

ABSTRACT

LEKSRISOMPONG, CHANATIP. Brand Congruity and Purchase Intentions of Runners. (Under the direction of Trevor J. Little and Nancy L. Cassill.)

Running continues to be one of the more popular sports enjoyed by all ages. Regardless of the popularity of the sport, limited research currently exists to quantify the apparel purchase behavior of runners. This research studied variables that influenced purchase intentions of runners at different levels of involvement. The runners were categorized by the dualistic theory of passion, and their purchase intentions toward apparel brands for running were investigated from the self-congruity perspective. Runners completed an online survey that provided comprehensive information on their running behavior and their past and future apparel purchases. Exploratory factor analysis was used to investigate the dualistic theory of passion and self-congruity theory on the running population. Four variables were found to be important predictors of purchase intentions for all runners: Self-Image Congruence, Function, Aesthetic, and Technology Appeal. Further, logistic regression was used to determine which variables significantly influenced purchase intentions of runners in each category. Based on the findings, a theoretical framework was proposed. This study concluded that functional attributes of running apparel influence runners' purchase intentions.

Brand Congruity and Purchase Intentions of Runners

by
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DEDICATION

To Mom and Dad, who have worked very hard to enable me to achieve my goal.

BIBIOGRAPHY

Chanatip Leksrisonpong is the eldest daughter of Mr. Vinai and Mrs. Phatanee Leksrisonpong. She was born in Bangkok, Thailand and moved to the United States at the age of fifteen to attend the last three years of high school. Throughout her entire academic curriculum, Chanatip has always held great interest in learning about cultures and social sciences. Her undergraduate curriculum at the University of Kentucky encompassed the study of Foreign Language and International Economics with an emphasis in Japanese language. During her master's study, she deepened her knowledge in applied economics and developed skills in quantitative methods for social sciences. After completing her master's degree, she interned with DSM Nutritional Products to conduct a market feasibility study on feed additives in the Asia's aquaculture industry. During this time she became highly interested in the area of consumer behavior. After completing her internship, Chanatip enrolled in North Carolina State University's doctoral degree program in Textile Technology Management. While at the College of Textiles, Chanatip taught three courses in fashion and consumer behavior. Her current interest is in branding strategy and consumer profiling.

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TABLE OF CONTENTS

LIST OF TABLES	xi
LIST OF FIGURES	xiv
CHAPTER 1: INTRODUCTION	1
Purpose of the Study	3
Research Objectives	3
Significance of Study	4
Definitions	5
CHAPTER 2: LITERATURE REVIEW	9
Running Background	9
Passion toward Activities	13
The Dualistic Theory of Passion	14
Enthusiasts	16
Identity	18
The Importance of Level of Involvement in the Sport	20
Self-Concept and Self-Image	22
Self-Congruity Theory	24
Impact of Brand Image	29
Functional Congruity	29
Attributes of Apparel Design	30

Consumers and Their Behaviors	31
Purchase Intentions.....	33
Lifestyle as a Factor of Consumer Purchase Behavior	34
The Importance of Branding	35
Apparel Brands for Running: Lifestyle Brands	37
Summary of Literature Review	39
CHAPTER 3: METHODOLOGY	41
Purpose of the Study.....	41
Research Hypotheses	43
Research Methodology	44
Populations and Sample.....	45
Questionnaire	46
Independent Variables	46
The Passion Scale	46
Self-Congruity	48
Functional Congruity	49
Dependent Variable	51
Purchase Intentions	51
Demographic Characteristics of the Sample.....	52
Data Analysis	53
Factor Analysis.....	53

Logistic Regression.....	57
Statement on the Use of Human Subjects.....	59
CHAPTER 4: RESULTS.....	60
Operational Definitions.....	66
Respondent Demographics	67
All Runners	69
Passion Categories	71
Obsessive Passion Factor.	72
Harmonious Passion Factor.....	73
Congruity Categories	74
Self-Image Congruence Factor.....	77
Function Factor.....	77
Aesthetic Factor.....	78
Technology Appeal Factor.....	78
Cross-loaded and deleted items.	79
Confirmation of Functional Congruity Factors	80
Logistic Regression.....	82
Obsessive Enthusiastic Runners.....	91
Congruity Categories	94
Self-Image Congruence Factor.....	94

Function Factor.....	95
Logistic Regression.....	95
Harmonious Enthusiastic Runners	97
Congruity Categories	101
Self-Image Congruence Factor.....	101
Function Factor.....	101
Aesthetic Factor.....	102
Technology Appeal Factor.....	102
Logistic Regression.....	102
Running Participants.....	106
Congruity Categories	108
Self-Image Congruence Factor.....	108
Function Factor.....	109
Aesthetic Factor.....	109
Logistic Regression.....	110
Summary of Hypothesis Tests	112
Descriptive Analyses	117
Running Behavior.....	118
Purchase Behavior	122
Profile of Runners.....	138

Profile of Obsessive Enthusiastic Runners	140
Profile of Harmonious Enthusiastic Runners	141
Profile of Running Participants	142
CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	143
Summary	143
Conclusion	147
Limitations	148
Recommendations	148
REFERENCES.....	151
APPENDICES	162
APPENDIX A: SURVEY.....	163
APPENDIX B: E-MAIL MESSAGE TO FIRMS	176
APPENDIX C: E-MAIL MESSAGE TO RUNNERS.....	177
APPENDIX D: FACEBOOK MESSAGE	178
APPENDIX E: IRB EXEMPTION E-MAIL MESSAGE	179
APPENDIX F: HOW DID YOU FIND OUT ABOUT THIS SURVEY?.....	180
APPENDIX G: CONGRUITIES OUTPUT: THREE FACTOR SOLUTIONS	181
APPENDIX H: CONGRUITIES OUTPUT: FIVE FACTOR SOLUTIONS	182
APPENDIX I: CONGRUITIES OUTPUT: SIX FACTOR SOLUTIONS	183
APPENDIX J: FUNCTIONAL CONGRUITY OUTPUT: FOUR FACTOR SOLUTIONS	184

LIST OF TABLES

Table 1 <i>Just-style's 2006 estimate of the world's top ten sports ranked by participation</i>	12
Table 2 <i>Global market growth of total sports apparel, 2006 and 2012 (U.S. \$ in billions)</i> ...	12
Table 3 <i>Items used to categorize respondents into enthusiastic runners</i>	47
Table 4 <i>The passion scale</i>	48
Table 5 <i>Self-congruity measurement</i>	49
Table 6 <i>Functional congruity: Running apparel attributes</i>	50
Table 7 <i>Purchase intentions of apparel brands for running</i>	52
Table 8 <i>Demographic questions</i>	53
Table 9 <i>Guidelines for identifying significant factor loadings based on sample size</i>	56
Table 10 <i>AR, HER, OER, and RP: Requirements and hypotheses</i>	61
Table 11 <i>Comparisons between United States demographics and survey respondent demographics</i>	67
Table 12 <i>Factors and factor loadings of passion items: AR (506 observations)</i>	72
Table 13 <i>Estimated score (point) for variables in the AR data set</i>	74
Table 14 <i>Factors and factor loadings of congruity items: AR (506 observations)</i>	75
Table 15 <i>Factors and factor loadings of functional congruity items: AR (506 observations)</i>	81
Table 16 <i>Logistic regression analysis of AR (498 Observations) predicting purchase intentions for apparel brands for running against Self-Image Congruence, Function, Aesthetic, Technology Appeal</i>	83

Table 17 <i>Logistic regression analysis of AR (498 Observations) predicting purchase intentions for apparel brands for running against Obsessive Passion, Harmonious Passion, Self-Image Congruence, Function, Aesthetic, Technology Appeal</i>	86
Table 18 <i>Logistic regression analysis of AR (498 Observations) predicting purchase intentions for apparel brands for running against Obsessive Passion, Harmonious Passion, Self-Image Congruence, Function, Aesthetic, Technology Appeal, with interaction terms</i>	90
Table 19 <i>Factors and factor loadings of congruity items from OER (112 observations)</i>	93
Table 20 <i>Estimated score (point) for variables in OER</i>	94
Table 21 <i>Logistic regression analysis of OER (110 Observations) predicting purchase intentions of apparel brands for running against Self-Image Congruence and Function</i>	96
Table 22 <i>Factors and factor loadings of congruity items: HER (213 observations)</i>	98
Table 23 <i>Estimated score (point) for variables in HER</i>	100
Table 24 <i>Logistic regression analysis of HER (212 Observations) predicting purchase intentions for apparel brands for running against Self-Image Congruence, Function, Aesthetic, Technology Appeal</i>	103
Table 25 <i>Factors and factor loadings of congruity items from RP (111 observations)</i>	106
Table 26 <i>Estimated score (point) for variables in RP</i>	108
Table 27 <i>Logistic regression analysis of RP (107 Observations) predicting purchase intentions for apparel brands for running against Self-Image Congruence, Function, Aesthetic</i>	110

Table 28 <i>Demographic characteristics</i>	117
Table 29 <i>How many miles do you run per week on average?</i>	119
Table 30 <i>Where do you mostly run?</i>	119
Table 31 <i>How often do you run on average? (days per week)</i>	120
Table 32 <i>Do you love running?</i>	121
Table 33 <i>Do you consider running as an important part of your life?</i>	121
Table 34 <i>Do you intend to purchase any brands for running in either tops or bottoms in the next 12 months?</i>	122
Table 35 <i>How much money (in U.S. dollars) did you spend on running gear (only tops and bottoms) in the past 12 months?</i>	123
Table 36 <i>How much (in U.S. dollars) do you intend to spend on running gear (only tops and bottoms) in the next 12 months?</i>	123
Table 37 <i>How often do you purchase running tops in a one year period?</i>	124
Table 38 <i>How often do you purchase running bottoms in a one year period?</i>	125
Table 39 <i>Do you consider yourself to be brand loyal when it comes to purchasing running shoes?</i>	137
Table 40 <i>Do you consider yourself to be brand loyal when it comes to purchasing running tops?</i>	137
Table 41 <i>Do you consider yourself to be brand loyal when it comes to purchasing running bottoms?</i>	138
Table 42 <i>Summary of profile of runners in three categories</i>	139
Table 43 <i>Research Summary</i>	144

LIST OF FIGURES

<i>Figure 1</i> Male and female total running participation from 2002-2007	10
<i>Figure 2</i> Running frequency from 2002-2006.....	11
<i>Figure 3</i> The configuration of private and public self-images that comprise the consumer's holistic self image.....	23
<i>Figure 4</i> The relationship between self-congruity and self-concept motives.....	25
<i>Figure 5</i> Self-congruity as a motivation of consumer purchase intentions	27
<i>Figure 6</i> Theoretical model: The impact of self-congruity and functional congruity on purchase intentions of runners at different levels of involvement	41
<i>Figure 7</i> How runners were categorized and number in each category.....	64
<i>Figure 8</i> Theoretical framework and research Hypotheses 1, 2, and 3 for the All Runners data set.....	69
<i>Figure 9</i> Refined theoretical framework for purchase intentions of runners at different levels of involvement.....	113
<i>Figure 10</i> Where did you mostly purchase running shoes in the past year?	126
<i>Figure 11</i> Where did you mostly purchase running tops in the past year?	127
<i>Figure 12</i> Where did you mostly purchase running bottoms in the past year?	127
<i>Figure 13</i> For your most recent running shoes purchase within the past year, which brand(s) did you (OER) acquire?.....	128
<i>Figure 14</i> For your most recent running shoes purchase within the past year, which brand(s) did you (HER) acquire?	129

<i>Figure 15</i> For your most recent running shoes purchase within the past year, which brand(s) did you (RP) acquire?	130
<i>Figure 16</i> For your most recent running tops purchase within the past year, which brand(s) did you (OER) acquire?	131
<i>Figure 17</i> For your most recent running tops purchase within the past year, which brand(s) did you (HER) acquire?	132
<i>Figure 18</i> For your most recent running tops purchase within the past year, which brand(s) did you (RP) acquire?	133
<i>Figure 19</i> For your most recent running bottoms purchase within the past year, which brand(s) did you (OER) acquire?	134
<i>Figure 20</i> For your most recent running bottoms purchase within the past year, which brand(s) did you (HER) acquire?	135
<i>Figure 21</i> For your most recent running bottoms purchase within the past year, which brand(s) did you (RP) acquire?	136
<i>Figure 22</i> Refined theoretical framework for purchase intentions of running apparel for runners at different levels of involvement	145

CHAPTER 1: INTRODUCTION

Running continues to be one of the more popular sports enjoyed by all ages. In fact, it is listed as one of the top five single-participant sports in the US (Outdoor Industry Association, 2008). The National Sporting Goods Association (NSGA) reported that almost 36 million Americans age seven and older participated in running and jogging at least once in 2008, which is a significant increase from the 22.5 million that participated a decade ago (NSGA, 2009). A survey conducted by the Sporting Goods Manufacturers Association (SGMA) revealed that running was one of the top five sports that contributed to sales growth in the 2009 market for sports gear. According to the Runner's World Trends Report (2007), "health benefits, social interaction, stress relief, charities/causes, and weight loss" (p. 2) were found to be some of the main motivations for runners.

Brands for running attire and equipment such as, but not limited to, adidas, Asics, Brooks, C9 by Champion, Mizuno, New Balance, Nike, Reebok, Saucony, Under Armour, and any market products specifically designed for runners, have provided a variety of performance products to enhance the runner's lifestyle. In 2007, the total sales for sports apparel was \$29.5 billion (SGMA, 2009), and \$727 million was estimated to come from running apparel alone (Runner's World Media Group, 2007). Therefore, the development of running apparel remains a good market opportunity for sport and lifestyle brands.

Successful brands pay attention to the wants and real needs of their core consumers. Currently, factors that influence runners, at different levels of involvement, to purchase apparel brands for running have not been fully explored or understood in the academic arena.

In response, the main goal of this research study is to understand the factors that influence the runner's purchase intentions of apparel brands for running.

The theoretical framework of this study was based on two premises. The first theory used for this study is the dualistic theory of passion developed by Vallerand, Blanchard, Mageau, et al. (2003). The dualistic theory of passion categorized individuals into two groups: passionate and non-passionate individuals. Passionate individuals were further categorized into two types: harmonious and obsessive. This research employed the dualistic theory of passion to classify runners according to different levels of involvement. The second theory applied in this study is the self-congruity theory explored by Sirgy and others (Claiborne & Sirgy, 1990; Sirgy & Danes, 1982; Sirgy, 1986; Sirgy, Johar, Samli, & Claiborne, 1991). The self-congruity theory has been used to explain consumer behavior, in this case consumer purchase intentions, which is defined as "what consumers think they will buy" (Blackwell, Miniard, & Engel, 2006, p. 742).

To date, limited research exists on runners and their apparel purchase behavior. Researchers have focused on the apparel purchase behavior of other athletic products such as bicycle wear (Casselmann-Dickson & Damhorst, 1993a; Casselman-Dickson & Damhorst, 1993b), basketball uniforms (Feather, Ford, & Herr, 1996), golf attire (Wheat & Dickson, 1999), in-line skater clothing (Dickson & Pollack, 2000), tennis wear (Chae, Black, & Heitmeyer, 2006), and dancewear (Mitchka, Black, Heitmeyer, & Cloud, 2009). Other studies have related consumer self-identity to the likelihood of purchasing organic cotton apparel (Hustvedt & Dickson, 2009), sports sponsorship, and sports fans' levels of involvement in soccer (Ko, Kim, Claussen, & Tae, 2008), and the National Association for

Stock Car Auto Racing, known as NASCAR (Levin, Joiner, & Cameron, 2001). Specifically, this study was an opportunity to expand our knowledge concerning the purchase behavior of runners with regard to apparel brands for running.

Purpose of the Study

The purpose of the present research was to examine factors that influenced runners at different levels of involvement, in which the runners were categorized by the dualistic theory of passion, and their purchase intentions toward apparel brands for running were considering from the self-congruity perspective.

Research Objectives

Seven research objectives for the current study included:

Research Objective 1: To investigate whether runners' purchase intentions for apparel brands for running were influenced by their self-congruity with that brand.

Research Objective 2: To investigate whether runners' purchase intentions of apparel brands for running were influenced by their ideal self-congruity with that brand.

Research Objective 3: To investigate whether runners' purchase intentions of apparel brands for running were influenced by their functional-congruity with that brand.

Research Objective 4: To examine which type of congruity (self-congruity, ideal self-congruity, and functional congruity) most influenced purchase intentions of Obsessive Enthusiastic Runners (OER).

Research Objective 5: To examine which type of congruity (self-congruity, ideal self-congruity, and functional congruity) most influenced purchase intentions of Harmonious Enthusiastic Runners (HER).

Research Objective 6: To examine which type of congruity (self-congruity, ideal self-congruity, and functional congruity) most influenced purchase intentions of Running Participants (RP).

Research Objective 7: To refine the theoretical framework of this study.

Significance of Study

This research is important for three reasons:

1. To contribute to the knowledge of purchase trends in sports apparel by expanding behavioral theories applied to the running community. This study could provide a clearer understanding of underlying factors that influenced the purchase intentions of runners, from the congruity theory perspective.
2. To determine important features of running apparel brands required by runners at different levels of involvement.
3. To facilitate a better understanding of the underlying factors that determine purchase intentions of runners, at different levels of involvement, so that running apparel firms may maintain brand reputation by properly positioning their products relative to their specific target consumers.

Definitions

Actual Self-Image: “How consumers see themselves, their personal identity” (Sirgy, Grewal, & Mangleburg, 2000, P. 130).

Apparel Brands for Running (Running Apparel Brands): Brands that cater their products to runners.

Brand Image: “Consumer perceptions of and preferences for a brand, as reflected by the various types of brand associations held in consumers’ memory” (Keller, 2003, p. 730).

Enthusiasts: “The most frequent participants in the activities” (Outdoor Industry Association, 2002).

Functional Congruity: “An assessment of the brand by focusing on the extent to which functional attributes of the brand matches the consumer’s ideal or desired performance specifications” (Kressmann et al., 2006, p. 957).

Harmonious Enthusiastic Runners (HER): Runners who were passionate about running, considered running to be a positive experience that enhanced their quality of life, and were in harmony with other activities in their lives.

Harmonious Passion: “An autonomous internalization that leads individuals to choose to engage in the activity that they like” (Vallerand et al., 2003, p. 756).

Ideal Self-Congruity: “The degree of match between the consumer’s ideal self-image and the brand-user image” (Lindquist & Sirgy, 2009, p. 165).

Ideal Self-Image: “How consumers would like to see themselves” (Sirgy et al., 2000, p. 130).

Ideal Social Self-Congruity: “The degree of match between the consumer’s ideal social self-image and the brand-user image” (Lindquist & Sirgy, 2009, p. 167).

Ideal Social Self-Image: “How consumers would like to be seen by significant others” (Sirgy et al., 2000, p.130). “What I ideally like to be seen by others” (Sirgy & Danes, 1982, p. 556).

Identity: “The goals, values, and beliefs to which an individual is unequivocally committed, and that give a sense of direction, meaning, and purpose to life” (Waterman, 2004, p. 209).

Intrinsic Motivation: “Concerns an innate propensity of the organism, rather than being externally propelled and directed” (Ryan & Deci, 2007, p. 3). “It refers to the fact that the rewards for an activity are inherent in the activity—that is, in the spontaneous internal condition prompted by the activity—rather than being instrumental to the reduction of biological drives” (Ryan & Deci, 2007, p. 3). “[The motive is] energized by psychological satisfactions, specifically feelings of effectance or competence” (Ryan & Deci, 2007, p. 3). “The feeling of being an original or an initiator of one’s own action was central to intrinsic motivation” (Ryan & Deci, 2007, p. 3).

Lifestyle: “How individuals spend their time, what they consider important about their immediate surroundings, their opinions on various issues, and their interests” (Michman, 1991, p. 1).

Lifestyle Brand: “A focused retail brand, targeted at a specific market segment defined by lifestyle” (Helman & De Chernatony, 1999, p. 49).

Obsessive Enthusiastic Runners (OER): Runners in this group agreed that running was considered a positive experience; however, they tended to be emotionally dependent upon running.

Obsessive Passion: “A controlled internalization of an activity in one’s identity that creates an internal pressure to engage in the activity that the person likes” (Vallerand et al., 2003, p. 756).

Running Enthusiasts: Runners who run at least 110 days per year (more than 1-2 days per week) and have passion toward running.

Running Participants (RP): Runners who did not spend a significant amount of time running (less than 1-2 days per week) and/or did not have passion toward running.

Passion: “A strong inclination toward an activity that people like, that they find important, and in which they invest time and energy” (Vallerand et al., 2003, p. 756).

Purchase Intentions: “What consumers think they will buy” (Blackwell et al., 2006, p. 742).

Self-Image Congruence: “The degree of match between the consumer’s self-image (actual, ideal, social, or ideal social self-image) and the brand-user image” (Lindquist & Sirgy, 2009, p. 163)

Self-Concept: “The totality of the individual’s thoughts and feelings having reference to himself as an object” (Rosenberg, 1979, p. 7). “Self-concept is multidimensional in nature (e.g., actual vs. ideal self), and is used when making determinations of “fit” or congruity with the brand” (Sirgy et al., 2000, p. 128).

Self-Congruity (Actual Self-Congruity, Self-Congruence, or Image Congruence): “The degree of match between the consumer’s actual self-image and the brand-user image”

(Lindquist & Sirgy, 2009, p. 163).

Social Self-Congruity: “The degree of match between the consumer’s social self-image and the brand-user image” (Lindquist & Sirgy, 2009, p. 166).

Social Self-Image: “How consumers believe they are seen by significant others” (Sirgy et al., 2000, p. 130). “What I believe others see me as” (Sirgy & Danes, 1982, p. 556).

CHAPTER 2: LITERATURE REVIEW

The purpose of this chapter was to review key theories and research findings from the literature in order to establish a theoretical framework. There were two main theories (dualistic theory of passion and self-congruity theory) used to form the theoretical foundation for this research. As running continues to be one of the more popular sports in the United States, runners were the focus of the study. A review of literature provided an opportunity for the development of research objectives and a theoretical framework, as well as a thorough understanding of most significant research in this field.

To date, literature related to running has provided inadequate information on runners from a consumer behavior perspective. Various studies have focused on the physiology (Pate & O'Neill, 2007) and psychology of runners, especially marathoners (Horton & Mack, 2000; Masters, Ogles, & Jolton, 1993; Ogles & Masters, 2003; Raglin, 2007). Therefore, an opportunity to research and explore different perspectives of runners' purchase behavior presented itself.

Running Background

Running has been known as one of the oldest sports in the world, which is evidenced by the accounts of ancient Greek marathons. However, running was considered a male sport and women were prevented from participating for many centuries. The history of female marathoners officially spans only four decades. In 1966, Roberta Gibb was the first female to participate in the Boston Marathon, which was the most prestigious road race in the world. According to Pate and O'Neill (2007), Gibb "emerged from the bushes and started running, wearing boy's running shoes. As the race continued, she removed the sweatshirt and

everyone saw she was a woman. She finished in 3:21:40” (p. 294-195). Following Gibb, more female runners started to participate in marathon races. Joan Benoit Samuelson was the first female to win the Boston Marathon, which was the oldest annual marathon race in the world. In fact, Samuelson won the Boston Marathon in 1979, 1983, and 1984. She also became the first woman to receive the gold medal in the first female Olympic marathon (Pate & O'Neill, 2007).

In terms of running apparel, the early female runners did not have much variety available to them, but this is not the case today. Currently, women participate in running more than any other sport, including golf, tennis, downhill skiing, and in-line skating (Runner's World Media Group, 2007). *Figure 1* shows the comparison of total running participation (in thousands) by males and females, age seven and older, from 2002 to 2007.

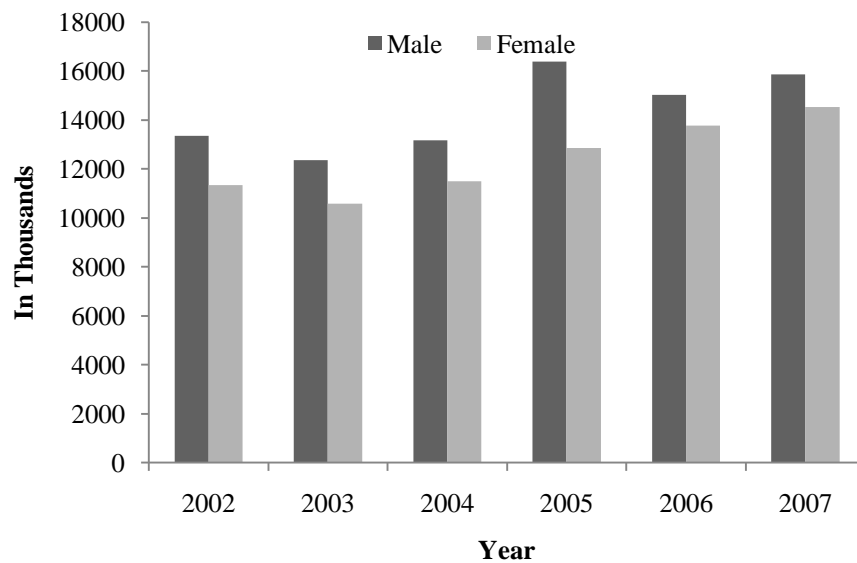


Figure 1 Male and female total running participation from 2002-2007

Adapted from: NSGA. (2009a). *2002-2007 participation by mean age-male & female*. Retrieved from <http://www.nsga.org/i4a/pages/index.cfm?pageid=3498>

According to *Figure 1*, the total number of female participants (seven years and older who ran at least once in 2007) was relatively close to the number of male runners (total = 30,372,000; male = 52.2 %, female = 47.8%). In 2007, the total number of runners had increased by almost 23% relative to 2002. *Figure 2* breaks down the total running population in terms of running frequency (in millions).

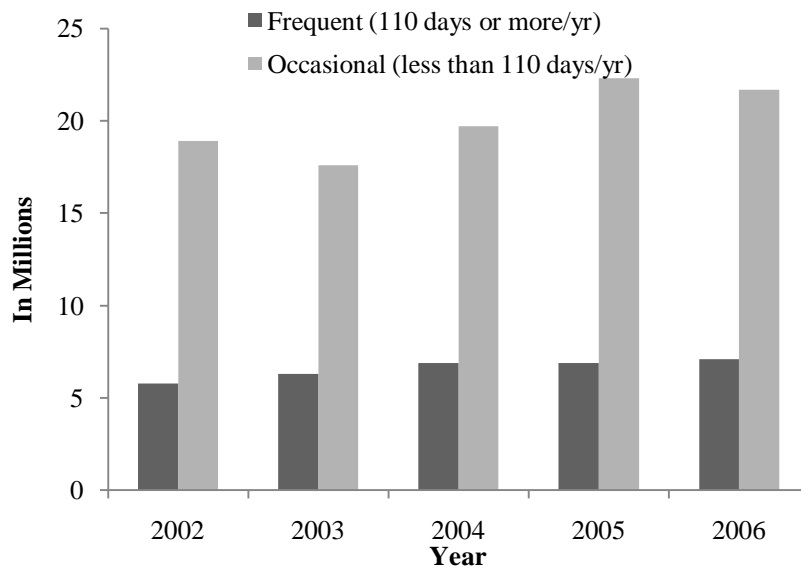


Figure 2 Running frequency from 2002-2006

Source: Runner's World Media Group (2007). *2007 running trends report*. Runner's World.

According to *Figure 2*, approximately twenty-five percent of total runners run more than 110 days per year. This ratio has been quite steady over many years. Running was chosen for the present research for three main reasons. First, running is considered one of the most popular sports in the world and the United States (see Table1).

Table 1 *Just-style's 2006 estimate of the world's top ten sports ranked by participation*

World Rank	Description	US Rank
1	Walking	1
2	Running/Jogging	4
3	Soccer/Rugby	7
4	Aerobics/Dancing	9
5	Racket sports	-
6	Golf	3
7	Cycling	-
8	Basketball	2
9	Skiing	10
10	Fishing	-

Source: Newbery, M. (2006). *Global market review of performance apparel – forecasts to 2012*. Just-style. England. P. 16.

According to Table 1, running was considered the second most popular sport in the world and considered the fourth most popular sport in the United States. Furthermore, sales in the running footwear and apparel category were not affected by the economic recession (SGMA Spring Market, 2007). Lastly, according to the SGMA Spring Market, running apparel alone accounted for more than a ten percent share of the total sportswear market. Wholesale revenue of running apparel was forecast to reach \$4.29 billion by 2012. Table 2 illustrates the actual and the forecasted amount of global market growth of sports apparel in 2006 and 2012.

Table 2 *Global market growth of total sports apparel, 2006 and 2012 (U.S. \$ in billions)*

	2006	2012	% Growth
All sports apparel	55.00	60.70	10.36

Adapted from: Newbery, M. (2006). *Global market review of performance apparel – forecasts to 2012*. Just-style. England. P. 25.

According to Table 2, running apparel was predicted to account for 7.06% of the total global sports apparel. Since the number of runners and the sales of running apparel are expected to grow, running was chosen to be the sport of focus in this study.

Passion toward Activities

Psychologists such as Vallerand, Blanchard, Mageau, et al. (2003) defined passion toward activities as “a strong inclination toward an activity that people like, that they find important, and in which they invest time and energy” (p. 757). Vallerand et al. posited that “certain activities are so self-defining that they represent central features of one’s identity...passionate activities are part of who they are” (p. 757). Thus, passion toward activities has been linked to the participant’s devotion to the activities, which can contribute to the participant’s self identity (Mageau et al., 2009; Vallerand et al., 2003). Waterman (2004) defined identity as “the goals, values, and beliefs to which an individual is unequivocally committed, and that give a sense of direction, meaning, and purpose to life” (p. 3). Based on this definition, those who regard running as their passionate activity, consider themselves to be runners.

Vallerand et al. (2003) proposed a dualistic model of passion derived from the self-determination theory to categorize two distinct passionate behaviors: harmonious passion and obsessive passion. The self-determination theory was used to explain three essential psychological needs, which were autonomy, competence, and relatedness that stimulate human behavior (Hagger & Chatzisarantis, 2007). Psychologists have attempted to understand the underlying factors that motivate passion toward activities, which has been used to explain “how the passionate activity is internalized into one’s core self or identity” (Vallerand et al., 2003, p. 757). Nevertheless, to date, this topic remains undeveloped in the area of consumer research. Consumer passion toward activities may help answer questions

relating to consumer purchase behavior, and hence greater knowledge of this area would be beneficial.

