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The Diversity of Color: An Analysis of Cross-Cultural Color Symbolism

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Abstract

Does a person's perception of color symbolism depend on their cultural geographic origin? As color is often connected to different cultural elements, this study is intended as a contribution to advancing cross-cultural understanding in a globalizing world. The hypothesis states that the color perceived to be symbolic of various life events such as weddings, births, and deaths as well as emotions such as happiness or sadness, will vary based on a person's cultural geographic origin. Using eleven basic color terms, as determined by Berlin and Kay (1969), subjects' perceptions of color symbolism was explored through responses to an online survey shared with a global convenience sample. The findings have shown a dependence on the construct to which color symbolism is being attributed. Data was found to both support and refute this hypothesis. In the constructs of contempt, disgust, happiness, birth and wealth, the hypothesis was supported while it was refuted through the data collected for anger, sadness, fear, surprise, death, weddings, divorce, poverty, work, education.

The Diversity of Color: An Analysis of Cross-Cultural Color Symbolism

Does color symbolism differ in regards to cultural geographic origin? The iconic images that first come to mind are often synonymous with the colors which are found to be important in your culture. According to the Institute of Color Research, "all human beings make an unconscious judgment about a person, environment, or item within ninety seconds of initial viewing and that between 62 percent and 90 percent of that assessment is based on color alone" (cited in Morioka & Stone, 2006). While many people may not be explicitly aware of the symbolism they attach to a color, decisions or perceptions are often influenced based on the presence of color.

Color bears meaning in many ways including natural meanings (i.e. *sky* or *grass*), commercial significance (i.e. *Nikon* or *John Deere*), informational signals (i.e. *caution*, *stop*, or *go*), or emotional connections (i.e. anger or happiness). "More than just a visual phenomenon, color has emotional and cultural dimensions that can enhance – or impede – communication efforts" (Morioka & Stone, 2006). As an enhanced understanding of the cultural significance of colors can increase our understanding and communication cross-culturally, the purpose of this study was to better understand how various cultures react to eleven basic color terms.

Literature Review

A 1969 study by Berlin and Kay discussed the usage of color names in various languages worldwide. Their findings stated that every language has a word for both black and white. A third color term, if it exists in the language, is always red. The forth and fifth terms interchangeably are green or yellow with the sixth being blue and the seventh

brown. After brown, each language will include pink, orange, purple, and grey in varying orders. These eleven colors were the colors utilized in the present study.

   While there are numerous studies done in Western Societies on color, few were found that deal with colors across multiple cultures. Some informal charts on cultural color symbolism can be found on the Internet providing a basis on which to begin the present study (Scott-Kemmis, n.d.; Kyrnin, 2008). Several studies link to color symbolism through their research of color usage in flags (Bernhard, 2011; Podeh, 2011; R.F., 2006). As flags are a symbol of national identity, the colors used also bear cultural meaning. Three articles were found on the topic of color symbolism in direct relation to culture. In *Chinascope*, the author writes about popular colors used in Chinese culture and their meanings to the people of China (Colors in Chinese Culture*, 2007). A more extensive study done by Jingyi, looked at the official colors of each empire throughout Chinese history (Jingyi, 2012). An article in *Military Review*, First Sergent António Rodrigues of the Portuguese Army, discusses the importance of colors and their symbolism and roots among Islamic Cultures (Rodrigues, 2008).

   From a psychological standpoint, colors can elicit an emotional response and therefore represent feelings or major life events (Karp & Karp, 1988; Zentner, 2001). A study by Burkitt, Barrett and Davis found that children used their preferred colors when describing positive stimuli and their least preferred colors when describing negative stimuli, with black being the most frequently associated with negativity (Burkitt, Barrett, & Davis, 2003). Karp and Karp studied the color symbolism responses of children to emotional and non-emotional stimuli. They found that while the color responses to

emotions were consistent between the boys and girls, responses to the non-emotional

stimuli varied between the two genders (Karp & Karp, 1988).

According to Paul Ekman in *Emotions Revealed*, humans have seven basic emotions –

happiness, anger, contempt, disgust, sadness, fear, and surprise (Griffiths, 2003). Birth,

weddings, divorce, wealth, poverty, work, education, and death have been chosen by the

researcher as indicative of basic life events present in most cultures. This study uses these

seven emotions and eight basic life events in order to provide the basic constructs to which

colors can be attributed.

