SexIER Symbols

Examining the Effects of a Content Analysis of Gendered Visual Imagery in Cross Cultural Road Signs

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Abstract

The symbols and images projected through mass media shape and constrain an individual's understanding of and interaction with their environment. Across cultures, road signs employ seemingly universal, generic, human symbols. Cross-cultural variance does occur, however, in the degree to which such icons include characteristically masculine, feminine, and gender neutral features. This investigation, a full scale study of an earlier pilot, proposes the human symbol communicates culturally-relevant information. Specifically, this study consists of a content analysis, further refinement of a fluid visual gender scale, and correlation with social effects using a semiotic, social cognitive, and code theory theoretical framework.

Keywords: *Intercultural, Gender, Content Analysis, Nonverbal, Visual, Communication*

1. Introduction

On a visit to a foreign country, a pedestrian gazed upon a street sign and realized it was conceptually the same yet strikingly different than the relative sign from her home country. The road sign icons represented varying genders, gender roles, relationships, and degrees of realism. Over the years, the travelling pedestrian continued to see interesting differences in every country visited.

Road signs function as mass communication throughout most of the world, providing critical road navigation information to facilitate road safety. In 1968, the United Nations held a convention on road signs and signals recognizing and promoting, "international uniformity of road signs, signals and symbols and of road markings is necessary in order to facilitate international road traffic and to increase road safety" (UN Publication, p. 3). Despite the vast agreement among countries to participate in consistent signage, cross-cultural variance occurs in the degree to which such icons include characteristically masculine, feminine, and gender neutral features. While simplistic, these icons are a form of mass media capable of shaping and constraining a person's understanding of and interaction with his/her environment. Thus, these variations may represent differing gender role attitudes among cultures at the national-level.

The present study, a follow-up to an earlier pilot (to be inserted after review), provides a visual analysis adjoining concepts from social cognitive theory and semiotics to compare cross-cultural presentations of gender. In addition to a descriptive content analysis, the pilot questioned the viability of a visual gender scale and relationships between degree of gender presentation and national-level gender inequality outcomes. Results revealed an internally reliable and replicable visual gender scale instrument. The descriptive review suggested a more universal attitude towards gender. Females are underrepresented, relational, needing a chaperone, and childlike. Conversely, the depiction of men is independent, protectors, and adultlike. Given the nature of and small sample size used in pilot, no conclusive remarks on relationship with the UN gender scale were provided. The research concluded the possibility of a larger global, rather than culturally variable, attitude of valuing females less than males.

This current research provides an empirically-derived, pioneer visual gender scale, cross-culturally examines the nonverbal gender presentation entrenched in everyday life, and transforms the pilot into a full-scale study. After discussing the theoretical framework and cultural social roles, the study embarks on its critical mission; a content analysis of gendered characteristics, cross-cultural analysis of semiotic narratives associated with prevalent gendered imagery, and relationship with regard to cultural indicators of gender inequality and national human development ranks. Analyses incorporate semiotic, social cognitive, and theory of codes into a theoretical framework to extend the existing body of knowledge regarding the relationship between symbolic communication and gender construction and national performance outcomes.

2. Theoretical Framework

The theoretical framework employed to investigate the cultural use of gender in icons includes components of semiotic theory, social cognitive theory, and code theory. The human icons on the road signs indicate an upcoming activity, a pedestrian or student/child might cross, workers or cyclists are nearby. Semiotic theory connects the icon, indicators, and symbols to develop meaning. How "male", "female", and degrees of "maleness" and "femaleness" are explicitly defined and understood creates the ability to fluidly analyze gender in a replicable manner. In social cognitive theory, Bandura's symbolic communication and observational learning are founded on the very presence of social rules. Icons representing women's versus men's public toilets are not an innate, inherited awareness. Thus, visual aspects should correlate with social implications. Finally, Bernstein's (1972) theory of codes asserts implications from social structure on communication acquisition and patterns realized as restricted and elaborated codes.

2.a. Semiotics

Traditionally, the goal of semiotic theory is to understand the nature, function and use of human signs in representation (Nuessel 2012). Peirce describes three types of images; likeness, indications, and symbols. Likenesses, or icons, "…serve to convey ideas of the things they represent simply by imitating them" (Peirce 1998: 5). An indication, "…marks the junction between two portions of experience" (Peirce 1998: 8). A symbol defines, "…whatever may be found to realize the idea connected with the word; it does not, in itself, identify those things" (Peirce 1998: 9). With respect to road sign icons, they appear human but indicate an upcoming road event and symbolize gender. Iconological symbolism is the ideological meaning or "interpretation of which the artist may not be aware and which may not be generally accepted" (vanLeeuwen & Jewitt 2000: 1010).

Semiotics asks (a) what do the images represent and how and (b) what do they stand for by evaluating the individual pieces of the image, the "lexis" or "vocabulary" of the image (van Leeuwen & Jewitt 2001: 92). Using this visual vocabulary, the image is deconstructed and analyzed (Callow 2005) to provide meaning from who/what is depicted (denotation) and what is expressed (connotation) (van Leeuwen & Jewitt 2001; to be inserted after review). Road signs illustate global and universally accepted human icons. Deviations reflect cultural nuances; a country's choice in assigning meaning to a standard symbol. These nuances represent the object-identifiers assigning connotative value.

Human symbols represent different degrees of gender through binaries, clothing, accessories, and physical stature. Using previous empirical findings (Eckert 2014; Eisend 2010; Fitzpatrick & McPherson 2010; Ricciardelli, Clow, & White, et al 2010; Yasin, et al 2012), Author (to be inserted after review) produced a replicable gender scale from object-identifiers with high intercoder reliability. While applied to human symbols in this research, conceptually, this process could be replicated to evaluate the impact of any visual image on a society.

2.b. Social cognitive theory

Social cognitive theory (Bandura 1986) holds that visual symbols connote a learned message. The theory, often rationalizing behavior formation (Collins 2011; Fitzpatrick & McPherson 2010; Rudy, et al 2010) suggests personal, behavioral, and environmental determinants interact reciprocally in learning through distinctly human skills including symbolization and vicarious forethought (Bandura 1994; Bandura 1996; Bussey & Bandura 1999). Symbolization and vicarious characteristics contribute to crafting, learning and comprehending visual imagery. Communicating through symbols enables humans to understand, assign meaning to experiences and/or behaviors, and fortify learning (Bandura 1971; Bandura 1994). Furthermore, symbolic messages reach and affect large audiences (Bandura 1996). Vicarious characteristics enable humans to both purposefully or carelessly model, learn, produce, and/or change social rules from other people (Bandura 1996). This allows a person to quickly review, assess and understand (or try to understand) even the most foreign situation.

