AN EVALUATION OF RESEARCH REPLICATION

AND MARKET SEGMENTATION WITH Q METHOD*

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Uses and gratifications, taken as a theory or as a research approach, has spawned a multitude of investigative efforts; three stand out as unique in that they employ Q method (Foley, 1968; Fletcher, 1975; Gutman, 1978). The first of the three is noteworthy for its ground-breaking exploration of hypothesized uses and gratifications; the second is equally noteworthy in that it purports to have replicated the first, doubly. These two studies, Foley's original effort and Fletcher's double replication, raise interesting questions about Q method. These questions were the focus of the study reported here.

BACKGROUND

Foley (1968) developed eight statements for each of
eight hypothesized media functions: Withdrawal, Play,
Conversation, Togetherness, Parasocial Interaction,
Education, Background, and Normative. The resulting
64 statements were administered in standard Q-sort
fashion to twenty respondents in a preliminary study
and, after analysis of the process and results, modi-
fied slightly and administered to 27 more for his main
study. He analyzed his preliminary and main study
data in two separate evaluations and then combined
them for a comprehensive analysis. While Foley's
work has not been found to be without flaw (Adams &
Ingenthron, 1975), he quite clearly demonstrated the
capability of the method to identify important uses
of television among viewers in a systematic fashion,
satisfying the first of his five purposes. Also, he
demonstrated that his main study constitutes a repli-
cation of his preliminary study in that some of the
factors emerging from the two analyses were identi-
fiable under common names on the basis of the result-
ing factor arrays and their distinguishing statements
and in the merging of groups of people from the se-
parate analyses in the larger, combined analysis.

Fletcher (1975) set out to repeat Foley's work
specifically to test the utility of Q method in re-
plication. He posed the question, "Will a sort of
these opinion statements identify a group in Market A
which is similar to a group identified using the same
opinion cards and the same procedure in Market B?"
(p. 15). Fletcher's data were gathered from 120 up-
per division undergraduates, for one replication,
and from 116 "ladies of the house" in Lexington, Ken-
tucky, for the other. For analysis and interpreta-
tion, he abandoned the usual factor array comparison
in favor of a "proportion of agreement" figure for
statements at the extremes of his sort continuum. On
the basis of these unusual procedures, he concluded
that Q method is inherently unreliable and that Fo-
ley's sort has no utility as a market segmentation
device.

The major criticism of Foley's study is that the

ends of the sort continuum are not properly labeled
in his instructions to respondents. His interviewees
sorted the 64 statements to describe their uses of
television as being "most like me" to "least like me."
The implied scores range from some high value down to
a zero or other low value. This approach is consis-
tent with some of the earlier work of Stephenson
(1953), but later development of the methodology has
led to placing the zero value in the center of the
distribution (Brown, 1980). Foley ought to have used
the continuum labels "most like me" and "most unlike
me," permitting "least like me" and "least unlike me"
implicitly to merge at the zero point in the center of
the sort distribution.

Fletcher's dual replications are to be faulted for
failing to make this significant correction in pro-
cedure; they are also to be faulted for failing to
draw comparable samples. Fletcher purported to be
comparing a sample from Market A to a sample from Mar-
ket B. In fact, his two samples were not drawn so as
to represent different markets but different popula-
tions. Foley's samples, by virtue of having been
drawn in like manner, were two samples from the same
population--in Market A; Fletcher's two samples, by
virtue of having been drawn in very different fa-
shion from each other and from Foley's, represented
different populations--in Market B. In reality, Flet-
cher's design failed to address the question he posed,
touching instead upon the question, Do comparable
viewer types exist in other populations? Whether they
do is not truly revealed by his analysis in that he
failed to develop either the direct factor array com-
parison used by Foley or the correlational approach
with secondary factor analysis demonstrated by Ste-
phenson and used by many who have followed him (e.g.,
Coke & Brown, 1976).

