A Q-Methodological Study of Attitudes about Women: From a Design by William Stephenson

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Abstract

In this study we examine theoretical predictions about attitudes concerning women abduced by William Stephenson as an illustration of Q-Methodology (Stephenson, 1993). A Fisherian concourse consisting of 48 quotations about women was constructed and balanced across three dimensions: feelings, morality and reality. Twenty participants were asked to sort these quotations based on their attitudes about women in general. These data were then analyzed using a new procedure, called FANOVA, which combines factor analysis and the ANOVA. This analysis revealed two statistically unique factors. One of which represented a male point of view and one of which represented a female point of view. The results indicate that while males have a generally positive view of women, the female viewpoint is significantly more negative toward women in general.

William James defined Psychology as the "science of mental life." In other words, psychologists are engaged in the task of studying people using behavioral measures designed to make inferences about mental life (Knight & Rupp, 1999). "Mental life," by definition is inherently subjective. Herein lies the problem: How do you quantify and study that which cannot be directly observed? Skinner proposed that individuals come to know themselves in the same way that they know others, by standing apart from themselves and observing their own behavior, and that verbal behavior, with self-reference reflects these subjective observations (Knight, Frederickson & Martin, 1987; Stephenson, 1987). Q-methodology, a procedure developed by William Stephenson, provides a powerful tool for quantifying these subjective observations of mental life. Thus, it provides a viable technique for the systematic study of subjectivity.

The Q-sorting task employed in Q-methodology is inherently operant and self-referent, while simultaneously theoretically structured by conditions of instruction. This provides a representation of each participant's subjective reality. Through factor analysis, common threads of opinion are identified and that which is inherently subjective, mental life, can be quantified and systematically studied.

As a demonstration of this William Stephenson (1993) described a theoretical study in which quotations about women are classified and placed into a structured concourse based on three dimensions: feelings, morality, and reality. In Stephenson's "thought-experiment" the condition of instruction was to sort the quotations based on one's candid feelings about women in general. Because self-reference is built directly into the condition of instruction, the results should reflect each participant's attitudes about women relating to each of the three dimensions. The purpose of the present study was to actualize Stephenson's "thought-experiment" using factor analysis and to supplement this with a newly developed procedure called FANOVA to test a prediction from evolutionary theory that males and females differ in their attitudes about women across the dimensions of Stephenson's structured concourse.

The FANOVA procedure was developed at the University of Central Oklahoma as a theory driven model, useful in testing predictions regarding points-of-view in a Fisherian design (Frederickson, Knight & Goldman, 1999). In this procedure, factor analysis, which is commonly used in Q-methodology, is combined with the Analysis of Variance (ANOVA). By performing an ANOVA on the factor loadings obtained

during the factor analysis phase, predicted differences in points of view across groups can be revealed and quantified. In this case, the ANOVA is not used in the Fisherian causality sense, but rather to augment the description of the factors obtained. While FANOVA is applicable to experiments where a manipulated variable produces experimental and control groups of participants, it is equally useful in testing theoretical predictions regarding points-of-view for existing groups of subjects. For example, in this study, male and female points–of–view about women in general are examined. The important point is that with the FANOVA procedure predictions regarding differences in attitudes are deduced from theory. In addition, the number of factors extracted is also determined *a priori* based on the theory being tested (Frederickson & Knight 2000). In the present study the evolutionary theory of sexual selection explicitly predicts that males and females are differentially sensitive to specific opposite sex characteristics such as health, fecundity, fidelity, and the ability to provide resources (Buss, 1994; 2000). Thus, a two-factor solution is predicted consisting of one male and one female factor.

