CHAPTER III

METHODS OF PROCEDURE

Included in this chapter are considerations appraised in choosing to conduct field research, procedures for selection of subjects, procedures used to interpret data collected on personality traits and states, demographics, sport interest or involvement, game violence and spectator aggression, and, the statistical treatment of the data.

Field vs. Laboratory Research

In making a decision to conduct a full scale field research study a number of considerations were taken into account. Advantages and disadvantages of both field research and experimental laboratory studies were contrasted (See Table 2, p. 52).

Goldstein (1976) has listed characteristics of good data. Data should test, build or revise theory. It should provide explanations, rather than just describing behavior. Situations for data collection should not be contrived. For example, when conducting aggression research it would be best for subjects to watch real episodes of realistic violence in a natural setting. These characteristics of good data point to the preferred option of conducting field studies.

TABLE 2

FIELD VS LABORATORY RESEARCH

LABORATORY

ADVANTAGES

1. control over extraneous variables

2. can manipulate independent variables and more accurately measure the dependent variable

DISADVANTAGES

1. low in external validity

2. hard to generalize to real world situations

3. some variables can not be examined for ethical or practical reasons

FIELD

1. high external validity

2. low subject suspicion

3. possible to collect data from subjects who would not be attracted to a laboratory setting

4. generalizable

5. natural variation can be studied

1. little control over extraneous variables

2. difficult to randomly assign subjects to conditions

3. difficult to manipulate independent variable

4. hard to measure the dependent variable

(Harvey and Smith, 1977)

Husman (1978) suggested that laboratory studies on aggression may be contaminated. Something may exist in contrived experimental settings which actually encourages aggression or removes the inhibition to aggress. In the field it is possible to see the situation as the social actor sees it, thereby emphasizing social-psychological and sociological perspectives (Gaskell, 1979).

Characteristics of sport crowds make them ideal for conducting systematic controlled field research. Replication is possible because games are held regularly and scheduled in advance. The location of the competition is known. The crowd is captive and stationary. Especially in competition it is advantageous to study the relationship of sport to aggression in a field setting (Mann, 1979).

For these previously listed reasons, along with the problems of frequent inconsistencies in research findings and lack of generalizability of results collected in laboratory settings to real life situations, a field study was undertaken.

Selection of Subjects

Subjects were 105 paying spectators attending a regular season National Hockey League game between the Washington, D. C. Capitals and the Hartford, Connecticut Whalers. The game was held at the Capital Centre in Largo, Maryland, on Sunday night, January 18, 1981.

During the orientation period preceeding the game, trained research assistants were assigned a seating section in which to search for volunteers and distribute inventories. Problems associated with systematic selection of subjects were discussed. Twenty-two of the 56 seating sections in the Capital Centre were assigned in an attempt to solicit a representative but random sample of spectators (See Table 3, p. 55; Figure 2, p. 56).

Assistants were asked to walk to their assigned section and approach the first five spectators with whom they came in contact. Subjects were approached immediately after taking their seats. Assistants introduced themselves using the prescribed format, and asked prospective subjects to participate in the study.

Procedure of Data Collection

Volunteers were given a pre-game packet to complete which consisted of the Zuckerman and Lubin Multiple Affect Adjective Checklist (MAACL), the Buss-Durkee Hostility-Guilt Inventory, an author-designed demographic informational questionnaire, an identification number, directions sheet, and Human Subjects consent form (See Appendix A, pp. 129-139). Subjects were asked to read the directions, sign the consent form, complete the questionnaires and inventories as honestly and as quickly as possible, and not to consult anyone else in choosing their responses. The packet was to be returned to the inventory distributor immediately upon completion.