Methodology

The hypothesis under investigation states that the color perceived to be symbolic of

each element of human life, represented in this study by events such as weddings, births,

and deaths, and emotions such as happiness and sadness, will vary based on the cultural

geographic origin of an individual.

The dependent variable, color symbolism, is defined as the quality of hue,

saturation, and brightness of an object as used for or regarded as representing elements of

human life such as emotions and major life events (www.dictionary.com). The independent

variable, cultural geographic origin, is defined as the beliefs, customs, arts, etc., of a

particular society, group, place, or time as belonging to or characteristic of a particular

region from which a person originates (www.merriam-webster.com).

Data for this study was gathered in a short online survey hosted on

www.cognopod.com. Participants were asked to indicate which color they associate with

each construct listed in the survey. The colors listed in the survey were the eleven basic

color terms found in Berlin & Kay's study on color names in various languages (Berlin &

Kay, 1969). In order to explore the relationship between the variables, minimal

biographical information was requested (i.e. age, country of birth, cultural identity, places

they have lived) as the independent variable.

Color symbolism was measured by asking the participants to indicate which one of

the eleven colors (black, white, red, green, yellow, blue, brown, pink, orange, grey, and

purple) they deemed to be representative of the construct of human life listed in the

question. Each question stated, "what color do you primarily associate with" followed by

one of the fifteen constructs (happiness, anger, contempt, disgust, sadness, fear, surprise,

birth, weddings, divorce, wealth, poverty, work, education, and death). The responses to

these questions determined what color each cultural group primarily deemed to be

symbolic of that construct.

The independent variable, cultural geographic origin, was informed by participants'

answers to biographical questions such as cultural background, places they have lived, age,

gender, country of birth, and the culture to which they most strongly associate. Cultural

origin was determined by response to the following question: "the culture to which you

most strongly associate is in which geographical region?"

The convenience sample consisted of voluntary participants both at Andrews

University and at other locations globally. Participants at Andrews University were

recruited through social media, word of mouth, and the Department of Behavioral Sciences

research pool. Other participants were similarly recruited through social media, word of

mouth, and at the request of personal contacts in Africa, Europe, Australia, and North and

South America. Any participants who were above the age of legal consent were accepted in

the study. Participants were asked to indicate their consent and that they were of legal age to participate.

In order to maximize validity the researcher sought to obtain as large a sample size as possible through continuous recruitment. To avoid bias, participants were provided with the same eleven colors in a randomized order for each construct. Biographical information collected allowed the researcher to categorize the participant's cultural geographic origin in order to determine the culture to which their views of color symbolism can be attributed.

Once collected, the data was organized into tables. The columns in each table list the eleven colors while the rows list the cultural regions. Each construct was represented in a separate table. These tables allowed the researcher to analyze the answers to each construct and compare the frequency of responses of each color by group of cultural geographic origin. A chi squared statistical approach, as a measurement of how expectations compare to results, with a Monte Carlo Simulation (to correct for cells with less than five responses), was used to measure the relationship between the dependent variable, color symbolism, and the independent variable, cultural geographic origin.

Subject risk was minimal as subjects simply filled out an online survey at their convenience. Information gathered did not include any sensitive information. The data gathered can only be reached by entering a username and password held by the researcher and the research administrator, Dr. Karl Bailey. Participants were recruited between January 2014 and March 2014. Participants were not asked any identifying characteristics, aside from age and gender. Each data entry is differentiated by a specific date and time stamp recorded at the survey's submission.

Results

A total of 465 people across 14 geographical zones participated in the online survey.
Table 1 shows the distribution of participants' geographical origins. As participants were
not specifically selected based on geographical area, an uneven distribution is seen
between the geographical regions. No participants stated their geographical origins to be
Northern Africa, Central Africa, Middle East (Western Asia), or Russia – Asia.

Table 1: Participants by Region

North America	312	Eastern Africa	6
Central America	10	Western Africa	4
South America	16	Southern Africa	48
Northern Europe	11	Southern Asia	4
Eastern Europe	2	Southeastern Asia	4
Western Europe	23	Eastern Asia	9
Oceania	14	Central Asia	2
N: 465			

A chi-square test of independence was performed to examine the relationship
between color symbolism and culture. A p value of less than 0.05 indicated a statistical
significance. The relationship between the variables was sometimes found to be significant
and sometimes insignificant, depending on the construct involved.