Road signs attempt to convey universal meaning through simplified illustrations to maximize road safety. Despite an international collaboration on road sign consistency (United Nations Treaty Collection 1985), the human symbol/s on the road signs varies by region. The stability of iconic road sign imagery across cultures reflects a consistent learned message across cultures. While the general shape of human figures and activity portrayed on road signs remains relatively consistent across developed countries, considerable variance exists with regard to specific "gendered" characteristics, ranging from very "masculine" to very "feminine". In light of the inconsistent symbolization of gendered characteristics on such signage, road sign icons provide a viable unit of analysis for disparate cross-cultural gender representation. Both semiotics and social cognitive theory treat culture as a shared foundation, providing frames to emphasize importance and reflect a society.

2.c. Theory of codes

In his theory of code, Bernstein presents "a general theory of the processes by which fundamental properties of social systems – division of labor, belief ,type of solidarity, family roles, modes of social control – are linked and maintained (or changed)"; they involve the, "elaborated and restricted codes" (Bernstein 1972: 17). Restricted code relies heavier on implied messages, simple word use and sentence construction, and group assumptions which are specifically understood by the relevant people within that culture. Elaborated code relies on a more universal meaning reliant on the verbal element to reduce any implied message. Bernstein (1972) identified use of restricted code and elaborated code within the working and middle classes, respectively. Hall (1976) extended the concept of codes to culture with high-context (restricted) and low-context (elaborated) communicators. Thus, code theory, or degree of explicitness within a communication, can be applied to both class and culture.

3. Social Roles within Cultures

Culture reflects the, "selection, the rearrangement, the tracing of patterns upon, and the stylizing of…ideas" (Lippman 1922: 16). Language expresses power, status, and relationship (Arnaiz 2006; Liddicoat 2006; Yu 2005) based on culturally rooted norms evident in verbal and nonverbal language. Cultural ideologies affect nonverbal communication, for example, highway systems (Hall 1969), meanings and importance of time (Hall 1973), and social roles or interactions (Arnaiz 2006; Bernstein 1972; Markus & Kitayama 1991). Bernstein describes learning of social roles as a, "constellation of shared, learning meanings through which individuals are able to enter stable, consistent, and publically recognized forms of interaction (1972: 473-474).

Gender, the "cultural correlates of sex" (Guthrie 2007: 15) provides a framework for understanding culturally bound attributions that shape how individuals understand and interact with the social environment (Lorber & Farrell 1991). Existing research regarding gender stereotypes provides a foundation for understanding and evaluating symbolic representation of gender and the role played in shaping and constraining human interaction. The socially constructed gender roles and attributes communicated through visual representation function to reflect and reinforce gender stereotypes and the resulting learned perceptions and enactments of gender (in)equality.

Two challenges exist in analyzing cultural frameworks. The first challenge, determining optimal grouping framework, requires minimizing the number of comparatives in cultural frameworks, while maximizing the benefit of the insight.The second challenge, consistent grouping structure, is critical for creating comparable reporting. A lack of consistency may be one cause of lack of comparability (AICPA, SAS420.03). To overcome these challenges, this study employs the GLOBE cultural framework (House, Hanges, Ruiz-Quintanilla, Dorfman, Javidan, Dickson, & Gupta 1999) because it provides an empirically devised, culturally-relative clustering tool. Exact clusters only include countries noted in House, et al, (1999) whereas liberal clusters extend for regional proximity. Countries included in each cluster are available in Appendix C, Table 1.

3.1. Visual Communication & Gender Stereotypes

Social construction of both masculine and feminine roles and characteristics are represented and reproduced through stereotypes. Gender stereotypes assign socially learned attributes through, "what others have reported and what we can imagine" (Lippmann 1922: 79). Mass media channels, for example, television and advertising, generally present a stereotypical view of the world (Holbrook, 1987). Images independently denote meaning yet the construction and interpretation of those messages connote social norms and expectations (Berger 2014). Road sign icons contribute to the construction of gender norms by creating, reflecting, reinforcing, and reproducing culturally and social attitudes and behavior.

Existing research regarding media representation of gender roles and identities consistently demonstrates an overall underrepresentation of women, as well as fe/male gender typification within institutional and relational contexts (Collins 2011; Guthrie 2007; Matud. Rodriguez, & Espinoza, et al 2011; Yasin, et al 2012). Male representations consistently operate as providing public, official, leading, and independent characteristics and roles; female roles reflect domesticity, dependence, and childlike behaviors.

The present study examines whether road sign icons perpetuate the imagery so extensively demonstrated in media. Masculine imagery is expected to exceed feminine imagery in prevalence. Female imagery is further anticipated to depict fulfillment of dependent roles, compared to male imagery expected to appear in independent roles, such that female icons are less likely to appear as a single icon, but rather accompany a second icon. In order

to account for occurrence of icons that fall outside of typical gender dichotomization the present study incorporates codification of gender neutral representations. As such, the following hypothesis is proposed:

Hypothesis 1a: Overall, male gendered icons exceed female and neutral gendered icons.

Hypothesis 1b: Greater icon gender equity exists between male and female icons on school (relational) icon signs than pedestrian crossing, road works, and bicycle (individual) icon signs.

However, understanding the count and context insufficiently tests the cultural dimension. The quantitative and qualitative information collectively provide greater insight when viewed through the cultural lens. The following research question is guided by the notion that the icons included in the present analysis function as a distinct means for representing cultural attitudes regarding gender:

Research question: What themes emerge from semiotic and content analysis for gender and culture?

Cultural/gender attributes are visually expressed thru use of role, clothes, hair, and/or physical characteristics (Eisend 2010; Fitzpatrick & McPherson 2010; van Leeuwen & Jewitt 2001). The greater the attributes overshadow the icon, the greater the icon reflects a specific type (van Leeuwen & Jewitt 2001). The magnitude of gender symbols may demonstrate a strongly-held stereotype at the national or cultural level. The United Nations (UN) employs gender inequality index which ranks countries based on, "inequality in achievement between women and men in three dimensions: reproductive health, empowerment and the labour market" (United Nations Development Programme 2013). Lower numeric ranks reflect greater equality. Stereotypes perpetuate and reinforce culturally-defined social roles suggesting:

Hypothesis 2: Greater use of gender on road sign icons positively correlates with gender inequality.