The Dualistic Theory of Passion

Individuals have been found to spend time on activities that were related to their identities (Kleine, Kleine, & Kernan, 1993). There were two types of passion exhibited by individuals, based on the dualistic theory of passion proposed by Vallerand et al (2003); these are harmonious passion and obsessive passion. According to Vallerand et al., harmoniously passionate persons voluntarily engaged in their passionate activities. Although these types of individuals considered passionate activities to be important, they did not allow these activities to take over their identities and other aspects of their lives. On the other hand, obsessively passionate people allowed passionate activities to take over other aspects of their lives. Psychologists revealed that passionate feelings are derived “from interpersonal and/or intrapersonal pressures either because certain contingencies are attached to the activity, such as feelings of social acceptance or self-esteem, or because the sense of excitement derived from activity engagement becomes uncontrollable” (Vallerand et al., 2003, p. 757). These types of individuals rely heavily upon the activity to define their sense of self-image and, in turn, they feel obligated to engage in these activities. In addition, they feel guilty when prevented from participating (Vallerand et al., 2003).

Vallerand et al. (2003) developed a passion scale that consisted of two components. First, a three-item scale was used to separate passionate individuals from non-passionate individuals. The three-item scale consisted of “activity valuation, love for the activity, and time spent on the activity” (Mageau et al., 2009, p. 605). Using a 7-point Likert-type

response scale (1 = strongly disagree, 7 = strongly agree), passionate individuals were then categorized by harmonious or obsessive traits. Vallerand et al. tested the passion scale in various studies on different activities (football, bicycling, and gambling) with more than 900 participants from diverse demographic backgrounds. The results confirmed that harmonious passion and obsessive passion were two traits that showed that an individual had made a passionate activity an integral part of his/her identity (Vallerand et al., 2003).

Mageau and Vallerand (2007) examined the connection between daily positive effect and type of passion by using a 2-week diary designed for participants to document their engagement in a daily activity and the resulting level of daily positive effect. Their conclusion was that by engaging in passionate activities individuals with harmonious passion experienced greater daily positive effects than those with obsessive passion. In addition, the obsessively passionate individuals experienced more negative effects than harmoniously passionate individuals when prevented from engaging in their passionate activities. The results also showed that although harmoniously passionate individuals engaged in passionate activities less often than obsessively passionate individuals, the former group tended to spend a longer time when they participated.

Psychologists have found that passion toward certain activities motivate human behavior. Many researchers attempted to understand reasons for, and consequences of, passionate behavior. Mageau, Vallerand, Charest, et al. (2009) concluded from their short-term longitudinal study that children who were in an autonomously motivated environment tended to develop harmonious passion, and those whose parents highly valued an activity tended to develop an obsessive type of passion. Ratelle, Vallerand, Mageau, et al. (2004)

suggested that obsessive gamblers were more likely to have difficulty focusing on their daily activities, and were more likely to exhibit more negative moods and attitudes, compared to harmonious gamblers. Séguin-Levesque (2003) linked passionate Internet users to their relationships with their partners and found that the obsessive Internet users were more likely, than the harmonious Internet users, to have problems in their relationships with their partners.

Although, psychologists have studied passion toward activities as a way to explain human behavior, no study was found relating this topic to consumer purchase behavior. Therefore, the extent to which two types of passionate individuals differ in terms of purchase behavior is an important issue that will be addressed in this research. The findings may provide useful information to guide the consumer research discipline as well as marketing managers, so that they may better position their products and brands for the target consumer market.

Enthusiasts

Enthusiasts have been characterized as those who spend a large amount of time engaged in an activity (Outdoor Industry Association, 2002). According to the literature, it was apparent that enthusiasts are passionate towards their activities and consider them part of their identities and lifestyles.

Studies on enthusiasts revealed the significance of their passion toward their preferred activities. Masters, Ogles, and Jolton (1993) developed the Motivations of Marathoners Scales (MOMS) by using a cluster analysis technique to categorize the types of marathon runners according to their motivation profiles. The study found that marathon runners could

be clustered into the following five groups, running enthusiasts, (healthy) lifestyle managers, personal goal achievers, personal accomplisners, and competitive achievers. There were nine motives for running a marathon, which were: competition, personal goal achievement, psychological coping, self-esteem, life meaning, health orientation, weight concern, recognition, and affiliation. Those considered to be marathon enthusiasts in this study had to contain all nine motives (Ogles & Masters, 2003).

Other literature on enthusiasts focused on work place behavior. In one case, the enthusiast was considered to be a workaholic. According to Spence and Robbins (1992), three signs for a person to be classified as workaholic were “highly work involved, feels compelled or driven to work because of inner pressures, and is low in enjoyment of work” (p. 162). Using a 5-point Likert-type scale (1 = strongly agree, 5 = strongly disagree) Spence and Robbins assessed the extent of work involvement, drive, enjoyment of work, job involvement, job stress, time commitment to job, perfectionism, and delegation of tasks that these individuals exhibited. These workaholics were quite similar to individuals who exhibited obsessive behavior. Conversely, others who were considered work enthusiasts were also highly involved in work, yet they maintained a high level of enjoyment (Spence & Robbins, 1992). Certainly, this group of individuals displayed harmonious behavior.

Bonebright, Clay, and Ankenmann (2000) further categorized workaholics into two categories, which were the enthusiastic workaholic category and non-enthusiastic workaholic category. The former group consisted of those who satisfied and enjoyed performing work, while the latter group exhibited a low enjoyment for work, which was similar to the observations of Spence and Robbins (1992). Bonebright et al. found three distinct types of

people who were considered to be workaholics and were extremely dedicated to their work. The first group consisted of those who experienced enjoyment and fulfillment when working. The second group consisted of those who had an excessive urge to work and obtained little or no satisfaction. The third group consisted of those who felt the need to be awarded and recognized. The authors categorized three characteristics of workaholic behavior as follows: a vast amount of time spent on work, sacrificed or reduced social and recreational activities in order to work, and persistence to work regardless of knowledge of having a physical or mental complication. Note that the authors omitted those who had occupations that required long hours of work such as medical residents. The enthusiastic workaholics, or those who enjoyed working, were more likely to feel a sense of purpose and to be satisfied with their lives (Bonebright, Clay, & Ankenmann, 2000).

The review of literature confirmed that enthusiastic individuals were those who had passion. In addition, most of the enthusiast literature separated enthusiastic individuals into harmonious and obsessive, or similar, categories. For these reasons, those who expressed passion toward running were classified as enthusiastic runners in this study.

Identity

Waterman (2004) defined an identity as “the goals, values, and beliefs to which an individual is unequivocally committed, and that give a sense of direction, meaning, and purpose to life” (p. 209). Wilska (2002) separated identity into two components; the individual self, or psycho-history, and the image of one’s social belonging. According to the literature, if a passionate activity was considered to be part of one’s identity, it could even become a permanent or dominant aspect of identity (Waterman, 2004). For example,

enthusiasts who consider running to be their passionate activity would most likely to refer themselves as runners.

Wilska (2002) considered identity, consumption, and lifestyle to be related. Lifestyle was a critical notion that helped form an individual's identity and also influenced that individual's consumption behavior with regard to certain products (Wilska, 2002). For instance, Hyllegard, Ogle, and Dunbar (2006) found in their study that consumers who considered themselves to be outdoor enthusiasts, and environmentally responsible citizens, differentiated themselves by having unique behavioral habits with regard to their perceptions of store atmosphere, store patronage, purchase intentions, and product consumption.

Athlete identity is also an important notion in this study. According to Horton and Mack (2000), athlete identity was defined as “a unique and important dimension of the self-concept that can be regarded as both a cognitive structure (a schema) and a social role” (p. 102). The authors further stated that athlete identity was an equally important self-concept for both athletes and non-athletes. Individuals who adopted an athlete identity as part of their self-concept often related themselves to physical fitness appearance, sociability, and even improved overall self-esteem (Horton & Mack, 2000). Studies found that athletes selected clothing to establish and communicate their athletic identities to others (Dickson & Pollack, 2000). Expression of identity could be carried out by using signs and symbols (Nash, 1995; Wilska, 2002), such as clothing style and brand choice, which were often used as a vehicle to express self identity (Aaker, 1997; Dickson & Pollack, 2000; Kaiser, 1997; Nash, 1995; Roach-Higgins & Eicher, 1995). A series of sports apparel studies suggested that clothing was used to define their athletic identities and level of involvement. The correct clothing

appeared to improve the confidence of female athletes, which in turn enhanced their performance (Casselman-Dickson & Damhorst, 1993a; Casselman-Dickson & Damhorst, 1993b; Dickson & Pollack, 2000; Wheat & Dickson, 1999).

The Importance of Level of Involvement in the Sport

One of the three criteria of the passion toward activities theory was the amount of time spent on a certain activity. Studies have showed positive relationships between level of involvement and identity, especially in sports. The more time athletes spent on a certain sport, the more likely they were to be passionate toward that sport, and hence the more likely they would identify themselves as athletes (Horton & Mack, 2000). In several studies these attitudes were found to have a positive influence on purchase behavior, such as preference for specific products and brands.

Casselman-Dickson and Damhorst (1993a) found that there was a connection between level of involvement and interest in apparel for female bicyclists. The results revealed that the more involved the cyclists were, the more they were concerned with wearing appropriate attire to match their biking skill. In addition, Wheat and Dickson (1999) discovered that female golfers used clothing to indicate their athlete identity and level of expertise. When Dickson and Pollack (2000) conducted a study of the relationship between identities and clothing preferences of female in-line skaters, they discovered that the more that the in-line skaters identified themselves as being highly involved (in terms of hours spent skating), the more likely they were to wear clothing that identified them with the sport. Chae, Black, and Heitmeyer (2006) concluded that the more involved female tennis players were concerned with tennis apparel attributes to a greater extent than those who were less involved

in their sport. Comfort, fit, sizing, and quality of construction were found to be the top most important tennis wear attributes required by female players, in order for them to be satisfied with their purchase.

Level of involvement and purchase behavior were found to apply not only to athletes. Ko, Kim, Claussen, and Tae (2008) found a positive relationship between the consumer's level of involvement in sporting events, corporate image, sponsorship effectiveness, and future purchase intentions. The information was based on a study with highly involved soccer fans, who were persuaded by the corporate images of soccer brands. This relationship was proven to be true in a similar study conducted with NASCAR fans (Levin et al., 2001). Another investigation performed by Mitchka, Black, Heitmeyer, and Cloud (2009) concluded that female dancers who spent more years and long hours dancing expressed a higher demand for dancewear that enhanced their physical appearance, and thus their identity as dancers.

Moreover, d'Astous and Chnaoui (2002) suggested that sports apparel is consumed for different purposes, and consumers respond to different types of marketing communication. The study concluded that consumers who purchased sports apparel for pleasure tended to prefer sports apparel that offered fashionability at a reasonable price instead of more expensive high performance apparel. On the other hand, consumers valued optimizing their athletic performance required their sports apparel products to guarantee quality performance. Hence, brand name and store brand were found to have a notable impact on this group of consumers (d'Astous & Chnaoui, 2002).

According to the literature, it was evident that highly involved athletes were most concerned about how well their sports apparel products met their performance expectations.

Hence, the functional attributes of the products had to meet certain expectation in order for a purchase to be made. On the other hand, those who were not highly involved in their sport did not exhibit high performance requirements when making purchase decisions.

Furthermore, trends showed that products for highly involved athletes must also help reveal their athlete identities.

Although these studies showed that the level of involvement of athletes in different sports affected their purchase behavior, no definitive study was conducted to explore the purchase intentions of runners at different levels of involvement. Based on the existing studies, it has been hypothesized that individuals form their identity as a runner based on their levels of involvement, which in turn should have produced different requirements when they were purchasing apparel brands for running.

Self-Concept and Self-Image

Self-concept was an important notion that consumer researchers have used to understand consumer behavior. Consumers have more than one role identity, and therefore, have multiple self-concepts depending upon the role they play at any point in time. For example, one person could be a student, a son or a daughter, a father or a mother, and a runner. Each identity role that a consumer adopts triggers different purchase criteria. However, the consumers' self-concept was based not only on their role identities, but also on their self-image and their ideal self-image (Lindquist & Sirgy, 2009).

Lindquist and Sirgy (2009) defined self-image as “a configuration of beliefs related to the self. Consumer researchers define self-image in terms of the relationship between consumers and products” (p. 161). Thus, the need to protect and express one's self-image

influenced his or her purchase behavior. *Figure 3* shows how self-image can be divided into four components. The motive of each self image will be discussed in the next section.

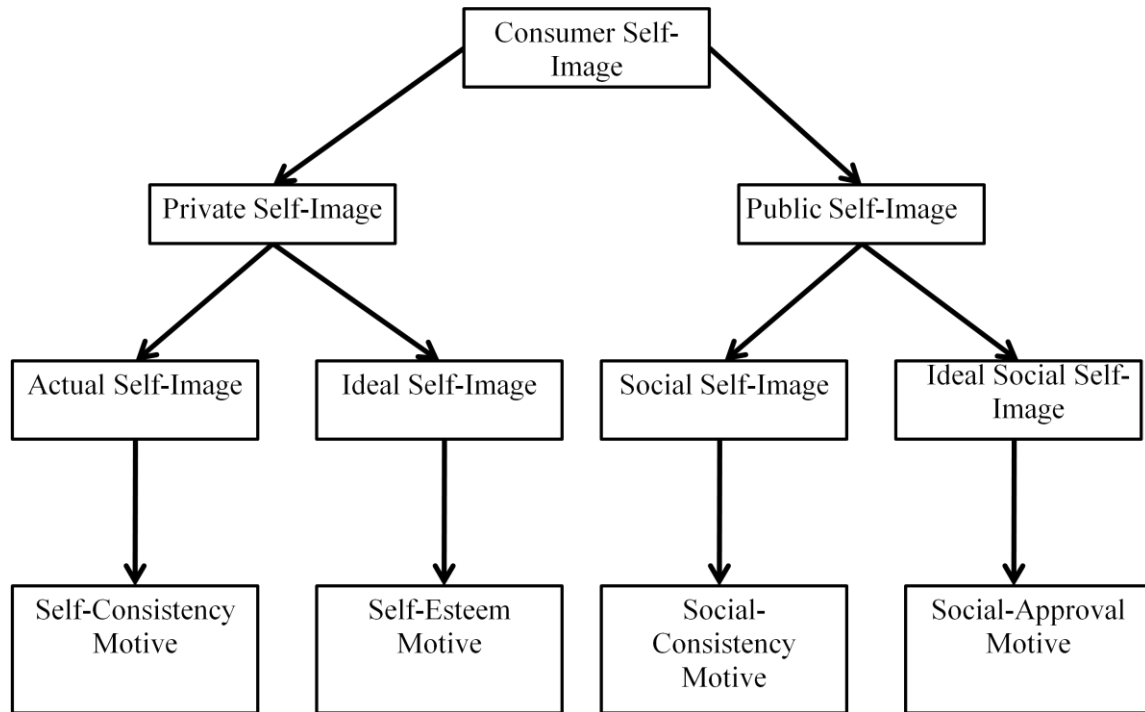


Figure 3 The configuration of private and public self-images that comprise the consumer’s holistic self image

Source: Lindquist, J.D., & Sirgy, M.J. (2009). *Shopper, buyer, and consumer behavior: Theory, marketing applications and public policy implications* (4th ed.). Mason, OH: Cengage Learning. P 161.

Self-concept held various definitions based on the origin of the discipline that was defining it. Zinkhan and Hong (1991) defined the term self-concept as “an image shaped by the very person holding the image” (p. 348). In the field of consumer research, four self-image aspects of self-concept were used to explain and predict attitude and behavior; these were, the actual self-image, the ideal self-image, the social self-image, and the ideal social self-image, shown in *Figure 3*. According to Claiborne and Sirgy (1990), the term actual self-image described how consumers perceived themselves, while the term ideal self-image

represented what consumers wanted to become. These two self-images were part of the private self-image. In addition, the term social self-image described how consumers believed others perceived them, and the term ideal social self-image was defined as how consumers wanted to be perceived by others. These last two self-images were part of the public self-image. Inevitably, product or brand images that matched one or more of the four types of consumer self-image were more likely to influence their purchase intentions. According to Claiborne and Sirgy (1990), “the matching process is referred to as self-image congruence” (p. 3), this will be discussed in the next section.

Self-Congruity Theory

Self-congruity theory has been an important concept used in marketing, advertising, and branding practices. Consumer researchers have used self-congruity theory to explain the importance of self-image congruence with regards to consumer behaviors including purchase intentions (Sirgy, 1986). The term self-image congruence was defined as “the degree of match between the consumer’s self-image (actual, ideal, social, or ideal social self-image) and the brand-user image” (Lindquist & Sirgy, 2009, p. 163). Researchers reported that consumers purchase brands not only for utilitarian or performance benefits, but also to express their identity and maintain their self-concept (Aaker, 1997; Casselman-Dickson & Damhorst, 1993a; Casselman-Dickson & Damhorst, 1993b; Kressmann et al., 2006; Sirgy, 1982; Sirgy, 1986). The brands whose images differed from the consumer’s self-concept, regardless of their recognitions, would have little influence on the consumer’s memory, purchase evaluation, and actual purchase (Zinkhan & Hong, 1991). Hence, self-congruity

could be used to position a brand, a store, or a product to match its image to the target consumers.

The term self-congruity (seen also as actual self-congruity, self-congruence, or image congruence) has been defined as “the degree of match between the consumer’s actual self-image and the brand-user image” (Lindquist & Sirgy, 2009, p. 163). The higher the self-congruity, the closer the products or brands matched the self-image of its consumers (Sirgy et al., 1997). Ideal self-congruity was described as “the degree of match between the consumer’s ideal self-image and the brand-user image” (Lindquist & Sirgy, 2009, p. 165). The literature suggested that self-congruity and ideal self-congruity can be the match of brand image, store image, product image, or user image to the self-image or ideal self-image of the consumers. In this study, self-congruity and ideal self-congruity focused on the match between the brand image, the self-image, and ideal self-image of runners. In addition, the match between the brand’s image and consumer’s social image was known as social self-congruity, whereas the match between the brand’s image and consumer’s ideal social self-image was known as ideal social self-congruity. *Figure 4* depicts the relationship between self-congruity and self-concept motive.

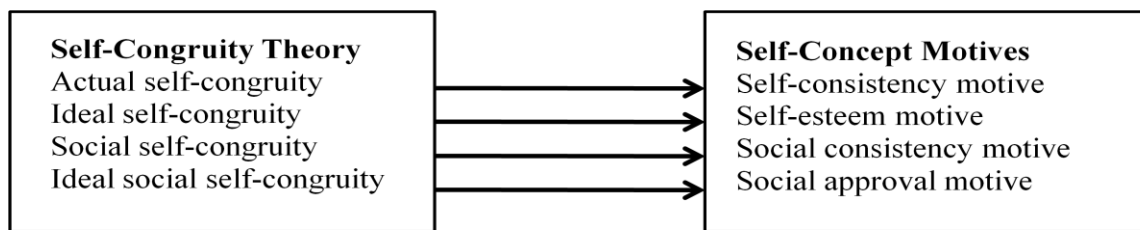


Figure 4 The relationship between self-congruity and self-concept motives

Adapted from Sirgy, M.J., Grewal, D., Mangleburg, T.F., Park, J., Chon, K. Claiborne, C.B., Johar, J.S., Berkman, H. (1997). Assessing the predictive validity of two methods of measuring self-image congruence. *Journal of Academy of Marketing Search*, 25(3), 131.

According to *Figure 4*, the first two types of self-congruity, which are actual self-congruity and ideal self-congruity, were related to the private self. The self-concept motive for actual self-congruity was to maintain self-consistency. For example, people act based upon their self-perceptions in order to communicate their personal identities. In this study, consumers use products or brands to reinforce their self-perceptions. According to Kressmann, Sirgy, Herrmann, et al. (2006), “People have beliefs about their own identities, values, lifestyles, preferences, and habits. Once their “self-theories” (meta-beliefs) are established, they become highly motivated to protect them” (p. 956-957). Whereas, the self-concept motive of ideal self-congruity was to enhance self-esteem. In this case, consumers wished to improve self esteem and become more aligned with their ideal self-image by using products or brands to diminish the difference between their actual image and their ideal self-image (Kressmann et al., 2006; Sirgy, 1982; Sirgy et al., 2000). Thus, consumers protected their self-concepts or improved their self esteem through their purchase of brands. The closer the brand image matched the consumer’s actual self-image or ideal self-image, the more likely consumer believed that the brand would be able to fulfill his or her needs.

The last two types of self-congruity were social self-congruity and ideal social self-congruity, which were parts of the public self that dealt with how the consumers were perceived by others. Social-self congruity was defined as how consumers believed others perceived them. The self-concept motive of social-self congruity was the social consistency motive. For each role, people tended to maintain the images that others perceived of them. On the other hand, ideal social self-congruity was defined as how consumers wished to be perceived by others. This can also be accomplished through the use of certain brands. The

self-concept motive for this ideal social self-congruity was the social approval motive.

People were motivated to do things to fit into society (Sirgy et al., 2000). *Figure 5* depicts self-congruity as a motive of consumer purchase intentions.

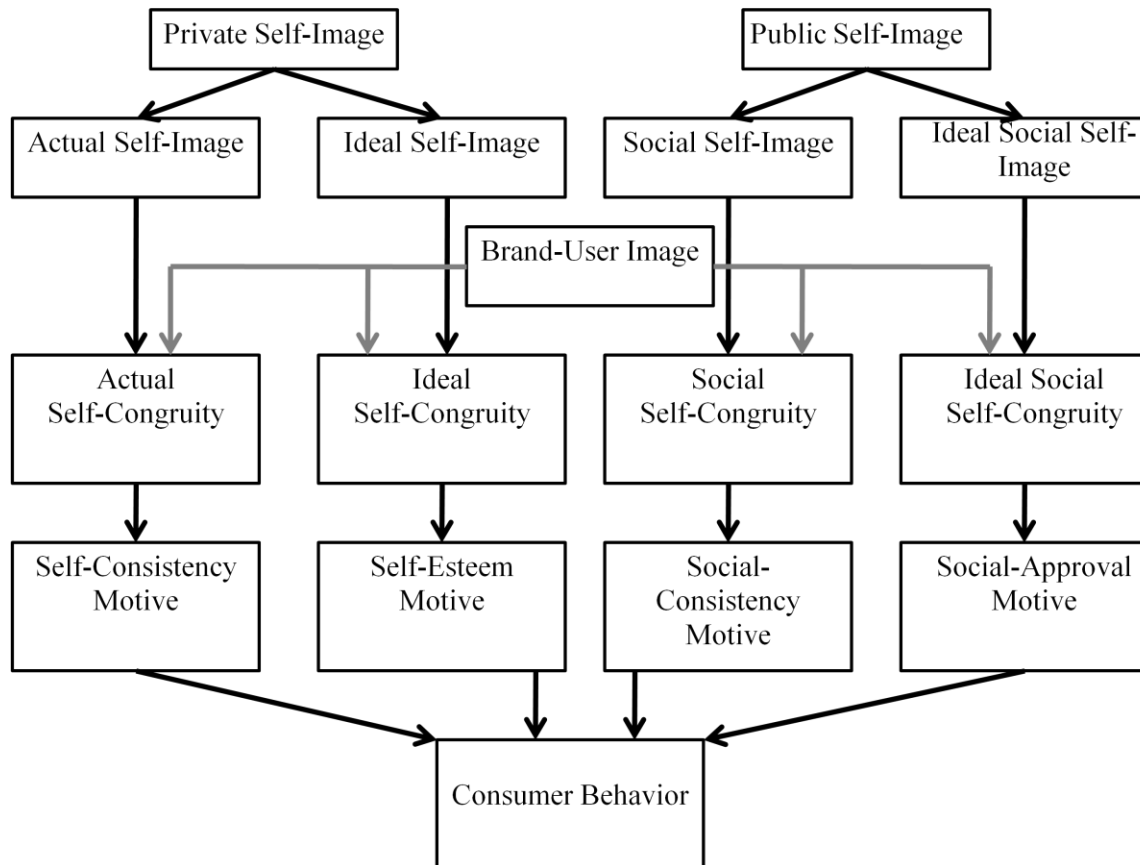


Figure 5 Self-congruity as a motivation of consumer purchase intentions

Source: Source: Lindquist, J.D., & Sirgy, M.J. (2009). *Shopper, buyer, and consumer behavior: Theory, marketing applications and public policy implications* (4th ed.). Mason, OH: Cengage Learning. P. 164.

According to *Figure 5*, the effect of self-image congruence on consumer behavior, such as purchase intentions, was influenced by self-concept motives and could be explained by self-congruity theory. Studies showed that consumers were more likely to consume and be motivated by products that they related to their identities and self-image, so that they could

express themselves (Gardner & Levy, 1955; Kleine et al., 1993; Levy, 1959; Sirgy, 1982). Self-congruity theory could be used to measure the relationship between consumers and the brands they purchased, as shown in cases such as the match between the consumer's perception of sponsorship and brand loyalty behavior (Kressmann et al., 2006; Sirgy, Lee, Johar, & Tidwell, 2008), the consumer's store image and retail store patronage behavior (Chebat, Sirgy, & St-James, 2006; Sirgy et al., 2000), advertising (Zinkhan & Hong, 1991), and brand personality (Azevedo & Pessoa, 2005).

Ericksen and Sirgy (1992) conducted a study to understand the relationship between the self-congruity of female professional employees and their work attire selections. The authors found that women who identified themselves, or who would like to be identified, as highly professional purchased and related themselves to "professional outfits" (Ericksen & Sirgy, 1992). In addition, a study on Portuguese consumers revealed that consumers showed a positive response to print ads for brands that depicted personalities that matched their self-concepts or ideal self-concepts (Azevedo & Pessoa, 2005).

Claiborne and Sirgy (1990) found that product image had a correlation with the self-image of consumers. The authors hypothesized that self-image congruence may be more important when consumers are unfamiliar with the products. Once consumers became more familiar with the products, then functional congruity may also become more important (Claiborne & Sirgy, 1990, p. 5). Although several studies have dealt with the role of self-congruity theory in consumer behavior, no research has been conducted specifically on the effects of self-congruity on consumer purchase intentions for running apparel brands. The present study focused on the private self, including self-congruity and ideal self-congruity.

The public self issue should also be considered an important concept for consumer behavior, but this topic was not included in this study since running is considered an individual sport.

Impact of Brand Image

According to self-congruity theory, brand images that matched the consumer's self-concept (self-image and ideal self-image) were shown to have an impact on purchase intentions. Keller (2003) described brand image as an "intangible aspect" in which consumers construct a mental conception based upon the actual intended users or ideal intended users of a brand. Brand image was defined as "consumer perceptions of and preferences for a brand, as reflected by the various types of brand associations held in consumers' memory" (Keller, 2003, p. 730). Therefore, brand image was an important criterion for consumers because they tended to purchase brands whose images matched their self-concept.

Functional Congruity

Functional congruity has been described as a functional or performance-related attribute that consumers often use as an evaluative criterion when making purchase decisions (Sirgy et al., 1991). Functional congruity was defined as "the match between consumers' ideal expectations of utilitarian product features and their perceptions of how the brand is perceived along the same features" (Kressmann et al., 2006, p.955). Unlike self-congruity, functional congruity was classified as a tangible attribute.

Functional congruity was considered to be a better predictor of purchase behavior than self-congruity or ideal self-congruity, when the consumer's level of involvement in an

activity was being considered (Claiborne & Sirgy, 1990). Sirgy et al (2000) revealed that consumers who were highly involved in an activity were more likely to prefer products and brands based that match to the functional expectation or functional congruity. On the other hand, less involved consumers valued brands that related to their self-congruity or ideal self-congruity, and they paid less attention to functional congruity.

Self-congruity has been known to influence functional congruity because consumers were generally biased toward brands that best related to them. If consumers could not relate themselves to a certain brand, they would be less likely to consider the functional benefits of that brand (Sirgy et al., 1991). Sirgy et al.(1991) tested the relationship between consumer behavior, functional congruity, and self congruity in four separate studies, and concluded that these relationships were clearly present in all applications relating to the success of product sales, retail stores, and brands. Although this type of interaction appeared to be important when predicting purchase behavior, it has not been included in the scope of this research.

Attributes of Apparel Design

Lamb and Kallal (1992) proposed an integrated framework for apparel design education. The authors suggested that it was important to obtain descriptive profiles of target consumers, including demographic, psychographic, and intended use information, in order to ensure that specific use requirements will be met prior to designing a product. Three main design criteria proposed in their framework included functional, expressive, and aesthetic characteristics. The functional criterion concerned the internal properties such as utility and functional attributes of apparel design; the expressive criterion of apparel design concerned its ability to satisfy the user's expression of self-image; the aesthetic criterion of apparel

design focused on external properties such as the beauty and appearance of the apparel design (Lamb & Kallal, 1992).

Consumers and Their Behaviors

Solomon (2008) defined *consumer* as “a person who identifies a need or desire, makes a purchase, and/or disposes of the product” (p. 659). The definition of consumer according to Lindquist and Sirgy (2009) was “the individual who actually uses and/or possesses a product or service” (p. 710). Therefore, all people play the role of consumer.

Consumer research is a field of study used to gain knowledge about consumers, and to quantify their behaviors (Calder & Tybout, 1987; Hoch, 1988). In the past, consumer researchers focused on what people buy, but studies have more recently focused on consumption analysis that attempted to explain why and how consumers purchase products and services (Blackwell, Miniard, & Engel, 2006). This new approach has assisted firms in better understanding the underlying factors that trigger consumer behavior.

Blackwell et al. (2006) defined “consumer behavior” as “activities people undertake when obtaining, consuming, and disposing of products and services” (p. 4). According to Schiffman and Kanuk (2006), early studies of consumer behavior that were based on traditional economic theory, suggested that consumers were rational and that they tended to maximize satisfaction when they spent their available resources, such as time, money, and effort on various consumer goods. However, current consumer investigations revealed that consumer behavior could also be influenced by other factors such as mood, emotion, situation, and identity.

An important conjecture in consumer behavior research was that purchase stemmed from a decision process. Most of the consumer behavior models agreed that choices were made when consumers were forced to decide between two or more alternatives (Olshavsky & Gransbois, 1979). Consumer research has employed a multidisciplinary approach that relies on economics, sociology, philosophy, and psychology (Holbrook, 1987). Early consumer researchers attempted to describe the consumer decision process with comprehensive models. The well known consumer decision process models were from Howard and Sheth (Howard & Sheth, 1969), Nicosia (Nicosia, 1966) , and Engel, Blackwell, and Miniard (EBM) (Blackwell et al., 2006). The Howard -Sheth and the Nicosia models have not been updated since the 1960's, but Blackwell and his colleagues have continued to improve their consumer decision process model over the years. According to Blackwell et al., the consumer decision process consists of seven main stages including need recognition, search for information, pre-purchase evaluation of alternatives, purchase, consumption, post-consumption evaluation, and divestment.

