Empirical Examination of the Schwartz Value Theory from a Cross-National Comparative Perspective:

Data Analysis of the World Values Survey*

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Ⅰ. Introduction

The purpose of this paper is to conduct an empirical examination of the value theory of Shalom Schwartz from a cross-national comparative perspective through a data analysis of the World Values Survey (WVS).

A great deal of research has already been conducted on the topic of values, and a vast amount of literature addressing this issue already exists (cf. Manabe, 2016). In this field, Schwartz's value research is among those receiving the most attention within the global academic community. This is reflected in the high frequency with which his works are cited in the academic literature in this field. In Japan, his theory, model, and method are introduced in various forms, including citations in individual research papers, research examples in review papers, and explanations in dictionaries and encyclopedias.

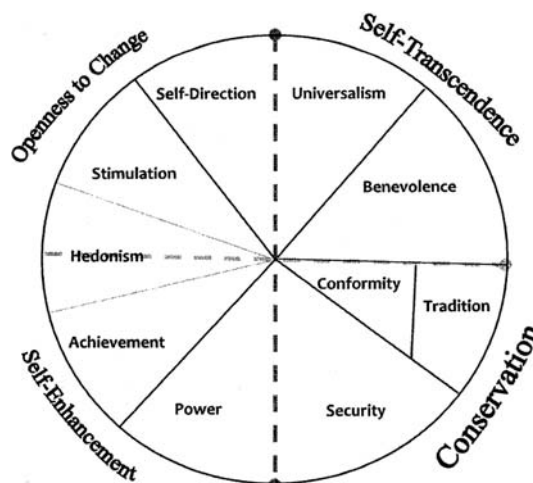The content is primarily focused on Schwartz's depiction of human values in a configuration

Figure 1　Schwartz (1992) Value Model
(Adapted from Davidov et al. eds., 2011)

model referred to as a "circular continuum." Schwartz's "circular continuum of values" model is a structural model that shows the mutual relationships between the ten motivationally distinct types of basic human values: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security. In this circular continuum, the values that are positioned in adjacent regions (the fan-shaped or wedge-shaped regions) hold similar meaning. The values positioned in the region on the opposite side of the circular continuum have the opposite meaning. This is Schwartz's basic structural model (Fig. 1) of human values (Schwartz, 1992). Using the terms of Louis Guttman, a pioneer in the field of social measurement, this would be referred to as a "circumplex" (Levy, ed., 1994; Manabe, 2016).

In this paper, I specifically examine the shape (configuration) of the Schwartz Value Model.

Ⅱ. Method of Examining the Schwartz Value Model

This paper presents an empirical examination of the Schwartz Value Model through a data analysis of the 6th World Values Survey (WVS; 2010-2014). The empirical nature of this examination is its first distinctive feature.

Next, the purpose of conducting the data analysis is to examine the cross-national comparability of the structural model of values as shown in the geometric shape known as the "circular continuum."

Table 1   Schwartz (1992) Value Types and ESS Question Items
(Adapted from Datler, Jagodzinski and Schmidt, 2013)