The FANOVA procedure works as follows, after each participant's Q-sorting behavior has been factor analyzed, the ANOVA is used to determine whether the groups actually differ significantly in their points-of-view as predicted, and to assist in defining each factor. The rationale for this is, while the factor analysis yields factor loadings, it does not provide information concerning the probability of obtaining differences in the magnitude of the loadings across factors. This is what the ANOVA is designed to do. A test for significance simply provides information concerning the probability of observed outcomes. As discussed above, the number of factors extracted is determined *a priori* based on the theory being tested. In this case, a two-factor solution is specified. With two factors and two groups of participants the resulting ANOVA design is a 2 x 2 between-within mixed design and the hypothesized outcome predicted from theory is a significant disordinal interaction, with one factor representing a predominantly "male" point of view and one factor representing a predominantly "female" point of view.

Method

Participants

Participants were recruited from the general psychology subject pool at the University of Central Oklahoma in Edmond, OK. Credit towards completion of a research requirement in general psychology was given to each participant. Eleven females and 12 males participated in the study. However, one female and one male were excluded from the final analysis due to incomplete data. One additional male was excluded due to a comprehension problem. English was not his native language and he had considerable trouble understanding the quotations presented. This left 20 subjects for the final analysis: 10 males and 10 females. The mean age of the females was 24.7, with a median of 20 and a range of 19 to 49. The mean age for the males was 28.1 with a median of 20.5 and a range of 18-58.

Materials

The design of Stephenson's thought-experiment was predicated on the centrality of Freud's pleasure- and reality principles; "These two primary principles, of *pleasure-pain* and *reality*, were then, and still are, at the core of everything that Q-methodology stands for" (*p.* 2). Stephenson was also greatly influenced by Spearman and the thought-experiment's design incorporated a third relevant dimension reflecting Spearman's emphasis on character as related to moral matters. Following this design we employed a structured concourse consisting of forty-eight quotations about women. The quotations were balanced across three dimensions: pleasure vs. unpleasure, positive morality vs. negative morality, and realistic vs. unrealistic. Based on these three dimensions, eight combinations or categories of quotations were created. These eight categories are summarized in Table 1.

Table 1: Categories of Quotations Used in the Final Concourse

	Realistic		Unrealistic	
	Positive Morality	Negative Morality	Positive Morality	Negative Morality
Pleasurable	+++	++-	+-+	+--
Unpleasurable	-++	-+-	--+	---

For the final concourse, six quotations from each category were chosen, resulting in a balanced set of forty-eight quotations. These forty-eight quotations were chosen from an original pool of about 200, which were collected from various sources (Mencken, 1946, MCR Software, 1999). Each quotation was classified by the experimenter based on each of the three dimensions, and then placed into one of these eight categories. Due to the face validity nature of this task, and the fact that the experimenter had an especially hard time finding quotations that fit into several of the categories, help with classifying the quotations was sought from several faculty members. Four faculty members from the Psychology and Philosophy

Pleasurable, negative morality, realistic	Factor 1	Factor 2
Women do most delight in revenge.	-.01	-.29
Whether they yield or refuse, it delights women to have been asked.	.22	1.13
When a beautiful woman approves of the beauty of another woman, you can be sure that she has more of the same kind herself.	.06	1.37
Virtue, with some women, is but the precaution of locking the door.	-.89	.71
Never trust a woman, even though she has given you ten sons.	-.61	-1.19
A woman talks to one man, looks at a second, and thinks of a third.	1.05	-1.57
Pleasurable, negative morality, unrealistic		
The vows that a woman makes to her lover are only fit to be written on air.	-.54	-1.03
Nothing enchants the soul so much as young women. They alone are the cause of evil, and there is no other.	-.21	-1.76
Were there no women, man might live like gods.	-1.02	-1.03
A woman has the form of an angel, the heart of a serpent, and the mind of an ass.	-1.55	-.38
Woman, like good wine, is a sweet poison.	1.37	-1.83
Women are as roses, whose fair flower being once display'd doth fall that very hour.	.66	-1.13

