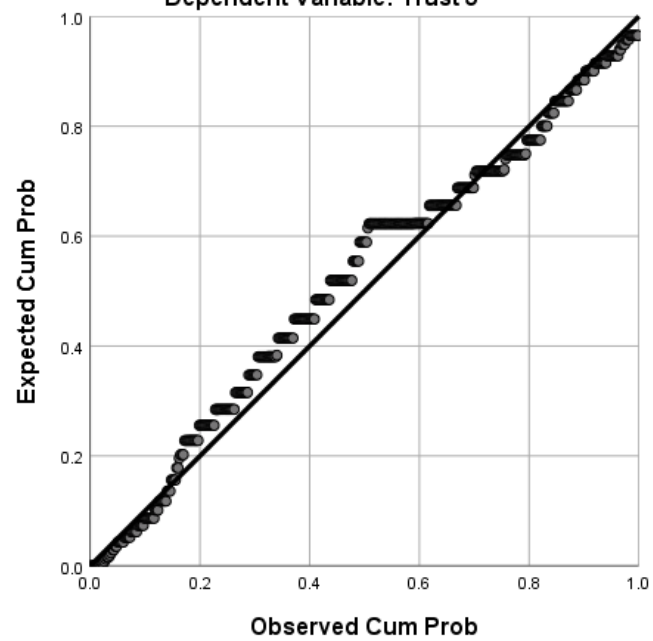
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Duty 4



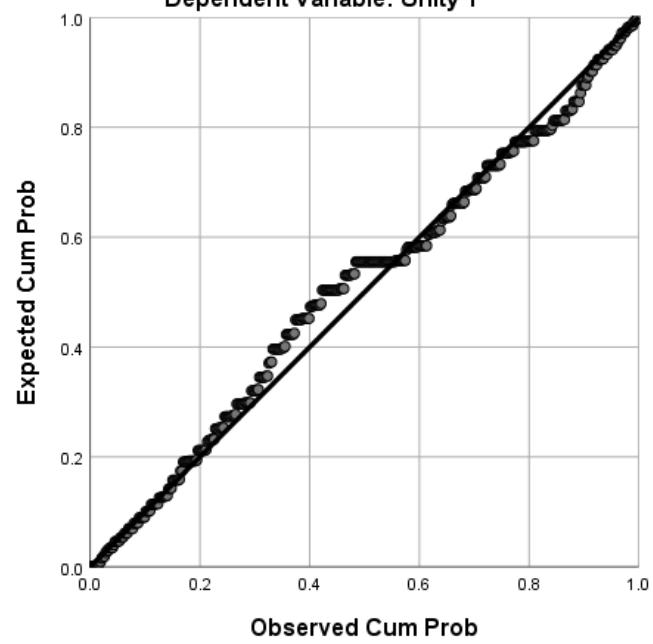
Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Trust 3



Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Unity 1



Appendix J: Qualitative research themes and code

Individual level of PO dimensions	Codes	
Sense of gratification	Informational gratification	Fulfil the craving for information
	Companionship gratification	Friendship
	Psychological gratification	Kill time Motivation Ambitions, desires, opportunity Relax
	Entertainment gratification	Funny posts Joke with each other
Sense of belonging	Community acceptance	Always invite me Accept my idea or opinion
	Responsiveness and support	Always respond to my posts
	Tacit understanding	Work with community members better than others
Sense of trust	Freedom of expression	A safe place to express true feeling Express my opinion without being judged
	Reliability	Can rely on community members' suggestions Can rely on community members' support
Sense of pride	Authentic pride	Be proud of becoming a better person Be proud of my identity
	Hubristic pride	Be proud of helping others Be proud of being capable
Sense of duty		Have a role in the community Feel can help the community
Collective level of PO dimensions	Codes	
Sense of community affinity	Closeness	Close to each other Everyone is important
	Mutual benefits	We benefit each other in the community
	Same goal and value	Similar goals Value similar things

Sense of unity		Share similar characteristics Face similar problems
	Community cohesion	Close like a big family Closely united
Sense of power	Co-construct and protect	Co-construct the community Co-protect the community
		Can do things bigger
		Share more resources
		Can overcome the bigger problems