Value	Item # (according to its order in the ESS questionnaire) and Wording (Male Version)
Self-direction	1. Thinking up new ideas and being creative is important to him. He likes to do things in his own original way. 11. It is important to him to make his own decisions about what he dose. He likes to be free to plan and not depend on others.
Universalism	3. He thinks it is important that every person in the world be treated equally. He believes everyone should have equal opportunities in life. 8. It is important to him to listen to people who are different from him. Even when he disagrees with them, he still wants to understand them. 19. He strongly believes that people should care for nature. Looking after the environment is important to him.
Benevolence	12. It is very important to him to help the people around him. He wants to care for their well-being. 18. It is important to him to be loyal to his friends. He wants to devote himself to people close to him.
Tradition	9. It is important to him to be humble and modest. He tries not to draw attention to himself. 20. Tradition is important to him. He tries to follow the customs handed down by his religion or his family.
Conformity	7. He believes that people should do what they're told. He thinks people should follow rules at all times, even when no one is watching. 16. It is important to him always to behave properly. He wants to avoid doing anything people would say is wrong.
Security	5. It is important to him to live in secure surroundings. He avoids anything that might endanger his safety. 14. It is important to him to that the government insures his safety against all threats. He wants the state to be strong so it can defend its citizens.
Power	2. It is important to him to be rich. He wants to have a lot of money and expensive things. 17. It is important to him to get respect from others. He wants people to do what he says.
Achievement	4. It is important to him to show his abilities. He wants people to admire what he does. 13. Being very successful is important to him. He hopes people will recognize his achievements.
Hedonism	10. Having a good time is important to him. He likes to "spoil" himself. 21. He seeks every chance he can to have fun. It is important to him to do things that give him pleasure.
Stimulation	6. He likes surprise and is always looking for new things to do. He thinks it is important to do lots of different things in life. 15. He looks for adventures and likes to take risks. He wants to have an exciting life.

The World Values Survey (WVS) is a particularly suitable data set for this specific objective.

1. Question Items Used in the Data Analysis

As already mentioned, the responses to the 6th WVS are used as the survey data for conducting the empirical examination presented in this paper. For more information on the wording of the question items used in this data analysis, please see the appended materials.

Schwartz's values items were incorporated into the 5th WVS (2005-2009) and these were based on the question items used in the 2nd European Social Survey (ESS).

As shown here, two or three questions are used on the ESS for each type of the Schwartz values. In fact, it isn't until the 5th WVS that the value questions are organized into 10 questions using only one question per value type instead of two or three (Table 2). The relationships between the questions on the WVS and the Schwartz Value Model are shown in Fig. 2.

The question item corresponding to "Benevolence," which is one of the value types, was worded as "(E) It is important to this person to help the people around this person" on the 5th WVS, but was

Table 2 Schwartz (1992) Value Types and WVS Question Items

Value Types	WVS Question Items
(A) Self-direction	V 70. It is important to this person to think up new ideas and be creative; to do things one's own way.
(B) Power	V 71. It is important to this person to be rich; to have a lot of money and expensive things.
(C) Security	V 72. Living in secure surroundings is important to this person; to avoid anything that might be dangerous.
(D) Hedonism	V 73. It is important to this person to have a good time; to "spoil" oneself.
(F) Benevolence	V 74. It is important to this person to do something for the good of society.
(G) Achievement	V 75. Being very successful is important to this person; to have people recognize one's achievements.
(H) Stimulation	V 76. Adventure and taking risks are important to this person; to have an exciting life.
(I) Conformity	V 77. It is important to this person to always behave properly; to avoid doing anything people would say is wrong.
(J) Universalism	V 78. Looking after the environment is important to this person; to care for nature and save life resources.
(K) Tradition	V 79. Tradition is important to this person; to follow the customs handed down by one's religion or family.
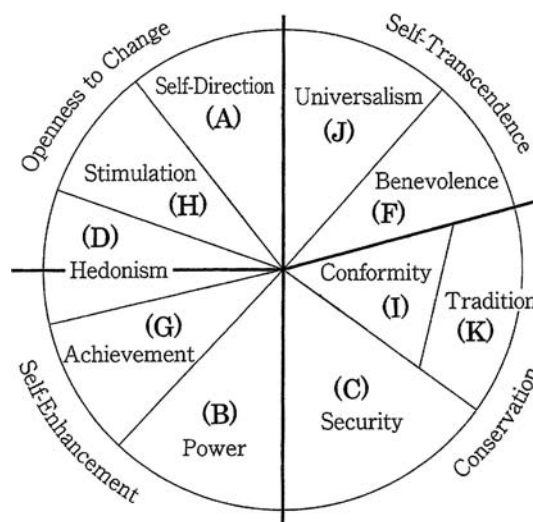
Figure 2 Schwartz (1992) Value Model and Alphabetical Symbols of WVS Question Items

replaced by or added as "(F) It is important to this person to do something for the good of society" on the 6th WVS. For this reason, item (E) is not included on the 6th WVS in some countries. Data from item (E) is therefore excluded from the data analysis in this empirical examination of the Schwartz model from the perspective of cross-national comparison.

