

Factor Analysis of Choice of Dress Code at Ho Polytechnic

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Abstract

The purpose of this research is to investigate whether society still holds the original essence of clothing in high esteem, what factors do people consider when choosing what to wear, and also, to compare today's factors with those of earlier centuries. This research was carried out in Ho Polytechnic community where 350 respondents made up of academics and non academics were selected to complete a questionnaire asking them to indicate the level of importance attached to listed original factors. The raw data consists of 23 original factors subjected to factor analysis to identify new composite factors that can explain the clothing behavior of the populace. At the end, six factors were identified. These are; in order of importance, general undecided attitude of the people as to what actually controls their dressing, and the information base of the people. The rest are; the resolution of some people not to dress to offend anyone, fabric influence, the specific social believes of the people and the blending factor. It is hoped that the findings of the research would prompt society to be mindful of what clothing communicates about the wearer.

Keywords: Communication; Clothing; Character; Virtues; Honor

Introduction

People modify the appearance of the body day-in, day-out. This is done with the intention of enhancing the general outlook of the body. Such actions are; covering the body with clothes, arranging the hair, polishing the face, enhancing the surface of the skin and shaping the body using medications, etc. Whatever the action may be, there is obviously a motive, a reason why we take such an action. These motives are initially hidden and can only be made known when the factor influencing the action is revealed. In this research however, we are interested in dressing as an action for enhancing one's outlook. The motive or motives behind dressing is crucial and turns to carry a message about the wearer. This message carried may be good or bad, depending on the way society judges that action.

It is against this backdrop that institutions and other organizations design dress codes for its members so as to carry out a certain message and hence achieve common objectives. Dressing, like any other symbol, has a voice which speaks volumes of the wearer. That is to say that what you wear carries with you your perception, role or status, and even identify you with a particular group. It is therefore imperative for one to carefully examine what to wear in relation to ones motives so as not to receive condemnation from society. Action, they say, speaks louder than words. In Ghana, there is a growing cry and call on society to be part of inculcating discipline, especially moral discipline in the citizenry. While some are also of the view that formal school system should be more actively involved in teaching children about good character and ethical/moral decision making, others are also saying that the elderly seems to be neglecting their function as role models to the youth, or simply the elderly are not doing much in training the youth. Whichever way one looks at it, it is important to note that good character consist of knowing what is good, attempting to do good and actually seen doing the good. This research is interested in identifying the underlying factors that influence the choice of dress code of the people of Ho Polytechnic. It would then be inferred that dressing on campus by the populace is mainly influenced by those salient factors.

Research Methodology

The reasons for clothing in our society appear inconclusive. This therefore suggests continued research in this direction, and this project is an effort made in this direction. The research is aimed at using factor analysis as a statistical tool to select latent factors from a list of twenty three indicators that the researchers perceived are influential in choosing what to wear in the Ho Polytechnic community. The original indicators used are defined as:

- | | |
|---|---|
| V_1 – <i>I want to look nice</i> | V_2 – <i>I like the colour</i> |
| V_3 – <i>I want to look smart</i> | V_4 – <i>I want to draw attention</i> |
| V_5 – <i>I want to look attractive</i> | V_6 – <i>I want the opposite sex to admire me</i> |
| V_7 – <i>My religion</i> | V_8 – <i>My culture</i> |
| V_9 – <i>My profession</i> | V_{10} – <i>I want to look casual</i> |
| V_{11} – <i>Someone else dresses like that</i> | V_{12} – <i>I want to feel good</i> |
| V_{13} – <i>I want to be free to move</i> | V_{14} – <i>My skin colour</i> |
| V_{15} – <i>My hair style</i> | V_{16} – <i>My footwear type</i> |
| V_{17} – <i>Someone advises me to dress like that</i> | V_{18} – <i>I want to look decent</i> |
| V_{19} – <i>Fabric quality</i> | V_{20} – <i>Fashion</i> |
| V_{21} – <i>My education</i> | V_{22} – <i>Price of the dress</i> |
| V_{23} – <i>Because of the Occasion</i> | |

The respondents were asked to indicate their level of importance attached to each of the following indicators. The following Likert scale was used.