Because these questions of market segmentation and
replicability have been raised and not answered satis-
factorily, this study was undertaken for the purpose
of investigating them further. Reanalysis of the
Foley data addressed the basic question of replica-
tion in Q; replicating the Foley work--with the re-
commended modifications--in a different market while

holding analytic methodology constant, further explor-
ed the replication question as posed by Fletcher; and,
examining the results from Foley's two studies and
from the present study in the context of the nature of
Q method and its prior uses provided a basis for com-
ment on the market segmentation question.

METHODS

Foley's raw data were reanalyzed by submitting them to
common factor analysis using the BioMed (Dixon, 1970)
program with R^2 in the diagonals for communality es-
timation. Foley had used the QUANAL program (Van
Tubergen, 1975); it was not available for use in the
present study, so the entire reanalysis was undertak-
en with the program that would be used on the repli-
cation data of the present study, for analytic con-
stancy. The factors derived from reanalysis of both
sets of Foley's data were also reinterpreted for con-
stancy of comparison. Varimax rotation--an analytical
method--was used, following Foley. Factor score com-
putations employed Brown's (1980) JINNI program.
    New data were gathered in standard Q-method fashion
using a two-stage approach, a telephone screener fol-
lowed by a personal interview in the home. Some of
Foley's original statements were modified slightly in
wording, however, and one new statement was substi-
tuted. He had presented his subjects rather formal,
general statements about television and its uses; mo-
difications were undertaken to make those statements
less formal (TV instead of television; verbal con-
tractions, etc.) and more self-referent in nature by
insertion of, or emphasis on, personal pronouns (I,
we) in an effort to assure the focus of attention on
personal response to, or use of, the medium through-
out the sort and to follow Stephenson's (1953: 247)
advocated practice. Instructions were changed to
comply with the conception of isomorphic opposites
(Brown, 1980); respondents sorted the statements from
"most like me" to "most unlike me."
    The study was fielded in a medium-size market in a
Western state by a commercial fielding service. Res-
pondents were 20 men and 19 women contacted in random-

ly selected homes within the metropolitan area. Un-
like Foley's approach, more than one interview in a
home was not undertaken--a modest difference in method
employed for the sake of greater individuality of
interpretive data, but having no identifiable impact
on the outcome of the statistical analyses. Data from
the present study provided a 64×39 matrix, analyzed
as noted above.

Reanalysis of Foley's preliminary study data pro-
duced a three-factor solution that corresponded very
well with his three-factor solution; his main study
data yielded a five-factor solution in reanalysis
that differed from his four-factor solution. The
larger number of cases associated with the new data
produced an eight-factor solution, but one factor was
discarded because it was defined by only one case.
The replication question was addressed by second-
order factor analysis of the "data matrix" comprising
the reconstructed ideal Q-sort array for each of the
fifteen factors thus produced. Principal component
analysis of this 64×15 matrix produced a six-factor
solution that adequately accounted for all primary
factors but one, factor V from the present study--
although preliminary study factor II is somewhat mar-
ginal.

THE REPLICATION QUESTION

Foley indirectly demonstrated replicability in the
use of Q, but he did not comment on it; such was not
the intent of his work. His presentation of the pre-
liminary and main studies in a combined factor analy-
sis brought together clusters of people, found in both
studies, to form new clusters. Reanalysis of his
data simply permits the point to be made directly and
opens the potential for making comparisons with data
gathered specifically for that purpose--i.e., the
data of the present study.

A full test of replicability entails drawing a
sample in a different market using the same basic me-
thod and the same basic set of items. Present data
were gathered in just that fashion for the purposes
of this study. Secondary analysis, using the princi-

Table 1
RELATIONSHIP OF FIRST- TO SECOND-ORDER FACTORS

1st-Order Factors	2nd-Order Factors (Supervectors)					
	I	II	III	IV	V	VI
FP-1	.87					
FP-2		.59		.31	.37	
FP-3			-.92			
FM-1	.79					
FM-2	.33					.60
FM-3		.69				
FM-4	.82					
FM-5	.62					
PD-1	.75				.32	
PD-2		.74				
PD-3				.89		
PD-4		.75				
PD-5	.46		.47		.38	
PD-6						.80
PD-7					.85	

pal components method, was applied to the ideal arrays from all fifteen primary factors for the three studies compared here--three from Foley's preliminary study (FP), five from his main study (FM), and seven from the present study (PD). Noteworthy factor loadings are presented in Table 1 for the fifteen primary factors over the six resulting supervectors.