Ten constructs were found to be statistically insignificant, as shown in Table 2:
anger, sadness, fear, surprise, death, weddings, divorce, poverty, work, and education.
Therefore these ten constructs did not support the hypothesis of color symbolism being
related to a person's cultural geographic origin.

Table 2: Statistically Insignificant Findings

	X^2	p		X^2	p
Anger	113.87	0.21	Weddings	125.68	0.10
Sadness	145.03	0.29	Divorce	134.17	0.39
Fear	122.79	0.54	Poverty	145.31	0.20
Surprise	92.36	0.62	Work	158.20	0.12
Death	135.16	0.16	Education	130.21	0.24

The remaining five constructs were found to be statistically significant, as shown in Table 3: contempt, disgust, happiness, birth, and wealth. These constructs did indicate a color symbolism based on the participants' geographical origins. Complete tables of the responses to each construct can be found in the appendix.

Table 3: Statistically Significant Findings

	X^2	p
Contempt	235.65	< 0.01
Disgust	250.97	< 0.01
Happiness	139.64	0.02
Birth	414.00	< 0.01
Wealth	237.81	< 0.01

Discussion

The five constructs which were found to be culturally significant – contempt, disgust, happiness, birth, and wealth – all exhibit characteristics of being culturally dependent. As these are things which vary in expression from culture to culture, it is understandable that the symbolism attributed to them will also vary based on culture. Wealth, for example, is relevant to the culture in which a person resides. In a North American culture, a large house and a plethora of expensive possessions may represent wealth. In a Western African society wealth may be symbolized by the possession of many

cows. This difference in how wealth is viewed may be why different colors are attributed to it based on how that culture sees the topic. Each of these five constructs may differ in this way based on societal and cultural norms of the individual. From an emotional standpoint, a culture which is more reserved about showing emotions may have a more subdued or negative perception to the symbolism attributed to these emotions. In cultures where emotions are freely displayed, perceptions of color may change accordingly.

The reasons for some constructs being found to be statistically irrelevant could be many and varied. As the field of color research expands, there is a growing volume, whether in scientific research or in trends among social media, of suggestions for what various colors should be attributed to. Therefore, responses to the constructs of anger, sadness, fear, death, and weddings may be influenced by these cultural trends (i.e. I have heard that anger should be red, so I will answer red). This might also be attributed to the growing influence of the Internet, the entertainment industry, and the ease of sharing information between cultures, thereby creating a more uniform response.

The construct of poverty may be inherently the same throughout various cultures because of the realities of what people see in the world. 49% of the respondents, associated poverty with brown, 11% selected black, and 30% grey. As poverty is generally portrayed as dirty, dusty, or muddy no matter where you go, people may connect this to these earth tones, regardless of their cultural affiliations.

Events such as divorce are generally seen as a negative and therefore can be related to sadness, anger, and general malaise. It is understandable then that the color symbolism attributed to it is related to the responses of sadness and anger. The colors of black, grey,

and red, all also attributed to sadness, and anger, comprised 75% of the responses to divorce.

Limitations

A total of 67% of the participants in this study were of North American Origins, therefore it is understandable that the results of this study are influenced by that overwhelming majority. Shared ideas and influences between cultures may also be responsible for this presence of similarity among cultures.

Many of the constructs which are less obvious in their color connections (such as birth, divorce, wealth, poverty, work, and education) may have been influenced by the uncertainty of the respondent. In future research, a "no color connection" response should be added to the list of eleven colors so that participants are not forced to make an arbitrary choice when they truly have no preference.

A complication faced in this study was that of individuals who are influenced by multiple cultures. In a growing global society, more and more people are being exposed to different cultures, whether through the Internet, television, and other media, or first hand through travel or living in various cultures. Historically, culture would have been a distinct and unique experiences as the travel and information industries were much more difficult to access. With today's increased access to information through technology, cultural lines are becoming blurred as individuals are more and more able to choose where they want to live and to which culture they want to assimilate. This influences people's perceptions of symbolism through their exposure to 'foreign' ideas and acceptance of a more global portrayal. Further research may benefit by studying those individuals who have not been exposed to cultures apart from their own.