2. Countries Included in the Data Analysis

Next, countries were selected based on previous research as follows. For the 6th WVS, the WVS Executive Committee reported that the Schwartz values question items were not structured in a way that confirmed the theory in all countries. In some advanced countries and Latin American countries, a structure could be seen that confirmed the theory, but in former Communist bloc countries, Islamic countries, African countries, and the countries of South Asia, the structure was far from the theory (Yamazaki, 2016). Based on this report, the following 10 countries were selected for conducting the data analysis in this paper. Analyzing the data from these 10 countries enables the empirical confirmation and modification of the findings of previous studies.

Western countries: Germany, US
Former Communist bloc countries: Russia
Islamic countries: Turkey
African countries: South Africa
Asian countries: Japan, South Korea, China, Thailand, Malaysia

3. Method of Data Analysis

Based on the above-mentioned preparatory work, I conducted the following three types of data-driven analyses.

　(1) Examination of the frequency distribution of the responses to the 10 Schwartz question items.
　(2) Examination of the correlation matrix showing the interrelationships between the responses to the above-mentioned 10 question items (examination of the sign and size of the correlation coefficient).
　(3) Examination of the result of Smallest Space Analysis (SSA) based on a correlation matrix, also known as an SSA map.

This paper focuses on (3).

Ⅲ．Cross-national Comparison of SSA Maps for the Schwartz Value Question Items

Smallest Space Analysis (SSA), a type of multidimensional scaling, is a method of expressing the relationships between n number of question items shown in a correlation matrix by the size of the distance between n points in an m-dimensional (m＜n) space plot. The higher the correlation, the smaller the distance, and the lower the correlation the greater the distance. Usually a 2-dimensional (plane) or 3-dimensional (cube) space plot is used to visually depict the relationships between question items (Manabe, 2001).

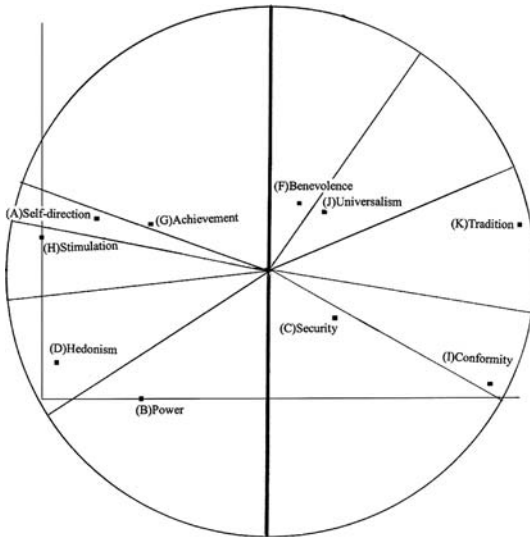SSA is the most appropriate technique of visually depicting the overall structure of and relations

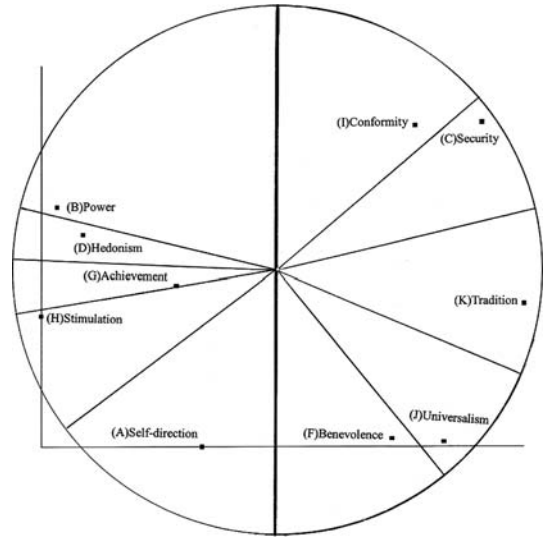**Figure 3①   SSA Map for Chinese Samples**