Although comprehensive models have provided a “big picture” of the consumer decision process, as well as important information that explained each variable and the inter-relationships among them, in real practice it is not feasible to consolidate consumer behavior into a single comprehensive model (Kassarjian & Robertson, 1973). Hence, post-modern consumer studies have been divided into diverse topical areas such as the role of beliefs in attitude formation, attention, perception, information acquisition, learning, expertise, self-expressive motives for brand preference, identity, personality, motivation, and purchase intentions (Simonson, Carmon, Dhar, & Drolet, 2001).

Purchase Intentions

Purchase intention has been defined as “what consumers think they will buy” (Blackwell et al., 2006, p. 742). Purchase intentions have been used to predict consumer purchase behavior. Information obtained from purchase intentions could be used to forecast demand for existing products and brands. It could also help researchers make decisions as to whether or not new products should be developed. Hence, purchase intentions have become a useful estimator of actual consumer behavior (Morwitz, Steckel, & Gupta, 2007).

According to Fishbein and Ajzen (1975), some main criteria to consider when predicting actual behavior, from purchase intention survey data are “the degree to which intention and behavior correspond in their levels of specificity, stability of the intention, and the degree to which carrying out the intention is completely under the person’s volitional control” (p. 369). The first criterion indicated that asking specific questions could improve the precision of the behavior prediction. The second criterion implied that intention could change over time, thus, the survey questions should be asked within a reasonable time frame. For example, runners may intend to purchase products that have certain functions or styles, but as time passes, they may change their purchase intentions to favor products that have different functions or styles, according to technological appeal and design available at that time. The last criterion indicated that intention could change because of situational or other personal influences (Fishbein & Ajzen, 1975).

Morwitz et al. (2007) conducted two studies to test the correlation between purchase intentions and purchase behavior. The results revealed that purchase intention, under certain circumstances, was a good estimate of actual behavior. For example, when “the purchase will

occur in a short time horizon, the consumer is familiar with and [has] knowledgeable about the product, the product description (level) is explicit, and the tradeoffs involved in purchasing this product versus another are made explicit” (Morwitz et al., 2007, p. 361). In addition, consumers paid less attention to the negative aspects, and focused more on the positive aspects, of non-durable products, such as running apparel. These products required less time to be spent on making the actual purchase decisions since their purchase intentions were more likely to form while being asked on the spot in the survey (Morwitz et al., 2007). Therefore, it was evident that purchase intentions could be a good predictor of consumer purchase behavior only when a survey was carefully and accurately designed.

Lifestyle as a Factor of Consumer Purchase Behavior

Lifestyle is a unique pattern used to categorize and describe consumer behavior through observations of how an individual lives and spends their time and money. Wells and Tigert (1971) stated that “For the first time, research brought the marketing manager... face to face with an audience or a group of customers instead of a bunch of decimals” (p. 27). Demographic information, such as consumer age, gender, and income, alone cannot be used to fully understand lifestyles of consumers (Wilska, 2002). Thus, lifestyle has been used to study activities, interests, and opinions of consumers. Mitchman (1991) defined lifestyle as “how individuals spend their time, what they consider important about their immediate surroundings, their opinions on various issues, and their interests” (p. 1). It was also noted that, lifestyle could change over time (Kotler, 2000; Loudon & Della Bitta, 1993; Michman, Mazze, & Greco, 2003; Plummer, 1974). According to one of the early lifestyle researchers, William Lazer (1969), American culture has fostered a materialistic society where

“marketing is a social instrument through which a standard of living is transmitted to society” (p. 9). Thus, lifestyles of consumers can be influenced by products and brands that help them fulfill their desired status, achievements, and accomplishments (Lazer, 1969). For example, sport brands that understand and capture the lifestyle of certain athletes could positively influence their purchase intentions.

Furthermore, the reference group of those who share the same lifestyle also had a great impact on consumer behavior because it united people with similar behavior, lifestyle, and self-concept, which led to the development of values and attitudes (Bearden & Etzel, 1982). Schiffman and Kanuk (2007) described reference groups from a marketing perspective as “groups that serve as frames of reference for individuals in their purchase or consumption decision” (p. 312). For example, Nash (1995) defined members of the running group as “people who have acquired a body of cultural knowledge about running. They use this knowledge to order their lives; they think of themselves as runners” (p. 86). Symbols such as clothing, shoes, and headbands are used as a means of distinguishing themselves from others (Nash, 1995). Thus, it is evident that consumers use products and brands as means to match or connect themselves with the reference group that represents their actual or ideal lifestyle.

The Importance of Branding

The American Marketing Association (AMA) described a *brand* as a “name, term, sign, symbol, or design, or a combination of them, intended to identify the goods and services of one seller or group of sellers and to differentiate them from ... competitors” (Keller, 2003, p. 3). Successful branding could be measured by how positive consumers felt

about the brand, as opposed to how many people were aware of it. Consumers were willing to pay more for a brand that added more value to the product and helped them to differentiate themselves from others. Hence, many companies used branding as a differentiation strategy to survive in today's market (Parrish, Cassill, & Oxenham, 2006). According to Mitchman (2003), a successful branding strategy would build a brand that not only sold products, but that captured lifestyles, aspirations, and images that were closely related to the interests and images that appealed to consumers.

According to Aaker and Joachimsthaler (2000), a strong brand not only had consumer recognition, but also had a clear identity in the eye of consumers. The brand should represent the core values and identity of the firm, and should remain unchanged even if the brand expands into new markets. While the degree of brand consideration varied with different consumers, depending upon familiarity and acceptance, a successful brand was one whose core identity could be clearly recognized by consumers. In addition, consumer loyalty has become very critical for firms. Keller (2003) stated that:

The relationship between a brand and the consumer can be seen as a type of bond or pact...Brands can serve as symbolic devices, allowing consumers to project their self-image. Certain brands are associated with being used by certain types of people and thus reflect different values or traits. Consuming such products is a means by which consumers can communicate to others—or even to themselves—the type of person they are or would like to be (p. 9-10).

In addition to Keller, Azevedo and Pessoa (2005) revealed that successful brands were those that consumers used as a means of expressing themselves and their self-concepts. Consumers were found to rely heavily upon the psychological satisfaction and the self-identity expression aspects of a brand if that brand allowed consumers to differentiate

themselves from others. For example, Aaker (1997) proposed a brand personality concept, which categorized brands into five human personalities: sincerity, excitement, competence, sophistication, and ruggedness. Moreover, Fournier (1998) suggested that consumers' positive attitudes towards brands could lead to positive relationships with the brand, which should be the ultimate goal of firms.

Apparel Brands for Running: Lifestyle Brands

Many retailers consider themselves to be lifestyle brands. However, literature on this topic remains limited. Plummer (1974) described lifestyle market segmentation as the combination of a lifestyle pattern and market segmentation. According to Michman et al. (2003), lifestyle market segmentation was one of the strategies through which a firm aimed to capture the “lifelike portrait of customers” (p. xi). It “pinpoints the way in which an individual lives and spends money” (Michman et al., 2003, p. 1). Cohen (2006) stated that consumers looked for products that enhanced and captured the way they wanted to live their lives, or, their lifestyles. Plummer explained that “the more you know and understand about your customers the more effectively you can communicate and market to them” (Plummer, 1974, p. 33). Therefore, lifestyles have been found to have an impact on consumer purchase decisions.

Helman and De Chernatony (1999) defined a lifestyle brand as “a focused retail brand, targeted at a specific market segment defined by lifestyle...the lifestyle and brand components distinguish these concepts from other retail concepts, because they extend the function of the retailer into the lives of consumers” (p. 49). It was evident that individuals purchased products that related to their lifestyles (Helman & De Chernatony, 1999). The

authors concluded, however, that a thorough understanding of lifestyle brands was still missing in academic literature and needed further attention.

According to Wheaton (2004), a lifestyle brand was not necessarily a brand that provided products for a single lifestyle. One company could distribute products that appealed to a wide range of lifestyles (especially in sports) as long as the company captured the common behavior of these consumers. For instance, a sport and lifestyle brand such as Quiksilver, Inc. has been able to cater their products to a variety of lifestyle sports such as surfing, skating, windsurfing, snowboarding, and running (Wheaton, 2004). Adidas is another example of a sport and lifestyle brand for running, although it provides products for other sports such as, soccer, basketball, and tennis. In April 2009, adidas extended its contract with the Boston Marathon (Addidas extends contract with Boston marathon.2009). This action could help adidas to become more recognized among runners. Serious runners may have found this brand appealing simply because the Boston Marathon is widely considered to be the most famous race in the world.

Additionally, it is important that products offered in the consumer sport segment must not only have captured consumer preferences, but must also have met rigid consumer expectations and specifications in terms of protection and performance. The correct equipment has become crucial for both accomplishment and safety in sports (Curtis, 2009). Therefore, the current study assumed that self-congruity, ideal self-congruity, and functional congruity of a sport and lifestyle brand were crucial criteria to consumers when they were making purchase decisions.

Summary of Literature Review

It is evident that the most successful firms in the current market have been those who could tailor their products to match the identity and self-image of consumers, as well as to enhance their lifestyles. To keep up with consumer demands, firms could no longer consider all consumers to be alike (Michman et al., 2003). Firms needed to acknowledge that consumers were unique and complex, and it was important for them to understand the reasons behind consumer behavior in order to successfully position their brands.

Based on the literature review, consumers have been known to search for products and/or brands that they could relate to and identify with (Fournier, 1998; Gardner & Levy, 1955; Kleine et al., 1993; Levy, 1959). Kleine, Kleine, and Kernan (1993) agreed that “If we want to understand how products fit into consumers’ lives, we need look no further than people’s ordinary activity patterns” (Kleine et al., 1993, p. 228), or their lifestyles. Studies have shown that when consumers felt self congruence with brands, positive behavior such as brand attitude, brand preference, purchase motivation, brand satisfaction, brand loyalty, and purchase intentions tended to follow (Aaker, 1997; Fournier, 1998; Levy, 1959). Indeed, the apparel industry “is an image-driven category where attitude is so important” (O’Conner, 1997, p. 231). In other words, consumers often purchase apparel brands that match their identities in order to express themselves (Ericksen & Sirgy, 1992). Hence, the focal hypothesis of the present study was that consumers purchase apparel brands for running based on their self-concept.

Furthermore, several studies confirmed that athletes with different levels of involvement varied in how they perceived themselves in their athletic roles, and subsequently differed in their requirements of athletic apparel (Casselman-Dickson & Damhorst, 1993a; Casselman-Dickson & Damhorst, 1993b; Chae et al., 2006; Dickson & Pollack, 2000; Mitchka et al., 2009; Wheat & Dickson, 1999). Literature suggested that, compared to the requirements of those who are less involved with the sport, people who are highly involved in a sport may require a product to have higher standards of functionality (Kressmann et al., 2006; Sirgy, 1986).

Previous research has not linked self-congruity, ideal self-congruity, and functional congruity, when considering the relationship between runners' passion towards activity and their activewear purchase intentions. Therefore, there was an opportunity to contribute knowledge gained from this study to the literature. In the current study, the dualistic theory of passion was used to separate runners into two levels of involvement, which were running participants (RP) and enthusiastic runners. Enthusiastic runners were further categorized by two traits, which were harmonious enthusiastic runners (HER) and obsessive enthusiastic runners (OER). The self-congruity theory was then used to understand how the runners at different levels of involvement differed in their purchase intentions.

CHAPTER 3: METHODOLOGY

Purpose of the Study

The purpose of this study was to examine factors that influenced purchase intentions of runners at different levels of involvement. The runners were categorized by the dualistic theory of passion, and their purchase intentions toward apparel brands for running were analyzed from the self-congruity perspective. *Figure 6* depicts the theoretical framework for this study.

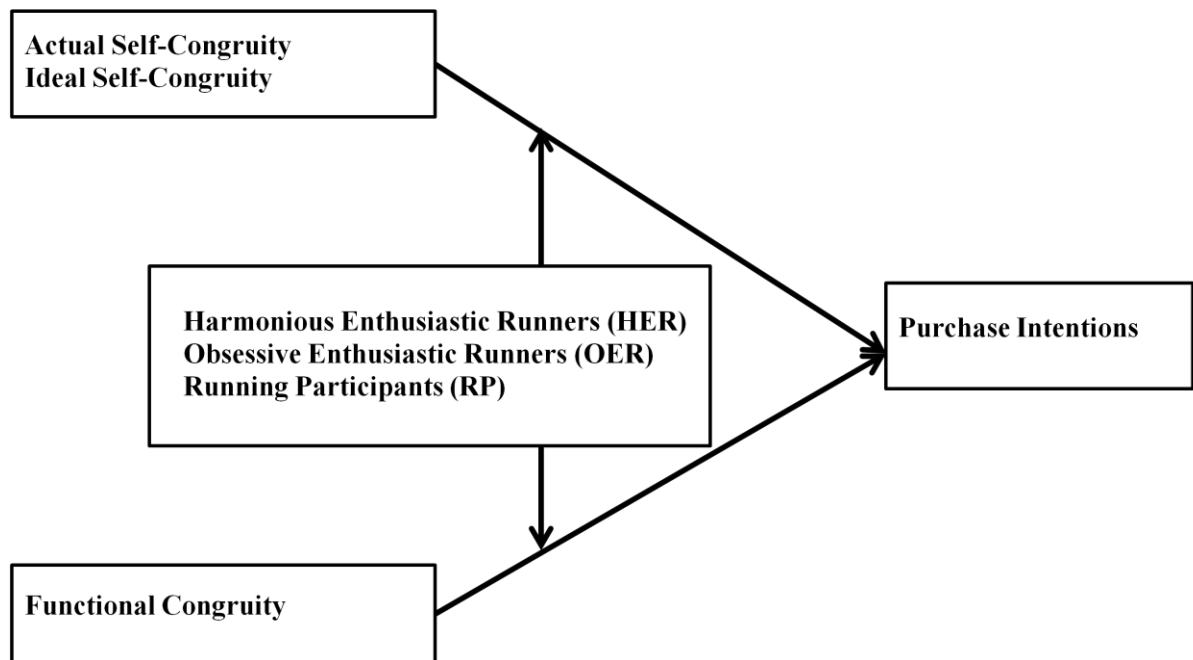


Figure 6 Theoretical model: The impact of self-congruity and functional congruity on purchase intentions of runners at different levels of involvement

Source: Author (Leksrisompong, C., 2010).

Adapted from: Sirgy, J.; Grewal, D.; & Mangleburg, T. (2000). Retail environment, self-congruity, and retail patronage: An integrative model and a research agenda. *Journal of Business Research*, 49, 135.

According to the theoretical framework shown in *Figure 6*, runners were categorized into two levels of involvements, which were enthusiastic runners and running participants (RP). Enthusiastic runners were those who exhibited passion towards running. According to the dualistic theory of passion, passionate individuals were those who spent time on the activity, had love for the activity, and considered the activity to be an important part of their lives. In addition, passionate individuals were further categorized into two separate groups, harmonious and obsessive, based on the passion scale items that were developed and validated by Vallerand et al. (2003). Hence, in this study, enthusiastic runners were categorized into harmonious enthusiastic runners (HER) and obsessive enthusiastic runners (OER) based on the passion scale. The last group of runners was named running participants (RP), which was the group of runners who either did not spend enough time running and/or did not have passion towards running.

The second part of the theoretical framework tested the congruity theory. Literature revealed that the two main types of congruity that influenced purchase intentions were self-congruity and functional congruity. According to the literature, consumers tended to purchase products that matched or were congruent with their self images or ideal self images. Therefore, this study attempted to discover whether self-congruity and/or ideal self-congruity could influence purchase intentions for running apparel brands. In addition, functional congruity was considered to be important to consumers. In other words, products that matched the performance expectations of consumers were known to increase their purchase intentions. This was found to be especially true for those who were highly involved in the activity. Thus, this research also set out to discover whether functional attributes of running

apparel brands were able to significantly influence the purchase intentions of runners. Ultimately, the study attempted to determine which type of congruity (self-congruity, ideal self-congruity, or functional congruity) most influenced purchase intentions of running apparel brands for each group of runners.

Research Hypotheses

The following hypotheses were tested.

Hypothesis 1: A runner's self-congruity with an apparel brand for running affects purchase intentions for that brand.

Hypothesis 2: A runner's ideal self-congruity with an apparel brand for running affects purchase intentions for that brand.

Hypothesis 3: A runner's functional congruity with an apparel brand for running affects purchase intentions for that brand.

Hypothesis 4: The effect of self-congruity on purchase intentions for apparel brands for running is more significant than other variables for OER.

Hypothesis 5: The effect of functional congruity on purchase intentions for apparel brands for running is more significant than other variables for HER.

Hypothesis 6: The effect of ideal self-congruity on purchase intentions for apparel brands for running is more significant than other variables for RP.

Research Methodology

The data were collected by using an electronic self-administered survey, as it was an inexpensive and rapid means to access the interested and qualified population of runners across the United States. SurveyMonkey was used as an online survey host for this research because it allowed the questionnaire to be constructed with a unique link to the survey distributed to the desired individuals and groups (See Appendix A).

Running group organizers, a local running store, running race organizers, and two national brands that provided running products were contacted to request that a link to the survey be posted to their blogs, websites, newsletters, or member e-mail contacts (See Appendix B). In addition, some previously established runners were invited to participate in the survey through e-mail (See Appendix C) and Facebook.com (See Appendix D) and they were encouraged to forward the survey link to other runners that they knew. To keep track of the response sources, a question on where they found the link to the survey was asked (See Appendix F).

There was no economic incentive for participating in the survey, so its success relied on social exchange theory (Dillman, Smyth, & Christian, 2009). In this method, runners were satisfied with being able to express their existing problems or running apparel improvement needs, in exchange for donating their time to complete the survey. Information received from runners could help running apparel brand managers and producers better understand the requirements and needs of runners, and could ultimately help them improve their products and brands. This, in turn, could benefit runners in the future.

The survey was pretested and submitted to the Institutional Review Board (IRB) (see Appendix E). The pretest was completed by several runners to make certain that the questions were clear and did not omit any important issues or concerns. The pretesting process was necessary in order to minimize errors in the survey. To avoid any bias, runners who conducted the pretest version of the survey were not included in the actual survey.

Populations and Sample

Due to the limited financial resources and time constraints, a snowball sampling method was used to collect data. The snowball sampling method, or chain referral method, is a non-probabilistic sampling method that is commonly used in hard to reach, or hidden populations, as commonly seen in medical or sociological research. This method relies heavily on personal contact or inside connections with the participants (Biernacki & Waldorf, 1981; van Meter, 1990). First, a few runners (age 18 and older), running race organizers, running group organizers (from meetup.com across the United States), a local running store owner, two companies that provided running gear, and known runners were contacted by e-mail or Facebook event invitation. These runners were requested to voluntarily participate in the survey and to forward the survey to other runners they knew. The snowball method was suitable for this study because most runners tended to have good social connections with others in their sport, or belonged to running clubs that would give them access to other runners across the country, in a relatively short period of time (Sue & Ritter, 2007).

Although there was no specific rule to estimate the sample size of the non-probabilistic groups, Sue & Ritter (2007) recommended obtaining the largest sample possible, within the given the time frame. The other recommendation was that there should

be at least 100 observations, but preferably 5 or more observations for each item used in the factor analysis (Hair Jr., Black, Babin, Anderson, & Tatham, 2006). Since there were either 43 or 29 items used in the factor analysis, depending on the hypothesis being tested, the ideal sample size for this study should have been larger than 215 and 145 runners respectively.

Questionnaire

There were six sections in the survey including a consent form, a runner's profile, running interest, reason to purchase running apparel, purchase information, and demographics. The questionnaire was designed to measure the following variables: Harmonious Passion, Obsessive Passion, Self-Congruity, Ideal Self-Congruity, Functional Congruity, and Purchase Intentions. These were used to test and to validate the theoretical framework. Questions that measured these variables were modified from the literature or created based on existing theory. The following sections describe each hypothesis, associated variables, and other items in more detail. Appendix A displays a copy of the survey.

Independent Variables

The Passion Scale

Passion scale items were used to categorize runners into different levels of involvement. The label given to enthusiastic runners, versus running participants (RP), was based on the number of days individuals spent running per year, their love of running, and the importance that they placed on running. Based on Runner's World Media group (2007), enthusiastic runners were those who ran more than 1-2 days per week (110 days per year or more). On the other hand, RP were those who ran less than 1-2 days per week (less than 110

days per year). According to the dualistic theory of passion, in addition to time spent on running, enthusiastic runners must have answered “yes” to questions regarding their love of running and the importance that running carries in their life, as shown in Table 3 (Mageau et al., 2009). Otherwise, they were considered RP, regardless of the amount of days they ran per year.

Table 3 *Items used to categorize respondents into enthusiastic runners*

Number	Item
P2Q3	How often do you run on average?
P3Q1	Do you love running?
P3Q2	Do you consider running as an important part of your life?

Adapted from: Vallerand, R.J., Blanchard, C., Mageau, G.A., Koestner, R., Ratelle, C., Léonard, M., Gagné, M., Marsolais, J. (2003). Les passions de l'âme: On obsessive and harmonious passion. *Journal of Personality and Social Psychology*, 85(4), 756-767.

Using the passion scale modified from Vallerand et al. (2003), all respondents were then asked to rate 14 scale items to measure the degree of passion towards running. Wording from the original passion scale items were changed from “activity” to “running”. Table 4 lists the passion items measured with the 7-point Likert-type scale (1=strongly disagree, 7=strongly agree) that covered a range of characteristics belonging to harmonious and obsessive individuals.

Table 4 *The passion scale*

Number	Item	Types of Passion
P3Q3A	Running enhances my life experiences.	Harmonious
P3Q3B	I have difficulty imagining my life without running.	Obsessive
P3Q3C	Running is in harmony with other activities in my life.	Harmonious
P3Q3D	My mood depends on my being able to run.	Obsessive
P3Q3E	Running reflects the qualities I like about myself.	Harmonious
P3Q3F	I have a tough time controlling my need to run.	Obsessive
P3Q3G	The new things that I discover while running allow me to appreciate running even more.	Harmonious
P3Q3H	I cannot live without running.	Obsessive
P3Q3I	Running provides me memorable experiences.	Harmonious
P3Q3J	I have become emotionally dependent on running.	Obsessive
P3Q3K	For me, running is a passion that I still manage to control.	Harmonious
P3Q3L	I have almost an obsessive feeling for running.	Obsessive
P3Q3M	I am completely taken with running.	Harmonious
P3Q3N	The urge is so strong that I cannot help myself from running.	Obsessive

Adapted from: Vallerand, R.J., Blanchard, C., Mageau, G.A., Koestner, R., Ratelle, C., Léonard, M., Gagné, M., Marsolais, J. (2003). Les passions de l'âme: On obsessive and harmonious passion. *Journal of Personality and Social Psychology*, 85(4), 760.

Self-Congruity

The traditional method of describing self-congruity has employed a mathematical discrepancy index to calculate the total differences between product/brand images and self-image. In reality, consumers are unlikely to be consciously aware of their discrepancy score between product/brand image and self-image. Also, the traditional method usually provided predetermined images, which limited the capacity for consumers to freely express their imagination (Sirgy et al., 1997). For these reasons, Sirgy et al. suggested a new method to measure self-congruity distributing questions related to actual self-congruity, which should have described how runners really envisioned themselves. For example, self-congruity questions may present descriptive phrases such as “reflect who I am; pretty much like me; and are similar to me” (Sirgy et al., 1997, p. 235). Questions that were used to measure ideal

self-congruity should illustrate how runners would like to see themselves. For example, ideal self-congruity questions may contain the phrase “I like to be...” (Sirgy et al., 1991, p. 370).

Table 5 shows the statements that were used to measure Self-Congruity and Ideal Self-Congruity variables based on the above recommendation. The question of the statement was as follows; “Imagine if you were to purchase running gear (only tops and bottoms) in the next 12 months, how would you rate the following statements? Please indicate the degree to which you agree or disagree with the following statements.” A seven-point Likert-type scale (1=strongly disagree, 7=strongly agree) was used to measure the degree of agreement with each statement.

Table 5 *Self-congruity measurement*

Number	Item	Types of Congruity
P4Q4A	That match with my identity as a runner.	Self-congruity
P4Q4B	To identify myself with other runners who are better than I am.	Ideal self-congruity
P4Q4C	That help substantiate me as a runner.	Self-congruity
P4Q4D	To help me feel like a better runner than I actually am.	Ideal self-congruity
P4Q4E	To emphasize my identity as a runner to others.	Self-congruity
P4Q4F	Because I want others to identify me as a better runner than I actually am.	Ideal self-congruity
P4Q4G	To identify myself with other runners like me.	Self-congruity
P4Q4H	That match with my IDEAL identity as a runner.	Ideal self-congruity

Source: Author (Leksrisompong, C., 2010).

Functional Congruity

To measure functional congruity, respondents were provided with clothing attributes that were considered important for runners suggested by functional congruity theory (Sirgy et al., 1991). In the survey, the participants were asked “Imagine if you were to purchase running gear (only tops and bottoms) in the next 12 months. Please rate the following

features as to how important they are to you when purchasing brands for running.” A seven-point Likert-type scale (1=not very important, 7=very important) was used to measure the importance of each attribute and Table 6 illustrates items concerning functional congruity of apparel brands for running.

Table 6 *Functional congruity: Running apparel attributes*

Number	Item
P4Q3A	Brand name
P4Q3B	Color
P4Q3C	Fabric breathability
P4Q3D	Fabric durability
P4Q3E	Fabric weight
P4Q3F	Fashionability
P4Q3H	Fit
P4Q3G	Garment construction
P4Q3I	Moisture management
P4Q3J	Odor control
P4Q3K	Overall comfort
P3Q3L	Pocket availability
P4Q3M	Price
P4Q3N	Recyclability
P4Q3O	Size availability
P4Q3P	Smart fabrics (e.g., heart rate monitoring)
P4Q3Q	Storage for digital devices (e.g., iPod)
P4Q3R	Style
P4Q3S	Texture of the fabric
P4Q3T	The ability of the product to enhance performance
P4Q3U	The ability of the product to prevent chafing
P4Q3V	The ability of the product to regulate body temperature

Source: Author (Leksrisompong, C., 2010).

Adapted from: d’astous, A. & Chnaoui, K. (2002). Consumer perception of sports apparel: The role of brand name, store name, price, and intended usage situation. *International Journal of Sports, Marketing, & Sponsorship*, 4, 109-127.

Chae, M.H., Black, C., Heitmeyer, J. (2006). Pre-purchase and post-purchase satisfaction and fashion involvement of female tennis wear consumers. *International Journal of Consumer Studies*, 30(1), 29.

The majority of functional attributes were adapted from Chae et al. (2006). In their study on female tennis wear, comfort, fit, sizing, and quality of construction were found to be important attributes. In the current study, the following variables were adapted from Chae at

al.: brand name, color, fashionability, fit, garment construction, overall comfort, price, size availability, style, and texture of the fabric. The study from d’Astous and Chnaoui (2002) also identified brand name, fashionability, and price as attributes that influence consumer sports apparel preference.

Additional attributes were created based on suggestions from a sports apparel trade publication stating that high performance fabrics were important in sports apparel for athletes (Sporting Goods Manufacturers Association, 2009). Attributes relating to high performance fabrics such as fabric breathability, fabric durability, fabric weight, moisture management, odor control, smart fabrics (e.g., heart rate monitoring), the ability of the product to enhance performance, the ability of the product to prevent chafing, and the ability of the product to regulate body temperature were included as items in the survey.

The following variables were created specifically for this study based on observations: recyclability, storage for digital devices, and pocket. However, the variable “pocket availability” was added three days after the survey was sent to runners, and omitted from the factor analysis because there were too many missing responses.

Dependent Variable

Purchase Intentions

Self-Congruity, Ideal Self-Congruity, and Functional Congruity were used to predict purchase intentions toward apparel brands for running (Claiborne & Sirgy, 1990). According to Fishbein and Ajzen (1975), the prediction of purchase intentions could be accurate when asking consumers about their product preferences within a short amount of time from when

they planned on purchasing a product. To ensure prediction accuracy, in this study, runners were asked whether they intended to purchase running apparel brands within the next 12 months.

Table 7 illustrates two items that were used to measure purchase intentions in this study. Respondents could either answer “Yes” or “No” to these questions, and those who answered “No” for both items were considered to have no intention of purchasing apparel brands for running within the next twelve months. Alternatively, if the respondents answered “Yes” to one of the two items, they were considered to have the intention of purchasing apparel brands for running within the next twelve months.

Table 7 *Purchase intentions of apparel brands for running*

Number	Item
P4Q2B	Do you intend to purchase any apparel brands for running tops in the next 12 months
P4Q2C	Do you intend to purchase any apparel brands for running bottoms in the next 12 months??

Source: Author (Leksrisompong, C., 2010).

Demographic Characteristics of the Sample

Demographic questions, which included gender, year born, race, and education are summarized in Table 8. The survey demographic data was compared with the general United States demographic data in order to examine differences and similarities between the two demographics.

Table 8 *Demographic questions*

Number	Item
P6Q1	What is your gender
P6Q2	In what year were you born?
P6Q3	What is your highest level of educations? Please check one.
P6Q4	Please indicate your race or ethnicity. Please check all that apply.
P6Q6a	Where do you live? State
P6Q6b	Where do you live? Country

Source: Author (Leksrisompong, C., 2010).

Data Analysis

Items were first analyzed by conducting an exploratory factor analysis (EFA) as a variable reduction process to validate the variables needed for the analysis. Once variables were validated, logistic regression was used to test the theoretical framework and to predict the relationship between dependent and independent variables. The SAS system was the statistical software used to for the survey analysis.

Factor Analysis

Factor analysis was another variable reduction method used to find underlying unobserved variables (or latent variables). Factor analysis has been commonly utilized in social science research. The assumption when using factor analysis was that there was some correlation among variables. This method was used “to determine which variables have high intraset correlations and low interest correlations and to summarize the data in terms of a set of underlying constructs” (Malhotra, 1981, p.458). In other words, when factor analysis is applied, observed variables that are correlated to a certain degree belong in the same factor, but there should be low or no correlation among factors (Ho, 2006). Factor extraction method could be performed by either allowing the software to freely extract factors, or by limiting

the number of factors to be extracted. However, it was recommended that researchers should design the study based on the specifics of a theory in order to extract meaningful factors (Cody & Smith, 2006, p.328).

There are different types of factor extraction methods available, such as principle component analysis (PCA), principle axis (PA), confirmatory factor analysis (CFA), and exploratory factor analysis (EFA). However, EFA with maximum likelihood (ML) solution was used in this study as a method of factor extraction. The EFA method was recommended when the research objective was to determine the number of factors provided by a specific set of questionnaire items and to understand the nature of each factor. In this study, questionnaire items measured factors related to Self-Congruity, Ideal Self-Congruity, and Functional Congruity. Hence, EFA was selected as the most appropriate method of analysis for this study. In addition, Vallerand et al. (2003) used EFA with ML solution when developing passion scale items. Since passion scale items had not previously been tested on runners, EFA with ML solution was used to extract the passion scale items and to verify that items loaded similarly into factors when applied to the runner population.