- | | |
|--------------------------------|-----------------------|
| $1 =$ <i>strongly disagree</i> | $2 =$ <i>Disagree</i> |
| $3 =$ <i>Uncertain</i> | $4 =$ <i>Agree</i> |
| $5 =$ <i>strongly agree</i> | |

A respondent indicating 4 or 5 against a variable suggests that the person really pays much attention to that variable when dressing; on the other hand, if 1 or 2 is indicated against any variable, the person practically does not attach much importance to that variable when choosing what to wear, a 3 shows the variable in question does at times enjoy some level of importance (but uncertain). Parsimony is the goal in factor analysis methods where manageable few factors out of the lot seek to explain the variation in the original data set. These latent factors would then be responsible in explaining the dressing behavior of the people in the population.

Ho Polytechnic is one of the tertiary institutions in the country situated in the capital of the Volta Region of Ghana, Ho. It is located at the south-western part of the municipality. It has a total population of about 3164 made up of teaching staff, non-teaching staff and students. Out of this number, about 100 are lecturers, about 138 are non-teaching staff, and about 2926 are students.

The target population consists of student, lecturers and non-teaching staff. Both male and female of these categories were selected as respondents. The mode of collecting data was by questionnaire design. A non- probability sampling of quota and convenient sampling methods were used to collect a sample of 350 respondents. Since respondents appear to be in strata, the selection of response units in each stratum was determined by applying proportional

allocation formula, $n_h = \frac{N_h}{N} \times 350$; where n_h denote the number of samples to be selected from stratum h ; N_h , denote the total number of elements (people) in stratum h ; and N , the total population. In this case we let, n_1 represent the size of sample selected from lecturers, n_2 represent the size of sample selected from non-teaching staff, and n_3 , the size of sample selected from students. So that, $n = n_1 + n_2 + n_3$, and $N_1 + N_2 + N_3 = N$, where n is the total sample size, 350, and N , is the total population. Such that, $N_1 = 100$, $N_2 = 138$ and $N_3 = 2926$, $N = 3164$.

Hence,

$$n_1 = \frac{100}{3164} \times 350 = 11,$$

$$n_2 = \frac{138}{3164} \times 350 = 15,$$

$$n_3 = \frac{2926}{3164} \times 350 = 323.$$

Thus, 11 people were selected from among the lecturers, 15 were selected from among the non-teaching staff 323 students were selected to complete the questionnaire. The mode of selecting respondents was purely accidental, where the individual met at a time is questioned to identify his strata and then questionnaire given to complete. In the end, 347 questionnaires were retrieved and valid for analysis.

Data Analysis

Analysis of data was done with the aim of seeking to extract few composite factors, instead of the original 23, which would be able to explain the maximum variation in the dressing behavior of the populace of the Ho Polytechnic. The main statistical tool used for the analysis was the factor analysis. All analyses were done using the SPSS software application. Factor analysis is an advance statistical tool generally denoting a class of procedures primarily used for data reduction. In many researches, there may be large number of variables, most of which are correlated and which must be reduced to a manageable level. The processes of factor analysis in finding out salient constructs among many indicator variables are achieved by answering certain vital questions about the data. These questions are;

1. Does the data qualify for factoring?
2. Is there inter correlations among the variables?
3. How many salient factors are possible?
4. What are the possible labels for the extracted factors?

Answering these questions means a salient construct would be found for the data and hence the factor model labeled. Various outputs from the computer software provide answers to the questions above. The output, named KMO and Bartlett's test, answers the first question, where the KMO value should be at least 0.5, and the Bartlett's test, having a Chi – square value, must also be significantly large enough in order to proceed to question two above. The correlation matrix output seeks to answer question 2, where there must be evidence that the original indicator variables are inter correlated. These inter correlations suggests that factor analysis is the appropriate tool to use to redefined the variables into homogeneous components that can adequately explain the behavior of the populace in respect to the subject of interest. Two outputs, the total variance explained and/or the scree plot, are responsible for

providing clue to the number of factor models that are enough in adequately explaining the inter correlations among the data collected. Having gone through to question three, one is now set and ready to provide possible label to the factor models.