Pleasurable, positive morality, realistic	Factor 1	Factor 2
Love's all in all to women	.99	.64
If a woman is sufficiently ambitious, determined AND gifted – there is practically nothing she can't do.	.82	1.91
If ladies be but young and fair, they have the gift to know it.	-.35	.36
There is a woman at the beginning of all great things.	1.43	.60
No one knows like a woman how to say things that are at once gentle and deep.	1.76	-.26
A beautiful woman delights the eye, a wise woman, the understanding, a pure one, the soul.	1.43	1.04
Pleasurable, positive morality, unrealistic		
Woman's wishes are God's wishes	1.21	-.99
Woman embroiders man's life – Embroider is to beautify – The embroidery of cleanliness – Of a smile – Of gentle words.	1.58	.26
Let no man value at a little price a virtuous woman's counsel: her wing'd spirit is feather'd oftentimes with heavenly words.	.78	.69
Man was made when nature was but an apprentice, but woman when she was a skillful mistress of her art.	.64	.11
For the nature of woman is closely allied to art.	1.00	.11
Women are the poetry of the world in the same sense as stars are the poetry of heaven. Clear, lightgiving, harmonious, they are the terrestrial planets that rule the destinies of mankind.	2.00	-.26

Departments at the University of Central Oklahoma agreed to participate, two males and two females. Each faculty member was given a form consisting of a brief description of each category; one example statement that the experimenter felt best fit each category and 10 more possibilities for each. The faculty members were then asked to choose eight from the ten possibilities that they felt best fit into each category. Remarkable agreement was found among the faculty members as to which quotations best represented each category. For seven of the eight categories, at least six quotations were chosen by every professor. In one category (pleasurable, negative morality, realistic), five quotations were chosen by every professor. In this category, the five quotations that every faculty member chose were used as well as the one that was eliminated the least number of times. For the remaining categories the final six quotations were randomly chosen from the quotations agreed upon by the faculty members. The final concourse is listed in Appendix A.

Each statement was printed on a laminated card in black ink. Each card was approximately 5½ X 4 inches. The cards were numbered in random order from one to forty-eight.

Procedure

Each participant was given a recording sheet and the set of forty-eight quotations. The task was then explained as follows:

Printed on these cards are forty-eight quotations about women. The question we are asking is, "What is your candid feeling about women in general?" Please sort these quotations based on this question from most like your feelings to least like your feelings. Each quotation is numbered; please write the number of each quotation in the boxes on this page. Please read

Unpleasurable, negative morality, realistic	Factor 1	Factor 2
There is no mischief but a woman is at one end of it.	-.93	-.24
How can he be clean that is born of woman?	-.85	-1.17
A woman should be covered with shame by the thought that she is a woman.	-1.19	-2.02
A thousand men can easily live together in peace, but two women, even if they be sisters, can never do so.	-.42	.68
No woman is too bashful to talk scandal.	.29	.04
There is no fouler fiend than a woman when her mind is bent on evil.	-1.12	1.45
Unpleasurable, negative morality, unrealistic		
...Why haven't women got labels on their foreheads saying "Danger: Government health warning: Women can seriously damage your brains, genitals, current account, confidence, razor blades and good standing among your friends."	-.65	-1.00
It is easier to keep watch over a bag of fleas than over a woman.	-1.02	-.30
I trust only one thing in a woman: that she will not come to life again after she is dead. In all other things I distrust her.	-.94	-1.16
He that holds a woman has an eel by the tail.	-.61	-.62
Heaven has no rage like love to hatred turned, nor Hell a fury like a woman scorned.	-.45	1.28
I could sooner reconcile all of Europe than two women.	-1.27	1.40

Unpleasurable, positive morality, realistic	Factor 1	Factor 2
Woman pays her debt to life, not by what she does, but by what she suffers.	.46	.13
Without woman, the beginning of life would be helpless, the middle without pleasure, and the end void of consolation.	1.72	.58
A woman will always sacrifice herself if you give her the opportunity. It's her favorite form of self-indulgence.	-.72	.48
A woman has to be twice as good as a man to go half as far.	-.08	.19
Woman's work is never done.	.40	.82
She gave me for my pains a world of sighs.	-.94	.97
Unpleasurable, positive morality, unrealistic		
Women are strange and incomprehensible, a device invented by Providence to keep the wit of man well sharpened by constant employment.	-.69	1.04
Woman is a calamity, but every house must have its curse	-1.86	.20
God created woman only to tame man.	-.07	.48
Silence gives the proper grace to women.	-.06	-1.06
A woman's hopes are woven of sunbeams; a shadow annihilates them.	.47	-.84
Once a woman has given you her heart you can never get rid of the rest of her.	-1.30	1.47

through all the statements first and then begin sorting them.