Figure 3②   SSA Map for German Samples

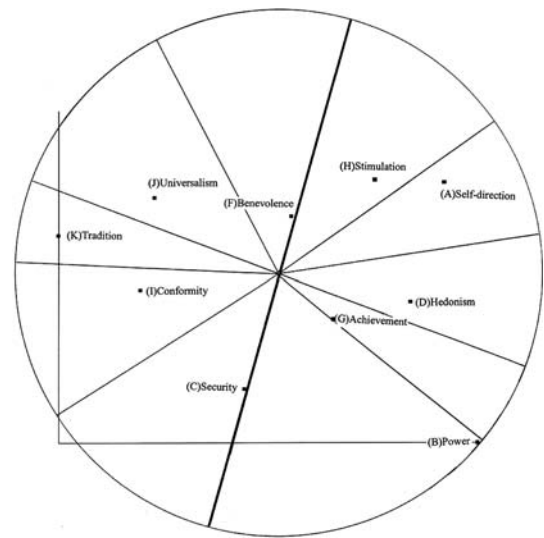**Figure 3③   SSA Map for Korean Samples**

Figure 3④   SSA Map for Japanese Samples

between the question items. Executing the HUDAP SSA program based on Guttman's weak monotonicity coefficient (instead of Pearson's product moment correlation coefficient) made it possible to create 2-dimensional SSA maps (Figs. 3①-3⑩) for the 10 countries included in this analysis.

The computer-calculated results output was a print-out of ten symbols of A - K expressing the location of each question item in the 2-dimensional Euclidean space. The 10 fan-shaped or wedge-shaped segments (spatial regions) depicted on the SSA map are the results of my effort to assign meaning to the space plot of these 10 items based on the empirical laws of Guttman's Facet Theory. Essentially this interpretation of each of these 10 question items is positioned in one of 10 fan-shaped or wedge-shaped spatial regions partitioned by 10 radial lines expanding out from the center of a circle.
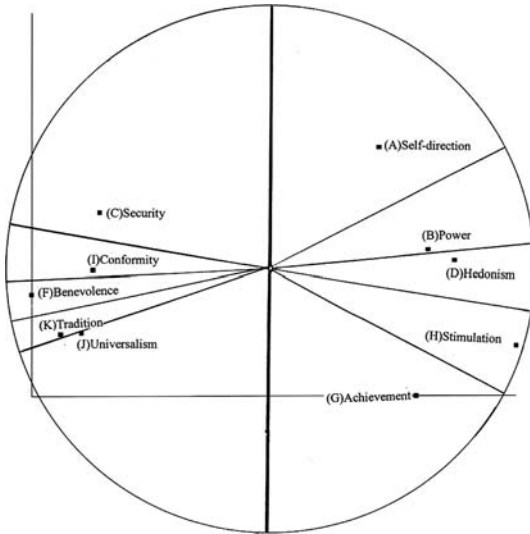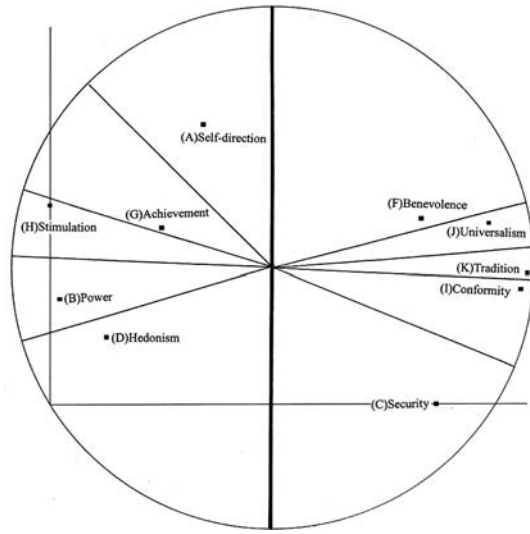
Figure 3⑤　　SSA Map for Malaysia Samples