The first factor from each of the three studies is joined by the fourth and fifth factors from Foley's main study to constitute the first supervector. It is identified by twelve items, on its reconstructed factor array, that have factor scores of +1.0 and higher:

I watch TV because I want to keep myself up to date
I like programs that are fun to watch
I keep up to date on new developments by watching

TV

When we're at home, we enjoy watching TV together

I get new ideas about people and places from TV

I suppose I learn more from TV than from the papers, magazines, or books

I watch TV to learn about new and different things

I like TV programs that demonstrate the importance of being fair and honest

I often watch TV programs that others have recommended to me

I enjoy telling friends about good TV programs I've seen

I'm usually telling someone about something interesting I've seen on TV

My friends and I have often talked about TV programs we liked

Eleven items have a factor score of -1.0 or beyond; these are, in ascending order:

I just get more done when the TV is on

Sometimes, I wish I were a TV star

I like to have the TV set turned on while I'm doing other things

Sometimes, I watch TV just to put off doing something else

When I watch TV, I usually want to be left alone

Sometimes, I sit down to TV just because things aren't going well

When I visit friends, we often watch TV

When friends come over, we often watch TV

I often have the TV on even though I'm not watching

Even when I'm not watching, I like to keep the TV set on for companionship

I like to have the TV set on while I'm eating

Only three discriminating items were identified by the JINNI program: I'm usually telling someone about something interesting I've seen on TV (+2); I like to have the TV set turned on while I'm doing other things (-4); and, I just get more done when the TV is on (-5). The high-value items are drawn largely from Foley's Education function--mixed with Play, Together-

ness, Normative, and Conversation items; this was observed to be true of the primary factors loaded on this supervector. The discriminating item at the positive end of the continuum is a Conversation item. At the negative end, the statements largely represent Background and Escape functions with a mix of Conversation and Parasocial Interaction items. Discriminating items at the negative end represent the Background function. While the supervector clearly reflects information-seeking activities and a tendency to reject Escape and Background uses of the medium, the real distinction between this and the other supervectors is the clear rejection of the Background function of the medium, implying purposive rather than casual use. That this might be accepted as a meaningful, identifiable type, from market to market, is supported by the similarity of factor arrays for five different clusters of viewers in the three samples, three of the five being found in Foley's main study.

In the confines of the smaller framework provided by Foley's preliminary study, more discriminating items were identified; representative of these are: I watch television to keep myself up to date (+5); Watching television keeps me informed of new developments (+5); I watch television to learn about strange or unusual things (+4); Television programs give me new insights into our complex world (+4); I watch television to learn what is going on in the world (+4); When I watch television, I want only to be left alone (-5); and, I often have the television set turned on without really watching it (-4). However, most of the FP-1 items with factor scores exceeding ±1.0 were the same as the supervector listing. In reanalyzing Foley's main study, though, the positive end of the FM-1 array tends to draw more from his Conversation function. Still, the negative end is represented by most of the same items along with a slight mix of Togetherness, Conversation, and Background. FM-5 also retains the information-seeking items but with a hint of the Escape, Normative, and Play functions at the positive end, while shifting toward Parasocial Interaction with a slight mix of items from Background, Togetherness, and Play at the negative end. PD-1 is

a mix of Play, Togetherness, Normative, and Education
items at the positive end; Background dominates the
negative end with a mix of Parasocial Interaction and
Escape items.