Labeling the models could be done by, first analyzing the frequency distribution of the rating given to each indicator variable. The actual labeling is done with the help of the component matrix and/or the rotated component matrix, where the indicator with high loadings on a particular component is considered to be providing clue to the interpretability of the model. Selecting surrogate variables is done by choosing the indicator that loads highest on a particular component. These processes were strictly followed in the next section where data from the field were presented and analyzed.

Data Presentation

The high Kaiser-Mayer-Olkin value of 0.8 (in Table 1) suggests that the data is qualify for factoring. The high significant value of the Bartlett's test also lends credence to the fact that factor analysis technique is appropriate. The correlation matrix presented in Table 2 has some high correlations, which is an indication that there are homogenous groups among the original indicators. Conspicuous among the correlations is that between "Culture" and "Religion", between "draw attention" and "look attractive" and also, between "draw attention" and "opposite sex admirer"

Table 3, the total variance explained table, has presented eight components those eigenvalues are greater than one, six of which are significantly greater than one. The scree plot (Figure 1) has also shown a sharp turn towards "6" suggesting that six components are adequate in explaining the dressing behavior of the populace in the study area. From Table 4, three main categories could be identified: variables with high means around 4; those with lower means around 1, and those with means between 2 and 3. High means were seen for V_1 , V_3 , V_{12} , V_{13} , V_{18} and V_{23} . This shows that those indicators enjoyed a great deal of importance attached to them by the respondents. Others with low ratings like; V_4 , V_6 , V_{11} , and V_{17} are those that people appear not to attach more importance to when choosing what to wear. The rest thirteen indicators have mostly rating around 3, indicating the indifference of respondents towards them.

The factor matrix shown in Table 5 has revealed indicators that load highly on the new indicators, at a cut off value of 0.5. Component one has as many as ten indicators loading on it. This suggests the dominant nature of the first component. Most of those indicators are associated with mean ratings around 3. The first label thus seeks to describe the first factor as the general indifference dressing behavior of the people; showing that the dominant factor in the dressing behavior of the people is that many people do not actually have factors that control what to wear.

Again from Table 5, it could be seen that component two has V_7 , V_8 and V_9 conspicuously loading on it. It could be seen (from Table 2) that these two indicators recorded one of the highest correlation values. Component two would hence be describing the specific training (information/educational base of the individual) received by the people. The third component is loaded on by V_4 , V_5 and V_6 . These indicators, though highly correlated, recorded very low means seen in Table 4. Component three could therefore be describing the inoffensive dressing behavior of some people. The fourth component is about looking smart but not on someone's advice. This could only be an influence from the fabric – hence component four is fabric influence. From Table 6, it could be seen that component five is specifically loaded on by V_7 and V_8 . This is denoting the specific beliefs of the respondents. The sixth component, which loaded on by V_{14} , V_{15} and V_{16} , is showing the blending factor in the dressing behavior of the populace. Thus the six new components that describe the dressing behavior of the populace are;

1. *The general indifference in dressing based on a factor or motive*
2. *Information base of the people*
3. *Inoffensive motive by others*
4. *Fabric influence*
5. *The specific beliefs*
6. *The blending factor*

Discussion

The act of wearing clothes, whether fashionable or not, is a part of our social behaviors. Critical questions that should motivate any one in wearing clothes are;

1. When did the wearing of cloth start?
2. Why do people wear clothes?
3. What do clothes signify in any society?

Seeking answers to these questions would obviously encourage anyone, and of course, the general public on clothing. The wearing of clothes has been with us for centuries until one would wonder if nudeness had ever been part of human life. The Holy Bible of the Christian religion gives clues to the inception of wearing clothes. According to Genesis (3 verse 10); after the fall of man: "...and he said, I heard thy voice in the garden, and I was afraid, because I was naked". This is where human beings first identify the need to cover certain parts of the body; one may want to ask therefore, whether clothes were invented as a result of feeling of shame?