Each participant was then given as much time as necessary to complete the task. The quotations were sorted into a normal distribution with scores ranging from –4 to +4. This distribution of scores is summarized in Table 2.

Table 2: Summary of the Q-distribution

-4	-3	-2	-1	0	1	2	3	4
2	3	4	5	6	5	4	3	2

Results

All data were analyzed using the computer package SPSS. First, the data were factor analyzed using Principal Components Analysis with Varimax rotation. Based on the theory being tested (differences between males and females), a two-factor solution was specified. Two sets of scores were created and used in further analysis. Each participant's factor loading for both factors were saved, and factor scores for each statement were saved as Anderson-Rubin Z-scores.

First, the factor scores for each quotation were analyzed to determine which ones seemed to be most characteristic of each factor. These factor scores are listed in Appendix A. Based on these scores, factor 1 appears to reflect opinions about women that are generally positive on both the pleasure and morality scales. Among the quotations with the highest factor scores on this factor, five reflect positive morality and four represent the pleasurable dimension. Examples of quotations representing this factor include:

> "Women are the poetry of the world in the same sense as stars are the poetry of heaven. Clear, lightgiving, harmonious, they are the terrestrial planets that rule the destinies of mankind."

> "No one knows like a woman how to say things that are at once gentle and deep."

> "Woman embroiders man's life – Embroider is to beautify – The embroidery of cleanliness – Of a smile – Of gentle words."

In contrast to the above quotations, those quotations with the lowest factor scores on this factor conveyed a generally negative view of women, falling almost entirely in the unpleasurable category. The low factor scores assigned to these quotations indicate that they are inconsistent with the view of women represented by factor one. Some examples of these quotations include:

> "A woman should be covered with shame by the thought that she is a woman."

> "It is easier to keep watch over a bag of fleas than over a woman."

> "Woman is a calamity, but every house must have its curse."

In addition, an interesting difference between factor one and factor two emerged concerning those quotations with low negative scores for factor one. The following three quotations had low negative scores on this factor, but had high positive scores on factor two:

> "Once a woman has given you her heart, you can never get rid of the rest of her."

> "There is no fouler fiend than a woman when her mind is bent on evil."

> "I could sooner reconcile all of Europe than two women."

These three quotations convey a generally negative view of women. All three represent the unpleasurable dimension and the last two represent negative morality. It appears that at least for these quotations, factors one and two represent nearly opposite viewpoints concerning women.

Although both factors appear to represent views about women characterized by positive morality, the viewpoint represented by factor one is clearly more positive on the pleasurable dimension. For factor two, three of the five quotations with the highest factor scores represented negative morality and the unpleasurable dimension. Examples of quotations representing this factor include:

> "When a beautiful woman approves of the beauty of another woman, you can be sure that she has more of the same kind herself."

> "If a woman is sufficiently ambitious, determined AND gifted – there is practically nothing she can't do."

> "Heaven has no rage like love to hatred turned, nor Hell a fury like a woman scorned."

Of the twelve quotations that had low negative scores for this factor, eleven represented negative morality. Among the bottom five quotations, four reflected views that were both pleasurable and conveyed negative morality.

It appears that those quotations that simultaneously convey pleasure and negative morality are highly inconsistent with the views represented by factor two. Some examples of quotations in this category include:

"Woman, like good wine, is a sweet poison."

"Nothing enchants the soul so much as young women. They alone are the cause of evil, and there is no other."

"A woman talks to one man, looks at a second, and thinks of a third."