Future Research

A better distribution among the cultural origins of the participants could have greatly benefitted the outcome of the study. Literature reviewed before gathering data discussed some color usage differences among Eastern Asian and Indian societies that were not shown in this research simply because of a lack of respondents. Literature repeatedly showed white to be a color of mourning among Asian cultures and Red to be both a lucky color and a wedding color among Indian and Asian societies. Further research would benefit by ensuring that a more even distribution of cultures, specifically among oriental and Indian populations, are included.

The findings of this study have showed a dependence on the construct to which color symbolism is being attributed. The hypothesis stated that the color perceived to be symbolic of each element of human life, represented in this study by events such as weddings, births, and deaths, and emotions such as happiness and sadness, will vary based on the cultural geographic origin of an individual. The data in the present study was found to both support and refute this hypothesis. In the constructs of contempt, disgust, happiness, birth and wealth, the hypothesis was supported while it was refuted through the data collected for anger, sadness, fear, surprise, death, weddings, divorce, poverty, work, education. More extensive future research is needed to further explore this subject.

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Appendix: Participant Response Counts Based on Geographical Origin

Anger

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	16	0	275	0	4	1	3	0	7	3	3
C. America	0	0	9	0	1	0	0	0	0	0	0
S. America	1	0	10	0	0	0	2	0	1	1	1
N. Europe	0	0	11	0	0	0	0	0	0	0	0
E. Europe	0	0	2	0	0	0	0	0	0	0	0
W. Europe	0	0	20	0	1	0	0	0	0	2	0
S. Africa	5	0	37	0	0	1	0	0	2	0	3
E. Africa	0	0	6	0	0	0	0	0	0	0	0
W. Africa	0	0	3	0	0	1	0	0	0	0	0
Oceania	2	0	12	0	0	0	0	0	0	0	0
S. Asia	0	0	4	0	0	0	0	0	0	0	0
SE. Asia	0	0	4	0	0	0	0	0	0	0	0
E. Asia	1	0	7	0	0	0	1	0	0	0	0
C. Asia	0	0	2	0	0	0	0	0	0	0	0
TOTALS	25	0	402	0	6	3	6	0	10	6	7

Contempt

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	51	4	90	16	38	15	18	3	21	32	24
C. America	1	1	3	0	0	2	0	1	0	1	1
S. America	1	2	1	0	1	2	3	3	2	1	0
N. Europe	0	0	3	0	4	0	0	1	0	2	1
E. Europe	1	0	0	1	0	0	0	0	0	0	0
W. Europe	4	0	3	2	6	1	1	0	1	3	2
S. Africa	6	4	6	3	3	2	4	0	2	8	10
E. Africa	0	2	0	0	2	0	0	1	1	0	0
W. Africa	0	0	0	1	0	1	1	0	1	0	0
Oceania	1	0	4	1	4	0	2	0	0	2	0
S. Asia	1	0	1	0	0	1	0	1	0	0	0
SE. Asia	0	0	0	0	0	0	1	0	2	1	0
E. Asia	1	1	1	2	0	3	0	0	0	0	1
C. Asia	0	1	0	0	0	0	1	0	0	0	0
TOTALS	67	15	112	26	58	27	31	10	30	50	39

Disgust

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	24	0	17	15	72	1	114	4	6	30	29
C. America	1	0	0	1	4	0	3	1	0	0	0
S. America	3	0	1	1	2	0	7	0	0	1	1
N. Europe	2	0	0	0	4	1	3	1	0	0	0
E. Europe	0	0	0	0	0	0	2	0	0	0	0
W. Europe	2	0	3	4	2	0	6	0	0	1	5
S. Africa	6	0	5	6	4	0	19	0	0	1	7
E. Africa	0	0	0	2	2	0	0	2	0	0	0
W. Africa	0	0	0	0	0	0	3	0	0	0	1
Oceania	0	0	0	2	2	0	6	0	0	1	3
S. Asia	0	0	1	0	1	0	2	0	0	0	0
SE. Asia	0	0	0	0	2	0	1	0	1	0	0
E. Asia	0	0	0	1	2	0	3	0	1	0	2
C. Asia	0	0	0	0	0	1	0	1	0	0	0
TOTALS	38	0	27	32	97	3	169	9	8	34	48