We want to pursue the scenario of the garden further. In the same book, Genesis (3 verse 21), "...unto Adam also and to his wife did the Lord God make coats of skin and clothed them". Here we can say emphatically that it was God himself who initiated the concept/phenomenon of dressing and the essence is basically to cover nakedness.

The reasons behind wearing of clothes are certainly relative: it differs from individual to individual; depending on one's own sense of judgment and perception. Nevertheless, it is important to state here that, no matter what ones motive is for wearing particular clothing, society tends to be affected by our choice of a particular behavior. This is why the words of Hamid (1969) will ever be remembered. He said, "...early in a child's life he learns to identify behavioral intentions from facial expressions and gestures of his parents. He also learns that there are quite marked differences among people according to the clothes they wear. Such distinctions enable the child to identify men, women, policemen, firemen, soldiers, nurses, etc., with speed and reliability. Dress therefore provides efficient clues for the classification of others. Thus, just as emotions can be attributed to certain facial expressions, so also actions and activities can be attributed to persons in different modes of dress".

One school of thought might say therefore that, clothes were invented as a criterion for modesty and decency. This perhaps is the conclusion drawn by this school from the Genesis texts above. If the covering of one's nakedness is to stand for modesty and decency, then history has undermined this objective. Rouse (1989) in her book, titled "understanding fashion", said "...in Britain, a study of fashionable dress in the last hundred years would show quite dramatic shift in standards of modesty. In the Victorian period, women concealed their ankles but displayed their shoulders and breasts; in the twenties women exposed more of their legs than ever before; and in the thirties they exposed their backs in evening dress cut to the waist. Today, we are witnessing changes in ideas about decency as nudist beaches become more popular and topless sunbathing for women become popular in the Mediterranean, if not in Britain. It seems then that our sense of embarrassment and modesty comes not from shame of particular parts of the body but the loss of what we are accustomed to wearing or feel is required in a particular situation".

This ideology seems to be explaining the wearing of clothes from the moral view point. The various contexts in which "moral" is defined gives the same definition as "a behavior accepted to be right by most people". If clothing was thus designed to correct or exhibit moral, then there appears to be a misconception of the whole idea. It is clear that the first school's thought (that clothing is for modesty and decency) is what some people in the Ho Polytechnic community are still adhering to, hence the inoffensive factor found as the second component describing the dressing behavior of the populace.

Another school has yet another interesting thought. This explains the act of wearing clothes in terms of its practical function. That is, we wear clothes for protection against the weather. If this is anything to go by, then according to Rouse (1989), "...the dress of the Eskimos is an excellent example for this kind of clothing development. The closely-fitted garments, consisting in winter of two layers of skin, effectively trap and hold warmth next to the body. At the other climatic extreme, the long robes of the Arabs give good protection against the intense heat of the sun and shield the wearers from blowing sand".

In Ghana, we normally experience our coldest temperature around October, November and December, and our warmest around March, April and May. If indeed we need clothes for protection, then we perhaps need them most during these periods of the year. What we see is rather in sharp contrast to this. Consider a man wearing a shirt, a trouser, a long sleeve and an over coat. At the same time a woman is exposing her arm, parts of the chest and stomach and legs uncovered. It would be hard for someone to believe that these two are feeling comfortable in the same temperature. If clothes were meant for protection, then surely the two should look similar in their dress. If this position is right, then what happens to the majority of the respondents that fall in the category of the indifference dressing behavior? These people say they do not actually know or consider which factor influence their dressing behavior in any day. It should be the priority of many not to undermine or relegate physical comfort to the background at the expense of indifference. According to Rouse (1989), "...this disregard for physical comfort is not confined too far off places and times. Some of our own recent styles left much of the body exposed to the element. Girls braved snow drifts and below freezing temperatures in the cold winter of the late sixties in the briefest of mini-skirts and coats".