3.2. Visual Communication, Codes & Wealth

However, while gender performance is evident in every corner of life, including rudimentary human icons on road signs, the magnitude of gender realism may also reflect restricted and elaborated codes. While Bernstein identified restricted and elaborated codes in verbal interactions of less and more wealthy families, respectively, the sense of context versus directness can be applied to visual imagery as well.

In the process of collecting images and photos from around the globe, an interesting trend began to emerge. The "toilet test" represents the initial benchmark for gender assignment or neutrality (to be inserted after review). The majority of toilets use standard icons; a circle head and rectangle arms/legs for both genders, a triangle-like dress for women and rectangle/square shirt for men. (See Image 1, Appendix A, for examples). However, an elaborated approach, increased gender-typification, to the mundane appears at income-producing, locations providing tourist activities and luxury, generally requiring larger customer spend (i.e., Anne Frank Museum, Ritz-Carlton, Chobe National Park). (See Image 2, Appendix A, for examples). The United Nations (UN) employs human development index which ranks countries based on, "average achievement in three basic dimensions of human development—a long and healthy life, knowledge and a decent standard of living" (United Nations Development Programme 2013). Higher HDI countries, indicated by a lower number rank, reflect the "Ritz-Carlton" of countries. Therefore, hypothesis three suggests greater gender will relate to greater human development and wealth.

Hypothesis 3: Use of gender on road sign icons positively correlates with national human development index rank.

In summary, this investigation tests three hypotheses and assesses one research question. The analysis evaluates the quantity and role of gender, a cultural comparative of social gender roles, and the degree of gender applied to gender equality and national wealth. Road sign icons provide insight into a culture which warrants an exploration of the social framework.

4. Methods

4.a. Sample

Random sampling of all the countries on the United Nations Human Development Report (2015) provided an initial list of 51 countries. Unfortunately, road signs from 23 of the countries could not be found from a primary or secondary source, or even Google Earth. In order to expand upon the sample of 28 countries, 6 countries (Switzerland, United Kingdom, Israel, Japan, Chile, and Cuba) were added from the pilot study. Finally, a bottom up approach was used to capture imagery from higher ranking (less development) HDI countries, resulting in an additional 11 countries. During that image search process, five sources from lower ranking (better development) nations were found and included. In total, road signs from 50 countries are included in the sample. (See Image 3, Appendix A).

Researchers sought, "Pedestrian Crossing" ($n = 49$), "Bicycle Only" ($n = 45$), "School/Children Crossing" ($n = 46$), and "Workers/Road Works" ($n = 44$) signs from each country, resulting in 184 signs. A comprehensive source list is available in Appendix B. Pedestrian ($n = 49$), bicycle ($n = 45$), and road work signs ($n = 44$) were entirely comprised of individual symbols whereas school/children signs ($n = 89$) often contained pairs. In total, 227 symbols were represented on the signs.

4.b. Procedure

Online searches using keywords such as, "road signs", "driver", "road", "sign", in English and/or native tongue of the country via Google Translate. Pedestrian, school and bicycle crossing signs reflect mandatory, permanent signs commonly displayed as yellow/black diamonds or red/white triangles. Multiple countries have a second pedestrian sign ("Pedestrians Ahead") indicating the possibility of pedestrians in an area. Pedestrian crossing was selected over pedestrians ahead to promote consistency since nearly (98%) every country used the pedestrian crossing sign. For the remaining signs, exceptions were made for greater completeness. For example, on occasion, the mandatory bicycle crossing sign was substituted with the "no bicycles" or "bicycles only" sign, typically illustrated in a blue/white circle since the icon represents greater importance than the color/shape in this particular study. Image source quality ($M = 1.62$, $sd = .89$) was assessed assigning points; 1 being ideal ($n = 33$, government source or native resident provided), 2 being excellent ($n = 3$, partially validated images using Google Earth), and 3 being good ($n = 14$, car rental, auto club or non-for-profit sites). As in the pilot, the three-step data collection process requires (1) recording the number of icons on each sign, (2) evaluating degree of gender, and (3) categorizing into nominal groups (male, female, neutral). Explicit, detailed coding instructions are published in (to be inserted after review).

4.c. Analysis

Both authors participated in coding with the first coding 100% and the second independently auditing 25% of the symbols. Thus, the scale reliability sample consists of 57 symbols selected from easily accessible links. Krippendorf's alpha (KALPHA) was used to assess scale reliability as it accounts for both percent agreement and chance (Lombard, Snyder-Duch & Bracken 2002). The specific formula is available in detail in Krippendorf (2011). After collaboratively reviewing the coding process and a few samples, coders independently evaluated symbols with high initial agreement (α = .97). After calculating KALPHA, coders discussed deviating codes until reaching agreement. Generally speaking, reviewing larger, clearer images led to easy resolution.

Next, the researchers calculated Cronbach's alpha to evaluate road signs as a scale, testing viability across all signs. The pilot study, "to be inserted after review", initially argued a positive correlation between greater gender use and greater gender inequality. Within a nation, since the icons on road signs are being scrutinized, road signs must collectively measure the same phenomenon. Cronbach's α = .762, represented a high enough number to demonstrate the scale's consistency while not exceeding a value of diminishing return. Using Cronbach's alpha to measure internal consistency demonstrates the relationship of measures within the scale and gages reliability that the items measure the same construct (Tavakol & Dennick 2011). Reliability, consistency, and validation against prior research establish the necessary foundation to evaluating the relationship with social outcomes.

Then, researchers used to chi-square to test hypothesis 1a and analysis of variance (ANOVA) for 1b which posit male icons will (a) exceed both female and neutral icons overall while (b) greater equity exists between male and female icons on signs with relational, grouped icons over individual icons. The null hypothesis for 1a, or the expected outcome, is set as equal among the three groups. Then, the research question, like the pilot, explores themes like age, relationships, and cultural anomalies, using content analysis and qualitative insights. Lastly, hypotheses 2 and 3, correlating the road sign scale with gender inequality and national wealth, respectively, is assessed using Pearson's r calculation.

5.Results

5.a. Hypothesis 1

The first hypothesis posits male icons exceed female and gender neutral icon use in road signs. Hypothesis 1a is supported, χ^2 (2, N = 227) = 134.44, p < .05, male icons prevailed. Of the 227 symbols, 33 (14.5%), 158 (69.6%), and 36 (15.9%) were gender neutral, male, and female, respectively. (See Appendix C, Table 2).