The Kaiser criterion (or Eigenvalue-one criterion) and the Scree test were used as guidelines when determining the possible number of factors to retain for rotation. According to the Kaiser criterion, all factors with Eigenvalues greater than one could be considered appropriate to retain for rotation. The Scree test was used by plotting the Eigenvalues graphically and the finding the break point in the data where the trend curve flattened. The Kaiser criterion and the Scree test do not necessary provide and equivalent number of factors that could be retained for the rotation. Instead, they were both used as guidelines while

various numbers of factor solutions were more carefully examined to determine the most meaningful factors. In addition, factors that contained less than 3 items were considered weak factors (Hatcher, 2005).

The factor rotation method was used to clarify factor structure. There were two common factor rotation solutions: orthogonal rotation and oblique rotation. An orthogonal rotation solution assumes that there are no correlations between factors; however, an oblique rotation solution allowed some correlations between factors (Hatcher, 2005). To avoid a multicollinearity problem in later analysis, an orthogonal rotation method, Varimax, was used in this study.

Factors were created from groups of items that obtained scores above a certain cutoff point. This study followed the cutoff point as shown in Table 9. For instance, for a data set with 100 observations, items must obtain a loading score of 0.55 or higher for at least one factor to be considered significant. In this study, items that obtained less than 0.55 in all factors were dropped from the analysis. In addition, items that obtained a loading score of 0.55 or higher in more than one factor were considered cross-loaded. Cross-loaded items were also dropped from the analysis to prevent multicollinearity problems in later analyses.

Table 9 *Guidelines for identifying significant factor loadings based on sample size*

Factor Loading	Sample Size needed for Significance ^a
0.30	350
0.35	250
0.40	200
0.45	150
0.50	120
0.55	100
0.60	85
0.65	70
0.70	60
0.75	50

^aSignificance was based on a 0.05 significance level (α), a power level of 80 percent, and standard errors assumed to be twice those of conventional correlation coefficients.

Source: Computations made with SOLO *Power Analysis*, BMDP Statistical Software, Inc. 1993.

From: Hair, J.F.; Black, W.C.; Babin, B.J.; Anderson, R.E.; & Tatham, R.L. (2005). *Multivariate data analysis*. (6th edition). Prentice Hall. Upper Saddle River, NJ. P. 128.

A Cronbach's alpha was used to measure the internal reliability of each factor.

Factors that obtained the Cronbach's alpha that exceeded 0.70 were considered reliable (Hatcher, 2005). In other words, the higher the Cronbach's alpha indicating the more reliable of the factor. In addition, factors that obtained the variance accounted for at least 5% of the common variance will be retained in this study.

Factor scores in this study were calculated by first adding the actual score of all of the items that obtained the individual scores above the cutoff value. Then the added scores were divided by the number of items calculated in the factor to make sure that each factor obtained the same weight, in this case on a seven point Likert- type scale (Comrey & Lee, 1992).

Logistic Regression

A broader objective of this study was to examine the significant of using the theoretical model to predict purchase intentions for running apparel brands. The dependent variable, which was purchase intentions, was a binary dependent variable because there were only two possible outcomes: 0 = No (do not intend to purchase apparel brands for running tops and/or bottoms) and 1 = Yes (intend to purchase apparel brands for running tops and/or bottoms). Thus, logistic regression was used to describe the relationship between the dependent variable and a set of independent variables, in this case Self-Congruity, Ideal Self Congruity, and Functional Congruity, by predicting the odds that the event (purchase intentions) would occur. Logistic regression is a statistical modeling technique often seen in medical, social science, and market research fields. In this study, the SAS system was the statistical software used to calculate logistic regression by using the LOGISTIC procedure (Proc Logistic), and to estimate models by using maximum likelihood (ML) estimation. An odds ratio was commonly used to interpret coefficient estimates in order to predict the relationship between the observed variables in the model.

The probability of the event occurring is equal to p and the probability of the event not occurring is equal to $1-p$.

$$\text{Logit}(Y) = \log\left(\frac{p_i}{1 - p_i}\right) = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_k X_{ik}$$

Where k is the number of independent variables and i is the number of individuals.

Therefore, the logit equation for p_i can be written as:

$$p_i = \frac{e^{\alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_i X_{ik}}}{1 + e^{\alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \dots + \beta_i X_{ik}}}$$

The simplified version of this equation is:

$$p_i = \frac{1}{1 + e^{(-\alpha - \beta_1 X_{i1} - \beta_2 X_{i2} - \dots - \beta_i X_{ik})}}$$

The predicted probability outcomes from this equation are restricted between 0 and 1 regardless of parameter estimate (β) values. This equation produces an S-shaped curve, where the value of p approaches near 0 and 1 (Allison, 1999).

The maximum likelihood (ML) method is designed to maximize the likelihood of reproducing the same data from the real population given the coefficient estimates (Peng, Lee, & Ingersoll, 2002). When the SAS output was examined, the first step was to look at the “Testing Global Null Hypothesis: BETA = 0” to see whether all dependent variables contained coefficients of zero. If the p -value of chi-square under this test was less than 0.01, then the null hypothesis could be rejected, meaning that one or more coefficients estimates was not equal to zero. There were three types of chi-square statistics, and it was advised that likelihood ratio chi-square would produce a better estimate in small sample sizes (Allison, 1999).

The next section of the SAS output was called “Analysis of Maximum Likelihood Estimates”, which obtained parameter estimates, standard error of the estimates, Wald chi-square (test-statistics for the null hypotheses in which each coefficient is equal to 0), and chi-

square p -values (same as normal p -values) (Allison, 1999). It was advised that the p -value should be less than 0.05 for the parameter estimates to be considered significant. However, since this is an exploratory study, a p -value of less than 0.1 was considered significant at 90% confidence level.

Parameter estimates (“ b ” was used in this study) could be interpreted by using the odds ratio estimate. The actual parameter estimates (probability that the event occurs) are more difficult to understand since the equation is non-linear (S-Shaped). The odd ratios can be obtained by calculating e^b (Allison, 1999). For instance, the odds ratio for the Function variable obtained from the All Runners data set, when testing Hypothesis 3, was 1.643, suggesting that the odds of having purchase intent was 1.643 times greater than the odds of having no purchase intent. In other words, the odds of purchase intent are 64.3% higher when the Function score increases by one unit (point).

Statement on the Use of Human Subjects

The actual survey instrument was distributed after the exemption from the Institution Review Board for the Protection of Human Subjects in Research (IRB) at North Carolina State University (Appendix E) was granted. The two main purposes of the IRB are to protect respondents and to ensure that researchers strictly follow university policy and regulations when dealing with human subjects (*Human subjects*, para 1). Respondents are ensured that their information was fully confidential and that the survey has been fully monitored by the IRB. Also, respondents were assured that completing the survey was voluntary, and they were able to choose not to participate or to stop participating at any time.

CHAPTER 4: RESULTS

The survey data were collected between October 24, 2009 and November 30, 2009 using the online survey software, SurveyMonkey. There were 699 runners who started the survey and 689 runners who accepted the consent form, which were considered to be the usable data. There were four groups of data: All Runners (AR), Obsessive Enthusiastic Runners (OER), Harmonious Enthusiastic Runners (HER), and Running Participants (RP). The OER, HER, and RP data sets were created as a sub-data set from the AR data set. The four data groups were used to test research hypotheses and to validate the theoretical framework. Table 10 summarizes the criteria used to categorize runners into the AR, HER, OER, and RP data groups, as well as the hypotheses tested on each group.

Table 10 *AR, HER, OER, and RP: Requirements and hypotheses*

Group	Criteria	Tested Hypothesis
All Runners (AR)	<p>Answered “I accepted” to the consent form</p> <p>Answered every scale item listed under Passion, Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories</p>	<p>HO 1: a runner’s self-congruity with an apparel brand for running affects purchase intentions for that brand.</p> <p>HO 2: a runner’s ideal self-congruity with an apparel brand for running affects purchase intentions for that brand.</p> <p>HO 3: a runner’s functional congruity with an apparel brand for running affects purchase intentions for that brand.</p>
Obsessive Enthusiastic Runners (OER)	<p>Answered “I accepted” to the consent form</p> <p>Ran more than 1-2 days per week and Answered “Yes” to “Do you love running?” and Answered “Yes” to “Do you consider running as an important part of your life?” and</p> <p>Obtained an average score of 5 or higher on a 7-point Likert-type scale from the Obsessive Passion scale items</p> <p>Answered every scale item listed under Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories</p>	<p>HO 4: The effect of self-congruity on purchase intentions of apparel brands for running is more significant than other variables for OER.</p>

Table 10 Continued

Group	Criteria	Tested Hypothesis
Harmonious Enthusiastic Runners (HER)	<p>Answered “I accepted” to the consent form</p> <p>Ran more than 1-2 days per week and</p> <p>Answered “Yes” to “Do you love running?” and</p> <p>Answered “Yes” to “Do you consider running as an important part of your life?” and</p> <p>Obtained an average score of 5 or higher on a 7-point Likert-type scale from the Harmonious Passion scale items, and</p> <p>Obtained an average score of less than 5 on a 7-point Likert-type scale from the Obsessive Passion scale items</p> <p>Answered every scale item listed under Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories</p>	<p>HO 5: The effect of functional congruity on purchase intentions of apparel brands for running is more significant than other variables for HER.</p>
Running Participants (RP)	<p>Answered “I accepted” to the consent form</p> <p>Ran less than 1-2 days per week, and/or</p> <p>Answered “No” to “Do you love running?” and/or</p> <p>Answered “No” to “Do you consider running as an important part of your life?” and</p> <p>Answered every scale item listed under Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories</p>	<p>HO 6: The effect of ideal self-congruity on purchase intentions of apparel brands for running is more significant than other variables for RP.</p>

Figure 7 depicts the diagram of how runners were grouped based on the criteria described in Table 10. According to *Figure 7*, there were 506 runners included in the AR category. The AR consisted of runners who answered every questionnaire item under Self-Congruity, Ideal Self-Congruity, and Functional Congruity subjects regardless of their passion and levels of involvement in running. The HER, OER, and RP were sub-groups of the AR data set. However, the HER were those who only scored an average of 5 points or higher on the 7-point Likert-type scale for the Harmonious Passion scale items. Runners in this group were passionate about running, considered running to be a positive experience that enhanced their quality of life, and were in harmony with other activities in their lives. Runners in this group also managed to not allow their running activity to take over other parts of their lives. On the other hand, the OER were runners who scored an average of 5 points or higher on the 7-point Likert-type scale for the Obsessive Passion scale items, regardless of their average score on the Harmonious Passion scale items. In fact, 109 out of 112 runners who belonged to the OER category also scored an average of 5 or higher on the Harmonious Passion scale items. There were only three runners from this category who scored less than an average of 5 points on the Harmonious Passion scale items. The data showed that runners who belonged to the OER group also agreed that running was a positive experience, but they tended to be emotionally dependent on running. Runners included in the RP category either ran no more than two days per week and/or did not love running and/or did not consider running to be an important part of their lives. Based on the passion towards activity theory, this group of runners either did not spend enough time on this activity or did not have passion towards running. Seventy runners who were included in the All Runners

data set did not belong in any of the other three groups. These were runners who ran more than 110 days per year, loved running, and considered running to be an important part of their lives, but did not score high on either Harmonious or Obsessive Passion scales items. This group of runners deserves further attention for the future study.

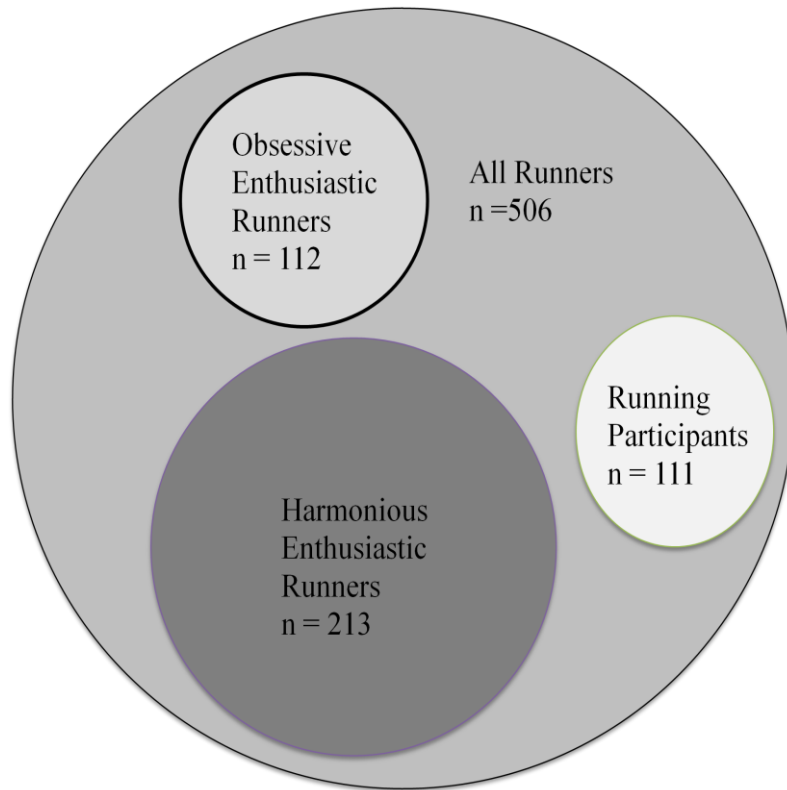


Figure 7 How runners were categorized and number in each category

Once runners were grouped into different data sets, an exploratory factor analysis (EFA) was computed for each data set, in order to uncover the underlying structure of a given set of questionnaire items. Actual scores for items loaded into each factor were added together and then divided by the number of items in that factor, to obtain the average factor score that reflected the original one to seven point scales. Items that were loaded into more

than one factor, or cross-loaded items, were omitted from further analysis to prevent a multicollinearity issue. Each factor score was later put through logistic regression analysis and used to predict the odds of purchase intentions of apparel brands for running.

Questions from the Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories were conducted together. In each data set, different numbers of factor solutions suggested by the Eigenvalue criterion were examined, and the most meaningful solution for each factor of grouped items was obtained. Questionnaire items from Self-Congruity and Ideal Self-Congruity in every data set were loaded into only one factor. Hence, it appeared that runners in every category did not find two sets of questions different from one another. Factors that included Self-Congruity and Ideal Self-Congruity items were labeled “Self-Image Congruence Factor.” Items in this factor were analyzed to find whether runners agreed that the reason for purchasing a running apparel brand was because that brand matched both their actual and ideal self-image as a runner.

Functional Congruity items were loaded into different factor solutions depending on the data set used. Nevertheless, only up to three factor solutions appeared to produce meaningful outputs. Detailed explanations of the factor solutions from Functional Congruity items will be discussed for each data set of runners. The following section was used to introduce factor names and their definitions, as well as to define the characteristics of runners in each data set.

Operational Definitions

Aesthetic Factor: Items loaded into this factor were related to aesthetic attributes of the garment.

All Runners (AR) Data Set: Runners who answered every questionnaire item under Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories regardless of their passion and levels of involvement in running. Harmonious Enthusiastic Runners, Obsessive Enthusiastic Runners, and Running Participants were subsets of All Runners data set

Function Factor: Items loaded into this factor were related to functionality attribute of the garment.

Harmonious Enthusiastic Runners (HER): Runners who were passionate about running, considered running to be a positive experience that enhanced their quality of life, and were in harmony with other activities in their lives.

Obsessive Enthusiastic Runners (OER): Runners in this group agreed that running was considered a positive experience; however, they tended to be emotionally dependent upon running.

Technology Appeal Factor: The attributes identified in this factor departed from the traditional functional attributes of the garment and were specifically technological in nature.

Running Participants (RP): Runners who did not spend a significant amount of time running (less than 1-2 days per week) and/or did not have passion toward running.

Self-Image Congruence Factor: Questions in this factor were given to determine whether or not runners agreed that the reason for purchasing a running apparel brand was because that brand matched their self-image and ideal self-image as a runner

Respondent Demographics

This section compared and contrasted the differences between the demographics of the U.S. population in general and the demographic characteristics of runners who participated in this survey as shown in Table 11. Note that runners who participated in this survey were at least 18 year or older.

Table 11 *Comparisons between United States demographics and survey respondent demographics*

	United States*	Survey Respondents
Gender		
Male	48.6%	45%
Female	51.4%	55%
Age (18 years and over)		
Born between 1981-1991		29%
Born between 1965-1980		45.5%
Born between 1946-1964		22.9%
Born before 1946		2.2%
20 to 29 years of age	13.8%	
30 to 44 years of age	20.8%	
45 to 64 years of age	25.4%	
Over 65 years of age	12.6%	
Education		
Completed high school	29.6%	2.4%
Currently attending college		8.2%
Graduated from 4-year college	17.3%	37.8%
Currently attending a post graduate program		11.7%
Completed a post-graduate degree	10.1%	38.7%
Ethnicity (Race alone or in combination with one or more other races)		
African-American	13.1%	2.6%
Asian/Pacific Islander	4.9%	4.0%
Caucasian	76.2%	89.6%
Hispanic	15.1%	5.1%
Native American	1.5%	0.7%
Others	6.3%	0.9%

Source: *U.S. Census Bureau, 2006-2008 American Community Survey

According to Table 11, the female population was greater than the male population for both population groups. However, the majority of survey respondents, 45.5%, were the so-called “Generation X”, who were born from 1965 to 1980 (29 to 44 years of age). The second largest population in this study was “Generation Y” or those who were born from 1981 to 1991 (18 to 28 years of age). This group accounted for 29% of the total population. Baby boomers (45 to 63 years of age) accounted for 22.9% and those who were born before 1946 (over 63 years of age) accounted for 2.2% of the total respondents. In contrast, the U.S. Census Bureau ranked U.S.A. population groups from largest to smallest population groups as follows; 45 to 64 years (baby boomers), 30 to 44 years (Generation X), 20 to 29 years (Generation Y), and over 65 years.

The general running population in this study had attained a higher level of education than that of the general United States population. The majority of runners had completed a post-graduate degree (38.7%), whereas 10.1% of the U.S. population has completed a post-graduate degree. Runners who graduated from a 4-year college accounted for 37.8% of the total survey participants, compared to 17.3% of graduates in overall U.S. demographics.

Caucasian was found to be the largest racial population in this study (89.55%) as well as in the United States (76.2%). However, the running population also consisted of Hispanic (5.5%), Asian (4.0%), African American (2.61%), and Native American (0.7%) races. The U.S. demographics reflected Hispanic (15.1%), African American (13.1%), Asian (4.9%), and Native American (1.5%) racial populations.

The demographic data suggested that genders and other groups of runners that participated in this study were reasonably similar to the general U.S. population, but predominantly Caucasian. However, runners in this study were younger with a higher level of education than the general U.S. population.

All Runners

The All Runners data set was developed with two objectives in mind. The first objective was to investigate whether the dualistic theory of passion could also be applied to this group of runners. The second objective was to test the first three hypotheses of the current study, shown in *Figure 8*.

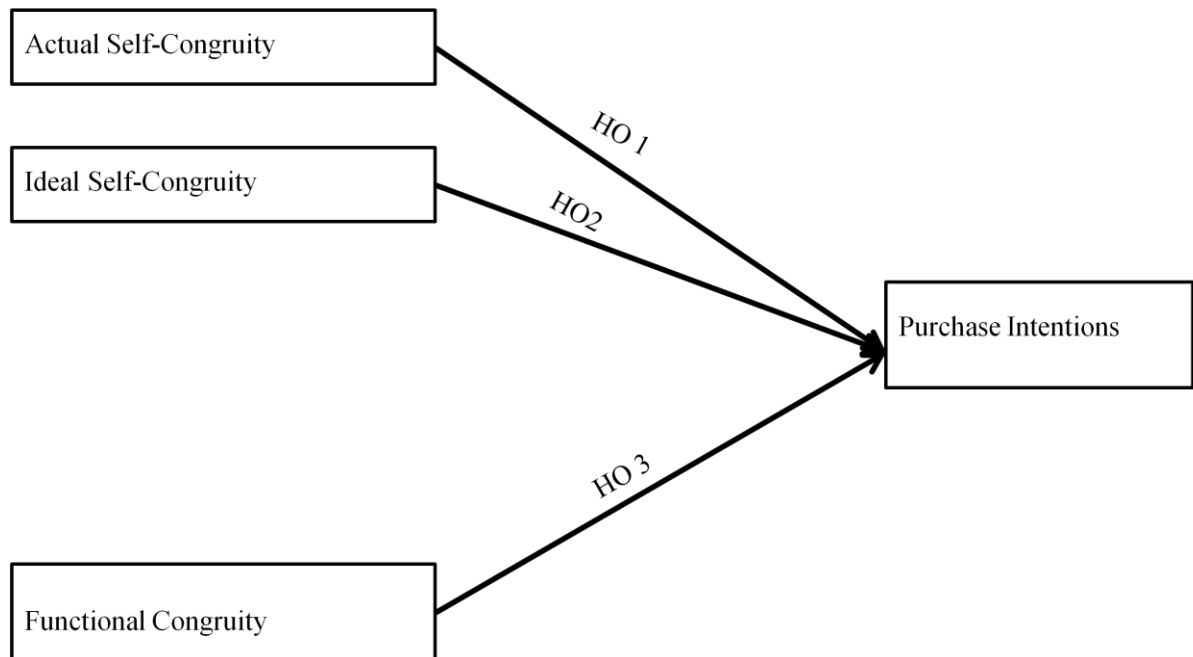


Figure 8 Theoretical framework and research Hypotheses 1, 2, and 3 for the All Runners data set

Source: Author (Leksrisompong, C., 2010).

The hypotheses based on *Figure 8* were as follows:

Hypothesis 1: A runner's self-congruity with an apparel brand for running affects purchase intentions for that brand.

Hypothesis 2: A runner's ideal self-congruity with an apparel brand for running affects purchase intentions for that brand.

Hypothesis 3: A runner's functional congruity with an apparel brand for running affects purchase intentions for that brand.

According to Table 10, the AR group considered every runner who accepted the consent form and answered every item listed under the Passion (P3Q3A-N), Self-Congruity and Ideal Self-Congruity (P4Q4A-H), and Functional Congruity (P4Q3A-V excluding P4Q3N) categories. Since respondents had to answer every item included in the survey for exploratory factor analysis (EFA) to provide significant results, those who omitted any item from any categories were omitted prior the analysis (Hair Jr. et al., 2006). Therefore, 506 respondents qualified to be in the AR data set for testing Hypotheses 1, 2, and 3 (see *Figure 8*).

Two separate EFAs were conducted with the AR data set. The first EFA was conducted on passion scale items (P3Q3A-N) to verify whether or not the dualistic theory of passion could be applied to a runner population. Subsequently, an EFA was conducted on items from Self-Congruity and Ideal-Self congruity (P4Q4A-H) and Functional Congruity (P4Q3A-V excluding Pocket availability (P4Q3N)) categories to observe the underlying dimension of items when variables were reduced. The latent variables (factor solutions) found from EFA were then put into the logistic regression to test Hypotheses 1, 2, and 3.

Passion Categories

The dualistic theory of passion suggested that passionate individuals could be categorized into two groups: harmonious and obsessive. For that reason, the output of factor solutions was limited to two factors. Table 12 displays two factors found from fourteen items measuring passion towards running. Since there were 506 observations, items that loaded over 0.3 into a single factor were included in that factor (see Table 9), otherwise they were omitted from the analysis (Hair Jr. et al., 2006). Cross-loaded items, or items that loaded over 0.3 into more than one factor, were also omitted to prevent multicollinearity issues in later analysis. The items stating “I have difficulty imagining my life without running” (P3Q3B) and “I am completely taken with running” (P3Q3M) were omitted because these items cross-loaded into both factors. The item stating “My mood depends on my being able to run” (P3Q3D) originally belonged to the Obsessive Passion Factor by theory, but loaded into the Harmonious Passion Factor when tested with the running population of the current study. Nevertheless, runners responded to the rest of the items in a manner that confirmed the dualistic theory of passion discussed in Chapter 2. The variations from the theory were that some runners of both obsessive and harmonious types considered questions P3Q3B and P3Q3M to be important. Runners considered question P3Q3D to share same underlying dimension with Harmonious Passion Factor, instead of with Obsessive Passion Factor.

Table 12 *Factors and factor loadings of passion items: AR (506 observations)*

Items	Obsessive	Harmonious	Survey Item
Factor 1: Obsessive Passion			
The urge is so strong that I cannot help myself from running.	0.86		P3Q3N
I have almost an obsessive feeling for running.	0.85		P3Q3L
I have a tough time controlling my need to run.	0.74		P3Q3F
I have become emotionally dependent on running.	0.71		P3Q3J
I cannot live without running.	0.59		P3Q3H
Eigenvalue = 12.66			
Variance accounted for = 84.09%			
Cronbach's alpha = 0.89			
Factor 2: Harmonious Passion			
Running enhances my life experiences.		0.74	P3Q3A
Running provides me memorable experiences.		0.64	P3Q3I
Running is in harmony with other activities in my life.		0.62	P3Q3C
For me, running is a passion that I still manage to control.		0.60	P3Q3K
Running reflects the qualities I like about myself.		0.59	P3Q3E
The new things that I discover while running allow me to appreciate running even more.		0.59	P3Q3G
My mood depends on my being able to run.		0.37	P3Q3D
Eigenvalue = 2.91			
Variance accounted for = 19.32%			
Cronbach's alpha = 0.82			
Deleted Items			
I have difficulty imagining my life without running.	0.36	0.59	P3Q3B
I am completely taken with running.	0.68	0.41	P3Q3M

Note. Factor loadings > .35

Obsessive Passion Factor.

According to Table 12, the first factor was labeled “Obsessive Passion” because the majority of items that loaded onto this factor were to be obsessive, according to the passion

towards activity literature. Item P3Q3D was not loaded into the Obsessive Passion Factor, but instead loaded into the Harmonious Passion Factor as previously discussed. Item P3Q3B cross-loaded and was omitted. The rest of the items were loaded into the Obsessive Passion Factor, according to the theory. The Cronbach's alpha was 0.89, which was above the 0.70 level desired for multiple-item measures. The Obsessive Passion Factor accounted for 84.09% of the variance among these items, with an Eigenvalue of 12.66. The actual value the items were summed and then divided by five to obtain the average from the original one to seven point scale. The responses from runners in this data set had a mean of 3.46 (SD=1.38), indicating that most runners had commonality in that they disagreed with statements listed under the Obsessive Passion Factor (see Table 13).

Harmonious Passion Factor.

The second factor was named "Harmonious Passion" and comprised the seven items displayed in Table 12. As previously mentioned, runners considered item P3Q3D to be part of the Harmonious Passion Factor, instead of being part of the Obsessive Passion Factor as the theory suggested. The rest of the items that loaded into the Harmonious Passion Factor were consistent with the dualistic theory of passion. However, item P3Q3M was omitted from the Harmonious Passion Factor because it cross-loaded into both factors. The Cronbach's alpha was 0.82 indicating that the factor was reliable. This factor accounted for 19.32% of the variance among these items with an Eigenvalue of 2.90. The actual values of the items were summed and then divided by seven to obtain the average from the original one to seven point scale. The mean for the Harmonious Passion Factor was 5.60 (SD=0.82),

suggesting that the majority of runners in this data set agreed with statements that fell under the Harmonious Passion Factor (see Table 13). Hence, survey participants agreed that running was a positive experience that was in harmony with other activities in their lives.

Congruity Categories

An EFA of items from Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories was concluded at the same time. Six factors attained Eigenvalues of one and above, so three, four, five, and six factor solutions were examined. The four factor solution, explaining 96.31% of the variance, was the most preferred because it produced the most meaningful output in terms of the grouping of items in each factor. Output from the three, five, and six factor solutions are shown in Appendices G, H, and I, respectively. Table 13 illustrates the mean score of each factor solution.

Table 13 *Estimated score (point) for variables in the AR data set*

Variable	<i>M(SD)</i>	95% CI	
		<i>LL</i>	<i>UL</i>
Obsessive Passion	3.46 (1.38)	3.34	3.59
Harmonious Passion	5.60 (0.82)	5.53	5.67
Self-Image Congruence	2.99 (1.26)	2.88	3.10
Function	6.00 (0.70)	5.94	6.06
Aesthetic	5.07 (1.08)	4.97	5.16
Technology Appeal	3.50 (1.29)	3.38	3.61

Note. CI = confidence interval; *LL* = lower limit, *UL* = upper limit

Self-congruity and ideal self-congruity items loaded into one factor solution. This factor was labeled “Self-Image Congruence” because questionnaire items in this factor were designed to find out whether or not runners agree that the reason for purchasing a running apparel brand was because that brand matched their self-image and ideal self-image as a

runner. Functional congruity was best loaded into three factor solutions shown in Table 14. Again, only items that obtained a value greater than 0.3 in only one factor were used. Attributes appearing in more than one factor were omitted from the analysis, but were noted as common attributes. Brand name (P4Q3A), odor control (P4Q3I), and texture of the fabric (P4Q3S) were omitted because they crossed-loaded into more than one factor. Further, price (P4Q3M) was also omitted because it obtained a value of less than 0.3.

Table 14 *Factors and factor loadings of congruity items: AR (506 observations)*

Items	Self-Image Congruence	Function	Aesthetic	Technology Appeal
Factor 1: Self-Image Congruence				
To emphasize my identity as a runner to others.	0.88			
To identify myself with other runners like me.	0.88			
To help me feel like a better runner than I actually am.	0.84			
Because I want others to identify me as a better runner than I actually am.	0.83			
That match with my IDEAL identity as a runner.	0.78			
To identify myself with other runners who are better than I am.	0.77			
That help substantiate me as a runner.	0.77			
That match with my identity as a runner.	0.53			
Eigenvalue = 20.94				
Variance accounted for = 49.67%				
Cronbach's alpha = 0.93				

Table 14 Continued

Items	Self-Image Congruence	Function	Aesthetic	Technology Appeal
Factor 2: Function				
Fabric breathability		0.82		
Moisture management		0.78		
Fabric durability		0.76		
Fabric weight		0.69		
Overall comfort		0.68		
Garment construction		0.59		
The ability of the product to prevent chafing		0.57		
The ability of the product to regulate body temperature		0.57		
Fit		0.55		
The ability of the product to enhance performance		0.40		
Size availability		0.38		
Eigenvalue = 13.4				
Variance accounted for = 31.78%				
Cronbach's alpha = 0.88				
Factor 3: Aesthetic				
Style			0.87	
Fashionability			0.75	
Color			0.44	
Eigenvalue = 3.62				
Variance accounted for = 8.58%				
Cronbach's alpha = 0.78				
Factor 4: Technology Appeal				
Smart fabrics (e.g., heart rate monitoring)				0.84
Storage for digital devices (e.g., iPod)				0.70
Recyclability				0.46
Eigenvalue = 2.65				
Variance accounted for = 6.28%				
Cronbach's alpha = 0.74				
Deleted Items				
Brand name	0.31	0.13	0.31	0.16
Odor control	0.11	0.51	0.02	0.36
Price	-0.01	0.11	0.10	0.02
Texture of the fabric	0	0.47	0.43	0.13

Note. Factor loadings > .30.