Another school of thought also thinks that clothes were made for attraction. In another contest, one wears clothe to feel attracted or attractive. Laver (1969) said, "...it would seem, in fact, that our clothes are dictated to us by the deepest unconscious desires of the opposite sex. Throughout the greater part of history and prehistory, men have chosen their partners in life by their attractiveness as women. Therefore, women's clothes are intended to make their wearer as attractive, as women, as possible. Women, on the other hand, have, for the greater part of human history, instinctively chosen their husbands for their capacities to maintain and protect a family". According to Laver (1969), 'Women clothes are governed by what might be called the *seduction* principle- that is, they are sex-conscious clothes. Men's clothes, on the other hand, are governed by the Hierarchical principle-that is, they are class-conscious clothes. In general, the purpose of clothes for women has been to make them more sexually attractive and the purpose of men's clothes has been to enhance their social status".

Laver (1969) is contending that the dominant function of women's clothing is that of attraction and that of men is purely based on status. This is to say that women appear to wear clothes with decorative fabrics and dress in a way as to arrest the attention of the opposite sex. This observation, however, will not go untested. Rouse (1989) had also said "...at various times in our own society men have worn decorative clothes. They have worn jewellery, rich fabrics, extravagant trimmings, and lace. They have worn make-up, wigs and perfume. Can we assume that the attraction of these objects only operate in one direction and only served to attract men to women, even when they were wearing these objects themselves?".

The observations of Laver (1969) and Rouse (1989) above, and those seen for modesty and protection, certainly goes to ascertain the fact that what people thought to be the original motives behind someone wearing a particular clothe has now been redirected. The misdirection could be coming from several other factors as seen in this research. Some of which are; culture, religion, education and profession. This is why many of these institutions have approved standards of both what to wear and how to wear it. At least by this research, Ho Polytechnic community is seen to have six new components that influence many in choosing what to wear. Other factors such as fabric influence and show of status are those that are still held in high esteem by some others. This, perhaps, is because everyone would want to be associated with status and class.

There is also the significance aspect of wearing clothes. Many writers have equated the wearing of clothes to non-verbal form of communication. Non-verbal forms of communication are mostly based on signs, and like every sign, clothes certainly also convey a message about the wearer. Again, Rouse (1989) says that, "a garment itself acts as a sign but in addition, the fabric, the stylistic features of the garment, the color, the way the garment is worn, all these aspects can act as signs and communicate meanings". She put it in another way as "clothes can act as sign too". They carry messages and convey meaning in the same ways. When you go to a party, or meet an individual or group of people for the first time, you observe the people around you. You observe their faces, their hairstyle, and their clothes and on the basis of that observation, you decide their age, their sex, possibly what social background they come from, what kind of job they do, even what kind of person they are. You form an impression of that person from the information conveyed to you by their appearance before you speak to them". So we realized that clothes carry message about your grouping, your status and even the role you play at a particular time. In other words, clothes or clothing express your individual identity. This could be the motive behind those people who would want to wear a cloth having their religion, culture and profession in mind. Specific beliefs and trainings are mostly geared towards providing the individual with virtues and values that society would benefit from.

Conclusion

It can be seen from all the analysis that a six factor solution is appropriate and adequate in explaining why differences exist in the choice of dress code of the people of Ho Polytechnic community.

1. the first factor is the general indifference behavior of the people,
2. the second is the information based of the people, the next is the general inoffensive motives,
3. the third is the fabric influence,
4. the general inoffensive motives,
5. specific beliefs of the people is next most important, and lastly,
6. the blending factor.