An analysis of variance on the factor scores, revealed a significant main effect for morality, $F(1, 46)=22.68$, p=.00. Across both factors, those quotations representing positive morality had significantly higher factor scores that those representing negative morality. For factor one, those quotations displaying positive morality had a mean of .44(SD=1.04) and those representing negative morality had a mean of -.44(SD=.72). For factor two, the means were .36(SD=.72) and -.36(SD=1.12) for positive and negative morality respectively. In addition, a significant interaction was revealed between the two factors for the pleasurable/unpleasurable dimensions, $F(1, 46)=10.76$, p=.002. The mean factor scores for this dimension are summarized in Table 3.

Table 3: Means and Standard Deviations for Pleasurable/Unpleasurable Dimension by Factor

	Pleasurable		Unpleasurable	
	$\overline{X}$	S	$\overline{X}$	S
Factor 1	.49	.97	-.49	.78
Factor 2	-.12	1.03	.12	.97

Simple effects analysis of this interaction revealed that, for factor one, pleasurable quotations had significantly higher factor scores than unpleasurable ones, $F(1,46)=15.19$, p=.00. In addition, the pleasurable quotations also had significantly higher scores for factor one compared to factor two, $F(1, 46)=4.44$, p=.04, while the unpleasurable quotations had significantly higher scores for factor two, $F(1, 46)=6.18$, p=.02. This interaction is summarized in Figure 1.

Next the factor loadings were analyzed to investigate whether there are any differences between males and females. An initial inspection of the factor loadings summarized in Table 4 revealed a dramatic difference in opinion based on gender. In this case, the males had higher factor loadings for factor one, with seven out of ten displaying factor loadings of at least .50.

Figure 1: Results of the Analysis of Variance for Pleasurable/Unpleasurable dimension
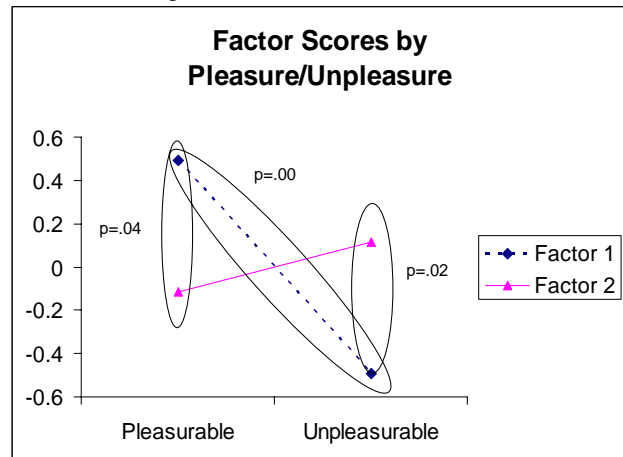
In contrast, the females had higher factor loadings for factor two, with eight out of ten displaying factor loadings of at least .50. Based on this, factor one appears to represent the "male" point of view while factor two appears to represent the "female" point of view.

*Table 4:* Factor Loadings by Gender

	Females		Males	
	Factor 1	Factor 2	Factor 1	Factor 2
	-.06	.87*	.81*	-.05
	-.12	.71*	.72*	.20
	.40	.63*	.66*	.45
	.49	.60*	.62*	.16
	.61*	.59*	.57*	.59*
	.57*	.52*	.54*	.47
	.49	.56*	.50*	.10
	.58*	.54*	.47	.47
	.63*	.37	.42	.43
	-.04	-.32	.05	.02
Mean	.36	.51	.54	.28
S	.30	.32	.21	.22

*Indicates a factor loading $\geq$ .5

The next step in the FANOVA process is to determine if these two viewpoints are indeed significantly different from each other using the analysis of variance. In this case, a 2 x 2 between-within mixed design with gender as a between variable and factor as a within variable was used. The factor loadings discussed above were used as the dependant variable; however, because factor loadings are essentially correlational, and averaging correlations is arithmetically problematic, they were first transformed

into Fisher Z scores as suggested by Howell (1997). As predicted, the analysis revealed a significant interaction between gender and factor, $F(1, 18)=8.87$, p=.008. This interaction is summarized in Figure 2. Simple effects analysis further indicated that the females in this study had significantly higher factor loadings on factor two compared to the males, $F(1, 18)=6.70$, p=.02, while the males displayed significantly higher factor loadings on factor one as compared to factor two, $F(1, 18)=7.42$, p=.01. Based on this analysis, factor one can be labeled the "male" factor and factor two can be labeled the "female" factor.