Self-Image Congruence Factor.

According to Table 14, the first factor was labeled “Self-Image Congruence” because this factor included every Self-Congruity and Ideal Self-Congruity items. The data shows that all runners who completed the survey responded to Self-Congruity and Ideal Self-Congruity items in the same manner. Therefore, Hypotheses 1 and 2 could not be tested and were rejected from further study.

The Cronbach’s alpha was 0.93, which was considered very reliable. Self-Image Congruence factor accounted for 49.67% of the variance among eight items, with an Eigenvalue of 20.94. The actual value for each item in this factor was summed and then divided by eight to obtain the average from the original seven point scale. The mean of this variable was 2.99 (SD = 1.26), implying that runners in this data set did not consider Self-Image Congruence to be important when considering purchasing apparel brands for running (see Table 13).

Function Factor.

The second factor loaded in Table 14 was labeled “Function” because the items that loaded into this factor were related to utility or functional attributes of the garment. The Cronbach’s alpha was 0.88, suggesting that the factor was highly reliable. This factor accounted for 13.4% of the variance among these items, with an Eigenvalue of 31.78. The actual value for each item in this factor was summed and then divided by eleven to obtain the average from the original one to seven point scale. The mean of this variable was 6 (SD = 0.70), demonstrating that functional attributes of running apparel brands were considered to

be important to runners in this data set when they were making purchase decisions (see Table 13).

Aesthetic Factor.

The third factor in Table 14 was labeled “Aesthetic” because its items were related to the aesthetic attributes of the garment. The Cronbach’s alpha was 0.78, indicating that this is a reliable factor. This factor accounted for 8.58% of the variance among these items, with an Eigenvalue of 3.62. The actual values for items in this factor were summed and then divided by three to obtain the average from the original one to seven point scale. Runners in this data set responded to Aesthetic attributes with a mean of 5.07 (SD = 1.08), indicating that this factor was considered to be fairly important to the purchase of running apparel brands (see Table 13).

Technology Appeal Factor.

The last factor in Table 14 was labeled “Technology Appeal” because the identified attributes departed from the traditional functional attributes of the garment. The Cronbach’s alpha was 0.74, which was considered reliable. This factor accounted for 6.28% of the variance among these items with an Eigenvalue of 2.65. The actual values for items in this factor were summed and then divided by three to obtain the average from the original one to seven point scale. The mean of this variable was 3.50 (SD = 1.29), indicating that runners in this data set did not consider this factor to be as important when purchasing apparel brands for running. Nevertheless, later analysis showed that Technology Appeal could have a positive influence on purchase intentions (see Table 13).

Cross-loaded and deleted items.

Brand name, odor control, and texture of the fabric were cross loaded into more than one factor. Brand name loaded into the Self-Image Congruence and Aesthetic Factors. According to the literature, consumers used brand name as a way to express their self-image. In addition, self expression could be seen through Aesthetic attributes since they were considered to be subjective. Therefore, the fact that brand name loaded into these two factors was consistent with the literature. However, to avoid a multicollinearity issue, brand name was omitted from the analysis for the All Runners data set.

Odor control was also loaded into two factors, which were Function and Technology Appeal. This item could be perceived in a Function or as a Technology Appeal Factors since this advancement in technology has tended to improve garment quality. Hence, this item was omitted from the analysis to eliminate a multicollinearity issue for the All Runners data set.

Runners perceived the texture of the fabric as a traditional functional attribute as well as an aesthetic one. Fabric texture was considered to be subjective as well. Thus, to avoid a multicollinearity issue, this item was also omitted from the analysis for the All Runners data set. Price was omitted from the analysis because it loaded lower than the cutoff point of 0.3 in all factors.

Confirmation of Functional Congruity Factors

An EFA was also conducted on functional congruity items alone to determine the underlying dimension of these items, and to verify the number of factor solutions. Four factors attained Eigenvalues of one and above. However, as was discovered when analyzing Functional Congruity, Self-Congruity, and Ideal Self-Congruity items, three factor solutions (see Table 15) appeared to be best for functional congruity items. Appendix J illustrates output for four factor solutions.

The EFA for functional congruity items alone also produced three significant factors, which was consistent with the results obtained when conducting a factor analysis on self-congruity and ideal self-congruity items (see Table 15). Items loaded into each factor were similar to the three factor solution from Table 14, with the exception of brand name. Brand name loaded into the Aesthetic Factor when items from Self-Congruity and Ideal Self-Congruity categories were not included. Thus, this step reinforced the discovery that items from the Functional Congruity category could be classified into three significant factors.

Table 15 *Factors and factor loadings of functional congruity items: AR (506 observations)*

Items	Function	Aesthetic	Technology Appeal
Factor 1: Function			
Fabric breathability	0.81		
Moisture management	0.76		
Fabric durability	0.75		
Fabric weight	0.68		
Overall comfort	0.67		
Garment construction	0.58		
The ability of the product to prevent chafing	0.55		
Fit	0.54		
The ability of the product to regulate body temperature	0.54		
Size availability	0.37		
The ability of the product to enhance performance	0.36		
Eigenvalue = 15.97			
Variance accounted for = 58.75%			
Cronbach's alpha = 0.88			
Factor 2: Aesthetic			
Style		0.89	
Fashionability		0.80	
Color		0.49	
Brand name		0.37	
Eigenvalue = 5.86			
Variance accounted for = 21.55%			
Cronbach's alpha = 0.77			
Factor 3: Technology Appeal			
Smart fabrics (e.g., heart rate monitoring)			0.84
Storage for digital devices (e.g., iPod)			0.73
Recyclability			0.48
Eigenvalue = 4.04			
Variance accounted for = 14.88%			
Cronbach's alpha = 0.74			
Deleted Items			
Odor control	0.48	0.06	0.41
Price	0.11	0.09	0.03
Texture of the fabric	0.45	0.43	0.14

Note. Factor loadings > .30.

Logistic Regression

Logistic regression was used to analyze and predict a dichotomous outcome as to whether or not runners who participated in the survey would purchase apparel brands for running. The independent variables included in this regression were Obsessive Passion, Harmonious Passion, Self-Image Congruence, Function, Aesthetic, and Technology Appeal. There were 506 observations in the AR data set; however, only 498 responded to the purchase intention items (P4Q3B and P4Q3C). Thus, SAS software automatically omitted those who did not respond to items P4Q3B and P4Q3C from the logistic analysis.

The first step necessary to test research Hypothesis 3 was to focus only on Functional Congruity variables. Since runners did not perceive items from the Ideal Self-Congruity category differently from items in the Self-congruity category, Self-Image Congruence was included in the logistic regression instead. Therefore, Hypotheses 1 and 2 were not able to be tested further, and it was concluded that runners did not distinguish Ideal Self-Congruity variables from Self-Congruity variables. Table 16 displays the results from the logistic regression including Self-Image Congruence, Function, Aesthetic, and Technology Appeal as independent variables.

Table 16 *Logistic regression analysis of AR (498 Observations) predicting purchase intentions for apparel brands for running against Self-Image Congruence, Function, Aesthetic, Technology Appeal*

Predictor	b	SEb	Wald's χ^2	Df	P	e^b (Odds ratio)
Constant	-3.6951	1.0349	12.7482	1	0.0004	NA
Self-Image Congruence	0.1414	0.1071	1.7430	1	0.1868	1.152
Function	0.4963**	0.1840	7.2756	1	0.0070	1.643
Aesthetic	0.2247*	0.1155	3.7866	1	0.0517	1.252
Technology Appeal	0.2069**	0.1011	4.1862	1	0.0408	1.230
Test			χ^2	Df	P	
Overall model evaluation						
Likelihood ratio test			37.6201	4	<.0001	
Score test			40.0804	4	<.0001	
Wald test			32.1617	4	<.0001	
Goodness-of-fit test						
Hosmer & Lemeshow			3.6646	8	0.8860	

* $p < .10$. ** $p < .05$.

According to Table 16, the overall model evaluation from Likelihood ratio test, Score test, and Wald test obtained a p -value of $<.0001$, which was less than 0.05, which implied that at least one of the regression coefficients in the model was not equal to zero. The goodness-of-fit test was used to assess model fit. This p -value was 0.886, which was greater than 0.05, which implied that the model's estimates fit the data at an acceptable level.

The coefficient (or parameter estimate) for the Self-Image Congruence variable was 0.1414 implying that for a one point increase in Self-Image Congruence score (i.e., from 1 to 2, 2 to 3, ..., 6 to 7), we would expect a 0.1414 increase in the log-odds of the purchase intentions, holding all other independent variables constant. In other words, the odds ratio was 1.152, suggesting if the Self-Image Congruence score increased by one point, the estimated odds of purchase intention increased by 15.2%, given that all other independent

variables remained constant. However, the p -value was 0.1868, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that Self-Image Congruence did not have a real impact on the purchase intentions of the real running population.

The parameter estimate for the Function variable was 0.4963, which implied that for a one point increase in the Function score, a 0.4963 increase in the log-odds of the purchase intention could be expected, given that other independent variables remain constant. The odds ratio of this variable was 1.643, suggesting that if the Function scored increases by one point, the estimated odds of purchase intentions would increase by 64.3%, given that all other independent variables remain constant. The p -value was 0.007 (at 99% Confidence Interval; $\alpha=0.01$), implying that this variable could have had a real effect on the real running population.

The parameter estimate for the Aesthetic variable was 0.2247, meaning that for a one point increase in the Aesthetic score, a 0.2247 increase in the log-odds of the purchase intention could be expected as long as all other independent variables remain constant. The odds ratio of this variable was 1.252, suggesting that when the Aesthetic score increases by one point, the estimated odds of purchase intentions will increase by 25.2%, as long as all other independent variables remain constant. The p -value was 0.0517, which implied that this variable could have a real effect on the running population at a 90% Confidence Interval ($\alpha=0.1$).

The parameter estimate for the Technology Appeal variable was 0.2069, indicating that for a one point increase in the Technology Appeal score, a 0.2069 increase in the log-odds of the purchase intention could be expected, given that all other independent variables

remain constant. The odds ratio of this variable was 1.230, suggesting that when the Technology Appeal score increases by one point, the estimated odds of purchase intention will increase by 23%, given that all other independent variables remain constant. The p -value was 0.0408, implying that this variable could have a real effect on the running population, at 95% Confidence Interval ($\alpha=0.05$).

The data suggested that Self-Image Congruence did not have a strong influence on purchase intentions. However, at 95% Confidence Interval, there was evidence that functional congruity, including Function and Technology Appeal, appeared to have a positive effect on purchase intentions. The Aesthetic variable appeared to have positive effect on purchase intentions at a 90% Confidence Interval, but the Function variable was significant at greater than 95% Confidence Interval. Hence, Hypothesis 3 could not be rejected, and it was concluded that a runner's functional congruity with an apparel brand for running positively affected purchase intentions for that brand.

The second step was to include Obsessive Passion and Harmonious Passion with the rest of the variables in the Logistic Regression, to see whether or not obsessive or harmonious behaviors affected purchase intentions. The results are given in Table 17.

Table 17 *Logistic regression analysis of AR (498 Observations) predicting purchase intentions for apparel brands for running against Obsessive Passion, Harmonious Passion, Self-Image Congruence, Function, Aesthetic, Technology Appeal*

Predictor	b	SEb	Wald's χ^2	df	p	e^b (Odds ratio)
Constant	-4.1348	1.1811	12.2551	1	0.0005	NA
Obsessive Passion	-0.0754	0.1040	0.5256	1	0.4685	0.927
Harmonious Passion	0.1643	0.1750	0.8823	1	0.3476	1.179
Self-Image Congruence	0.1564	0.1097	2.0308	1	0.1541	1.169
Function	0.4616**	0.1888	5.9783	1	0.0145	1.587
Aesthetic	0.2064*	0.1170	3.1119	1	0.0777	1.229
Technology Appeal	0.2186**	0.1022	4.5750	1	0.0324	1.244
Test			χ^2	df	p	
Overall model evaluation						
Likelihood ratio test			38.5798	6	<.0001	
Score test			40.9554	6	<.0001	
Wald test			33.0593	6	<.0001	
Goodness-of-fit test						
Hosmer & Lemeshow			3.3647	8	0.9094	

* $p < .10$. ** $p < .05$.

According to Table 17, the overall model evaluation from the Likelihood ratio test, Score test, and Wald test attained a p -value of $<.0001$, which was less than 0.05 and implied that at least one of the regression coefficients in the model was not equal to zero. The goodness-of-fit test was used to assess model fit. The p -value was 0.9094, which was greater than the cutoff point at 0.05, implying that the model's estimates fit the data at an acceptable level.

The coefficient for the Obsessive Passion variable was -0.0754, implying that for a one point increase in the Obsessive Passion score, a 0.0754 decrease in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio was 0.927, indicating that, if the Obsessive Passion score increased

by one point, the estimated odds of purchase intentions would decrease by 7.5%, given that other independent variables remain constant. However, the p -value was 0.4685, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that this variable did not have an impact on the real running population.

The coefficient for the Harmonious Passion variable was 0.1643, implying that for a one point increase in the Harmonious Passion score, a 0.1643 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio was 1.179, suggesting that if the Harmonious Passion score increased by one point, the estimated odds of purchase intention would increase by 17.9%, given that all other independent variables remain constant. However, the p -value was 0.3476, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that this variable did not have an effect on the real running population.

The parameter estimate for the Self-Image Congruence variable was 0.1564, indicating that for a one point increase in the Self-Image Congruence score, a 0.1564 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.169, implying that if the Self-Image Congruence score increased by one point, the estimated odds of purchase intentions would increase by 16.9%, given that all other independent variables remain constant. The p -value was 0.1541, suggesting that this variable did not have an effect on the real running population.

The parameter estimate for the Function variable was 0.4616, implying that for a one point increase in the Function score, a 0.4616 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.587, suggesting that if the Function score increased by one point, the estimated odds of purchase intentions would increase by 58.7%, given that all other independent variables remain constant. The p -value was 0.0145 (at 95% Confidence Interval; $\alpha=0.05$), indicating that this variable could have had an effect on the real running population's purchase intentions.

The parameter estimate for the Aesthetic variable was 0.2064 meant that for a one point increase in Aesthetic score, we would expect a 0.2064 increase in the log-odds of the purchase intention, holding all other independent variables constant. The odds ratio of this variable was 1.229, suggesting that, given that all other independent variables remain constant, when Aesthetic score increased by one point, the estimated odds of purchase intention increased by 22.9%. Since the p -value was 0.0777, this variable could affect the real running population at 90% Confidence Interval ($\alpha=0.1$) in a similar way.

The parameter estimate for the Technology Appeal variable was 0.2186, indicating that for a one point increase in Technology Appeal score, a 0.2186 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.244, suggesting that, when Technology Appeal score increased by one point, the estimated odds of purchase intention would increase by 24.4%, given that all other independent variables remain constant. The p -value was

0.0324, implying that this variable could have had an effect on the real running population, at a 95% Confidence Interval ($\alpha=0.05$).

According to Table 17, it was evident that Obsessive Passion, Harmonious Passion, and Self-Image Congruence did not have any effect on purchase intentions. However, Function, Aesthetic, and Technology Appeal variables did have a positive influence on purchase intentions. The data suggested that runners, irrespective of their types of passion, had their purchase intentions influenced by the Function variable (at greater than 95% Confidence Interval), the Technology Appeal variable (at 95% Confidence Interval), and the Aesthetic variable (at 90% Confidence Interval). The next analysis introduced interactionvariables into the logistic regression, in order to investigate whether or not Obsessive Passion or Harmonious Passion could influence purchase intentions in light of Self-Image Congruence, Function, Aesthetic, and Technology Appeal variables. The results are displayed in Table 18.

Table 18 *Logistic regression analysis of AR (498 Observations) predicting purchase intentions for apparel brands for running against Obsessive Passion, Harmonious Passion, Self-Image Congruence, Function, Aesthetic, Technology Appeal, with interaction terms*

Predictor	b	SEb	Wald's χ^2	df	p	e^b (Odds ratio)
Constant	2.3419	6.1039	0.1472	1	0.7012	NA
Obsessive Passion	-0.6016	0.8105	0.5509	1	0.4579	0.548
Harmonious Passion	-0.7308	1.1945	0.3743	1	0.5407	0.482
Self-Image Congruence	-0.7773	0.8050	0.9323	1	0.3343	0.460
Function	0.2805	1.0847	0.0669	1	0.7960	1.324
Aesthetic	0.6507	0.7978	0.6652	1	0.4147	1.917
Technology Appeal	-1.1762	0.7024	2.8042	1	0.0940	0.308
Obsessive*Self-Image	0.0220	0.0892	0.0607	1	0.8054	1.022
Obsessive*Function	0.0672	0.1500	0.2008	1	0.6541	1.070
Obsessive*Aesthetic	0.0904	0.0868	1.0862	1	0.2973	1.095
Obsessive*Technology	-0.1079	0.0891	1.4651	1	0.2261	0.898
Harmonious*Self-Image	0.1575	0.1531	1.0581	1	0.3037	1.171
Harmonious*Function	0.00465	0.2125	0.0005	1	0.9826	1.005
Harmonious*Aesthetic	-0.1398	0.1470	0.9043	1	0.3416	0.870
Harmonious*Technology	0.3163*	0.1418	4.9782	1	0.0257	1.372
Test			χ^2	df	p	
Overall model evaluation						
Likelihood ratio test			48.9354	14	<.0001	
Score test			49.2240	14	<.0001	
Wald test			40.0108	14	<.0001	
Goodness-of-fit test						
Hosmer & Lemeshow			7.9470	8	0.4387	

* $p < .05$.

According to Table 18, the overall model evaluation from the Likelihood ratio test, Score test, and Wald test attained a p -value of <.0001, which was less than 0.05 and implied that at least one of the regression coefficients in the model was not equal to zero. The goodness-of-fit test was used to assess model fit. The p -value was 0.4387, which was greater than 0.05 and implied that the model's estimates fit the data at an acceptable level.

All of the independent variables except one were found to be insignificant when predicting purchase intentions because all of the p -values were above 0.1, except the interaction variable of Harmonious Passion and Technology Appeal. The parameter estimate for this interaction variable was 0.3163, indicating that for a one point increase in the Harmonious Passion and Technology Appeal score, a 0.3163 increase in the log-odds of the purchase intention could be expected, given that all other independent variables constant. The odds ratio of this variable was 1.372, suggesting that if the average score of the interaction between the Harmonious Passion variable and the Technology Appeal variable (Harmonious*Technology) increased by one point, the estimated odds of purchase intention would increase by 37.2%, given that all other independent variables remain constant. The corresponding p -value of 0.0257 implied that this variable could have had an effect on the real running population at 95% Confidence Interval ($\alpha=0.05$). Hence, it was evident that Technology Appeal could influence the purchase intentions of harmoniously passionate runners. The in depth analysis of which variable most influenced HER will be discussed in the HER section of Chapter 4, to confirm that Technology Appeal most influenced this running group's purchases of apparel brands for running.

Obsessive Enthusiastic Runners

This section of survey analysis focused on the Obsessive Enthusiastic Runners data set. According to the dualistic theory of passion, obsessively passionate individuals tended to view their role as a participant of an activity to be their identity. Therefore, the OER data set was used to test Hypothesis 4: the effect of self-congruity on purchase intentions of apparel brands for running is more significant than other variables for OER. The criteria for the OER

group included individuals who ran more than 1-2 days per week, and who answered “yes” to the questions, “Do you love running?” and “Do you consider running as an important part of your life?” In addition, respondents must have scored an average of 5 or higher on the 7-point Likert-type scale (1=strong disagree, 7=strongly agree) for the Obsessive Passion items (see Table 4), regardless of their average score on the Harmonious Passion items.

Respondents must also have answered every item listed under the Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories. Based on these criteria, there were only 112 observations in this data set. Although the number of respondents was quite low, the small number of participants that did actually fall under the low average mean score (3.46) of the Obsessive Passion factor, from the AR data set, indicated that the majority of runners in this research did not feel obsessively passionate about running.

Since there were only 112 observations, individual items in the EFA must have obtained a value greater than 0.55 to be considered significant (see Table 9). Items relating to Self-Congruity, Ideal Self-Congruity, and Functional congruity were computed all at once. Similar to the All Runners data set, items from the Self-Congruity and Ideal Self-Congruity categories were loaded into one factor. In contrast to the AR data set, Functional Congruity in the OER data set was loaded into only one factor. The low number of observations could be responsible for fewer factors loaded. Table 19 depicts two factor solutions found in the OER data set.

Table 19 *Factors and factor loadings of congruity items from OER (112 observations)*

Items	Self-Image Congruence	Function
Factor 1: Self-Image Congruence		
To emphasize my identity as a runner to others.	0.90	
To identify myself with other runners like me.	0.85	
To help me feel like a better runner than I actually am.	0.84	
To identify myself with other runners who are better than I am.	0.81	
Because I want others to identify me as a better runner than I actually am.	0.80	
That help substantiate me as a runner.		
That match with my IDEAL identity as a runner.	0.76	
That match with my identity as a runner.	0.75	
Eigenvalue = 28.17	0.60	
Variance accounted for = 47.68%		
Cronbach's alpha = 0.93		
Factor 2: Function		
Moisture management		0.87
Fabric breathability		0.82
Fabric durability		0.70
The ability of the product to regulate body temperature		0.66
Odor control		0.65
Overall comfort		0.63
Fabric weight		0.61
Garment construction		0.60
Eigenvalue = 17.22		
Variance accounted for = 29.15%		
Cronbach's alpha = 0.88		
Deleted Items		
Brand name	0.46	0.21
Color	0.35	0.32
Fashionability	0.43	0.29
Fit	0.15	0.50
Price	-0.09	0.10
Recyclability	0	0.36
Size availability	-0.09	0.51
Smart fabrics (e.g., heart rate monitoring)	0.16	0.43
Storage for digital devices (e.g., iPod)	0.33	0.38
Style	0.40	0.34
Texture of the fabric	0	0.53
The ability of the product to enhance performance	0.28	0.35
The ability of the product to prevent chafing	0.07	0.40

Note. Factor loadings > .55.

According to Table 19, thirteen items: brand name (P3Q3A), color (P3Q3B), fashionability (P3Q3C), fit (P3Q3G), price (P3Q3M), recyclability (P3Q3N), size availability (P3Q3O), smart fabrics (e.g., heart rate monitoring) (P3Q3P), storage for digital devices (e.g., iPods) (P3Q3Q), style (P3Q3R), texture of the fabric(P3Q3S), the ability of the product to enhance performance (P3Q3), and the ability of the product to prevent chafing (P3Q3U), loaded lower than 0.55 and were omitted from the analysis for OER. Table 20 depicts the average score for each factor from the OER data set.

Table 20 *Estimated score (point) for variables in OER*

Variable	M(SD)	95% CI	
		LL	UL
Self-Image Congruence	3.10 (1.29)	2.86	3.34
Function	6.21 (0.71)	6.08	6.34

Note. CI = confidence interval; LL = lower limit, UL = upper limit.

Congruity Categories

Self-Image Congruence Factor.

The Self-Image Congruence Factor consisted of items relating to Self-Congruity and Ideal Self-Congruity categories. The Cronbach's alpha was 0.93, which was considered highly reliable. This factor accounted for 47.68% of the variance among these items, with an Eigenvalue of 28.17. The actual values of the items were summed and then divided by eight to obtain the average from the original one to seven point scale. The OER group responded to this factor with a mean of 3.10 (SD = 1.29), suggesting that Self Image Congruence was not an important variable in their purchase of apparel brands for running (see Table 20). The

mean response to this factor from the OER group was slightly higher than the mean (2.99) from the AR data set.

Function Factor.

The last factor was labeled “Function” because this factor included functional attributes of the garment. The Cronbach’s alpha was 0.88 and was considered reliable. This factor accounted for 29.15% of the variance among these items, with an Eigenvalue of 17.22. The actual values of the items were summed and then divided by eight to obtain the average from the original one to 7-point Likert-type scale. The mean for the Function variable was 6.21 (SD = 0.71), implying that runners in this data set agreed that Function was important to their purchase of apparel brands for running (see Table 20).

Logistic Regression

The OER data set was created to test Hypothesis 4: the effect of self-congruity on purchase intentions of apparel brands for running is more significant than other variables for OER. Since, Self-Congruity did not load into an individual factor; this hypothesis could not be tested, and was therefore rejected. However, logistic regression was used to test which variables could have the greatest influence on OER purchase intentions (Table 21). There were 110 observations from the OER group that qualified for this analysis. Two observations in this data set failed to answer items P4Q2B and P4Q2C and SAS software automatically omitted them from the analysis.

Table 21 *Logistic regression analysis of OER (110 Observations) predicting purchase intentions of apparel brands for running against Self-Image Congruence and Function*

Predictor	b	SEb	Wald's χ^2	df	p	e^b (Odds ratio)
Constant	-4.9055	2.3287	4.4373	1	0.0352	NA
Self-Image Congruence	0.3949*	0.2380	2.7541	1	0.0970	1.484
Function	0.8808**	0.3580	6.0531	1	0.0139	2.413
Test			χ^2	df	p	
Overall model evaluation						
Likelihood ratio test			9.1449	2	0.0103	
Score test			9.7085	2	0.0078	
Wald test			8.0973	2	0.0174	
Goodness-of-fit test						
Hosmer & Lemeshow			9.4222	8	0.3079	

* $p < .10$. ** $p < .05$.

According to Table 21, the overall model evaluation from the Likelihood ratio test attained a p -value of 0.0103, the score test attained a p -value of 0.0078, and the Wald test attained a p -value of 0.01741. Every test attained a p -value of less than 0.05, implying that at least one of the regression coefficients in the model was not equal to zero. The goodness-of-fit test was used to assess model fit. The p -value was 0.3079, which was greater than 0.05 and suggested that the model estimates fit the data at an acceptable level.

The coefficient for the Self-Image Congruence variable was 0.3949, implying that for a one point increase in Self-Image Congruence score, a 0.3949 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio was 1.484, suggesting that if the Self-Image Congruence score increased by one point, the estimated odds of purchase intention would increase by 48.4%, given that all other independent variables remain constant. The p -value was 0.0970, which

was less than 0.1 (at 90% Confidence Interval; $\alpha=0.1$), and implied that this variable could impact the real running population.

The parameter estimate for the Function variable was 0.8808 implying that for a one point increase in Function score, a 0.8808 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 2.413, suggesting that if the Function score increased by one point, the estimated odds of purchase intention would increase by 141.3%, given that all other independent variables remain constant. The p -value was 0.0139 (at 98% Confidence Interval; $\alpha=0.02$), suggesting that the Function variable could have had a strong impact on the real running population.

It was concluded that the Self-Image Congruence variable has an effect on the purchase intentions of OER. However, the effect of Functional Congruity, in this case the Function variable, was greater than the effect of the Self-Image Congruence variable on OER's purchase intentions for running apparel brands.

Harmonious Enthusiastic Runners

Next, the Harmonious Enthusiastic Runners (HER) data set was analyzed. This data set was used to test Hypothesis 5: the effect of functional congruity on purchase intentions of apparel brands for running is more significant than other variables for HER. The HER group also included those who ran more than 1-2 days per week, and who answered "yes" to the questions, "Do you love running?" and "Do you consider running as an important part of your life?" In addition, respondents must have scored an average of 5 or higher on the 7 point Likert-type scale (1=strongly disagree, 7=strongly agree) for the Harmonious Passion items

(see Table 4). Individuals in the HER group must have also scored lower than an average of 5 on the 7-point Likert-type scale (1=strongly disagree, 7=strongly agree) for the Obsessive Passion items. Lastly, HER respondents had to answer every item listed under the Self-Congruity, Ideal-Self Congruity and Functional Congruity categories. Table 22 shows factors and factor loading for the HER data set.

Table 22 *Factors and factor loadings of congruity items: HER (213 observations)*

Items	Self-Image Congruence	Function	Aesthetic	Technology
Factor 1: Self-Image Congruence				
To identify myself with other runners like me.	0.89			
To emphasize my identity as a runner to others.	0.87			
Because I want others to identify me as a better runner than I actually am.	0.82			
To help me feel like a better runner than I actually am.	0.80			
That match with my IDEAL identity as a runner.	0.80			
That help substantiate me as a runner.	0.76			
To identify myself with other runners who are better than I am.	0.72			
That match with my identity as a runner.	0.49			
Eigenvalue = 21.96				
Variance accounted for = 46%				
Cronbach's alpha = 0.93				

Table 22 Continued

Items	Self-Image Congruence	Function	Aesthetic	Technology
Factor 2: Function				
Fabric breathability		0.82		
Moisture management		0.75		
Fabric durability		0.73		
Fabric weight		0.66		
Overall comfort		0.66		
Fit		0.63		
The ability of the product to prevent chafing		0.55		
Garment construction		0.54		
Odor control		0.48		
Texture of the fabric		0.48		
The ability of the product to regulate body temperature		0.48		
Size availability		0.40		
Eigenvalue = 13.19				
Variance accounted for = 27.62%				
Cronbach's alpha = 0.88				
Factor 3: Aesthetic				
Style			0.87	
Fashionability			0.73	
Color			0.52	
Eigenvalue = 4.23				
Variance accounted for = 8.86%				
Cronbach's alpha = 0.76				
Factor 4: Technology Appeal				
Smart fabrics (e.g., heart rate monitoring)				0.87
Storage for digital devices (e.g., iPod)				0.78
Recyclability				0.53
Eigenvalue = 3.85				
Variance accounted for = 8.06%				
Cronbach's alpha = 0.79				
Deleted Items				
Brand name	0.23	0.09	0.28	0.18
Price	0.04	0.22	0.16	0.04
The ability of the product to enhance performance	0.20	0.34	0.14	0.10

Note. Factor loading > .40.

There were 213 observations that met the above criteria, which was higher than the observations in the OER and RP data sets. This appeared to be consistent with the higher mean score of Harmonious Passion items (5.60) from the AR data set, suggesting that most runners considered running to be an activity that is harmonious with other activities in their lifestyles. Items loaded with a value greater than 0.4 were considered to be significant (see Table 9). There were no cross-loaded items, but there were three items that loaded with value less than 0.4 for all factors, which were omitted from the final analysis. These were brand name (P4Q3A), price (P4Q3M), and the ability of the product to enhance performance (P4Q3T). Again, Self-Congruity, Ideal Self-Congruity, and Functional Congruity were analyzed simultaneously. Similar to the All Runners data set, there were four latent factors identified from these items and the Self-Congruity and Ideal Self-Congruity items were loaded into one factor. Table 23 illustrates the mean score for each variable.