These six factors appear to be responsible for the variations in choice of dress code for about 57% the people in Ho Polytechnic. The general indifference factor constitutes 21% of the respondents, 10.8% for factor two and 8% for the fabric factor. The rest of the proportions are; 7%, 5% and 4.7% respectively for the general inoffensive motives, specific beliefs and the blending factor (according to Table 3). With these six new factors, one can best appreciate and understand the reasons why someone would dress the way he or she dressed in the Ho Polytechnic community.

Limitations and Direction for Further Research

The research would have been much categorical if students were separated from workers and other classification variables like; gender and age grouping were introduced – this is what the researchers intends to do next time.

References

Elizabeth Rouse J. (1989). *'Understanding fashion'*, 1st ed. London College of Fashion. Blackwell Science KK, MG Kodenmacho Building, 7-10 Kodenmacho Nihombashi, Chuo-ku, Tokyo 104, Japan.

Hamid, P. (1969) *'Changes in person perception as function of dress'* In: perception and Motor skills, 29, pp 91-94

Laver, J. (1969). *'Modesty in dress'* Boston: Houghton Mifflin Co.

The Holy Bible, (1989) King James Version (USA).

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He has a special interest in writing and analyzing complex situations which helps him in making good decisions. John holds a Bachelor's degree in Mathematics (2001) and a Master's degree in Statistics (2008) from KNUST, Kumasi - Ghana and UCC, Cape Coast - Ghana respectively.

Illustrations

Table 1: KMO and Bartlett's Test

Measure	Value
KMO Measure of Sampling adequacy	0.8
Bartlett's test Critical value	1681.7
Bartlett's test degree of freedom	253.0
Bartlett's significant value	0.0

Table 2: Correlation Matrix

	V ₁	V ₂	V ₃	V ₄	V ₅	V ₆	V ₇	V ₈	V ₉	V ₁₀	V ₁₁	V ₁₂	V ₁₃	V ₁₄	V ₁₅	V ₁₆	V ₁₇	V ₁₈	V ₁₉	V ₂₀	V ₂₁	V ₂₂	V ₂₃	
V ₁	1.0																							
V ₂	0.4	1.0																						
V ₃	0.3	0.2	1.0																					
V ₄	0.2	0.1	0.0	1.0																				
V ₅	0.4	0.2	0.2	0.5	1.0																			
V ₆	0.2	0.2	0.1	0.6	0.4	1.0																		
V ₇	0.1	0.1	0.1	0.1	0.1	0.1	1.0																	
V ₈	0.0	0.1	0.1	0.1	0.0	0.1	0.6	1.0																
V ₉	0.2	0.1	0.2	0.0	0.1	0.1	0.3	0.3	1.0															
V ₁₀	0.0	0.1	0.1	0.0	0.0	0.1	-0.1	-0.1	0.0	1.0														
V ₁₁	0.0	0.1	0.0	0.4	0.1	0.3	0.0	0.0	0.0	0.1	1.0													
V ₁₂	0.3	0.1	0.2	0.1	0.2	0.1	0.0	0.0	0.1	0.2	-0.1	1.0												
V ₁₃	0.0	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.2	-0.1	0.4	1.0											
V ₁₄	0.1	0.3	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.2	0.1	0.2	1.0										
V ₁₅	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.1	0.5	1.0									
V ₁₆	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.4	1.0							
V ₁₇	0.0	0.1	-0.1	0.2	0.1	0.2	0.2	0.1	0.0	-0.1	0.2	-0.1	0.0	0.2	0.3	0.2	0.1	1.0						
V ₁₈	0.2	0.1	0.3	0.0	0.1	-0.1	0.1	0.1	0.2	0.2	-0.1	0.2	0.3	0.1	0.1	0.1	0.0	0.0	1.0					
V ₁₉	0.2	0.2	0.5	0.2	0.3	0.2	0.1	0.2	0.0	0.2	0.1	0.1	0.1	0.3	0.3	0.4	0.3	0.2	0.2	1.0				
V ₂₀	0.2	0.2	0.1	0.2	0.1	0.3	-0.1	0.1	0.0	0.2	0.2	0.1	0.1	0.3	0.4	0.3	0.2	0.0	0.4	0.4	1.0			
V ₂₁	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	0.2	0.1	0.2	0.3	0.4	0.4	1.0		
V ₂₂	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.3	0.3	0.3	0.3	0.0	0.4	0.4	0.3	0.3	1.0	
V ₂₃	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.2	0.2	0.1	0.2	0.3	0.1	0.2	0.3	0.2	0.3	0.3	0.3	1.0