Emergence of a type is reasonably clear in these
data; items from the Education function that bespeak
information gathering are present in the positive end
of the array, but with different factor score values,
and Background items dominate the negative end. A
slightly different mix of other items at both ends
introduces the variety that makes each primary factor
a variation on the supervector derived from the secon-
dary factor analysis. The secondary factor represents
a viewer type that pursues the medium for the benefits
of increased information; rejection of the Background
function indicates a purposiveness in the pursuit--
real or rationalized--that should bespeak a more se-
lective viewing pattern than might be manifest among
other types of viewer. Foley did not report that to
be the case, nor do the present data support such a
hypothesis, suggesting that Gutman's (1978: 510) label
--dissemblers--might be appropriate.

The second factor from Foley's preliminary study
(FP-2), the third from his main study (FM-3), and the
second and fourth factors generated from the present
data (PD-2 and PD-4) define supervector II. It is
identified by eleven statements with factor scores of
1.0 and higher:

I like programs that are fun to watch
I enjoy telling friends about good TV programs I've
    seen
I like TV programs that are imaginative
I like to keep the TV set on for companionship
My friends frequently tell me about TV programs
    they've seen
In dramatic programs, I like to try to guess what
    will happen next
I like to have the TV set on while I'm eating
When I watch TV with someone, we often talk about
    the program as we watch
I often have the TV on even though I'm not watching
An evening will pass much faster if I watch TV

My friends and I have often talked about TV pro-
grams we liked

The negative end of the supervector is identified
by eleven items with factor scores of -1.0 or beyond:

Sometimes, I wish I were a TV star
I've seen some good examples on TV of how to live
my own life
I think TV programs teach important moral lessons
I think TV programs help people see what it's
right to do
I would like to be friends with some TV personali-
ties
I've gotten good advice from TV about how to act
in unusual situations
When I watch TV, I like to imagine myself taking
part in the program
When I watch TV, I usually want to be left alone
I seldom watch TV by myself
I think TV programs help people learn how others
will act and what they'll do
I just get more done when the TV is on

The positive end of supervector II is dominated by
items from Play, Conversation, and Escape; the nega-
tive end primarily represents Normative and Parasocial
Interaction. Discriminating items indicate the Play
and Normative functions to set this supervector
apart from the others: I like programs that are fun
to watch (+5); I like TV programs that are imagina-
tive (+4); An evening will pass much faster if I watch
TV (+3); and, I've seen some good examples on TV of
how to live my own life (-5). Rejection of television
versions of social and behavioral norms, in an atmos-
phere of using the medium in a spirit of play, defines
this viewer type. Highest loadings are for PD-4 and
PD-2, followed by FM-3 and FP-2. PD-4 is identified
by items from the Withdrawal, Play, Conversation, and
Background functions at the positive end; Normative,
Parasocial Interaction, Education, and Play dominate
the negative end. Commonness with the supervector is
identified in the items representing Play, Conversa-

tion, Normative, and Parasocial Interaction. PD-2 is marked by Background, Play, and Togetherness at the positive end; Withdrawal and Parasocial Interaction . mark the negative end. Play is the common element at the positive end, Parasocial Interaction at the negative. FM-3 reflects Conversation, Play, and Education elements more than any others at the positive end; Background dominates the negative end, with a mix of Parasocial Interaction and Play. Play and Normative items identify the elements common with the others. FP-2 is dominated by Play and Conversation items at the positive end, and by Togetherness and Parasocial Interaction at the negative end. Play becomes the common element at the positive end; the negative end is represented by the Parasocial Interaction items. Basically, supervector II can be seen to be a use of the medium in the spirit of play, but this is play that includes the pleasures of conversation and may be, in part, for the purpose of escape while rejecting the medium's normative influences or representations and declining parasocial interaction with or through the medium.

Supervectors III, IV, and V are not composites but representatives of individual primary factors accompanied by secondary loadings for other primary factors. In effect, each identifies a type not fully manifest in the other samples.