Table 23 *Estimated score (point) for variables in HER*

Variable	<i>M(SD)</i>	95% CI	
		<i>LL</i>	<i>UL</i>
Self-Image Congruence	3.04 (1.24)	2.87	3.21
Function	6.07 (0.63)	5.99	6.16
Aesthetic	5.15 (0.96)	5.02	5.28
Technology	3.41 (1.29)	3.24	3.58

Note. CI = confidence interval; *LL* = lower limit, *UL* = upper limit.

Congruity Categories

Self-Image Congruence Factor.

The first factor was labeled “Self-Image Congruence” because it included all of the items from the Self-Congruity and Ideal Self-Congruity categories. Runners in this group also viewed the two categories with the same perception. The Cronbach’s alpha was 0.93, which was considered very reliable. This factor accounted for 46% of the variance among these items with an Eigenvalue of 21.96. The actual values of these items were summed and then divided by eight to obtain the average from the original one to 7-point Likert-type scale. The mean of this variable was 3.04 (SD = 1.24), indicating that HER also did not consider Self-Image Congruence to be an important when purchasing apparel brands for running (see Table 23).

Function Factor.

The second factor was labeled “Function” because all of the items were related to functional attributes of the garment. The Cronbach’s alpha was 0.88, which was considered reliable. This factor accounted for 27.62% of the variance among these items, with an Eigenvalue of 13.19. The actual values of these items were summed and then divided by twelve to obtain the average from the original one to seven point Likert-type scale. As with previous data sets, HER considered the Function Factor to be important when purchasing apparel brands for running, which was verified by the 6.07 mean value (SD = 0.63) of this variable (see Table 23).

Aesthetic Factor.

The third latent variable was labeled “Aesthetic” because its items were related to the aesthetic attributes of the garment. The Cronbach’s alpha was 0.76, which was considered reliable. This factor accounted for 8.86% of the variance among these items with an Eigenvalue of 4.23. The actual values of these items were summed and then divided by three to obtain the average from the original one to seven point Likert-type scale. The mean of this variable was 5.15 (SD = 0.96), indicating that Aesthetic Factor was considered somewhat important to the HER group’s purchase intentions of apparel brands for running (see Table 23).

Technology Appeal Factor.

The last variable was labeled “Technology Appeal” because it quantified features departing from traditional functional garment attributes. The Cronbach’s alpha was 0.79, which was considered reliable. This factor accounted for 8.06% of the variance among these items, with an Eigenvalue of 3.85. The actual values of these items were summed and then divided by three to obtain the average from the original one to seven point Likert-type scale. The mean of this variable was 3.41 (SD = 1.29), indicating that Technology Appeal was not considered important when the HER group was making purchase decisions (see Table 23).

Logistic Regression

The HER data set was created to test Hypothesis 5: The effect of functional congruity on purchase intentions of apparel brands for running is more significant than other variables for HER group, in the current study. A logistic regression was used to test which variables

most influenced purchase intentions (see Table 24). There were 212 observations that qualified to be included in the logistic regression. One person did not answer P4Q2B and P4Q2C and again SAS software automatically omitted this individual from the analysis.

Table 24 *Logistic regression analysis of HER (212 Observations) predicting purchase intentions for apparel brands for running against Self-Image Congruence, Function, Aesthetic, Technology Appeal*

Predictor	b	SEb	Wald's χ^2	df	p	e^b (Odds ratio)
Constant	-3.4229	1.8702	3.3496	1	0.0672	NA
Self-Image Congruence	0.2532	0.1707	2.2005	1	0.1380	1.288
Function	0.4334	0.3092	1.9649	1	0.1610	1.542
Aesthetic	0.0880	0.1976	0.1983	1	0.6561	1.092
Technology Appeal	0.3458*	0.1603	4.6536	1	0.0310	1.413
Test			χ^2	df	p	
Overall model evaluation						
Likelihood ratio test			16.2923	4	0.0027	
Score test			16.2137	4	0.0027	
Wald test			14.1049	4	0.0027	
Goodness-of-fit test						
Hosmer & Lemeshow			7.2378	8	0.5112	

* $p < .05$.

According to Table 24, the overall model evaluation from the Likelihood ratio test, Score test, and Wald test obtained a p -value of $<.0027$, which was less than 0.05 and implied that at least one of the regression coefficients in the model was not equal to zero. The goodness-of-fit test was used to assess model fit. The p -value was 0.5112, which was greater than 0.05 and indicated that the model estimates fit the data at an acceptable level.

The coefficient for the Self-Image Congruence variable was 0.2532 suggesting that for a one point increase in the Self-Image Congruence score, a 0.2532 increase in the log-odds of the purchase intentions could be expected, given that all other independent variables remain constant. The odds ratio was 1.288, meaning that if the Self-Image Congruence score increased by one point, the estimated odds of purchase intention would increase by 28.8%, given that all other independent variables remain constant. However, the p -value was 0.1380, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that this variable did not have an impact on the real running population.

The parameter estimate for the Function variable was 0.4334, implying that for a one point increase in the Function score, a 0.4334 increase in the log-odds of the purchase intentions could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.542, suggesting, if the Function score increased by one point, the estimated odds of purchase intention would increase by 54.2%, given that all other independent variables remain constant. However, the p -value was 0.1610, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that this variable did not have an effect on the real running population.

The parameter estimate for the Aesthetic variable was 0.0880 meaning that for a one point increase in Aesthetic score, a 0.0880 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.092, suggesting that if the Aesthetic score increased by one point, the estimated odds of purchase intentions could increase by 9.2%, given that all other independent variables remain constant. However, the p -value was 0.6561, which was greater

than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that this variable did not have a significant impact on the real running population.

The parameter estimate for the Technology Appeal variable was 0.3458, indicating that for a one point increase in Technology Appeal score, a 0.3458 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.413, suggesting that if the Technology Appeal score increased by one point, the estimated odds of purchase intention could increase by 41.3%, given that all other independent variables remain constant. The p -value was 0.0310 implying that this variable could have had an effect on the real running population at 95% Confidence Interval ($\alpha=0.05$).

According to Table 24, it appeared that Self-Image Congruence, Function, and Aesthetic were not significant enough to affect purchase intentions. However, there was evidence that the effect of Technology Appeal on purchase intentions of apparel brands for running was higher than other variables, for the HER group. Since Technology Appeal was one of the factors developed from items under the Functional Congruity category, we could not reject Hypothesis 5. In addition, there was evidence that the findings from the HER data set agreed with the significant result obtained from the interaction variables between HER and the Technology Appeal found in the AR data set (see Table 18). This concluded that the Technology Appeal Factor had a positive effect on the HER group's purchase of running apparel brands.

Running Participants

The remaining group of runners, Running Participants, was used to test Hypothesis 6: the effect of ideal self-congruity on purchase intentions of apparel brands for running is more significant than other variables for RP. Runners from this group were those who either run 1-2 days per week, or who answered “No” to the question “Do you love running?” and/or “Do you consider running as an important part of your life?” The respondents must also have answered every item concerning the Self-Congruity, Ideal Self-Congruity, and Functional Congruity categories. There were a total of 111 observations in this data set. Thus, each item needed to load at 0.55 or higher in only one factor, in order to be significant (see Table 9). Table 25 displays factors and factor loadings for the RP data set.

Table 25 *Factors and factor loadings of congruity items from RP (111 observations)*

Items	Self-Image Congruence	Function	Aesthetic
Factor 1: Self-Image Congruence			
To emphasize my identity as a runner to others.	0.93		
To identify myself with other runners like me.	0.92		
To help me feel like a better runner than I actually am.	0.90		
Because I want others to identify me as a better runner than I actually am.	0.90		
That match with my IDEAL identity as a runner.	0.83		
To identify myself with other runners who are better than I am.	0.80		
That help substantiate me as a runner.	0.80		
That match with my identity as a runner.	0.59		
Eigenvalue = 52.45			
Variance accounted for = 49.82%			
Cronbach's alpha = 0.92			

Table 25 Continued

Items	Self-Image Congruence	Function	Aesthetic
Factor 2: Function			
Fabric breathability		0.88	
Fabric durability		0.88	
Fabric weight		0.86	
Moisture management		0.78	
Overall comfort		0.70	
Garment construction		0.65	
The ability of the product to prevent chafing		0.65	
The ability of the product to regulate body temperature		0.64	
The ability of the product to enhance performance		0.55	
Eigenvalue = 29.17			
Variance accounted for = 27.7%			
Cronbach's alpha = 0.84			
Factor 3: Aesthetic			
Style			0.91
Fashionability			0.84
Texture of the fabric			0.60
Eigenvalue = 10.65			
Variance accounted for = 10.11%			
Cronbach's alpha = 0.71			
Deleted Items			
Brand name	0.48	0.21	0.27
Color	0.18	0.21	0.43
Fit	-0.12	0.46	0.50
Odor control	0.34	0.50	0.26
Price	-0.07	-0.01	0.23
Recyclability	0.19	0.12	0.19
Size availability	-0.13	0.29	0.48
Smart fabrics (e.g., heart rate monitoring)	-0.12	0.29	0.32
Storage of digital devices (e.g., iPod)	0.24	0.22	0.31

Note. Factor loading > .55.

According to Table 25, items that were deleted from the final analysis were items that did not load into any factor, which were brand name (P3Q3A), color (P3Q3B), fit (P3Q3G), odor control (P3Q3J), price (P3Q3M), recyclability (P3Q3N), size availability (P3Q3O), smart fabrics (e.g., heart rate monitoring) (P3Q3P), and storage for digital devices (e.g., iPod) (P3Q3Q). Table 26 displays the mean score for each variable from the RP data set.

Table 26 *Estimated score (point) for variables in RP*

Variable	<i>M(SD)</i>	95% CI	
		<i>LL</i>	<i>UL</i>
Self-Image Congruence	2.83 (1.35)	2.58	3.09
Function	5.65 (0.99)	5.47	5.84
Aesthetic	5.05 (1.31)	4.81	5.30

Note. CI = confidence interval; *LL* = lower limit, *UL* = upper limit.

Congruity Categories

Self-Image Congruence Factor.

According to Table 25, the first variable was labeled “Self-Image Congruence” because it included all of the items from the Self-Congruity and Ideal Self-Congruity categories. Runners in this group also treated items from these two categories in the same manner. The Cronbach’s alpha was 0.92, which was considered highly reliable. This factor accounted for 49.82% of the variance among these items with an Eigenvalue of 52.45. The actual values of these items were summed and then divided by eight to obtain the average from the original one to seven point Likert-type scale. The RP obtained the lowest mean, for this variable at 2.83 (SD = 1.35), out of the four data sets that indicated that Self-Image

Congruence was not considered to be an important variable when making purchase decision (see Table 26).

Function Factor.

The second variable loaded in the EFA analysis was labeled “Function” because all of its items were related to functional attributes of the garment. A Cronbach’s alpha was 0.84, which was considered reliable. This factor accounted for 27.7% of the variance among these items with an Eigenvalue of 29.17. The actual values for each item were summed and then divided by nine to obtain the average from the original one to seven point Likert-type scale. The mean of this variable was 5.65 (SD = 0.99), implying that Function was considered to be important factor when the RP group was purchasing apparel brands for running. However, the RP group also received the lowest mean score for this variable out of the four data sets (see Table 26).

Aesthetic Factor.

The third factor was labeled “Aesthetic” because all of these items were related to the aesthetic attributes of the garment. The Cronbach’s alpha was 0.71, which was considered reliable. This factor accounted for 10.11% of the variance among these items, with an Eigenvalue of 10.65. The actual values of these items were summed and then divided by three to obtain the average from the original one to seven point Likert-type scale. The RP group attained a mean of 5.05 (SD 1.31) for this variable, which implied that Aesthetic was slightly an important factor when this group purchased apparel brands for running (see Table 26).

Logistic Regression

The RP data set was created to test Hypothesis 6: The effect of ideal self-congruity on purchase intentions of apparel brands for running is more significant than other variables for RP in the current study. However, since Ideal Self-Congruity was loaded into the same factor as Self-Congruity, Hypothesis 6 could not be further tested and was rejected. To find out which variable best influenced the purchase intentions of the RP group, a logistic regression was performed (see Table 27). There were 107 observations that qualified to be included in the logistic regression. Four persons failed to answer items P4Q2B and P4Q2C, and were automatically omitted from further analysis by SAS software.

Table 27 *Logistic regression analysis of RP (107 Observations) predicting purchase intentions for apparel brands for running against Self-Image Congruence, Function, Aesthetic*

Predictor	b	SEb	Wald's χ^2	Df	p	e (Odds ratio)
Constant	-2.3405	1.3501	3.0054	1	0.0830	NA
Self-Image Congruence	0.1479	0.1888	0.6138	1	0.4333	1.159
Function	0.3688	0.2634	1.9607	1	0.1614	1.446
Aesthetic	0.1767	0.1920	0.8468	1	0.3575	1.193
Test			χ^2	Df	p	
Overall model evaluation						
Likelihood ratio test			8.0855	3	0.0443	
Score test			8.4675	3	0.0373	
Wald test			6.9307	3	0.0741	
Goodness-of-fit test						
Hosmer & Lemeshow			7.5882	8	0.4747	

According to Table 27, the overall model evaluation from the Likelihood ratio test had a p -value of 0.0443, and the Score test obtained a p -value of 0.0373, which was less than 0.05 and implied that at least one of the regression coefficients in the model was not equal to

zero. The Wald test attained a p -value of $<.0741$, but was not considered insignificant because regardless of the three tests different p -values, this study was recommended to focus on the Likelihood ratio test score due to its smaller sample size (Allison, 1999). The goodness-of-fit test was used to assess model fit. The p -value was 0.4747, which was greater than 0.05 and implied that the model's estimates fit the data at an acceptable level.

The coefficient for the Self-Image Congruence variable was 0.1479, implying that for a one point increase in the Self-Image Congruence score, a 0.1479 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio was 1.159, suggesting that if the Self-Image Congruence score increased by one point, the estimated odds of purchase intention could increase by 15.9%, given that all other independent variables remain constant. However, the p -value was 0.4333, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that this variable did not have an impact on the real running population.

The parameter estimate for Function variable was 0.3688 implying that for a one point increase in the Function score, a 0.3688 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.446, suggesting that if the Function score increased by one point, the estimated odds of purchase intention could increase by 44.6%, given that all other independent variables remain constant. However, the p -value was 0.1614, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and implied that the Function variable did not have an impact on the real running population.

The parameter estimate for the Aesthetic variable was 0.1767, meaning that for a one point increase in Aesthetic score, a 0.1767 increase in the log-odds of the purchase intention could be expected, given that all other independent variables remain constant. The odds ratio of this variable was 1.193, indicating that if the Aesthetic score increased by one point, the estimated odds of purchase intention would increase by 19.3%, given that all other independent variables remain constant. However, the p -value was 0.3575, which was greater than 0.1 (at 90% Confidence Interval; $\alpha=0.1$) and suggested that the Aesthetic variable did not have an impact on the real running population.

According to Table 27, none of the variables in the RP data set exhibited a significant effect on the real population. The data showed that runners in this group purchased running attire without any concerns about the self-image and performance attributes of the products.

Summary of Hypothesis Tests

In this study, exploratory factor analysis was used to identify a number of common factors that were involved testing the theoretical framework of the survey items. A logistic regression was computed to estimate the odds that each variable identified in the EFA influenced the purchase intentions of apparel brands for running. The All Runners data set was created to test Hypotheses 1, 2, and 3. The Obsessive Enthusiastic Runners data set was created to test Hypothesis 4. The Harmonious Enthusiastic Runners data set was created to test Hypothesis 5. Lastly, Hypothesis 6 was tested with the Running Participants data set. *Figure 9* depicts the refined theoretical framework substantiated by this study.

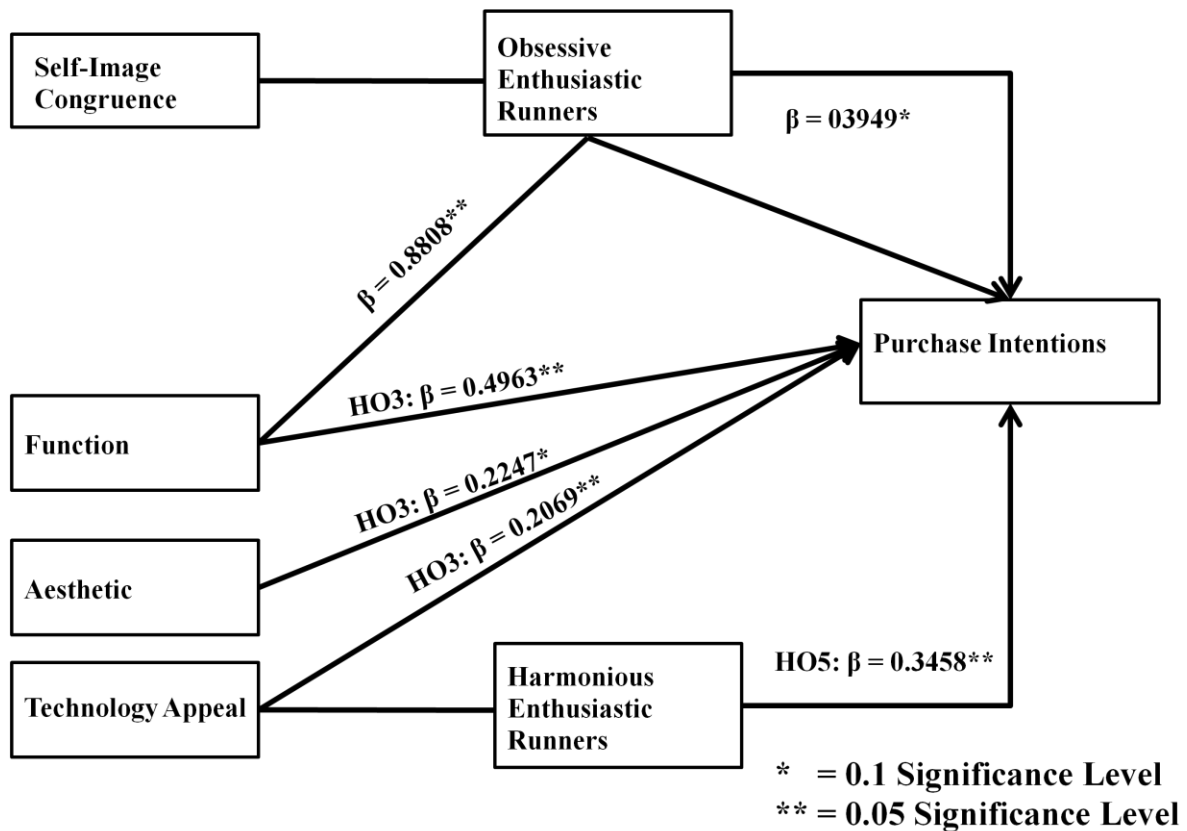


Figure 9 Refined theoretical framework for purchase intentions of runners at different levels of involvement

Source: Author (Leksrisompong, C., 2010).

The test for Hypothesis 1: a runner's self-congruity with an apparel brand for running affects purchase intentions for that brand. This hypothesis was not able to be tested since items from this category shared the same factor solution as items from Ideal Self-Congruity category. Since this factor contained Self-Congruity and Ideal Self-Congruity items, this factor solution was labeled "Self-Image Congruence" Factor. Since the p -value was 1.1868, which was greater than 0.1, it was concluded that the variable Self-Image Congruence did not have a real affect on the odds of purchase intentions for apparel brands for running.

The test for Hypothesis 2: a runner's ideal self-congruity with an apparel brand for running affects purchase intentions for that brand. This hypothesis was not able to be tested since items from the Ideal Self-Congruity category also shared the same factor solution as the Self-Congruity category. Hence, it was concluded that runners in this survey perceived Self-Congruity and Ideal Self-Congruity as the same concept.

The test for Hypothesis 3: a runner's functional congruity with an apparel brand for running affects purchase intentions for that brand. This hypothesis was tested with the three variables: Function, Aesthetic, and Technology Appeal. Exploratory Factor Analysis was first used to identify the number of factor solutions from Functional Congruity items listed on the survey. The first variable, Function, was proven to be significant (p -value = 0.007), indicating that the odds of purchase intentions for apparel brands for running were positively affected by the Function variable. Its parameter estimate was 0.4963 and the odds ratio of the parameter estimate was 1.643. The Aesthetic variable obtained a p -value of 0.0517, which is considered to be significant at 90% Confidence Interval, and indicates that Aesthetic attributes could have an effect on the real running population. The parameter estimate of the Aesthetic variable was 0.2247, and the odds ratio of the parameter estimate was 1.252. The last variable extracted from the EFA was Technology Appeal. The p -value obtained from this variable was 0.0408, indicating that Technology Appeal had a positive effect on purchase intentions. Its parameter estimate was 0.2069, and the odds ratio of the parameter estimate was 1.230. It was evident that the odds of purchase intentions for running apparel brand were positively affected by the Function, Aesthetic, and Technology Appeal variables.

The test for Hypothesis 4: the effect of self-congruity on purchase intentions for apparel brands for running is more significant than other variables for OER. This hypothesis was rejected since runners did not view items from the Self-Congruity category separately from the Ideal Self-Congruity category. This hypothesis was tested using the Obsessive Enthusiastic Runners data set. Only two factors were extracted: Self-Image Congruence and Function. A logistic regression was used to examine the relationship between purchase intentions and the two variables. The results from the logistic regression showed that the *p*-value obtained from the Self-Image Congruence variable was 0.097, which is considered significant at only a 90% Confidence Interval. Results suggested that the odds of purchase intentions were slightly positively affected by Self-Image Congruence. The parameter estimate was 0.3949, and the odds ratio of the parameter estimate was 1.484. The variable Function produced a *p*-value of 0.0139, which suggested that the Function variable had a positive effect on the odds of purchase intentions. The parameter estimate was 0.8808, and the odds ratio of the parameter estimate was 2.413. Since the odds ratio of the Function variable suggested a higher percentage increase of purchase intentions compared to that of Self-Image Congruence, it was concluded that although Self-Image Congruence affected the odds of purchase intentions for running apparel brands, the Function variable had a greater effect on the OER group. Hence, apparel brands for running that provide comfort, improve running performance, and last for a reasonable amount of time could improve the likelihood of purchase intentions of runners, especially those in the OER group.

The test for Hypothesis 5: the effect of functional congruity on purchase intentions for apparel brands for running is more significant than other variables for HER. The Harmonious Enthusiastic Runners data set was used to test this hypothesis. Four factors were extracted in calculating the EFA: Self-Image Congruence, Function, Aesthetic, and Technology Appeal. Again, items from the Self-Congruity category were loaded into the same factor as items from the Ideal Self-Congruity category, and the factor was labeled “Self-Image Congruence”. When testing the logistic regression model, it was found that the variables Self-Image Congruence, Function, and Aesthetic each obtained p -values greater than 0.1, indicating that they had no effect on the real running population. However, the Technology variable was found to have had a positive effect on the real running population, producing a p -value of 0.031. The parameter estimate was 0.3458, and the odds ratio of the parameter estimate was 1.413. Hence, for Hypothesis 5, it was concluded that the effect of the Technology Appeal variable is more significant than the Self-Image Congruence variable for the HER group. In other words, running apparel brands that offers features that attempt to enrich the running experience through new technological advancements could improve the probability of runners’ purchase intentions.

The test for Hypothesis 6: the effect of ideal self-congruity on purchase intentions for apparel brands for running is more significant than other variables for RP. This hypothesis was rejected because items from the Ideal Self-Congruity category shared the same factor with items from the Self-Congruity category. The Running Participants data set was used to test this hypothesis. Three factors were obtained from the EFA: Self-Image Congruence, Function, and Aesthetic. All of the variables produced p -values greater than 0.1, indicating

that these variables had no effect on the real population. Therefore, none of the variables found in this study could potentially have a real affect on the odds of purchase intentions for runners in this group.

Descriptive Analyses

To summarize the knowledge gained from runners in this study, this section describes the nature of runners in each category by examining the descriptive data obtained from their survey answers. This information could be useful in understanding runners and their activity behavior, their running apparel preferences, and their purchase behavior, which could help running apparel firms better understand the apparel requirements of runners in each category. Table 28 illustrates demographic characteristics of the OER, HER, and RP groups.

Table 28 *Demographic characteristics*

	OER	HER	RP
<i>Gender</i>			
Female	56.48%	54.76%	55.08%
Male	43.52%	45.24%	44.92%
<i>Age (18 years and over)</i>			
Born before 1946	3.7%	0.96%	2.21%
Born between 1946-1964	25.93%	26.79%	22.96%
Born between 1965-1980	41.67%	43.06%	45.41%
Born between 1981-1991	27.78%	29.19%	29.08%
I prefer not to answer	0.93%	0.96%	0.34%
<i>Education</i>			
Completed a post graduate degree	41.90%	37.75%	38.66%
Currently attending a post graduate degree	8.57%	9.31%	11.60%
Graduated from 4-year college	37.14%	41.18%	37.79%
Currently attending college	6.67%	8.33%	8.26%
Completed high school	4.76%	2.45%	2.46%
I prefer not to answer	0.95%	0.98%	1.23%

According to Table 28, runners in each group shared similar demographic information, including those in the All Runners data set. The percentage of female runners was slightly greater than the percentage of male runners for each group. The majority of runners in each group were born between 1965-1980. When looking at the educational background information, the majority of runners from the OER and RP groups completed a post graduate degree, whereas the majority of runners from HER graduated from a 4-year college, indicating that runners in each group obtained a degree of education higher than that of the majority of the general U.S. population.

Running Behavior

To understand the behavior of runners, five questions were asked relating to running habits and perceptions. The majority of runners from the All Runners (AR) category run between 10-29 miles per week on average. Almost half of the runners from the Running Participants (RP) data set run 1-9 miles per week, and no runners in this category run more than forty miles per week. On the other hand, more than forty percent of runners from the OER and HER data sets run about 20-29 miles per week. Additionally, the data showed that more runners (in percentage) from the OER data set run the longest distance (50 or more miles) than any other data set (see Table 29).

Table 29 *How many miles do you run per week on average?*

Category	1-9	10-19	20-29	30-39	40-49	50 or more
All Runners	72 14.26%	164 32.48%	169 33.47%	65 12.87%	11 2.18%	24 4.75%
Obsessive Enthusiastic Runners	1 0.89%	23 20.54%	46 41.07%	28 25%	4 3.57%	10 8.93%
Harmonious Enthusiastic Runners	12 5.63%	66 30.99%	87 40.85%	29 13.62%	7 3.29%	12 5.63%
Running Participants	51 46.36%	38 34.54%	17 15.45	4 0.04%	0 0%	0 0%

When asked where runners mostly run, runners in every group responded that they mostly run outdoors, as seen in the data from Table 30. Although, the data suggested that runners did not spend so much time running indoors, RP was the group that exhibited the highest percentage of indoor runners while HER was the group that exhibited the lowest percentage. Passionate runners, both OER and HER, were the top two categories to run outdoors, with OER having the greatest group percentage of outdoors runners.

Table 30 *Where do you mostly run?*

Category	Mostly indoors	Mostly outdoors	Both indoors and outdoors equally
All Runners	22 4.35%	430 84.98%	54 10.67%
Obsessive Enthusiastic Runners	3 2.68%	102 91.07%	7 6.25%
Harmonious Enthusiastic Runners	2 0.94%	188 88.26%	23 10.80%
Running Participants	15 13.51%	81 72.97%	15 13.51%

Table 31 displays the frequency of running per week for each group. This question was one of the criteria used to distinguish running participants from enthusiastic runners.

Table 31 *How often do you run on average? (days per week)*

Category	1-2	3-4	5-6	7
All Runners	50 9.88%	322 63.64%	115 22.73%	19 3.75%
Obsessive Enthusiastic Runners	0 0%	64 57.14%	40 35.71%	8 7.14%
Harmonious Enthusiastic Runners	0 0%	153 71.83%	52 24.41%	8 3.76%
Running Participants	53 47.75%	49 44.14%	8 7.21%	1 0.90%

The data from Table 31 suggested that less than ten percent of AR individuals run 1-2 days per week and the majority of the AR category (63.64%) run 3-4 days per week. Almost half of the runners from the RP category (47.75%) run only 1-2 days per week, and more than ninety percent of runners in this category run no more than four days per week. On the other hand, OER was the group that had the highest percentage of runners that run every day of the week, which corresponds to the dualistic theory of passion that labels them as needing to run and being emotionally dependent on running. Table 32 displays the result from the question “Do you love running” which was used as the other criterion in distinguishing running participants from enthusiastic runners.

Table 32 *Do you love running?*

Category	Yes	No
All Runners	437 87.93%	60 12.07%
Obsessive Enthusiastic Runners	112 100%	0 0%
Harmonious Enthusiastic Runners	213 100%	0 0%
Running Participants	40 39.60%	61 60.40%

According to the results displayed in Table 32, the majority of the AR group (87.93%) answered “Yes” to this question, whereas approximately sixty percent of RP answered “No”. Nevertheless, when asked whether runners consider running to be an important part of their lives (see Table 33), the majority of runners in every category were in agreement (95.98% for AR and 78.22% for RP).

Table 33 *Do you consider running as an important part of your life?*

Category	Yes	No
All Runners	477 95.98%	20 4.02%
Obsessive Enthusiastic Runners	112 100%	0 0%
Harmonious Enthusiastic Runners	213 100%	0 0%
Running Participants	79 78.22%	22 21.78%

Although the data showed that the majority of the RP group did not love running, they tended to perceive running as an important part of their lives. The OER and HER groups expectedly answered “Yes” to both of the above questions since they were considered to be enthusiastic runners.

Purchase Behavior

Purchase behavior was examined by asking questions regarding purchase frequency, the amount of money spent on running gear, and types of store and brand preferences. Table 34 shows purchase intentions for running tops and bottoms. The question was used to predict whether or not purchase intentions would fall under the theoretical framework. The data suggested that most runners from every category intended to purchase either running tops or bottoms within the next 12 months. However, compared to other groups, runners from the RP category were less likely to purchase running tops or bottoms. Most runners from the OER category intended to purchase running tops or bottoms.

Table 34 *Do you intend to purchase any brands for running in either tops or bottoms in the next 12 months?*

Category	Yes	No
All Runners	403 80.92%	95 19.08%
Obsessive Enthusiastic Runners	92 83.64%	18 16.36%
Harmonious Enthusiastic Runners	172 81.13%	40 18.87%
Running Participants	78 72.90%	29 27.10%

When asked about the amount of money spent on running tops and bottoms in the past twelve months, the majority of runners from every category replied that they spent no more than \$100, except HER, which spent up to \$200. However, OER spent the most money (more than 10%) on running attire (more than \$400) in the past year (see Table 35). The same group also exhibited the highest percentage when asked how much they plan to spend in the next year (see Table 36).