Sadness

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	38	0	4	2	3	134	15	2	2	1	111
C. America	2	0	0	0	0	6	0	0	0	0	2
S. America	7	0	0	0	0	1	2	0	1	0	5
N. Europe	1	0	0	0	0	5	0	0	0	0	5
E. Europe	0	0	0	0	0	2	0	0	0	0	0
W. Europe	6	0	0	1	0	6	1	0	1	0	8
S. Africa	9	1	0	2	0	8	1	2	2	0	23
E. Africa	2	0	0	0	0	3	0	0	0	0	1
W. Africa	0	0	0	0	0	0	0	0	1	0	3
Oceania	0	0	0	0	0	5	0	0	0	0	9
S. Asia	1	0	0	1	0	0	0	0	0	0	2
SE. Asia	0	0	0	0	0	1	0	0	0	0	3
E. Asia	2	0	1	0	0	4	0	0	1	0	1
C. Asia	2	0	0	0	0	0	0	0	0	0	0
TOTALS	70	1	5	6	3	175	19	4	8	1	173

Happiness

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	0	4	6	194	28	28	0	24	6	22	0
C. America	0	0	0	9	1	0	0	0	0	0	0
S. America	0	3	1	6	2	2	0	2	0	0	0
N. Europe	0	0	0	8	1	1	0	0	0	1	0
E. Europe	0	0	1	0	1	0	0	0	0	0	0
W. Europe	0	0	1	10	3	2	0	3	2	2	0
S. Africa	0	3	2	19	4	12	0	4	1	3	0
E. Africa	0	1	1	3	1	0	0	0	0	0	0
W. Africa	0	0	0	4	0	0	0	0	0	0	0
Oceania	0	1	0	9	0	3	0	1	0	0	0
S. Asia	0	0	1	3	0	0	0	0	0	0	0
SE. Asia	0	0	0	4	0	0	0	0	0	0	0
E. Asia	0	0	0	3	0	1	0	3	0	2	0
C. Asia	0	0	1	0	0	0	0	1	0	0	0
TOTALS	0	12	14	272	41	49	0	38	9	30	0

Fear

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	110	16	62	26	10	10	6	2	11	23	36
C. America	4	2	2	0	0	1	0	0	0	0	1
S. America	8	1	3	0	1	0	0	0	1	0	2
N. Europe	3	1	4	1	0	0	0	0	1	0	1
E. Europe	0	1	0	1	0	0	0	0	0	0	0
W. Europe	8	2	3	1	2	2	0	0	0	1	4
S. Africa	20	1	8	5	0	1	2	0	1	4	6
E. Africa	1	0	4	0	0	0	0	0	1	0	0
W. Africa	1	1	1	0	0	0	0	0	0	0	1
Oceania	5	0	1	0	1	0	1	0	0	1	5
S. Asia	2	0	0	0	0	0	0	0	1	1	0
SE. Asia	3	0	1	0	0	0	0	0	0	0	0
E. Asia	4	0	2	0	0	0	0	0	3	0	0
C. Asia	0	0	1	0	0	0	0	0	1	0	0
TOTALS	169	25	92	34	14	14	9	2	20	30	56

Surprise

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	1	8	43	121	11	10	0	45	10	63	0
C. America	0	0	1	3	0	0	0	4	0	2	0
S. America	0	0	1	4	1	1	0	5	0	4	0
N. Europe	0	0	1	5	0	0	0	3	0	2	0
E. Europe	0	0	0	0	0	0	0	0	0	2	0
W. Europe	0	0	1	9	1	3	0	2	0	7	0
S. Africa	1	1	6	14	2	3	0	12	2	7	0
E. Africa	0	0	0	4	0	0	0	0	0	2	0
W. Africa	0	0	0	1	1	0	0	0	0	2	0
Oceania	0	1	0	4	0	2	0	2	2	3	0
S. Asia	0	0	1	1	0	0	0	0	0	2	0
SE. Asia	0	0	1	1	0	0	0	1	0	1	0
E. Asia	0	0	1	4	0	0	0	4	0	0	0
C. Asia	0	0	0	1	0	0	0	0	1	0	0
TOTALS	2	10	56	172	16	19	0	78	15	97	0