Table 3: Total Variation Explained

Components	Eigenvalue	% of Variation	Cumulative
1	5.60	21.36	21.36
2	2.82	10.78	32.14
3	2.10	8.04	40.18
4	1.90	7.35	47.53
5	1.34	5.10	52.63
6	1.30	4.77	57.40
7	1.06	4.06	61.46
8	1.03	3.95	65.41
9	0.90	3.44	68.85
10	0.86	3.29	72.14

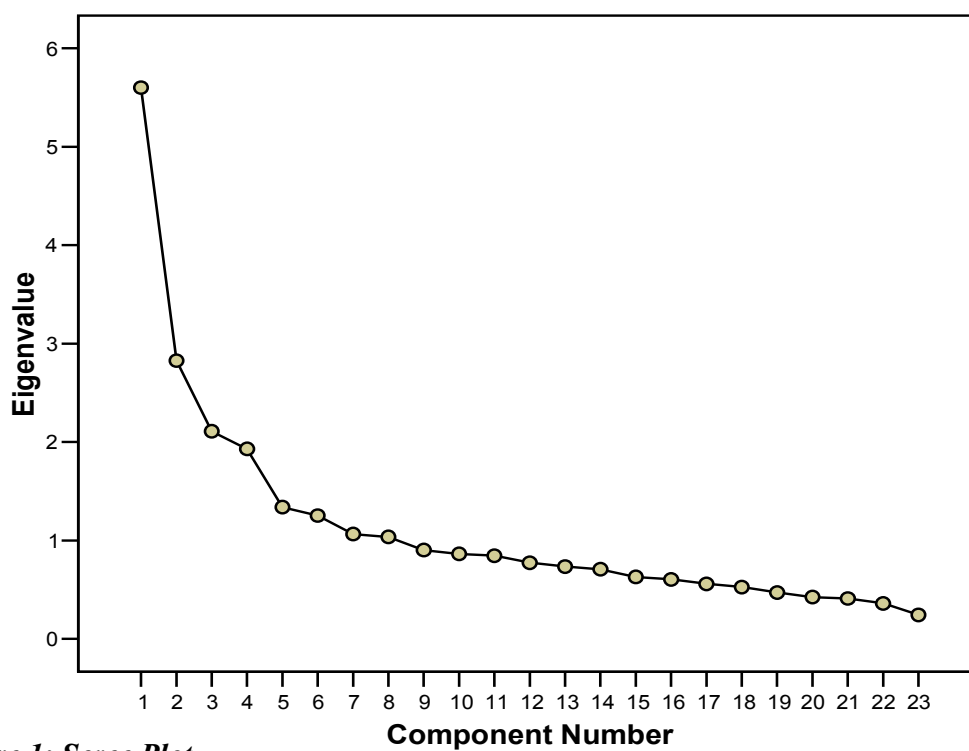


Figure 1: Scree Plot

Table 4: Descriptive Statistics of Indicators

Variable	Mean	Std. Deviation
V_1	4.09	0.90
V_2	3.60	1.03
V_3	4.18	0.94
V_4	1.88	1.10
V_5	3.06	1.24
V_6	1.92	1.13
V_7	3.01	1.30
V_8	2.78	1.21
V_9	3.54	1.18
V_{10}	3.49	1.01
V_{11}	1.85	1.01
V_{12}	4.09	0.82
V_{13}	4.26	0.72
V_{14}	2.61	1.16
V_{15}	2.25	1.05
V_{16}	3.07	1.08
V_{17}	1.84	1.02
V_{18}	4.44	0.77
V_{19}	3.04	1.17
V_{20}	2.88	1.19
V_{21}	3.42	1.15
V_{22}	2.50	1.15
V_{23}	4.08	0.94