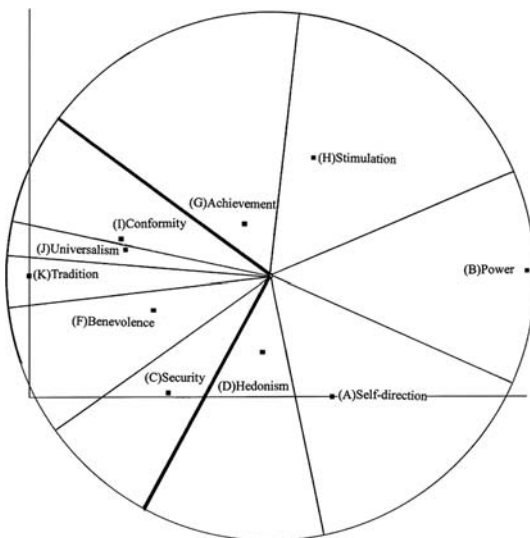**Figure 3⑥　　SSA Map for Russian Samples**

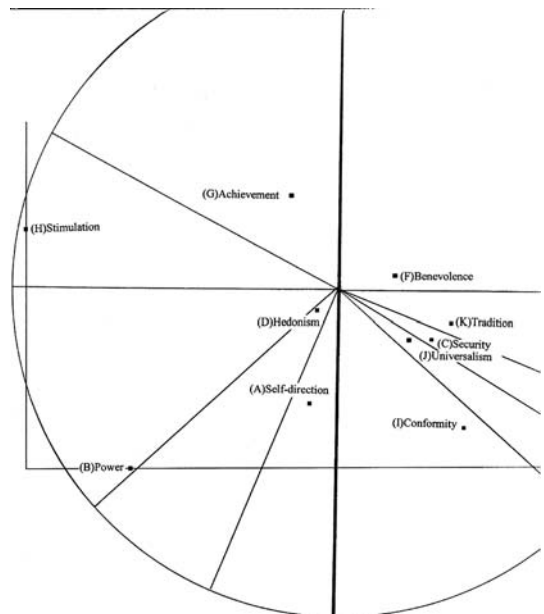**Figure 3⑦　　SSA Map for South African Samples**

Figure 3⑧　　SSA Map for Thai Samples

Of course, it was Schwartz who first had the idea of applying the statistical technique of Guttman's Smallest Space Analysis to the structural analysis of the 10 question items on values. The goal of this data analysis is to empirically confirm Schwartz's idea from a cross-national comparative perspective. Smallest Space Analysis, by expressing the world of meaning constructed by human beings in the visual form of a geometric figure, is a technique that makes it possible to develop objective and visual representations of theoretical ideas based on the insights and imagination of the researcher. Originally, the so-called contiguity hypothesis played a central role in Guttman's Facet Theory. Specifically, this can be understood as follows. A questionnaire survey is a technique for exploring the
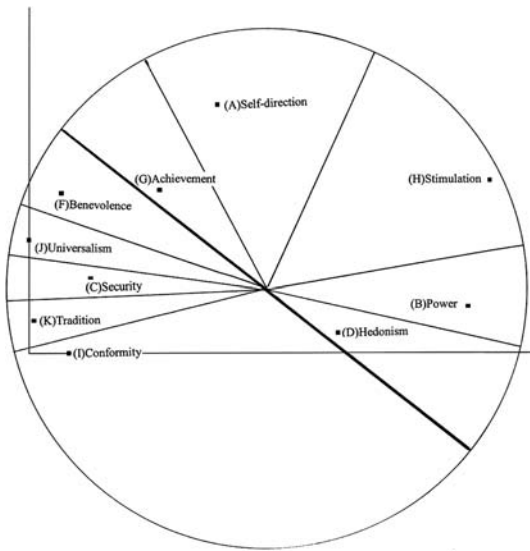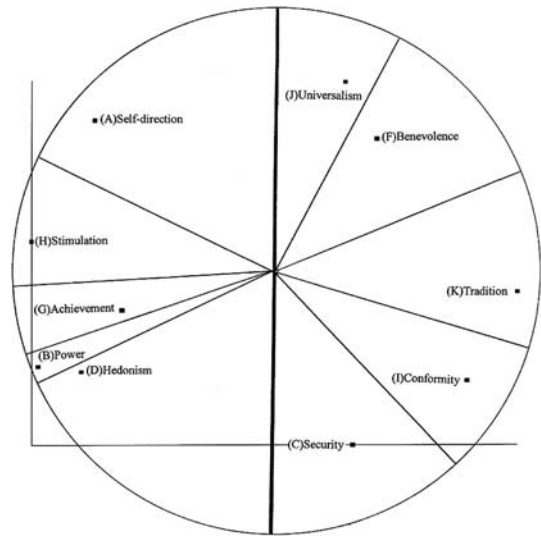
Figure 3⑨　SSA Map for Turkish Samples　　　　　**Figure 3⑩　SSA Map for American Samples**