Death

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	286	5	0	1	0	0	4	0	1	0	15
C. America	9	0	0	0	0	0	0	0	0	0	1
S. America	16	0	0	0	0	0	0	0	0	0	0
N. Europe	10	0	0	0	0	0	0	0	1	0	0
E. Europe	1	0	0	0	0	0	0	0	0	0	1
W. Europe	20	1	0	0	0	0	0	0	0	0	2
S. Africa	38	2	0	1	0	1	0	0	1	0	5
E. Africa	5	0	1	0	0	0	0	0	0	0	0
W. Africa	4	0	0	0	0	0	0	0	0	0	0
Oceania	12	1	0	0	0	0	0	0	1	0	0
S. Asia	3	0	0	0	0	0	0	0	0	0	1
SE. Asia	4	0	0	0	0	0	0	0	0	0	0
E. Asia	7	0	0	0	0	0	0	0	0	0	2
C. Asia	2	0	0	0	0	0	0	0	0	0	0
TOTALS	417	9	1	2	0	1	4	0	4	0	27

Birth

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	0	36	42	16	7	35	0	168	4	2	2
C. America	0	0	3	1	0	3	0	2	0	1	0
S. America	0	4	1	6	1	1	0	3	0	0	0
N. Europe	0	3	0	2	1	1	0	4	0	0	0
E. Europe	0	1	0	0	0	0	0	1	0	0	0
W. Europe	0	4	3	3	3	2	0	8	0	0	0
S. Africa	1	11	6	2	6	6	0	15	1	0	0
E. Africa	0	0	0	1	0	1	0	3	0	0	1
W. Africa	0	0	0	2	0	1	0	1	0	0	0
Oceania	0	4	3	1	0	0	0	6	0	0	0
S. Asia	0	1	0	0	0	1	0	2	0	0	0
SE. Asia	0	1	1	0	0	0	0	1	0	1	0
E. Asia	0	1	2	3	0	0	0	3	0	0	0
C. Asia	0	0	0	1	0	0	1	0	0	0	0
TOTALS	1	66	61	38	18	51	1	217	5	4	3

Weddings

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	0	298	3	1	1	2	0	5	2	0	0
C. America	0	10	0	0	0	0	0	0	0	0	0
S. America	0	14	1	0	0	0	0	1	0	0	0
N. Europe	0	10	0	1	0	0	0	0	0	0	0
E. Europe	0	2	0	0	0	0	0	0	0	0	0
W. Europe	0	20	1	1	0	0	0	0	1	0	0
S. Africa	0	43	0	1	2	0	0	0	2	0	0
E. Africa	0	6	0	0	0	0	0	0	0	0	0
W. Africa	0	2	1	1	0	0	0	0	0	0	0
Oceania	0	14	0	0	0	0	0	0	0	0	0
S. Asia	0	3	1	0	0	0	0	0	0	0	0
SE. Asia	0	4	0	0	0	0	0	0	0	0	0
E. Asia	0	7	1	0	0	0	0	1	0	0	0
C. Asia	0	1	0	0	0	0	0	1	0	0	0
TOTALS	0	434	8	5	3	2	0	8	5	0	0

Divorce

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	126	4	46	5	7	18	24	2	7	2	71
C. America	5	0	2	0	1	0	0	0	0	0	2
S. America	5	1	4	0	0	1	1	0	0	0	4
N. Europe	2	2	1	0	1	2	0	0	0	1	2
E. Europe	0	0	0	0	0	0	1	0	0	0	1
W. Europe	10	1	0	0	0	0	4	0	1	1	6
S. Africa	18	2	5	2	2	0	3	1	3	3	9
E. Africa	0	1	0	0	0	1	1	0	0	0	3
W. Africa	1	0	2	0	0	0	0	0	1	0	0
Oceania	4	0	2	1	0	0	0	0	1	1	5
S. Asia	0	0	1	1	0	0	1	0	0	0	1
SE. Asia	1	0	1	0	0	0	0	0	1	0	1
E. Asia	2	0	2	0	1	0	1	0	1	0	2
C. Asia	1	0	0	0	0	0	0	0	0	0	1
TOTALS	175	11	66	9	12	22	36	3	15	8	108