Table 35 *How much money (in U.S. dollars) did you spend on running gear (only tops and bottoms) in the past 12 months?*

Category	1-100	101-200	201-300	301-400	401-500	501 or more	None
All Runners	167 33.07%	157 31.09%	86 17.03%	27 5.35%	11 2.18%	16 3.17%	41 8.12%
Obsessive Enthusiastic Runners	37 33.04%	31 27.68%	19 16.96%	6 5.36%	6 5.36%	6 5.36%	7 6.25%
Harmonious Enthusiastic Runners	71 33.33%	71 33.33%	39 18.31%	13 6.10%	4 1.88%	7 3.29%	8 3.76%
Running Participants	36 32.73%	33 30.00%	16 14.55%	4 3.64%	1 0.90%	1 0.90%	19 17.23%

The data also revealed that a higher percentage of runners from every group intended to spend less within the next twelve months than what they had spent during the past year.

Table 36 *How much (in U.S. dollars) do you intend to spend on running gear (only tops and bottoms) in the next 12 months?*

Category	1-100	101-200	201-300	301-400	401-500	501 or more	None
All Runners	221 43.76%	145 28.71%	66 13.07%	21 4.16%	1 0.20%	13 2.57%	38 7.52%
Obsessive Enthusiastic Runners	40 35.71%	36 32.14%	12 10.71%	8 7.14%	0 0%	5 4.46%	11 9.82%
Harmonious Enthusiastic Runners	93 43.66%	62 29.11%	31 14.55%	10 4.69%	1 0.47%	5 2.35%	11 5.16%
Running Participants	53 48.18%	25 22.73%	15 13.64%	1 0.91%	0 0%	1 0.91%	15 13.64%

The data from Table 36 suggested that the majority of runners from every category planned to spend up to \$100 again on running tops and bottoms. The percentage of OER and HER who planned to not purchase running attire in the future was higher than the percentage of those who did not purchase any from the previous year. On the other hand, the percentage of

RP who planned not to purchase running attire within the next twelve months appeared to be lower than the percentage of those who did not purchase any during the last twelve months.

Table 37 *How often do you purchase running tops in a one year period?*

Category	Less than every 3 months	Every 3 months	Every 6 months	Every 9 months	Every 12 months	Not in one year	Not purchase at all
All Runners	36 7.13%	72 14.26%	146 28.91%	64 12.67%	115 22.77%	53 10.50%	19 3.76%
Obsessive	4 3.57%	17 15.18%	42 37.50%	11 9.82%	20 17.86%	14 12.50%	4 3.57%
Enthusiastic Runners	8 3.77%	37 17.45%	60 28.30%	26 12.26%	47 22.17%	18 8.49%	4 1.89%
Harmonious	20 18.02%	8 7.21%	24 21.62%	17 15.31%	27 24.32%	18 16.22%	9 8.11%

In response to the question of how often runners purchase running tops in a one year period, Table 37 revealed an interesting result. The runners from the RP group represented the highest percentage of those who either purchased running tops the most frequently (less than every 3 months) out of all four groups (18.02%), or who did not make any purchase of running tops over the course of the one year period or at any time. However, the majority of runners in every group, except RP, purchase running tops every six months. Most runners from RP purchased running tops every twelve months.

Table 38 *How often do you purchase running bottoms in a one year period?*

Category	Less than every 3 months	Every 3 months	Every 6 months	Every 9 months	Every 12 months	Not in one year	Not purchase at all
All Runners	36 7.13%	42 8.32%	155 30.69%	71 14.06%	137 27.13%	52 10.30%	12 2.38%
Obsessive	4 3.57%	11 9.82%	41 36.61%	17 15.18%	26 23.21%	13 11.61%	0 0%
Enthusiastic Runners	20 9.43%	20 9.43%	71 33.49%	25 11.79%	55 25.94%	18 8.49%	3 1.42%
Harmonious	7 6.31%	5 4.50%	27 24.32%	14 12.61%	31 27.93%	20 18.02%	7 6.31%

The data suggested that, most runners from every group, except RP, purchase running bottoms every six months (see Table 38). Again, the majority of RP individuals purchase running bottoms every twelve months. However, HER was the group who contained the highest percentage (9.43%) of runners who purchase running bottoms most frequently (less than every 3 months). RP was still the group that obtained the highest percentage of runners who did not purchase running bottoms in one year period, or at any time.

When runners were asked where they mostly purchased running shoes in the past year, the majority responded that they purchased from running specialty stores (see *Figure 10*). However, the online store was the second most popular place for runners from all groups to purchase running shoes, which was unexpected. Athletic footwear stores and sporting goods stores were ranked the third most popular place to purchase running shoes. Department stores, discount retailers (e.g., T.J. Maxx), discount stores (e.g., Wal-Mart), and mail orders were the least popular places where runners purchased running shoes.

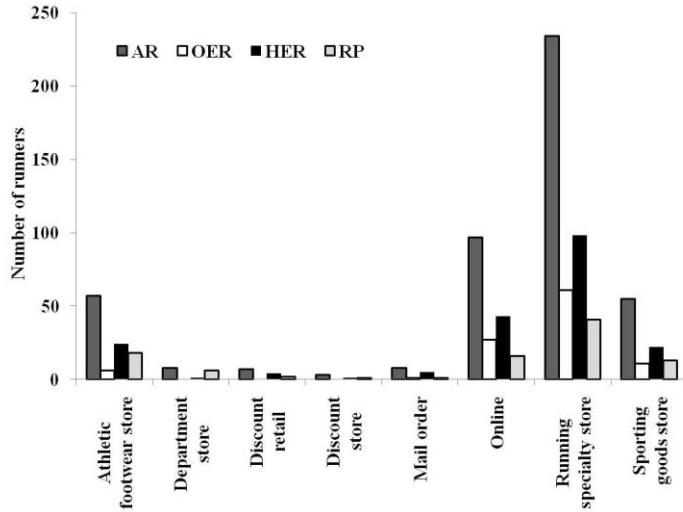


Figure 10 Where did you mostly purchase running shoes in the past year?

When examining places that runners mostly purchased running tops (see Figure 11), the results showed that sporting goods stores were the most popular and mail orders were the least popular. Running specialty stores and online stores ranked as the second and third popular places, respectively. However, for purchasing running tops, discount retailers and discount stores were more popular than athletic footwear stores.

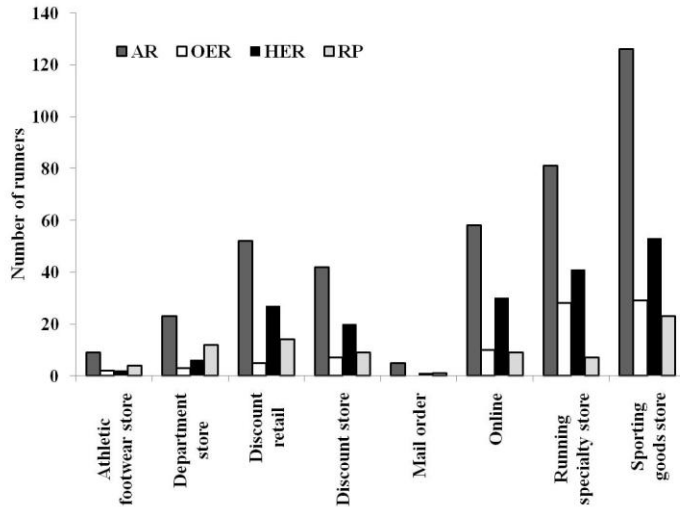


Figure 11 Where did you mostly purchase running tops in the past year?

Runners purchased running bottoms at venues similar to where they purchased running tops (see Figure 12). Mail order was found to be the least popular place, whereas sporting goods stores were found to be the most popular place.

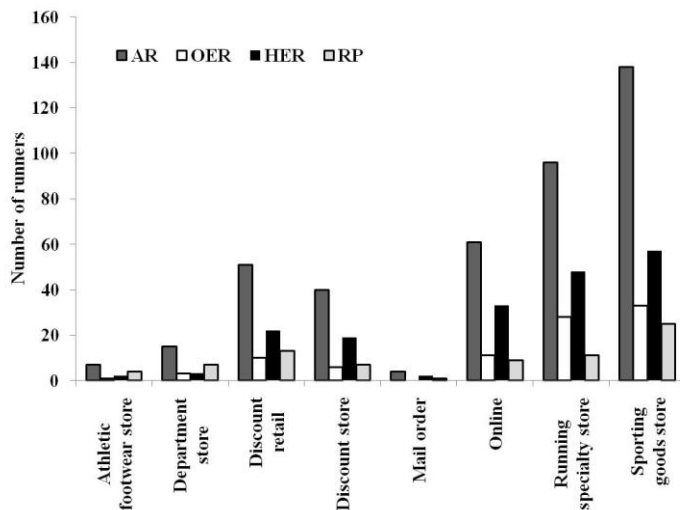


Figure 12 Where did you mostly purchase running bottoms in the past year?

Runners were asked about brands of running shoes, tops, and bottoms that they had acquired during their most recent purchase within the past year. Brand B was the most popular brand for running shoes in all three groups of runners. The OER group exhibited preference for Brand N and Brand U as the second and third most popular running shoes brands respectively. Brand L and Brand D came in the fourth place and Brand K and Brand A were considered to be the fifth and sixth most popular brands for shoes, respectively (see *Figure 13*).

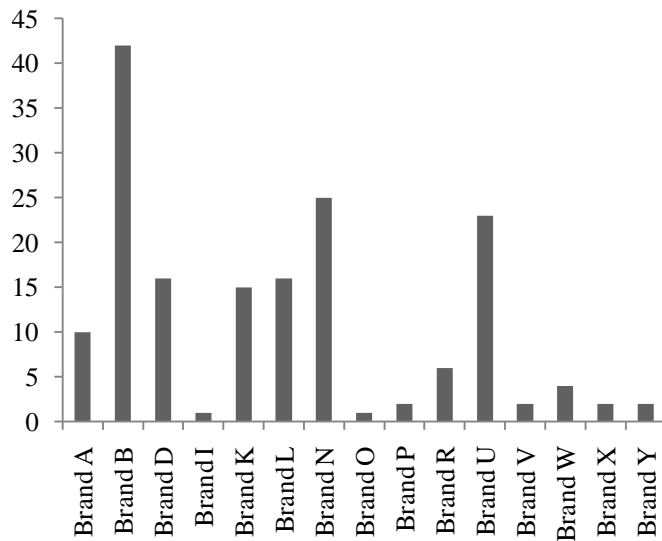


Figure 13 For your most recent running shoes purchase within the past year, which brand(s) did you (OER) acquire?

The top five brands of running shoes that the HER group most recently purchased were Brand B, Brand U, Brand D, Brand N, and Brand L respectively. Brand K and Brand A came in sixth (see *Figure 14*).

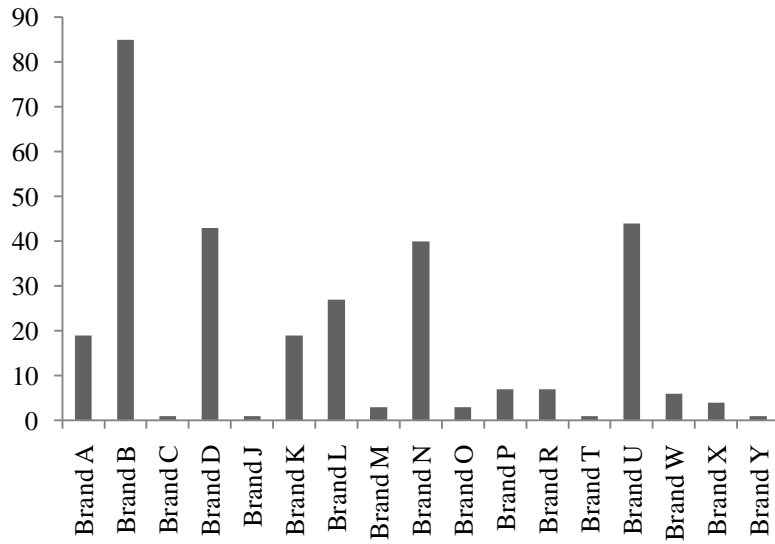


Figure 14 For your most recent running shoes purchase within the past year, which brand(s) did you (HER) acquire?

The top six brands of running shoes that the RP group most recent purchased were Brand B, Brand N, Brand D, Brand L, Brand A, and Brand U, respectively (see *Figure 15*).

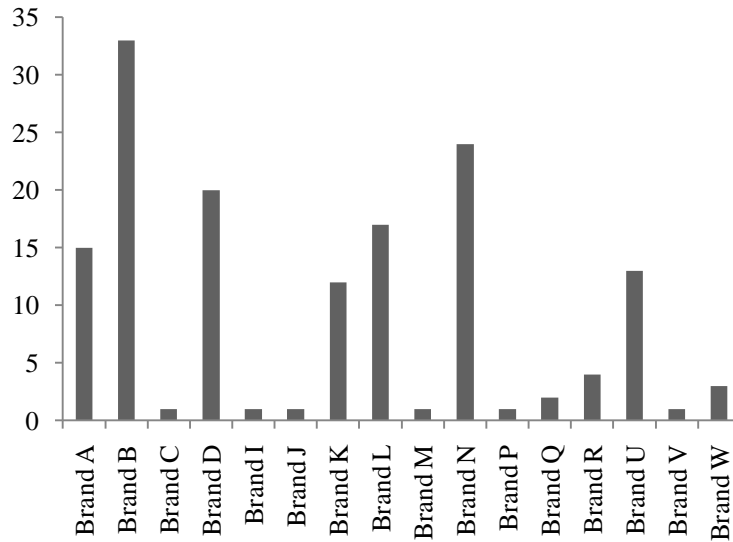


Figure 15 For your most recent running shoes purchase within the past year, which brand(s) did you (RP) acquire?

It is important to note that the top six preferred brands of running shoes were similar for runners across all three categories. Conversely, when examining the most popular brands for running tops and bottoms, Brand B did not make the top three most popular brands for runners in any category. Instead, Brand N was the top choice for both running tops and bottoms for runners in any category.

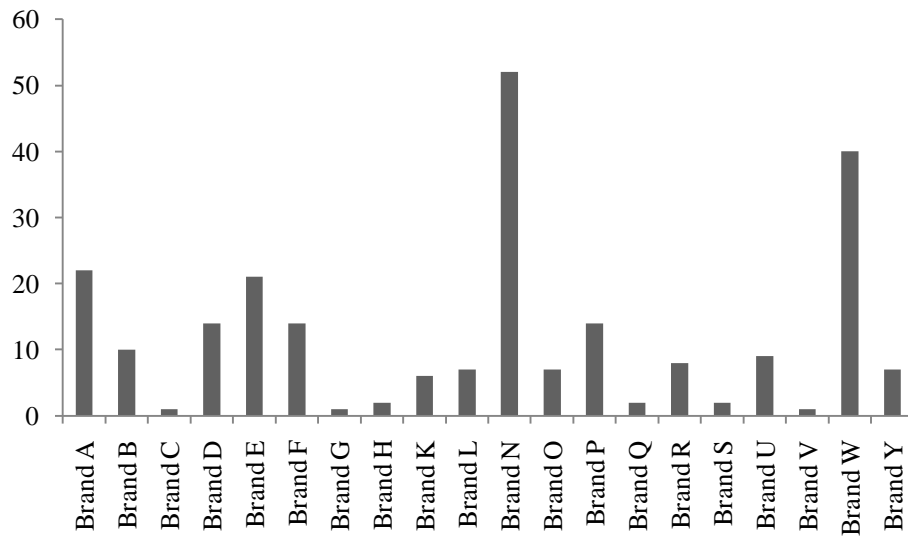


Figure 16 For your most recent running tops purchase within the past year, which brand(s) did you (OER) acquire?

According to *Figure 16*, the most popular brands of running tops that the OER group recently purchased were Brand N, Brand W, Brand B, Brand E, Brand D, Brand P, and Brand F.

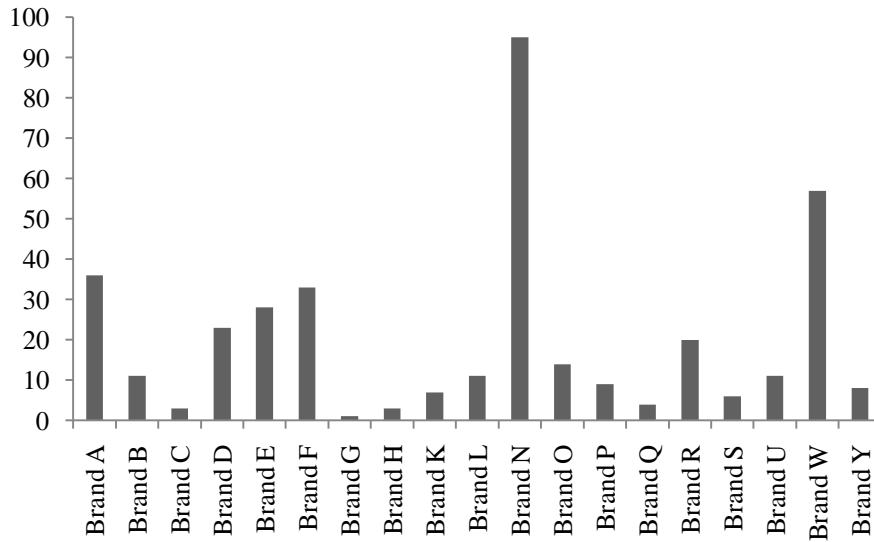


Figure 17 For your most recent running tops purchase within the past year, which brand(s) did you (HER) acquire?

The most popular brands of running tops recently purchased by the HER group were Brand N, Brand W, Brand A, Brand F, Brand E, and Brand D. Brand B, Brand L, and Brand U were all ranked equally after Brand D (see *Figure 17*).

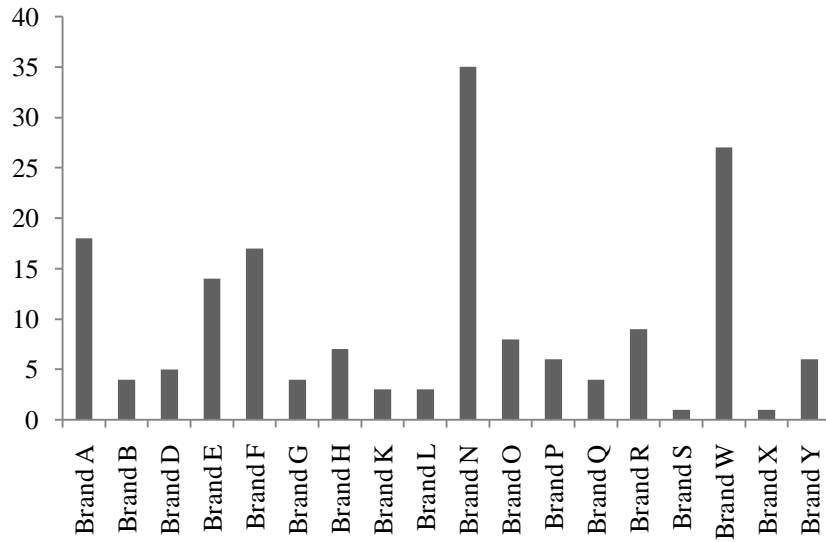


Figure 18 For your most recent running tops purchase within the past year, which brand(s) did you (RP) acquire?

Figure 18 shows that Brand N, Brand W, Brand A, Brand F, and Brand E were the five most popular brands for running tops that the RP group recently purchased. It is evident that Brand W was always the second most purchased brand of running top, most recently purchased by runners in every category. The following three figures (*Figures 19-21*) depict the results for brands of running bottoms that runners in each category most recently purchased.

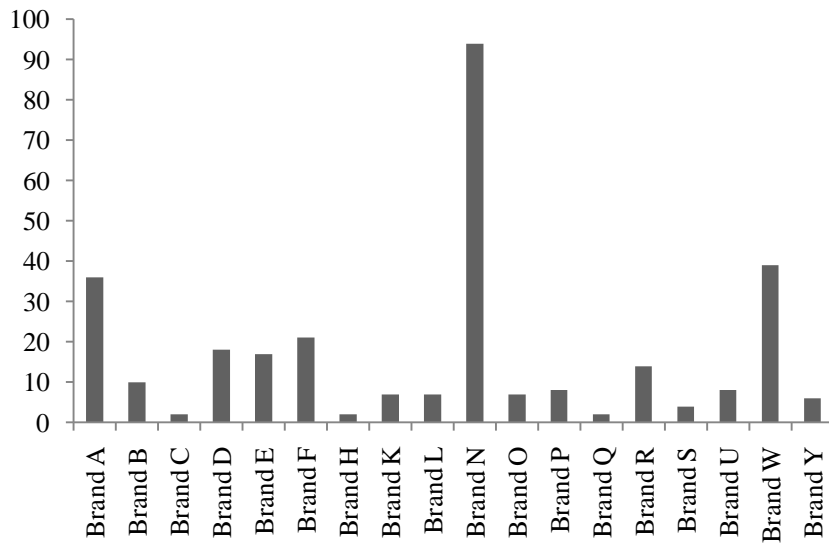


Figure 19 For your most recent running bottoms purchase within the past year, which brand(s) did you (OER) acquire?

The most popular brands of running bottoms recently purchased by the OER group were Brand N, Brand A, Brand W, and Brand E. Brand P and Brand D were ranked equally after Brand E. Note that the number of OER who recently purchased Brand N running bottoms was more than twice as much as the number of runners who recently purchased Brand A running bottoms (see *Figure 19*).

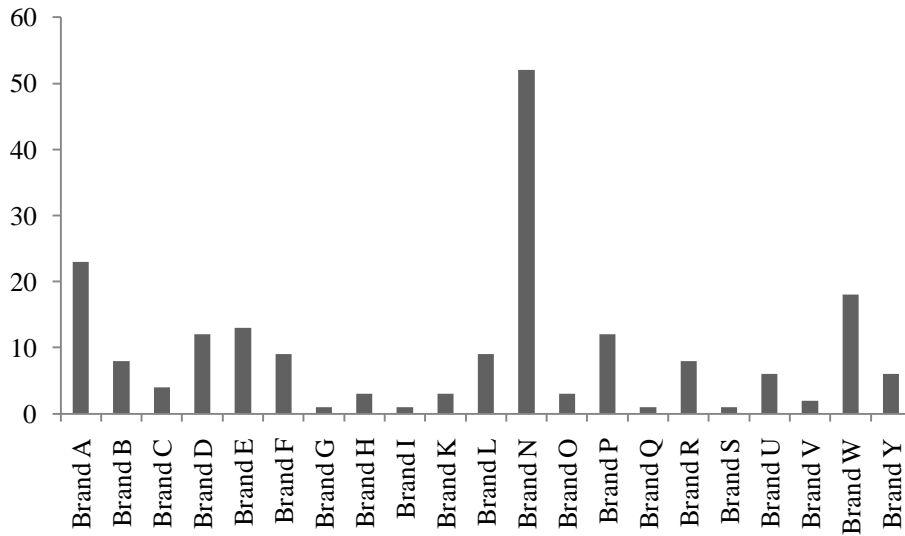


Figure 20 For your most recent running bottoms purchase within the past year, which brand(s) did you (HER) acquire?

Brand N, Brand W, Brand A, Brand F, and Brand D were the five most popular brands of running bottoms recently purchased by the HER group. Again, the quantity of HER who recently purchased Brand N running bottoms was almost sixty percent more than those who recently purchased Brand A running bottoms (see *Figure 20*).

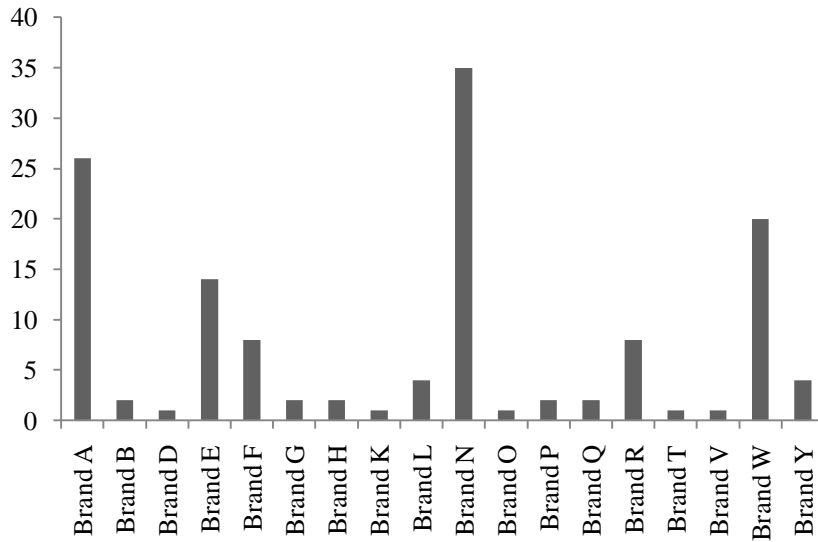


Figure 21 For your most recent running bottoms purchase within the past year, which brand(s) did you (RP) acquire?

The six most popular brands of running bottoms that the RP group most recently purchased were Brand N, Brand A, Brand W, Brand E, Brand F, and Brand R (see *Figure 21*).

However, it is important to note that the number of Brand N running bottoms purchased by runners in this category exceeded the number of Brand A running bottoms by only twenty five percent.

The next section of the descriptive analysis of purchase behavior examines the brand loyalty behavior shown in the following three tables (Tables 39, 40, and 41).

Table 39 *Do you consider yourself to be brand loyal when it comes to purchasing running shoes?*

Category	Yes	No
All Runners	364 74.13%	127 25.87%
Obsessive Enthusiastic Runners	88 81.48%	20 18.52%
Harmonious Enthusiastic Runners	154 74.04%	54 25.96%
Running Participants	70 66.04%	36 33.96%

The majority of runners in every category were loyal to their running shoes brands. However, the RP group appeared to be least loyal to their running shoes brands, indicating that they were more likely to switch brands than any other group (see Table 39).

Table 40 *Do you consider yourself to be brand loyal when it comes to purchasing running tops?*

Category	Yes	No
All Runners	67 13.67%	423 86.33%
Obsessive Enthusiastic Runners	23 21.29%	85 78.70%
Harmonious Enthusiastic Runners	22 10.58%	186 89.42%
Running Participants	12 11.43%	93 88.57%

Conversely, the majority of runners were not brand loyal to running tops and bottoms.

Runners in the OER category were more loyal to brands for running tops than runners in any other category, while runners in the RP category exhibited the least brand loyal behavior toward running tops (see Table 40).

Table 41 *Do you consider yourself to be brand loyal when it comes to purchasing running bottoms?*

Category	Yes	No
All Runners	84 17.21%	404 82.79%
Obsessive Enthusiastic Runners	31 28.97%	76 70.03%
Harmonious Enthusiastic Runners	28 13.53%	179 86.47%
Running Participants	13 12.38%	92 87.62%

Although the majority of runners in every category were not brand loyal to running bottoms, runners in the OER category demonstrated again that they were more brand loyal to running bottoms than any other group (see Table 41). In addition, brand loyalty for running bottoms was higher than brand loyalty for running tops, for runners in every category.

Profile of Runners

Runners in each category were profiled by their purchasing and running behaviors summarized in Table 42. The findings from this research could be useful to academia because it would validate the impact of congruity theories and purchase intentions for apparel brands for running, with respect to runners at different levels of involvement. The information this study finds on the purchase behavior of runners could eventually be contributed to sports apparel literature, since the information that is currently available seems to be limited. This study could also be useful to the running apparel industry by providing a clear understanding of the underlying factors that influence purchase intentions of runners at different levels of involvement.

Table 42 *Summary of profile of runners in three categories*

	OER	HER	RP
<i>Purchase Behavior</i>			
Variable Most Influenced Purchase Intentions of Apparel Brands for Running	Function	Technology Appeal	None
Intend to Purchase Brands for Running Tops and Bottoms	Yes	Yes	Yes
Money Spent on Running Tops and Bottoms in the Past 12 Months	\$1-100	\$1-200	\$1-100
Money Intend to Spend on Running Tops and Bottoms in the 12 Months	\$1-100	\$1-100	\$1-100
Purchase Frequency for Running Tops	Every 6 months	Every 6 months	Every 12 months
Purchase Frequency for Running Bottoms	Every 6 months	Every 6 months	Every 12 months
Place Mostly Purchase Running Shoes	Running specialty store	Running specialty store	Running specialty store
Place Mostly Purchase Running Tops	Sporting goods store	Sporting goods store	Sporting goods store
Place Mostly Purchase Running Bottoms	Sporting goods store	Sporting goods store	Sporting goods store
Most Recent Brand Purchased: Running Shoes	Brand B	Brand B	Brand B
Most Recent Brand Purchased: Running Tops	Brand N	Brand N	Brand N
Most Recent Brand Purchased: Running Bottoms	Brand N	Brand N	Brand N
Brand Loyal: Running Shoes	Yes	Yes	Yes
Brand Loyal: Running Tops	No	No	No
Brand Loyal: Running Bottoms	No	No	No
<i>Running Behavior</i>			
Miles Run per Week	20-29	20-29	10-19
Where Mostly Run	Mostly outdoors	Mostly outdoors	Mostly outdoors
Running Frequency per Week	3-4	3-4	1-2
Love Running	Yes	Yes	No
Consider Running Important	Yes	Yes	Yes

Profile of Obsessive Enthusiastic Runners

The majority of runners in the OER category were outdoors runners who run 20-29 miles per week for 3-4 days per week. The runners in this group love running and consider it to be an important part of their lives. Runners in the OER group consider running to be a positive experience that enhances their lives, but they also exhibit an obsessive behavior towards running, as their score of five or higher on the Obsessive Passion scale items suggests that the runners in this group at least slightly agree on Obsessive Passion statements. In other words, their moods depend strongly on running, and they have hard time preventing themselves from running. Thus, runners in this group represented the highest percentage of those who run every day of the week (3.75%).

Functional attributes including moisture management, fabric breathability, fabric durability, the ability of the product to regulate body temperature, odor control, overall comfort, fabric weight, and garment construction tended to have the most significant effect on their purchase intentions for running apparel brands. The data suggested that when the average score of these attributes increased by one point, the odds of purchase intent increased by 141%, at a 98% Confidence Interval. Therefore, it was evident that running apparel brands that provide comfort, enhance performance, and are made well to last for a reasonable amount of time could improve the odds of purchase intentions for the OER group.