Table 5: Unrotated Factor Matrix

Variable	Component					
	1	2	3	4	5	6
V_1	0.41	-0.10	0.21	0.36	-0.37	0.04
V_2	0.38	-0.06	0.06	0.24	-0.29	0.32
V_3	0.30	0.13	0.04	0.54	-0.06	0.13
V_4	0.48	-0.29	0.56	-0.22	0.17	0.05
V_5	0.59	-0.27	0.57	0.13	-0.33	-0.01
V_6	0.50	-0.28	0.49	-0.13	0.24	-0.10
V_7	0.36	0.78	0.18	-0.16	-0.09	-0.12
V_8	0.37	0.71	0.13	-0.14	-0.01	-0.16
V_9	0.31	0.51	0.09	0.35	0.31	0.09
V_{10}	0.71	-0.17	-0.21	0.29	0.26	-0.24
V_{11}	0.30	-0.20	0.16	-0.33	0.48	0.14
V_{12}	0.25	-0.11	0.07	0.43	-0.03	-0.01
V_{13}	0.21	0.08	-0.10	0.37	0.13	0.04
V_{14}	0.57	0.09	-0.27	-0.15	-0.03	0.59
V_{15}	0.62	0.01	-0.23	-0.12	0.11	0.29
V_{16}	0.51	-0.04	-0.33	-0.14	-0.25	0.11
V_{17}	0.36	0.03	-0.12	-0.50	-0.04	-0.01
V_{18}	0.21	0.12	-0.08	0.47	-0.08	-0.09
V_{19}	0.62	-0.13	-0.22	-0.11	-0.22	-0.34
V_{20}	0.58	-0.31	-0.28	0.06	0.17	-0.10
V_{21}	0.63	0.00	-0.11	0.29	0.29	-0.08
V_{22}	0.57	-0.17	-0.25	-0.19	-0.17	-0.29
V_{23}	0.39	0.01	-0.29	0.24	0.10	-0.20

Table 6: Rotated Factor Matrix

Variable	Component					
	1	2	3	4	5	6
V_1	0.13	0.14	0.05	0.67	0.03	0.03
V_2	0.04	0.08	0.01	0.53	-0.01	0.33
V_3	-0.11	0.43	-0.08	0.44	0.12	0.11
V_4	0.09	-0.07	0.80	0.23	0.03	0.06
V_5	0.17	-0.06	0.45	0.73	0.03	-0.06
V_6	0.15	0.07	0.77	0.18	0.05	-0.04
V_7	0.10	-0.03	0.00	0.05	0.90	0.07
V_8	0.12	0.51	0.03	-0.01	0.83	0.06
V_9	-0.26	0.49	0.06	0.07	0.51	0.15
V_{10}	0.15	0.49	0.04	-0.07	-0.15	-0.10
V_{11}	0.02	0.03	0.62	-0.24	-0.03	0.25
V_{12}	0.00	0.36	0.05	0.37	-0.06	-0.03
V_{13}	-0.05	0.43	-0.04	0.12	0.05	0.10
V_{14}	0.15	0.05	0.06	0.12	0.11	0.85
V_{15}	0.28	0.20	0.20	0.03	0.10	0.61
V_{16}	0.49	0.03	-0.05	0.15	0.03	0.44
V_{17}	0.43	-0.19	0.19	-0.15	0.18	0.28
V_{18}	0.03	0.41	-0.18	0.29	0.10	-0.04
V_{19}	0.75	0.16	0.09	0.15	0.08	0.07
V_{20}	0.47	0.44	0.24	0.27	-0.16	0.23
V_{21}	0.23	0.63	0.25	0.11	0.13	0.19
V_{22}	0.73	0.10	0.11	0.07	0.02	0.12
V_{23}	0.31	0.49	-0.03	0.02	0.05	0.06

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