Hypothesis 1b, suggesting greater equity exists between male and female icons in school/children (relational) signs than the other, individual signs received full support. When looking exclusively at male versus female, pedestrian (N = 47), bicycle (N = 14) and road works (N = 44) symbols were 100% male. School/Children crossing symbols (N = 89) were represented by 53 (59.6%) males and 36 (40.1%) female. Significant differences exist in male/female gender use by sign, F(3, 190) = 23.3, p < .05. Tukey post-hoc revealed school/children crossing symbols (M = 2.4, s = .04) depict more females than pedestrian crossing, road works, and bicycle, which all depict males (M = 2.0, s = .0) when gender is represented. (See Table 3).

5.b. Research question

The research question asks for socio-semiotic content and thematic analysis for gender and culture. Four themes were identified. The first two, the active, adult, male and dependent, feminine girl, reflect universal themes. The third and fourth themes present points of cultural divergence on gender neutrality and leadership.

5.b.1.Theme 1: the universal active, independent, adult male. Male icons are depicted as active, independent, adults. In every country, pedestrian, bicycle, and work signs solely use adult, individual, male icons when human symbols are employed. Men walk alone; the pedestrian crossing signs researched depict 49 (100%) individual symbols; 47 (95.9%) male and 2 (4.1%) gender neutral symbols, respectively. Men work alone; the road works signs illustrated 44 (100%) individual, male, adult symbols typically with a shovel and a pile of dirt. Men bike alone. Despite bicycle crossing signs reflect the highest gender neutral category, 31 (68.9%), the 14 (31.1%) signs including human icons reflected entirely adult, independent, male symbols. When relational, adult men, likely fathers, take children to school; 100% of the 6 adults drawn in school/children crossing are men.

5.b.2. Theme 2: the universal, dependent, feminine girl never matures to womanhood. Every female icon☐100% of the female icon population☐ represented a child. Female adults are absent from the entire sample. Women serve as relational, dependent characters; of the 227 symbols, 1 (.004%) represents an independent girl. Pedestrian, bicycle, and worker signs completely exclude female imagery. The girls (M = 3.00, sd = .79) illustrated in the school/children crossing signs depicted significantly, t (87) = -2.34, p < .05, more gender-typing than their male counterparts (M = 2.51, sd = 1.07).

5.b.3. Theme 3: the cultural divergence of gender neutrality. The bicycle crossing signs reflect the highest gender neutral category with 31 (68.9%) gender neutral signs, picturing a lone bicycle. However, a two-tailed ANOVA of exact clusters (see Table 1) revealed significant differences, F(6, 17) = 4.42, p < .05, among groups. Tukey post-hoc identified greater common use of gender neutrality (1 = neutral, 2 = male, 3 = female) in Anglo (M = 1, s = .16) and Southeast Asian (M = 1, s = .20) as opposed to the entirely male, Latin America (M = 2, s = .175) cluster. In addition, the Anglo cluster also provided the only two gender neutral pedestrian signs from Australia and New Zealand. (See Image 4).

5.b.4. Theme 4: the cultural divergence of leaders. School/Children crossing signs, culturally analyzed using the liberal clusters (see Table 1), resulted in 82 relational symbols. In all instances except one, the pair of humans displayed height differences. The taller and smaller humans were marked as leader and follower, respectively. Males dominated (>70%) leader roles in Latin European (100%), Middle Eastern (100%), Eastern European (100%), Confucian (100%), Germanic (100%) and Latin American (86%) cultures. Conversely, African (71%), Nordic (100%), and Southeast Asian (75%) illustrated predominantly (>70%) female leaders. The Anglo cluster displayed the most balance with 40% male and 60% female leaders. Male followers dominated Southeast Asian (100%), Nordic (100%) and African (86%) signs. Confucian (100%) Latin American (86%) and Eastern European (75%) cultures represented female follower dominance. (See Appendix C, Table 4).

5.c. Hypothesis 2

Hypothesis 3 suggested gender inequality rank, more unequal countries, would positively relate to a higher gender scale score. No support was found; the gender road sign scale negatively correlated with gender inequality rank (r = -.29, p < .05, N = 40) with significance. This contradicts the hypothesis, suggesting that greater use of gender in icons decreases as gender equality gaps increase.

5.d. Hypothesis 3

Hypothesis 3 was supported. The increased use of gender on road sign icons positively correlates with national HDI (r = -.32, p < .05, N = 40). Thus, as human development index rank worsens (rank number grows larger), gender use on road signs decreases.

6. Discussion

This research, a full scale study of a pilot (to be inserted after review) sought to provide a cross-cultural visual analysis adjoining concepts from social cognitive theory, semiotics, and code theory to evaluate the relationship between gender, both dichotomously and fluidly, and cultural outcomes. First, male/female/neutral content analysis confirmed alignment with prior research, indicating underrepresentation of females and stereotypical presentation of males and females. Next, it presented four themes on culture and gender; (1) the universal, active, independent, adult male, (2) the universal, dependent, feminine girl who never matures to womanhood, (3) the cultural divergence of gender neutrality, and (4) cultural divergence of leader/follower roles. The research contradicted the assertion relating greater gender embellishment with gender inequality rank. Finally, results indicated greater gender embellishment related to greater national wealth.

Across all cultures, the content analysis aligned with prior research (e.g., Collins 2011; Guthrie 2007; Matud, et al 2011; Yasin, et al 2012) regarding media representation of gender roles and identities; international road sign icons universally underrepresent women and gender-typify wo/men. Men are consistently depicted fulfilling official (worker), leading (school crossing), and independent characteristics and roles while women reflect domesticity (relational signs only), dependence, and childlike behaviors. A disturbingly impressive lack of females - one independent and zero adult females - are represented in any of the symbols/signs in any culture.

This culturally-universal male stereotype advantage, or privilege, continues in more descriptive examples from the research question. Across all cultures, men were portrayed as active, independent, adults. Male images walk, bike, and work, similar to most healthy adults, fully functioning on their own. Even in children-designated signs, the minimal adult image presence is entirely male. Conversely, in all cultures, little girl icons, drawn with greater feminine detail, never mature into adult women. The overshadowing of the female icon with more feminine imagery reflects greater typecasting (van Leeuwen & Jewitt 2001) which might suggest stronger global feminine gender performance expectations for women as compared to men. Continually, relational girl icons cautiously partake in education on designated routes carefully mapped by road planners. The only adult female icons in this research existed in toilet icons in the coding reference. Thus, the logical conclusion is that all the independent, active, adult women are in the bathroom! While none of this is surprising and clearly reflects the tome of findings cited throughout the paper, the consistency of gender performance and prominence of male over female on a global scale is disturbing. This supports Lorber's & Farrell's (1991) assertion that, despite variations in the degree of inequality, the global social system ranks men above women when all other factors are equal.