The majority of runners in this group intended to purchase running apparel brands for tops and bottoms within the next twelve months. Most of them have spent \$1-100 on the purchase of running tops and bottoms in the past twelve months and they were planning to spend \$1-100 on running tops and bottoms within the next twelve months. In fact, most

runners in this group purchase running tops and bottoms every six months at sporting goods stores and they tended not to be loyal to brands for either running tops or bottoms. However, the OER group tended to be brand loyal to running shoes, and they mostly purchased them at running specialty stores. Brand B was found to be the most popular for running shoes, and Brand N supplied the most running tops and bottoms for runners in this group.

Profile of Harmonious Enthusiastic Runners

Most individuals in the HER group also ran outdoors at 20-29 miles per week for 3-4 days per week. Runners in this group loved running and considered it to be an important part of their lives. However, runners in this group did not score high on the Obsessive Passion scale items, indicating that runners in this group did not exhibit any obsessive feeling towards running. Instead, the HER group tended to consider running to be a positive experience that enhances their lives, but that they could manage to live without.

The survey results showed that Technology Appeal was an important variable in influencing the HER group's purchase intentions for running apparel brands. This variable includes the use of smart fabrics, storage for digital devices, and recyclability. The data suggested that when the average score of the above attributes increases, the odds of HER purchasing apparel brands for running increases by 41.3%, at a 95% Confidence Interval. Hence, it is evident that running apparel brands that provide features that aim to enrich the running experience could improve the odds of purchase intentions for the HER group.

The data suggested that the majority of runners in this group intended to purchase running tops and bottoms within the next twelve months. They spent \$1-200 on purchasing running attire within the past twelve months and they are planning to spend up to \$100 in the

next twelve months on running tops and bottoms. The data showed that the HER group purchased running tops and bottoms every six months at sporting goods stores and Brand N was their top recently purchased brand of tops and bottoms. However, the majority of runners in this group tended to purchase running shoes at running specialty stores and Brand B was their most purchased brand of running shoes. Similar to the OER and RP groups, the HER group tended to be brand loyal for running shoes, but not for running tops and bottoms.

Profile of Running Participants

The majority of runners in this group also reported that they run outdoors approximately 10-19 miles per week for 1-2 days per week. Most of them did not love running, but they considered running to be an important part of their lives.

The data showed that there were no variables used in the current study that could significantly influence RP's purchase decisions for running apparel brands. Most RP individuals intended to purchase running tops and bottoms within the next twelve months. Runners in the RP category spent up to \$100 on running tops and bottoms in the past twelve months, and they intended to spend the same amount within the next twelve months. Most runners from this group purchased running tops and bottoms every twelve months at sporting goods stores, but less frequently than the OER and HER groups. However, they mostly purchased running shoes at running specialty stores, like the previous two groups, and Brand B was also their top most recently purchased brand of shoes. Brand N was found to be the top most recently purchased brand in running tops and bottoms. The majority of runners in this group appeared to be brand loyal for running shoes, but not for running tops and bottoms.

CHAPTER 5: SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

This research study is significant for academic literature and, ultimately, for the activewear sports industry. Based on an extensive literature review, previously published research has not provided adequate information regarding the impact of self-congruity, ideal self-congruity, and functional congruity, while considering passion towards activity and runners' purchase intentions for apparel brands for running. Therefore, the findings of this study provide knowledge of runners' purchase behavior by identifying the underlying factors that influenced their purchase intentions, from the congruity theory perspective. The study also identified the important attributes of apparel brands for running as required by runners at different levels of involvement. This could ultimately assist sports and lifestyle brands in better understanding each group of runners, and in properly positioning their brands relative to their specific target consumers in order to maintain their brand images and reputations.

Summary

The objective of this study was to validate and refine the proposed theoretical framework, which was based on the extensive literature review. The originally proposed theoretical framework centered on the supposition that a runners' purchase intentions for apparel brands for running were positively influenced by their self-congruity, ideal self-congruity, and functional congruity with that brand. Based on the review of literature, this study also hypothesized that the effect of self-congruity on purchase intentions for apparel brands for running would be more significant than other variables for Obsessive Enthusiastic Runners (OER). In addition, this study posited that the effect of functional congruity on purchase intentions for running apparel brands would be more significant than other variables

for Harmonious Enthusiastic Runners (HER), and that the effect of ideal self-congruity on purchase intentions for running apparel brands would be more significant than other variables for Running Participants (RP). Table 43 illustrates the summary of the results of this study.

Table 43 *Research Summary*

	Self-Image Congruence	Function	Aesthetic	Technology Appeal
<i>All Runners</i>				
HO1	Not significant			
HO2	Not significant			
HO3		Significant**	Significant*	Significant**
<i>Obsessive Enthusiastic Runners</i>				
HO4	Significant*	Significant**	N/A	N/A
<i>Harmonious Enthusiastic Runners</i>				
HO5	Not significant	Not significant	Not significant	Significant**
<i>Running Participants</i>				
HO6	Not significant	Not significant	Not significant	N/A

* $p < .10$, ** $p < .05$

The results from the survey analysis shown in Table 43 suggested some modifications to these hypotheses, which were discussed in Chapter 4. *Figure 22* illustrates the refined theoretical framework validated by this study.

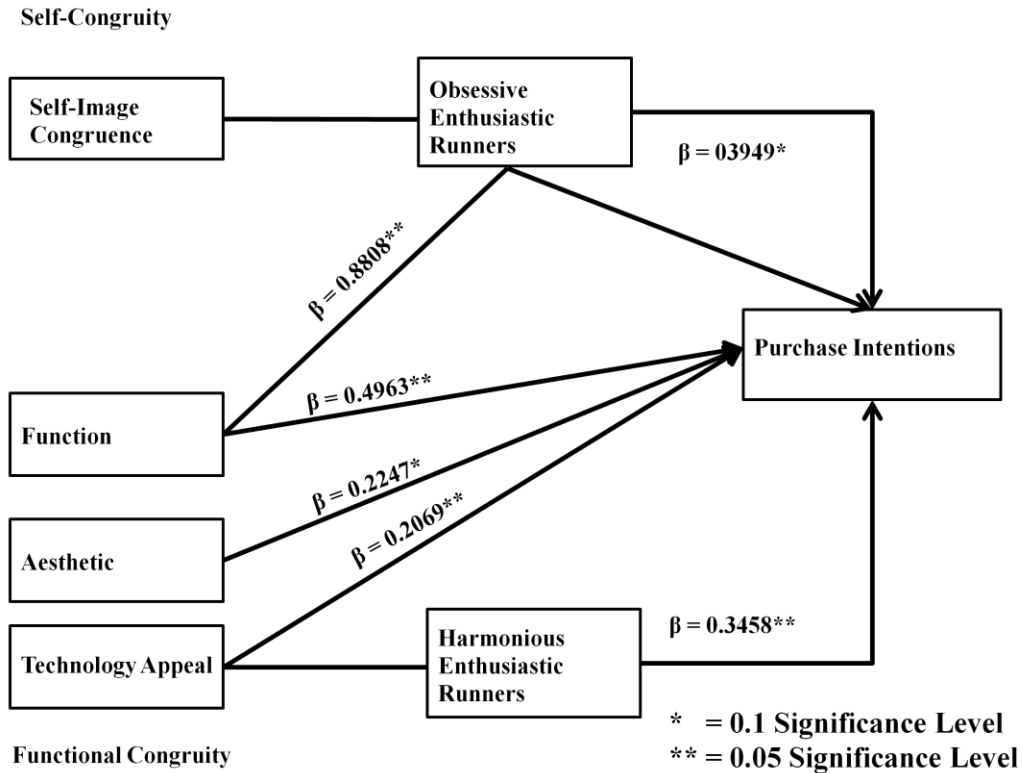


Figure 22 Refined theoretical framework for purchase intentions of running apparel for runners at different levels of involvement

This refined theoretical framework was concluded from the hypothesis tests discussed in Chapter 4. The first main objective of this study was to identify the factors that influence runners' purchase intentions for apparel brands for running. The results from the survey data showed that the runners in this study did not consider Self-Image Congruence to be an important factor when making purchase decisions. In other words, runners did not purchase apparel brands for running to match or enhance their self-image or ideal self-image as a runner. However, the data revealed that functional congruity was an important factor to runners when making their purchase decisions. Hence, runners purchase apparel brands for

running that match their functional expectations. The functional items were able to be broken down into three main groups, based on the common nature of the items. The three variables were Function, Aesthetic, and Technology Appeal. The Function variable consisted of these items: fabric breathability, moisture management, fabric durability, fabric weight, overall comfort, garment construction, the ability of the product to prevent chafing, the ability of the product to regulate body temperature, the ability of the product to enhance performance, fit, and size availability. In other words, the Function Factor focused on comfort, performance, and quality of the garment. Items represented by the Aesthetic variable were style, fashionability, color, and brand name. Hence, the Aesthetic Factor consisted of variables that emphasize on runners' appearances. The last variable, Technology Appeal, was considered to be a new requirement that departed from the traditional Function variable because the items it represented were designed specifically to support the current technological needs of consumers. The three items included in this variable were smart fabrics, storage for digital devices, and recyclability. These were designed to enrich the running experience. The study concludes that runners' purchase intentions for apparel brands for running were influenced by runners' functional congruity with certain brands.

The second main objective of this study was to examine which type of congruity had the greatest amount influence on the odds of purchase intentions for each groups of runners. The data revealed that the OER group's purchase intentions for apparel brands for running could be mostly influenced by the Function variable. Although, there was evidence that the Self-Image Congruence variable also influenced this group, the Function variable appeared to have a much greater influence. The data confirmed that the Technology Appeal variable,

which was part of the Functional Congruity category, most influenced the odds of the HER group's purchase intentions for running apparel brands. However, the data showed that purchase intentions of runners from the RP group are not influenced by any variable included in the survey.

Conclusion

This study confirmed that there were at least two levels of running involvement, which were categorized as running participants and enthusiastic runners. The majority of enthusiastic runners tended to consider running as a harmonious activity. Although runners who fell under the OER group also considered running to be an activity that was in harmony with other activities in their lives, they also exhibited an obsessive feeling towards running. The data validated that the dualistic theory of passion was also accurate when tested on the running population, with a couple of exceptions discussed in Chapter 4.

The study concluded that Self-Image Congruence did not have a significant influence on runners' purchase intentions for running apparel brands. However, Functional Congruity was considered to be important to runners, and was able to influence their likelihood of purchase intentions for running apparel brands. The findings suggested that runners considered their running apparel as equipment, and hence required their apparel products to meet their performance expectations. The survey data also suggested that most runners, regardless of their level of involvement, exhibit brand loyalty behavior toward running shoes, but not toward running tops or bottoms. However, when considering only running tops and bottoms, runners were more brand loyal to running bottoms. The results ultimately suggested

that runners would be more likely to switch brands when purchasing running apparel if they found that a certain product offered more appealing functional attributes.

Limitations

The snowball method was used to collect data in this study. Although the snowball method was used to widely capture a hidden population in a short amount of time, this method produced non-probabilistic sampling. Given limited time and financial constraints, this method was considered to be most appropriate. However, if time and the financial situation permitted, a more probabilistic sampling method may have provided a closer estimate to the real purchase behavior of runners.

Runners were asked whether or not they would purchase apparel brands for running tops and bottoms in the next twelve months. However, this question was not able to predict the degree to which runners were likely to purchase these items. Therefore, a Likert-type scale question would offer a more in-depth analysis of runners' purchase intentions.

Recommendations

This study revealed important information regarding runners and their running apparel purchase behavior. Nevertheless, an opportunity for future research would be to apply the theories proposed in this study to other sports. The purchase intentions of athletes in different sports may be influenced by different factors. Athletes who participate in sports that emphasize self-image may view self-congruity as a more important factor when making purchase decisions.

Since many brands that provide products to runners are considered to be global brands, another research opportunity derived from this study would be to compare and contrast runners' purchase behavior from different cultures and ethnicities. Information gained could provide an understanding of the similarities and differences between important factors required by runners of different culture and ethnic backgrounds, and how they affect the runners' purchase decisions.

The exploratory factor analysis performed in this study revealed a new variable, Technology Appeal, which suggests that runners now also consider how well running apparel products support current technology to be important to their purchase decision. Some items included under the variable of Technology Appeal were smart fabrics, storage for digital devices, and recyclability, which departed from the types of items represented by the traditional functional attributes. Researchers may want to expand the findings from this study and examine whether Technology Appeal is indeed a new apparel design feature required by consumers.

Another future research recommendation is to further study the passion towards activity in other sports. According to the dualistic theory of passion, the passion scale items have been validated by different activities. However, runners in this study perceived one of the Obsessive Passion items, "My mood depends on my being able to run," to also be a Harmonious Passion factor. In addition, both the OER and HER groups agreed to these two items: "I have difficulty imagining my life without running" and "I am completely taken with running." Thus, these items did not comply with the original factors suggested by the theory. For this reason, there is an opportunity to examine the passion scale items in other sports, and

to test whether the passion scale items are accurate, or whether they need some modification when applied to different sports activities.

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APPENDICES

APPENDIX A: SURVEY

1. Consent Form

1. The purpose of this study is to investigate the attitude and intentions of runners when purchasing apparel brands for running. Runners, such as yourself, are asked to complete this survey and to be part of this research. The survey results will become part of the doctoral dissertation conducted by Chanatip Leksrisonpong.

Your participation in this study is voluntary and you must be at least 18 years of age to participate. You have the right to be a part of this study, to choose not to participate, or to stop participating at any time without penalty. The information in the study, including the survey responses, will be kept confidential. You will NOT be asked to write your name on this survey, so that your responses will not be matched to your identity. Knowledge gained from this project can help the running community communicate the features it needs in new and existing running apparel products. There are no known risks associated with completing this survey.

If you have questions at any time about the study or the procedures, please do not hesitate to contact the researchers, Chanatip Leksrisonpong or Dr. Trevor Little, at the College of Textiles, Campus Box 8301, NCSU, Raleigh NC 27695-8301 or 919-515-6632. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in the research have been violated during the course of this project, you may contact Deb Paxton, Regulatory Compliance Administrator, Campus Box 7514, NCSU Campus (919-515-4514).

By checking the "I accept" box, I acknowledge that I have read and understand the above information. I agree to participate in this study with the understanding that I may choose not to participate or to stop participating at any time without penalty. I also acknowledge that I am at least 18 years of age.

You may print a copy of this agreement for the records.

I accept

I do not accept

2. Runner's Profile

1. How many miles do you run per week on average? Please check one.

- 1-9 miles
- 10-19 miles
- 20-29 miles
- 30-39 miles
- 40-49 miles
- 50 miles or more

2. Where do you MOSTLY run? Please check one.

- Mostly indoors
- Mostly outdoors
- Both indoors and outdoors equally

3. How often do you run on average? Please check one.

- 1-2 days per week
- 3-4 days per week
- 5-6 days per week
- 7 days per week

4. Do you have a sponsor that provides all of your running gear?

- Yes
- No

5. If you answered "YES" in the previous question, please specify who your sponsor is.

3. Running Interest

1. Do you love running?

Yes

No

2. Do you consider running as an important part of your life?

Yes

No

3. How well do the following statements express your feeling toward running? Please indicate the degree to which you agree or disagree with the following statements.

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
Running enhances my life experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have difficulty imagining my life without running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running is in harmony with the other activities in my life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My mood depends on my being able to run.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running reflects the qualities I like about myself.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have a tough time controlling my need to run.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The new things that I discover while running allow me to appreciate running even more.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I cannot live without running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Running provides me memorable experiences.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have become emotionally dependent on running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
For me, running is a passion that I still manage to control.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have almost an obsessive feeling for running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I am completely taken with running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The urge is so strong that I cannot help myself from running.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Reason to Purchase

1. Did you purchase any brands for running for the following items in the past 12 months? Please click on the drop-down menu to select the answer.

Note: This includes brands for running such as, but not limited to adidas, Asics, Brooks, Nike, Puma, Saucony, Under Armour, and any market product specifically for runners.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

2. Do you intend to purchase any brands for running for the following items in the next 12 months. Please click on the drop-down menu to select the answer.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

3. Imagine if you were to purchase running gear (ONLY tops and bottoms) in the next 12 months. Please rate the following features as to how important they are to you when purchasing brands for running.

	Very Unimportant	Unimportant	Slightly Unimportant	Neutral	Slightly Important	Important	Very Important
Brand name	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Color	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fabric breathability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fabric durability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fabric weight	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fashionability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fit	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Garment construction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Moisture management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Odor control	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Overall comfort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pocket availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Price	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recyclability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size availability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Smart fabrics (e.g., heart rate monitoring)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Storage for digital devices (e.g., iPod)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Style	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Texture of the fabric	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The ability of the product to enhance performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The ability of the product to prevent chafing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The ability of the product to regulate body temperature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Imagine if you were to purchase running gear (ONLY tops and bottoms) in the next 12 months, how would you rate the following statements? Please indicate the degree to which you agree or disagree with the following statements.

I intend to purchase certain brands for running...

	Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
that match with my identity as a runner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to identify myself with other runners who are better than I am.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
that help substantiate me as a runner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to help me feel like a better runner than I actually am.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to emphasize my identity as a runner to others.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
because I want others to identify me as a better runner than I actually am.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
to identify myself with other runners like me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
that match with my IDEAL identity as a runner.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. How much money did you spend on running gear (ONLY tops and bottoms) in the past 12 months? Please check one.

- None
- \$1-\$100
- \$101-\$200
- \$201-\$300
- \$301-\$400
- \$401-\$500
- \$501 or more

6. How much do you intend to spend on running gear (ONLY tops and bottoms) in the next 12 months? Please check one.

- None
- \$1-\$100
- \$101-\$200
- \$201-\$300
- \$301-\$400
- \$401-\$500
- \$501 or more

7. How often do you purchase the following running gear in a ONE YEAR period? Please click on the drop-down menu to select the answer.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

5. Purchase of Running Gear

1. For your MOST RECENT running gear purchase within the past year, which brand(s) did you acquire in each category? Please check all that apply.

	Shoes	Tops	Bottoms
Brand A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand D	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand E	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand F	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand G	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand H	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand I	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand J	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand K	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand L	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand M	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand O	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand P	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand Q	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand S	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand T	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand U	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand V	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand W	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand X	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Brand Y	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None of the above	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I did not purchase any in the past year	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. If you selected "NONE OF THE ABOVE" in any categories from the previous question, please specify your MOST RECENTLY purchased brand (s) within the past year.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

3. Where did you MOSTLY purchase the following running gear in the past year? Please click on the drop-down menu to select the answer.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

4. If you answered "NONE OF THE ABOVE" in any categories from the previous question, please specify where did you MOSTLY purchase the following running gear in the past year.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

5. Do you consider yourself BRAND LOYAL when it comes to purchasing the following running gear? Please click on the drop-down menu to select the answer.

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

6. What might be the factors that affect your brand loyalty for the following running gear?

Shoes	<input type="text"/>
Tops	<input type="text"/>
Bottoms	<input type="text"/>

6. Demographics

1. What is your gender?

- Female
- Male
- I prefer not to answer

2. In what year were you born?

- before 1946
- between 1946-1964
- between 1965-1980
- between 1981-1991
- I prefer not to answer

3. What is your highest level of education? Please check one.

- Completed high school
- Currently attending college
- Graduated from 4-year college
- Currently attending a post-graduate program
- Completed a post-graduate degree
- I prefer not to answer

Other (please specify)

4. Please indicate your race or ethnicity. Please check all that apply.

- African-American
- Asian/Pacific Islander
- Caucasian
- Hispanic
- Native American
- I prefer not to answer

Other (please specify)

5. How did you find out about this survey? Please check one.

- E-mail from the researcher
- E-mail from others (i.e., friends, colleagues, family members)
- Facebook
- Fleet Feet Sports
- Meetup.com group
- North Carolina Roadrunners Club
- Running events
- RunKeeper
- Team Under Armour Run Blog
- The Downtown Raleigh Womens' Running Group

Other (please specify)

6. Where do you live?

State:

Country:

7. Is there anything else you would like to tell us about your experience with your running gear?

7. Thank You

Thank you for taking your valuable time to complete this survey. Your input is very important to this research and to the understanding of the attitude and intentions of runners when purchasing running apparel.

APPENDIX B: E-MAIL MESSAGE TO FIRMS

Dear brand manager/race organizer/club organizer/ store owner;

My name is Chanatip Leksrisonpong. I am a doctoral candidate in the College of Textiles, at the North Carolina State University. As part of my dissertation, I am conducting a survey to establish a profile on runners and how they purchase running apparel products. I am seeking your assistance with my doctoral study, by asking you to kindly post the following link to my survey on your website: www.runnersinsightsurvey.com. The valuable information gained from runners will assist others in improving the design and functionality of running gear.

The survey result will be summarized in aggregate data and will be included in my doctoral dissertation. Participants will not be asked to disclose their names; hence, individual survey responses will be kept anonymous. The survey will take approximately 15 minutes to complete.

Thank you for your contribution in this important study.

Most sincerely,

Chanatip (Tip) Leksrisonpong
Doctoral Candidate and Principal Researcher
North Carolina State University
e-mail: cleksri@ncsu.edu
Phone: (919)749-1078

Trevor J. Little, Ph.D., Research Advisor
Nancy L. Cassill, Ph.D., Research Advisor

APPENDIX C: E-MAIL MESSAGE TO RUNNERS

Dear Runner,

I am seeking your valued input in an online survey that will become part of my doctoral study. The survey has been designed to establish a profile on runners and how they purchase running apparel products. The information gained from runners, like you, will assist others in improving the design and functionality of running gear. I would greatly appreciate your taking a few minutes to go to the following website to start the survey.

www.runnersinsightsurvey.com

The survey results will be summarized in aggregate data and will be included in my doctoral dissertation. Participants will not be asked to disclose their names; hence, individual survey responses will be kept anonymous.

Please complete this survey before November 30, 2009. The survey will take approximately 15 minutes to complete. Once you have completed it, please kindly forward this survey to other runners you may know.

Thank you for your participation in this important survey.

Most sincerely,

Chanatip (Tip) Leksrisonpong
Doctoral Candidate and Principal Researcher
North Carolina State University
e-mail: cleksri@ncsu.edu
Phone: (919)515-6632 (Mon-Fri 8:00 am - 5:00 pm)

Trevor J. Little, Ph.D., Research Advisor
Nancy L. Cassill, Ph.D., Research Advisor

APPENDIX D: FACEBOOK MESSAGE

Type: Education
Start Time: Friday, October 30, 2009 at 11:00am
End Time: Monday, November 30, 2009 at 12:00pm
Location: Online survey

Dear Runner,

I need your opinions. I would greatly appreciate your taking a few minutes to go to the following website to start the survey.

www.runnersinsightsurvey.com

The survey has been designed to establish a profile on runners and how they purchase running apparel products. The information gained from runners, like you, will assist others in improving the design and functionality of running gear.

Participants will not be asked to disclose their names; hence, individual survey responses will be kept anonymous.

Please complete this survey before November 30, 2009. The survey will take approximately 15 minutes to complete. Once you have completed it, please kindly invite this event to other runners you may know.

Please note that I am not affiliated with any brands or companies. This research is purely for my dissertation.

Thank you for your participation in this important survey.

Most sincerely,

Chanatip Leksrisonpong

APPENDIX E: IRB EXEMPTION E-MAIL MESSAGE

From: "Abigail Cameron" aecamer2@gw.ncsu.edu
Subject: Your IRB Approval
Date: Mon, October 19, 2009 2:13 pm
To: cleksri@ncsu.edu, "Trevor Little" <trevor_little@ncsu.edu>

Dear Dr. Little and Dr. Leksrisonpong:

I am writing on behalf of Ms. Debra Paxton to inform you that the IRB has received and reviewed your protocol submission. After administrative review, the IRB office determined that the study is exempt from the federal regulations outlined in 45CFR46, which relate to the protection of human subjects, and qualifies for administrative approval. The study does not require further IRB review.

If you make any changes to the study, you will need to resubmit to the IRB office. An official letter declaring the study exempt from 45CFR46 and administratively approving the study is attached to this email.

If you have any further questions, feel free to call our office at 919.515.4514.

Thank you,

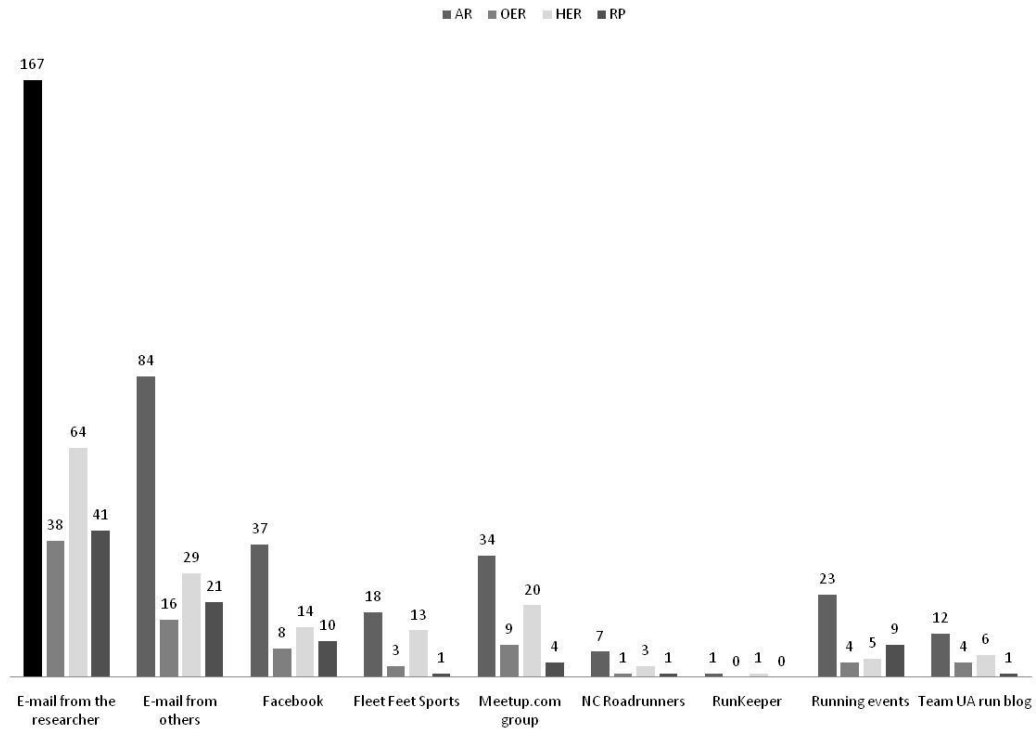
Abby Cameron
NCSU IRB

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Abigail E. Cameron
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<<*<*<*<*<*<*<*<*<*<*<*<*<*<*<*

APPENDIX F: HOW DID YOU FIND OUT ABOUT THIS SURVEY?



APPENDIX G: CONGRUITIES OUTPUT: THREE FACTOR SOLUTIONS

Items	Factor 1	Factor 2	Factor 3
P4Q3A	0.31		0.32
P4Q3B			0.43
P4Q3C		0.80	
P4Q3D		0.76	
P4Q3E		0.68	
P4Q3F			0.76
P4Q3H		0.51	0.30
P4Q3G		0.60	
P4Q3I		0.80	
P4Q3J		0.57	
P4Q3K		0.65	
P4Q3M			
P4Q3N			
P4Q3O		0.37	
P4Q3P		0.31	
P4Q3Q			
P4Q3R			0.88
P4Q3S		0.47	0.45
P4Q3T		0.44	
P4Q3U		0.59	
P4Q3V		0.61	
P4Q4A	0.53		
P4Q4B	0.78		
P4Q4C	0.77		
P4Q4D	0.85		
P4Q4E	0.86		
P4Q4F	0.85		
P4Q4G	0.87		
P4Q4H	0.78		
Eigenvalue	20.29	13.4	3.62

Note. Factor loadings > .30.

APPENDIX H: CONGRUITIES OUTPUT: FIVE FACTOR SOLUTIONS

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
P4Q3A			0.31		
P4Q3B			0.44		
P4Q3C		0.82			
P4Q3D		0.76			
P4Q3E		0.70			
P4Q3F			0.76		
P4Q3H		0.54			
P4Q3G		0.59			
P4Q3I		0.78			
P4Q3J		0.51		0.35	
P4Q3K		0.68			
P4Q3M					
P4Q3N				0.47	
P4Q3O		0.38			
P4Q3P				0.86	
P4Q3Q				0.69	
P4Q3R			0.87		
P4Q3S		0.47	0.43		
P4Q3T		0.40			
P4Q3U		0.57			
P4Q3V		0.57			
P4Q4A	0.51				
P4Q4B	0.76				
P4Q4C	0.75				
P4Q4D	0.85				0.34
P4Q4E	0.88				
P4Q4F	0.84				
P4Q4G	0.90				
P4Q4H	0.78				
Eigenvalue	20.94	13.4	3.62	2.65	1.12

Note. Factor loadings > .30.

APPENDIX I: CONGRUITIES OUTPUT: SIX FACTOR SOLUTIONS

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
P4Q3A			0.35			
P4Q3B			0.45			
P4Q3C		0.82				
P4Q3D		0.76				
P4Q3E		0.70				
P4Q3F			0.76			
P4Q3H		0.55				
P4Q3G		0.59				
P4Q3I		0.78				
P4Q3J		0.51		0.37		
P4Q3K		0.68				
P4Q3M						
P4Q3N				0.49		
P4Q3O		0.38				
P4Q3P				0.84		
P4Q3Q				0.71		
P4Q3R			0.86			
P4Q3S		0.47	0.41			
P4Q3T		0.41			0.36	
P4Q3U		0.57				
P4Q3V		0.58				
P4Q4A	0.50		0.33			
P4Q4B	0.76					
P4Q4C	0.74					
P4Q4D	0.86					0.31
P4Q4E	0.87					
P4Q4F	0.85					
P4Q4G	0.90					
P4Q4H	0.78					
Eigenvalue	20.94	13.4	3.62	2.65	1.12	1.05

Note. Factor loadings > .30.

**APPENDIX J: FUNCTIONAL CONGRUITY OUTPUT: FOUR FACTOR
SOLUTIONS**

Items	Factor 1	Factor 2	Factor 3	Factor 4
P4Q3A		0.38		
P4Q3B		0.47		
P4Q3C	0.73		0.36	
P4Q3D	0.79			
P4Q3E	0.69			
P4Q3F		0.79		
P4Q3H	0.54			
P4Q3G	0.56			
P4Q3I	0.61		0.49	
P4Q3J	0.38		0.33	0.38
P4Q3K	0.64			
P4Q3M				
P4Q3N				0.50
P4Q3O	0.35			
P4Q3P				0.84
P4Q3Q				0.71
P4Q3R		0.89		
P4Q3S	0.40	0.41		
P4Q3T			0.51	
P4Q3U	0.32		0.59	
P4Q3V			0.71	
Eigenvalue	15.97	5.86	4.04	1.31

Note. Factor loadings > .30.