world of meaning constructed by human beings. As the meanings of the words used in the question items become more similar, statistically closer relationships between the question items can be observed in the survey results. The statistical technique that can empirically confirm this contiguity hypothesis is none other than Smallest Space Analysis.

　Next, we must ask how we can confirm, from a cross-national comparative perspective, the Schwartz's Value Model, which visually depicts data using Smallest Space Analysis. I proceeded in the following five steps.

　First, Schwartz Value Model is, in Schwartz' own words, a "circular continuum model." To confirm the Schwartz Model is to confirm whether the structure of the interrelationships between the values question items is expressed in the geometrical configuration of a circular continuum in the same way in all of the 10 countries examined in this analysis. I used two check points for confirming this configuration.

　(1) Is the boundary of the space in which the values question items are plotted expressed in a circular shape?
　(2) Are each of the values question items exclusively plotted in one of the 10 distinct fan-shaped or wedge-shaped segments (spatial regions) of the circle?

　Second, I confirmed whether the values question items in adjacent fan-shaped or wedge-shaped spatial regions of the SSA maps of each country were the same as in the Schwartz Model.

　Third, I confirmed whether the values question items that are plotted in the opposite fan-shaped or wedge-shaped spatial regions extending beyond the center of the circle are the same as in the Schwartz Model.

Fourth, in the Schwartz model, the 10 values items start from Universalism, and move clockwise in circular order through Security and Power to arrive at Self-Direction. From steps 2 and 3 above, I confirmed whether this circular order can be confirmed on each country's SSA map.

Finally, Schwartz grouped the 10 values items further into four higher order value types: "Self-Transcendence," "Conservation," "Self-Enhancement," and "Openness to Change." Here, too, as in the case above, the correlations with the value groups in adjacent regions are high, while the correlations with the value groups on the opposite side are low. I confirmed whether this trend can likewise be seen on each country's SSA map.

In this paper, I focus on the outcomes of step 1 with three main findings.

(1) In the SSA maps of all 10 countries, the 10 values items are plotted within a single circle, and each is exclusively positioned into one of the 10 distinct fan-shaped or wedge-shaped segments of the circle partitioned by 10 radial lines extending out from the center. These results indicate that the space plot of the values items on the SSA map do in fact reflect the space partition shape that Schwartz refers to as a "circular continuum".

(2) The SSA maps of the 10 countries have similarities in terms of their geometric shape, but differences were evident in the circular order of the space plot of the values items, that is, in the content of the items plotted in adjacent fan-shaped or wedge-shaped regions and the content of the items plotted in the fan-shaped or wedge-shaped regions on the opposite side of the circle across the center point. A more detailed description of this difference would require an overall descriptive design (for example, a Facet Design).