Cultural variances emerged for gender neutral icons and leader/follower types. Overall, the bicycle crossing signs primarily illustrate gender neutral symbols; simply a bicycle image. Latin American countries, heavily male gendered, and Anglo and Southeast Asian, both exclusively neuter gendered, may be explained in a few ways. Social movements towards greater visual gender neutrality may be influencing the Anglo and Southeast Asian choices in icons. Anglo countries, Australia and New Zealand, displayed the only gender neutral pedestrian signs, supporting the social movement explanation. Furthermore, in language use, gender neutrality is one mechanism used to reduce discrimination in laws (Banda, 2008). Conversely, machismo, expressing the social definition of male behavior in Latin American cultures, relates to ethnic identity (Arciniega, Anderson, Tovar-Blank, & Tracey 2008) which possibly influences the need for a male-gendered character riding a bike.

With the exception of Anglo, cultures depicted leaders as predominantly male or female. This may express the role of men/women from a family or personal leadership perspective. Female leaders are predominantly displayed in African, Southeast Asian, and Nordic road signs. In some African and Southeast Asian cultures, young marriages (i.e., Nigeria, Zambia, Ghana, Ethiopia, Bangladesh, India, Nepal), polygyny (i.e., Ghana, Nigeria, Bangladesh, India, Nepal), and lack of legal recourse for non-consensual marital sex (i.e., African countries like Nigeria, Ghana) depict a bleak future role for women in marital servitude (Banda, 2008). Child-bearing and rearing, or family leadership, may represent the cultural leadership role applicable to women. Conversely, Nordic cultures may depict a personal leadership representation of women. Scandinavian countries represent, "… the highest achievers of gender equality", enabling equal family and work choices (Jasna & Dževad 2015).

Predominantly male leaders are displayed in Latin America, Latin European, Eastern European, Middle Eastern, Confucian, and Germanic cultures. Content analyses frequently reveal the common depiction of men in stereotypical roles like leadership (Collins 2011; Fitzpatrick & McPherson 2010; Matud, Rodriguez, & Espinosa 2011). Most likely, the cultural commentary reflects convergence with the global underrepresentation of females. However, the findings may suggest less leadership equality in these cultures, given media reflects stereotypes that already exist (Eisend 2010). For example, certain Middle Eastern countries impose obedience laws on women (i.e., Pakistan), require a husband/father grant a woman permission to move about or receive education (i.e. Qatar), while others (i.e., Morocco) work to improve the rights of women (Banda 2008). In a country where women have no adult rights, it is unlikely a media representation would illustrate otherwise. Symbols may indicate the socially approved course of action; males lead (Bandura 1994).

Despite the results aligning consistently with stereotyping and gender findings, the relationship between the magnitudes of gender-typification relates to greater gender equality and greater national wealth as operationalized through the human development index. Aligned with Bernstein's code theory, this elaborated visual code resembles its verbal counterpart; the code suggests a relationship with greater "class" or wealth. Culturally-rooted norms evident in verbal and non-verbal language express power, status, and relationship (Arnaiz 2006; Liddicoat 2006; Yu 2005). Road sign human symbols appear to be no exception. The detail on the signs provides a level of guidance to foreign travelers on the state of the state; indicating how well its inhabitants live. The gender details of the symbols communicate the status of the country.

Social cognitive theory expresses similarity to media models is important for behavioral learning (Collins 2011). Code theory suggests more elaboration broadens the communication to specifically get to the point of the message. Potentially, the intricacies provide the insight on how to behave. For example, in Switzerland, it may be important for people to dress nice when out for a walk, as highlighted by the suit and hat on the male pedestrian icon. Conversely, Pakistan residents may be more concerned with health, financial resources, and lack of education, than providing a relevant iconic role model. (See Appendix A, Image 5). Simple icons may present simple messages, restricted code and high context, for example, cross here so you do not get hit by a car. Either way, observing the road signs informs the passerby the degree of development for that particular culture.

7. Limitations and Future Research

Primary limitations of the study include novelty of the gender scale and time. The gender scale represents a new approach to fluidly evaluating visual amount of gender. Given the scale and approach are both relatively new, opportunities exist to refine and improve the scale. However, this novelty affords researchers to explore other applications for this, or a modified version, of the scale. Future research might modify the scale and explore use of gender in advertising or photo imagery. Alternately, comparing signs within a country might highlight intra-cultural differences. Another approach might compare corporate imagery in artifacts. Lastly, current politics in the United States debates transgender use of fe/male toilets. The visual symbols on each toilet may change.

The second limitation of this particular study is time. A nation changing a road sign requires a concerted effort. Thus, less developed nations may only recently be adopting road signs. In 10 years, their HDI may increase but the signs may not. This may impact current or future results. However, this challenge represents an opportunity to evaluate the evolution of road sign imagery.

8. Conclusion

In conclusion, road signs reflect the most basic, universal, symbolic language. These signs vary in degree of gender embellishment suggesting a visual counterpart of restricted and elaborated code. This study reveals, consistent with gender research, males are more prevalent in road signs and both genders reflect stereotypical roles. None of the countries in the sample illustrate adult females or independent females (bar Argentina) and highlight females in relational, childlike roles. Bicycle crossing signs reflect the highest use of gender neutral symbols. Two countries, Australia and New Zealand, provide gender neutral pedestrian crossing signs. Finally, higher gender scale scores relate to better national HDI and egalitarianism.

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Appendix A - Images

Image 1: *Examples of Standard Toilet Signs*

Fe/Male toilet signs in Panama.

Image 2: *Examples of Toilet Signs at High-end Establishments*

Top Left: Female toilet signs in Amsterdam (Anne Frank House).
Top Right: Fe/Male toilet signs in Orlando, Florida, USA (Ritz-Carlton).
Bottom: Fe/Male & Special needs toilet signs in Botswana (Chobe).