Figure 2: Interaction between Factor and Gender. The Factor loadings were transformed to Fisher Z for analysis but are reported here as the original loadings for clarity.
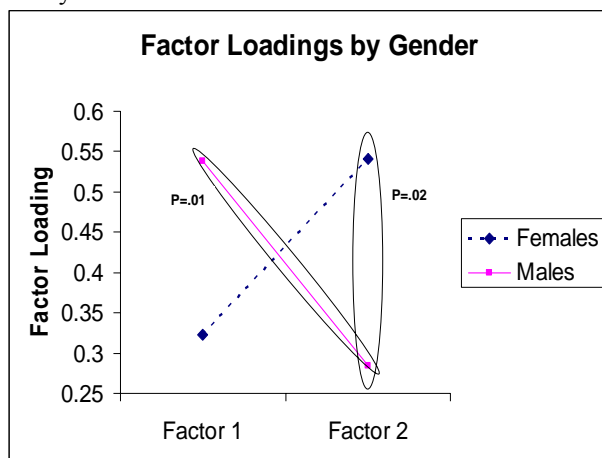
Discussion

As predicted, one "male" factor and one "female" factor emerged. This is supported by both a subjective interpretation of the factor loadings and an empirical analysis using the analysis of variance. In this case, the male point of view is characterized as generally positive on both the pleasure and morality scales. Few people will be surprised to learn that young college age males have a positive view of women. However, the finding that the females seemed to have a much more negative view of women was more surprising and might even seem counterintuitive at first glance. Although the females viewed women as displaying positive morality, many of the quotations representing this factor conveyed generally negative attitudes. In particular, the female participants in this study showed a strong negative reaction to quotations that simultaneously convey pleasure and negative morality. Four of the five quotations with the lowest factor scores fell into this category. The females in this study tended to strongly disagree with statements such as "Woman, like good wine, is a sweet poison."

Interestingly, for three of the quotations used, the female point of view is completely opposite to the male point of view. All three of these quotations represented the unpleasurable dimension and two of the three represented negative morality. Surprisingly, these negative statements represented the female but not the male point of view. There could be many explanations for this discrepancy between the male and female views, and the surprising fact that the females in this study seem to hold more negative views of women. For example, this could be a factor of the age group used in the sample, perhaps reflecting some degree of female-female competition in the mating market. Research in the area of evolutionary psychology has shown that females tend to react to potential rivals in the mating arena with derogation. In effect, they respond to competition for mates from other females by verbally attacking their opponent in front of others. The most effective form of derogation appears to be attacks on the rival's reputation or moral character (Buss, 1994). It is interesting to note that, with only two exceptions, all of the quotations representing the pleasurable dimension with factor scores above 1.00 on the female factor also represented negative morality. In some sense, all women can be considered potential rivals in the quest to attract the best mate; thus, the somewhat surprising finding that the females in this study held more negative views of women in general can be nicely explained by evolutionary theory as a form of mate derogation.

Although the above findings are certainly worthy of further investigation, the true purpose of this study was to provide a demonstration of the FANOVA procedure. It is apparent from the results that this technique can be quite useful in the scientific study of subjectivity. The procedure in essence paints a picture of what is happening in the factor analysis and provides probability statements regarding the likelihood of obtaining the observed differences in factor loadings based on chance. Are the factor loadings we observed "real" or could they have resulted from chance alone? This is the basic statistical question. By supplying an answer to this question, the FANOVA procedure provides another tool to help organize our quantitative descriptions of operant verbal behavior with self-reference.

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