Supervector VI is clearly represented by PD-6 and FM-2. Its meaning is seen in nine items with factor scores of 1.0 or beyond:

I usually feel more relaxed after an evening of TV
I like TV programs that demonstrate the importance of being fair and honest
An evening will pass much faster if I watch TV
I keep up to date on new developments by watching TV
When we're at home, we enjoy watching TV together
I watch TV to learn about new and different things
I like programs that are fun to watch
I usually watch TV with my family or with friends
I seldom watch TV by myself

Seven statements with factor scores of -1.0 or be-
yond identify the negative end of the supervector:

When I watch TV, I like to imagine myself taking
   part in the program
I like to try out things I see and hear on TV
My friends and I could probably spend a whole even-
   ing talking about TV programs we enjoy
Sometimes, I wish I were a TV star
I sometimes forget I have the TV set turned on
I seldom think about a TV program after it's over
I keep the TV set on nearly all the time

The positive end of the array is dominated by items
from the Escape, Normative, Education, and Together-
ness functions with the first two emerging as the dis-
criminators: I usually feel more relaxed after an
evening of TV (+5); I like TV programs that demon-
strate the importance of being fair and honest (+5);
and, An evening will pass much faster if I watch TV
(+4). The negative end includes items from Parasocial
Interaction, Conversation, and Background, with the
latter providing the lone discriminator: I just get
more done when the TV is on (-1). PD-6 viewers are
identified by Normative, Escape, Education, and Toge-
therness items at the positive end, and by Withdrawal,
Togetherness, and Parasocial Interaction items at the
negative end. FM-2 is marked by high factor scores
for items from Withdrawal and Play at the positive
end; the negative end of the array is represented by
Togetherness and Parasocial Interaction. Elements
in common over the two primary factors and the super-
vector are the focus on Escape, Normative, and Edu-
cation items in the supervector and FM-2 at the posi-
tive end, and the corresponding focus on Togetherness
items at the negative end of all three arrays. Again,
the supervector is seen to be representative of a type
with variants visible in the primary factors from the
different studies.
   Segmentation has clearly been accomplished in all
three studies, as is evident in the differences from
factor array to factor array. The convergence of re-
sults from these three studies also demonstrates that

Q method can be used to segment audiences or other
population types into specific, identifiable compo-
nents from market to market, relying upon secondary .
factor analysis and the resulting factor arrays to
demonstrate the bases for common clusters. The repli-
cability of Q method is equally clearly demonstrated
in the comparability of primary factors from study to
study over three different samples from two markets.
The ability to "cluster" groups of primary factors in
secondary analysis further demonstrates that the same
basic type has been found in two or more different
population samplings. If, as Fletcher concluded,
Foley's Q sort has no utility as a market segmenta-
tion device, the reason is more to be ascribed to the
contemporary understanding of media functions having
passed it by than to any inherent deficiency in Q me-
thodology.

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Factor analysis is a mathematical model, in our case for analyzing Q sorts. It discovers structure in Q sorting, much as X-ray machines allow us to see the bones in our body. A factor is a "theoretical" Q sort--like any performed by a person--which indicates a principle of some kind. (William Stephenson)

NEWS, NOTES & COMMENT

ence and the Public Mind: Popular Perceptions in a Southern State," Southwestern Political Science Association, Houston, March 1983. Incidentally, Robert Savage has been added to the editorial board of *American Journal of Political Science*. which may be more receptive to Q-based manuscripts as a consequence.

Pamela Johnston Conover (U Kentucky) and Stanley Feldman, "Group Identification, Values and the Organization of Political Beliefs," Midwest Political Science Association, Chicago, March 1983. *Abstract:* What determines the political beliefs people hold? In this paper, we investigate the role of values and group identifications in structuring political beliefs. Viewing both as aspects of self-identity, we use Q-methodology to discover overall patterns of personal and political values, and group identifications. We find that distinctive patterns of both elements of self-identity are identifiable and that values and group identifications are interrelated. Furthermore, both have a substantial effect on issue positions that is independent of party and ideological self-identification.