Image 3: *Map of Countries Included in the Sample*
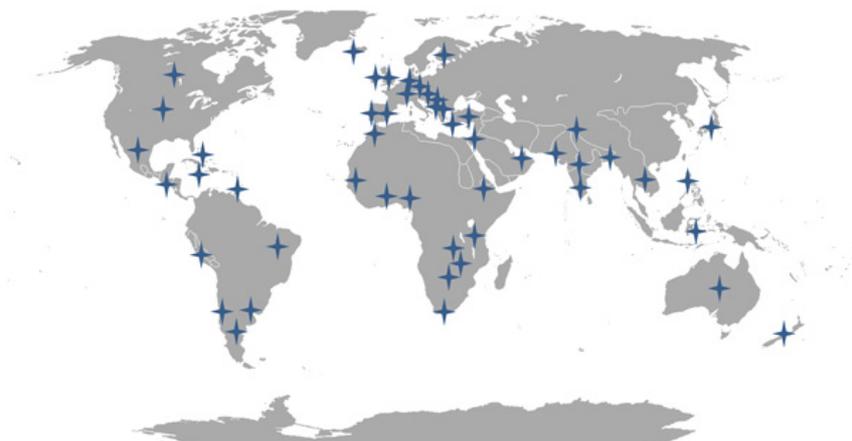
Note: Foundation map of world source: https://en.wikipedia.org/wiki/List_of_world_map_changes - stars added and map edited.

Image 4: *Example of Gender Neutral Pedestrian Crossing Sign – Australia*

Source data in Appendix B

Image 5: *Pedestrian Crossing Signs – Switzerland (left) & Pakistan (right)*

Source data in Appendix B

Appendix B – Source Data used in Analysis

HDI Rank	Gender Inequality Rank	Country	Sample	Reference	Source Type	Source Quality
2	19	Australia		Roads & Maritime. (n.d.). Traffic Signs. Retrieved March 15, 2016 from: http://www.rms.nsw.gov.au/roads/safety-rules/road-rules/signs.html	Origin	1
3	2	Switzerland	Pilot	*Le Conseil federal. (n.d.). Office fédéral des routes OFROU. Retrieved from: http://www.astra.admin.ch/dienstleistungen/00127/00634/index.html?lang=fr	Origin	1
5	7	Netherlands	Random	Ministry of Infrastructure and the Environment. (2013). Road Traffic Signs and Regulations in the Netherlands	Origin	1
6	3	Germany	Random	Allgemeiner Deutscher Automobil-Club e.V.Transport Affairs. (2010). Traffic signs and symbols in Germany. Retrieved March 1, 2016, from: www.adac.de AND Road traffic signs in Germany. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Germany-Road-Traffic-Signs.pdf	Origin	1
6	21	Ireland		Department of Transport (An Roinn Iompair). (2010). Traffic signs manual. Retrieved March 15, 2016 from: http://www.dttas.ie/roads/publications/english/traffic-signs-manual-2010	Origin	1
8	55	United States	Random	U.S. Department of Transportation, Federal Highway Administration. (2002). United States Road Symbol Signs. Retrieved February 29, 2016, from http://mutcd.fhwa.dot.gov/services/publications/fhwaop02084/	Origin	1
9	25	Canada		British Columbia Ministry of Transportation and Highways. (2000). Manual of standard traffic signs and pavement markings. Retrieved March 15, 2016 from http://www.th.gov.bc.ca/publications/eng_publications/electrical/most_pm.pdf British Columbia Ministry of Transportation and Highways. (2000). Traffic control manual for work on roadways. Retrieved March 15, 2016 http://www.th.gov.bc.ca/publications/eng_publications/tcm/traffic_control_manual.htm	Origin	1
9	32	New Zealand		NZ Transport Agency, Waka Kotahi. (2012). The official New Zealand road code: About signs. Retrieved March 15, 2016 from: https://www.nzta.govt.nz/resources/roadcode/about-signs/main-types/	Origin	1
14	39	United Kingdom	Pilot	*Department for Transport. (2010). Know your traffic signs, 6th edition. Retrieved from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/222621/dg_191955.pdf	Origin	1
16	12	Iceland		Arctic Car Rental in Iceland (n.d.). Icelandic road markings and traffic signs. Retrieved March 15, 2016 from: https://www.arctic.is/traffic-signs/	Car Rental	3
18	18	Israel	Pilot	*Senior Planning Transportation Division (2014). אגף בכד תכנון התחבורה. לוח התמרורים (Translated via Google translate: Table signposts). Retrieved from: http://media.mot.gov.il/PDF/HE_TRAFFIC_PLANNING/tamrurim2010.pdf	Origin	1
20	26	Japan	Pilot	*Gifu Prefectural Police Headquarters. (2009). Japanese traffic rules. Retreived from: http://www.pref.gifu.lg.jp/English/life/traffic/text/index.data/hokousha-en.pdf	Origin	1
23	5	Austria	Random	Rechtsinformationssystem (Legal Information System of the Republic of Austria) (© 2016). Bundesrecht konsolidiert: Gesamte Rechtsvorschrift für Straßenverkehrszeichenverordnung 1998, Fassung vom 02.03.2016. Retrieved March 1, 2016 from: https://www.ris.bka.gv.at/GeltendeFassung.wxe?Abfrage=Bundesnormen&Gesetzesnummer=10012793&ShowPrintPreview=True	Origin	1
24	11	Finland	Random	Finnish Road Administration. (2004). Road signs and other devices of traffic control in Finland. Retrieved February 26, 2016, from	Origin	1
26	16	Spain	Random	Ministerio del Interior. (2011). Normas y senales reglladoras de la circulaccion. Retrieved March 1, 2016 from: http://www.dgt.es/Galerias/seguridad-vial/formacion-vial/cursos-para-profesores-y-directores-de-autoescuelas/doc/XIV_Curso_24_NormasYSeniales.pdf	Origin	1
32	22	Cyprus	Random	Cyprus Road Traffic Signs. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Cyprus-Road-Traffic-Signs.pdf Halkos. (2015). Learn the warning signs|Driving school Nicosia, Cyprus. Retrieved on May 4, 2016 from: http://www.halkos.com.cy/en/highway-code/warning-signs.html	AutoClub	3
32	116	Qatar	Random	Ministry of Interior – Traffic Police. (2013). Traffic signs. Retrieved from: http://www.moi.gov.qa/site/english/departments/TrafficPolice/sections/sec742/742.html Alkhebra Driving Academy. (n.d.) Retrieved May 4, 2016 from: http://www.alkhebradriving.com/images/Road%20Signs.pdf	Origin	1
35	33	Slovakia	Random	Ministerstvo spravodlivosti SR (Ministry of Justice), (n.d.) Jednotný automatizovaný systém právnych informácií (Unified automated system of legal information).VYOBRAZENIA A VZORY DOPRAVNÝCH ZNAČIEK (Transport Illustration and Designs),	Origin	1
40	75	Argentina	Random	*Instituto de Seguridad y Educación Vial. (n.d.) Sistema de señalización vial uniforme. Retrieved from: http://www.ushuaia.gob.ar/documents/18/3ff80209-0a99-469c-ba99-f7f25b2c7334 Instituto de Seguridad y Educación Vial. (n.d.) Sistema de señalización vial uniforme. Retrieved from: http://www.ushuaia.gob.ar/documents/18/3ff80209-0a99-469c-ba99-f7f25b2c7334	Origin	1
42	65	Chile	Pilot	*República de Chile, Ministerio de Transportes y Telecommunicaciones Subsecretaría de Transportes. (2012). Manual de señalización de tránsito. Retrieved from: http://www.conaset.cl/manualsenalizacion/document/Decreto_780001.pdf	Origin	1
43	20	Portugal	Random	Road traffic signs in Portugal. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Portugal-Road-Traffic-Signs.pdf	AutoClub	2
52	61	Uruguay	Random	Intendencia de Montevideo, Montevideo Transito. (2015). Señales de tránsito. Retrieved March 1, 2016 from: http://www.montevideo.gub.uy/transito-y-transporte/educacion-vial/senales-de-transito Intendencia de Durazno. (2011) Manual del conductor. Retrieved May 4, 2016 from: https://sites.google.com/site/intendenciadurazno/ManualdeSeguridadVial_alta.pdf?attredirects=0	Origin	1
64	73	Trinidad and Tobago	Random	Trinidad and Tobago road traffic signs. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Trinidad-and-Tobago-Road-Traffic-Signs.pdf	AutoClub	3
66	38	Serbia	Random	Serbia road traffic signs. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Serbian-Road-Traffic-Signs.pdf	AutoClub &	3
67	68	Cuba	Pilot	*Ministerio de Educación, República de Cuba. (n.d.). CubaEduca; Portal educativo Cubano. Retrieved from: http://www.cubaeduca.cu/index.php?option=com_content&view=article&id=4328&Itemid=3	Origin	1
72	71	Turkey	Random	Road traffic signs in Turkey. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Turkey-Road-Traffic-Signs.pdf	AutoClub	2
74	74	Mexico	Random	Instituto Mexicano del Transporte (2015). Retrieved February 29, 2016, from http://www.imt.mx/micrositios/seguridad-y-operacion-del-transporte/senalamiento/senales-restrictivas.html	Origin	1
75	97	Brazil	Random	Governo de Sergipe, Departamento Estadual de Trânsito de Sergipe (nd) Sinalização de Trânsito. Retrieved March 1, 2016 from: http://www.detran.se.gov.br/educ_sinal.asp	Origin	1
84	82	Peru	Random	Republica del Peru Ministirio de Transportes, (2000). Comunicaciones vivienda y construccion: Manua de dispositivos de control del transito automotor para calles y carreterras. Retrieved March 1, 2016 from: https://www.mtc.gob.pe/cnsv/area_legal/Normas%20Tecnicas/Manual_de_Dispositivos_de_Control_de_Transito_Automotor_para_Calles_y_Carreteras.pdf	Origin	1
85	41	Bosnia and Herzegovina	Random	Bosnia and Herzegovina Road Traffic Signs. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Bosnia-and-Herzegovina-Road-Traffic-Signs.pdf	AutoClub	2
				Ministry of Transport and Works. (2003). Traffic Control Devices Manual, Volume I. Retrieved March 15, 2016	Origin	