(3) However, there were similarities across the 10 countries beyond the overall shape of the SSA map. One was in the content of the values items positioned in the right half and left half of the Schwartz model. Differences between countries could be seen in the circular order of the space plot of the question items on the SSA map, but if the values items are partitioned by a vertical line or a diagonal line, they separate out into a J, F, K, I, C group (Self-Transcendence and Conservation) and an A, H, D, G, B group (Openness to Change and Self-Enhancement) in all 10 countries.

These findings suggest that the "circular continuum of values" model guarantees cross-national comparability, and provides a useful basic framework for conducting a comparative analysis of the structure of mutual correlations between the values items in the 10 countries.

Ⅳ. Conclusion

In this paper, I conducted a data analysis to confirm whether the Schwartz value model is a useful model in the context of cross-national comparison. Future research should refine this approach by examining the value model from perspectives of reliability and validity. The direction of such research would be the construction and refinement of the value model as a measurement model.

However, there are other paths for conducting values research. Even as I inquire the former path

forward for exploring the remaining issues identified in this paper, I have already begun preparing to conduct research that goes beyond the theme of refining the measurement model. On the one hand, my interest lies in using this measurement model as a tool or method to highlight the various aspects of values and their structure in a given country or society. On the other, I am interested in using the measurement model as a key variable in constructing a causal model positioned within the correlation between cause variables (e.g., gender, age, level of education) and consequence variables (e.g., life satisfaction, gender/family values, religiosity, political consciousness). I also propose conducting research to confirm the causal model from a cross-national comparative perspective.

References

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Appendix: WVS Question Wordings

Now I will describe some people. Using this card, would you please indicate for each description whether that person is very much like you, like you, somewhat like you, no like you, or not at all like you?
(Code one answer for each description):

	Very much like me	Like me	Some-what like me	A little like me	Not like me	Not at all like me
V 70. It is important to this person to think up new ideas and be creative; to do things one's own way.	1	2	3	4	5	6
V 71. It is important to this person to be rich; to have a lot of money and expensive things.	1	2	3	4	5	6
V 72. Living in secure surroundings is important to this person; to avoid anything that might be dangerous.	1	2	3	4	5	6
V 73. It is important to this person to have a good time; to "spoil" oneself.	1	2	3	4	5	6
V 74. It is important to this person to do something for the good of society.	1	2	3	4	5	6
V 75. Being very successful is important to this person; to have people recognize one's achievements.	1	2	3	4	5	6
V 76. Adventure and taking risks are important to this person; to have an exciting life.	1	2	3	4	5	6
V 77. It is important to this person to always behave properly; to avoid doing anything people would say is wrong.	1	2	3	4	5	6
V 78. Looking after the environment is important to this person; to care for nature and save life resources.	1	2	3	4	5	6
V 79. Tradition is important to this person; to follow the customs handed down by one's religion or family.	1	2	3	4	5	6

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ABSTRACT

The purpose of this paper is to conduct an empirical examination of the value theory of Shalom Schwartz from a cross-national comparative perspective through a data analysis of the World Values Survey (WVS). Schwartz's "circular continuum of values" model is a structural model that shows the mutual relationships between the ten motivationally distinct types of basic human values: power, achievement, hedonism, stimulation, self-direction, universalism, benevolence, tradition, conformity, and security. The 10 countries were selected for conducting the data analysis, namely Germany, the United States, Russia, Turkey, South Africa, Japan, South Korea, China, Thailand, and Malaysia. As a method of data analysis, Smallest Space Analysis (SSA) developed by Louis Guttman was used. SSA maps of the 10 countries have similarities in terms of their geometric shape (a space partition shape that Schwartz refers to as a "circular continuum"), but differences were evident in the circular order of the space plot of the values items. These findings suggest that the circular continuum model provides a useful basic framework for conducting a comparative analysis of basic human values.

Key Words: Schwartz value theory, circular continuum, World Values Survey, Smallest Space Analysis