Wealth

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	14	16	14	38	130	17	3	0	78	0	2
C. America	1	1	0	1	6	1	0	0	0	0	0
S. America	0	2	0	8	2	1	0	0	2	1	0
N. Europe	0	0	1	5	3	0	0	1	0	0	1
E. Europe	0	0	0	1	1	0	0	0	0	0	0
W. Europe	1	0	2	4	3	3	2	0	6	1	1
S. Africa	5	3	1	3	11	3	0	0	18	3	1
E. Africa	0	0	1	0	4	0	0	0	1	0	0
W. Africa	0	0	0	0	3	0	0	0	0	1	0
Oceania	0	1	1	4	5	2	0	0	1	0	0
S. Asia	0	0	1	0	1	0	0	1	1	0	0
SE. Asia	1	0	1	1	1	0	0	0	0	0	0
E. Asia	0	1	2	2	2	0	0	1	1	0	0
C. Asia	0	1	0	0	1	0	0	0	0	0	0
TOTALS	22	25	24	67	173	27	5	3	108	6	5

Poverty

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	31	1	7	2	3	2	152	0	2	9	103
C. America	1	0	0	0	0	0	6	0	0	0	3
S. America	1	0	1	0	0	0	11	0	1	0	2
N. Europe	1	1	0	0	0	0	6	0	0	0	3
E. Europe	1	0	0	0	0	0	0	0	0	0	1
W. Europe	3	1	1	0	0	1	9	0	0	0	8
S. Africa	8	1	1	1	0	1	23	0	0	1	12
E. Africa	2	0	0	0	0	0	3	0	0	0	1
W. Africa	0	0	0	0	0	0	1	0	0	0	3
Oceania	1	1	1	0	0	0	8	0	0	0	3
S. Asia	1	0	0	0	0	0	3	0	0	0	0
SE. Asia	0	0	0	0	0	0	4	0	0	0	0
E. Asia	2	0	0	1	0	1	3	0	0	0	2
C. Asia	1	0	0	0	1	0	0	0	0	0	0
TOTALS	53	5	11	4	4	5	229	0	3	10	141

Work

	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	18	19	15	18	45	75	43	1	9	6	63
C. America	3	0	0	0	1	2	1	0	0	0	3
S. America	2	1	0	1	1	4	1	0	0	2	4
N. Europe	0	1	1	0	1	2	3	0	0	0	3
E. Europe	0	1	0	0	0	0	0	0	0	0	1
W. Europe	2	1	3	0	2	6	3	0	0	1	5
S. Africa	8	3	4	1	9	8	2	0	1	2	10
E. Africa	0	0	0	0	0	1	0	0	3	1	1
W. Africa	0	2	0	0	1	1	0	0	0	0	0
Oceania	3	0	2	1	2	2	0	0	0	1	3
S. Asia	1	0	0	0	0	1	0	0	1	0	1
SE. Asia	0	0	0	1	1	1	0	0	0	0	1
E. Asia	0	1	0	0	2	2	1	0	0	0	3
C. Asia	0	0	0	1	1	0	0	0	0	0	0
TOTALS	37	29	25	23	66	105	54	1	14	13	98

Education										
	Black	White	Red	Yellow	Green	Blue	Brown	Pink	Purple	Orange	Grey
N. America	14	18	15	17	80	127	14	0	13	8	6
C. America	0	2	1	2	2	3	0	0	0	0	0
S. America	1	2	1	2	3	7	0	0	0	0	0
N. Europe	1	0	1	0	3	4	1	0	1	0	0
E. Europe	0	0	1	0	1	0	0	0	0	0	0
W. Europe	0	1	0	0	10	11	1	0	0	0	0
S. Africa	2	5	3	3	10	18	3	0	2	1	1
E. Africa	0	1	0	0	3	2	0	0	0	0	0
W. Africa	1	2	0	0	1	0	0	0	0	0	0
Oceania	2	0	1	1	2	6	0	0	1	1	0
S. Asia	1	0	0	0	1	1	0	0	1	0	0
SE. Asia	0	0	0	0	1	3	0	0	0	0	0
E. Asia	0	2	0	1	3	1	0	0	0	2	0
C. Asia	0	0	0	2	0	0	0	0	0	0	0
TOTALS	22	33	23	28	120	183	19	0	18	12	7