99	93	Jamaica		from: http://www.mhtww.gov.jm/transport/policies/traffic%20control%20device%20manual.pdf	Origin	1
106	106	Botswana		Botswana Road Traffic Signs. (n.d.). Retrieved March 15, 2016, from http://www.adcidl.com/pdf/Botswana-Road-Traffic-Signs.pdf	AutoClub	3
110	110	Indonesia	Random	Road traffic signs in Indonesia. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Indonesian-Road-Traffic-Signs.pdf Adriansyah, Y.S. (2014). [Bicycle Image]. New Indonesian road signs according to PM. Retrieved May 4, 2016 from: https://en.wikipedia.org/wiki/Road_signs_in_Indonesia#/media/File:Indonesia_New_Road_Sign_8b.png	AutoClub	3
115	89	Philippines	Random	AffordableCebu. (2015). List of Traffic signs in the Phillippines. Retrieved March 7, 2016 from:http://www.affordablecebu.com/load/philippine_government/list_of_traffic_signs_in_the_philippines/5-1-0-30228	Local Exper	1
116	91	El Salvador	Random	Gobierno de El Salvador, Viceministerio de Transporte (2011). Ministerio de obras publicas transporte, vivienda 7 desarrollo urbano: Senalizacion vial, Retrieved March 1, 2016 from: http://www.vmt.gob.sv/index.php?option=com_content&view=article&catid=133:senales-de-transito-&id=656:senales-de-transito&Itemid=167	Origin	1
116	83	South Africa		Department of Transport (n.d.). Road traffic signs. From the 3rd (1999) edition of the SADC Road Traffic Signs Manual. Retrieved from March, 2016 from: http://www.trafficsigns.co.za/signs.php	Origin	1
120	67	Kyrgyzstan	Random	Road traffic signs in Kyrgyzstan. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/Kyrgyzstan-Road-Traffic-Signs.pdf	AutoClub	3
126	117	Morocco	Random	CODE ROUTE Maroc. (2016). شرح كامل لاشارات المرور.Code de la Route Maroc. Retrieved March 1, 2016 from:http://coderoutemaroc.com/signalisation-routiers-code-route-maroc/129-signalisation-routiere-signaux-interdiction	NFP site	3
130	130	India	Random	Road traffic signs in India. (n.d.). Retrieved February 26, 2016, from http://www.adcidl.com/pdf/India-Road-Traffic-Signs.pdf	AutoClub	3
139	132	Zambia		Ministry of Legal Affairs, Government of the Republic of Zambia. (n.d.). The roads and road traffic act. Retrieved March 15, 2016 from: http://www.parliament.gov.zm/sites/default/files/documents/acts/Roads%20and%20Road%20Traffic%20Act.pdf	Origin	1
140	127	Ghana		Ghanian Road Traffic Signs. (n.d.). Retrieved March 15, 2016, from: http://www.adcidl.com/pdf/Ghanaian-Road-Traffic-Signs.pdf	AutoClub	3
142	111	Bangladesh		Bangladesh Road Transport Authority. (2012). Traffic sign. Retrieved March 15. 2016 from: http://www.brta.gov.bd/index.php/traffic-signs	Origin	1
143	104	Cambodia		Cambodia Road Traffic Signs. (n.d.). Retrieved March 15, 2016, from http://www.adcidl.com/pdf/Cambodia-Road-Traffic-Signs.pdf	AutoClub	3
145	108	Nepal	Random	Ministry of Works and Transport, Department of Roads. (1997). His majesty's government of Nepal: Traffic signs manual. Retrieved February 26, 2016, from	Origin	1
147	121	Pakistan	Random	RoadSign.PK. (n.d.).Retrieved February 26, 2016, from http://www.roadsign.pk/roadsignpk	General	3
151	125	Tanzania (United Repul		Ministry of Infrastructure Development, United Republic of Tanzania (2008). The Highway Code. Retrieved March 7, 2016 from:http://www.mow.go.tz/uploads/publications/8ec6c961e5e5461f56aeb e78dc20f00b.pdf	Origin	1
152	..	Nigeria		Federal Republic of Nigeria, Federal Ministry of Works (2013). Highway manual part I: Design. Rertieved on March 7, 2016 from:http://www.rsdt.gov.ng/files/%20NEW%20HIGHWAY%20DESIGN%20MANUAL/Volume_VI_Road_Signs_and_Markings_Published_v1_0.pdf	Origin	1
155	112	Zimbabwe	Random	Road traffic signs in Zimbabwe. (n.d.). Retrieved February 26, 2016, http://www.adcidl.com/pdf/Zimbabwe-Road-Traffic-Signs.pdf	AutoClub	3
174	129	Ethiopia		Ethiopia Road Traffic Signs. (n.d.). Retrieved March 7, 2016, from http://www.adcidl.com/pdf/Ethiopia-Road-Traffic-Signs.pdf	AutoClub	3
175	143	Gambia		Gambia Information Site. (2016). Traffic and driving regulations in Gambia, Retrieved March 7, 2016 from:http://www.accessgambia.com/information/driving-traffic-regulations.html	Origin	1

Appendix C – Tables

Table 1: *Culture Cluster – Mapping Countries in the Sample to Cultural Clusters*

	Anglo	Germanic	Latin European	African	Eastern European	Middle Eastern	Confucian	Southeast Asian	Latin American	Nordic
Exact Match	USA	Netherlands	Spain	Zimbabwe		Turkey	Japan	India	Brazil	Finland
	UK	Germany	Portugal	Nigeria		Qatar		Indonesia	Argentina	
	Australia	Austria	Israel	Zambia		Morocco		Philippines	El Salvador	
	Ireland	Switzerland*							Mexico	
	Canada									
	New Zealand									
Liberal Match				Gambia	Bosnia & Herzegovina	Kyrgyzstan		Nepal	Peru	Iceland
				Ethiopia	Cyprus	Pakistan		Cambodia	Uruguay	
				Tanzania	Serbia			Bangladesh	Chile	
				Ghana	Slovakia				Cuba	
				Botswana						

Notes: *Switzerland can fall into Germanic or Latin European based on language (House, et al, 1999). Liberal cluster analysis reflects the entire group; exact and liberally applied countries. Countries excluded from cluster analysis: Trinidad & Tobago and Jamaica are proxemics to Anglo and

Latin American cultures, significantly different relative to this comparison, South Africa, white sample is Anglo while black sample is African, which cannot be applied to this study.

Table 2 *Gender of Symbols by Sign Type*

Sign	Neutral	Male	Female	Total
Pedestrian	2	47	0	49
Bicycle	31	14	0	45
Road Works	0	44	0	44
Children/School	0	53	36	89
Total	33	158	36	227
% of Total	14.5%	69.6%	15.9%	100.0%

Table 3: *Male vs. Female Symbols Compared by Sign*

	df	F	M	s	N
Overall	3, 190	23.3*			
Pedestrian			2.00	.00	47
Bicycle			2.00	.00	14
Road Works			2.00	.00	44
Children/School			2.40	.04	89

*Indicates $p < .05$. All categories exclude gender neutral symbols.

Table 4: *Leader/Follower by Age, Gender, and (Liberal) Cultural Cluster*

Cluster	Male			Female			Total	
	Child	Adult	Total	Child	Adult	Total	Male %	Female %
Leaders								
Anglo	0	2	2	3	0	3	40%	60%
Germanic	4	0	4	0	0	0	100%	0%
Latin Euro.	2	1	3	0	0	0	100%	0%
African	2	0	2	5	0	5	29%	71%
Eastern Euro.	4	0	4	0	0	0	100%	0%
Mid. Eastern	4	0	4	0	0	0	100%	0%
Confucian	1	0	1	0	0	0	100%	0%
SE Asian	1	0	1	3	0	3	25%	75%
Latin Amer.	3	3	6	1	0	1	86%	14%
Nordic	0	0	0	2	0	2	0%	100%
Total Leaders	21	6	27	14	0	14		
Followers								
Anglo	3	0	3	2	0	2	60%	40%
Germanic	2	0	2	2	0	2	50%	50%

Latin Euro.	1	0	1	2	0	2	33%	67%
African	6	0	6	1	0	1	86%	14%
Eastern Euro.	1	0	1	3	0	3	25%	75%
Mid. Eastern	2	0	2	2	0	2	50%	50%
Confucian	0	0	0	1	0	1	0%	100%
SE Asian	4	0	4	0	0	0	100%	0%
Latin Amer.	1	0	1	6	0	6	14%	86%
Nordic	2	0	2	0	0	0	100%	0%
Total Followers	22	0	22	19	0	19		
Grand Total								
Anglo	3	2	5	5	0	5	50%	50%
Germanic	6	0	6	2	0	2	75%	25%
Latin Euro.	3	1	4	2	0	2	67%	33%
African	8	0	8	6	0	6	57%	43%
Eastern Euro.	5	0	5	3	0	3	63%	37%
Mid. Eastern	6	0	6	2	0	2	75%	25%
Confucian	1	0	1	1	0	1	50%	50%
SE Asian	5	0	5	3	0	3	63%	37%
Latin Amer.	4	3	7	7	0	7	50%	50%
Nordic	2	0	2	2	0	2	50%	50%
Grand Total	43	6	49	33	0	33		

About the Authors

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Authors' Address

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