TABLE 3

SPECTATOR SEATING LOCATION
REPRESENTATIVE SECTIONS

| Section Number	Subject Number	Section Number	Subject Number
101	1,2,3,4,5	201	
102		202	
103	67,68,69,70,71	203	
104	45,46,47,48	204	101,102,103,104,105
105		205	
106	49,50,51,52,53	206	
107	54,55,56,57,58	207	96,97,98,99,100
108		208	
109		209	
110	59,60,61	210	
111		211	
112	72,73,74,75,76	212	
113	17,18,19,20,21	213	
114	22,23,24,25,26	214	
115	27,28,29,30,31	215	
116		216	
117	77,78,79,80,81	217	
118		218	
119	32,33,34,35,36	219	
120		220	82,83,84,85
121	37,38,39,40,41	221	
122		222	86,87,88,89,90
123	42,43,44	223	
124		224	
125		225	
126	62,63,64,65,66	226	
127	11,12,13,14,15,16	227	
128	6,7,8,9,10	228	
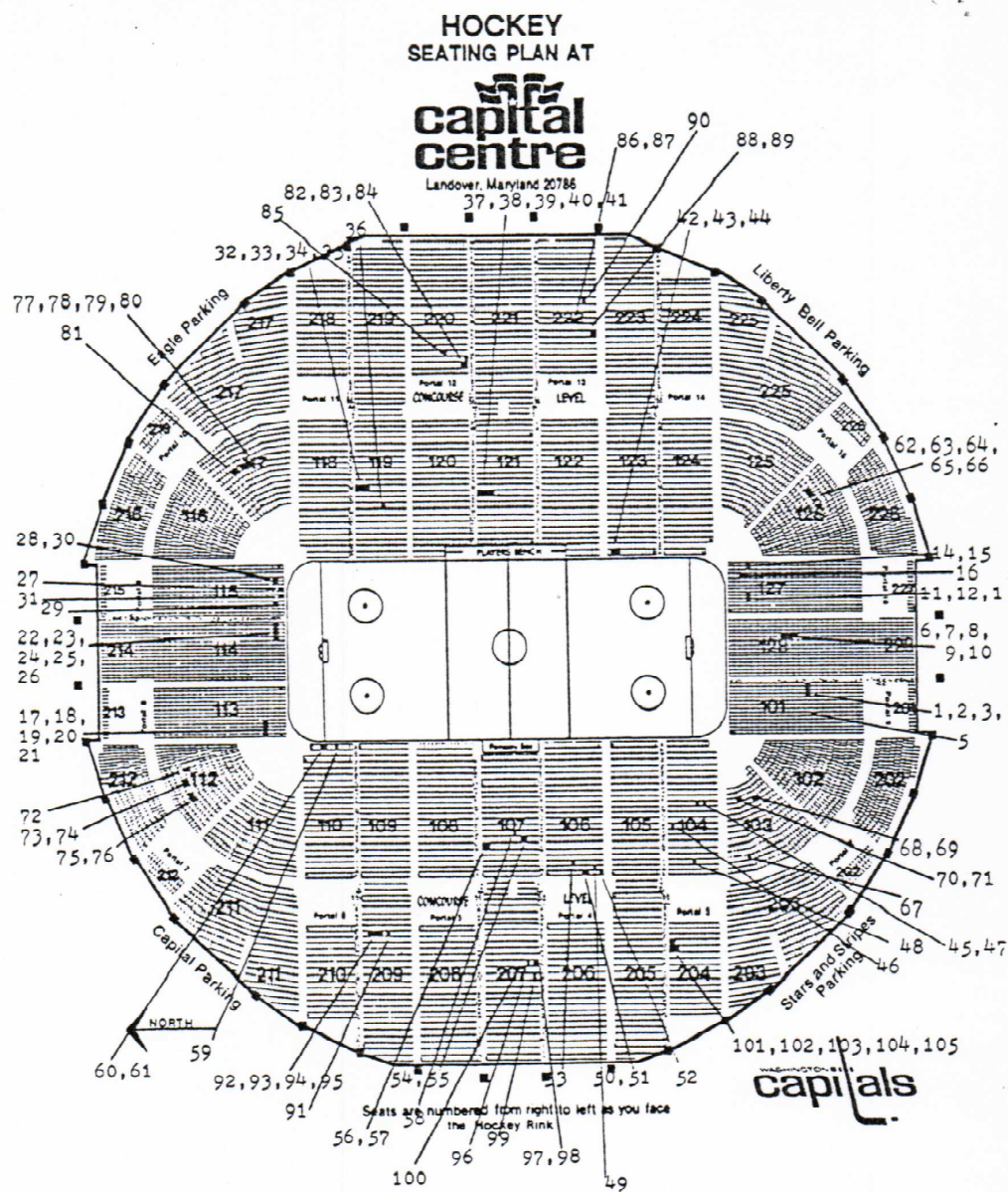
FIGURE 2

SPECTATOR SEATING LOCATION

During the competition, trained assistants observing five subjects each, recorded displays of overt aggressive behavior using Sysler's Spectator Activity Rating Scale (adapted for ice hockey). Behaviors for which points were awarded included: clapping hands, cheering or yelling, standing up, jumping up and down, forceful arm movements, fighting, using a noise maker, and throwing objects toward the ice rink.

Research assistants were given twelve frequency charts on which to record points. A different chart was used for each of the five-minute long intervals (See Figure 3, p. 58). The five-minute intervals were measured in official clock time. Frequency scores were tabulated for each of the three periods and for twelve, five-minute intervals.

During the game, a cassette recording of the arena noise and action on the ice at the time of the five-minute official game-time intervals was made. By simultaneously running video and audio cassette tapes and marking the tape counter numbers, it was possible to accurately match up all the observed spectator behavior frequency charts to coincide with the televised game action.

Immediately following the game, the MAACL was readministered, along with a second short questionnaire requesting feelings about the outcome of game, team uniform preferences, alcohol, soft drinks, snacks consumed, and whether a bet was placed on the game. Ten subjects who had originally volunteered to participate in the study either changed their minds during the competition, or left the arena before the end of the game and were not included in the sample.

	clap hands	forceful arm movement	stand up	cheer or yell	jump up and down	fights	noise maker	throw object
Number ___ Period ___								
Subject ___ Section ___ Row ___ Seat ___								
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FIGURE 3

SPECTATOR ACTIVITY RATING SCALE FREQUENCY CHART

The hockey game itself was professionally filmed for television. A videotaped replay was obtained in order to determine the extent of competition violence. The game film was later divided into twelve five-minute segments corresponding to the observed spectator behavior time intervals.

Five trained judges watching the videotaped TV replay, recorded the frequency of 23 pre-determined aggressive behaviors related to puck movement, legal but aggressive stick use, physical contact, and illegal rule infractions. Judges scores were tabulated (See Figure 4, p. 60). High and low scores were dropped for each interval and a mean score was determined for each of the twelve intervals and three regular periods.

In all, 187 informational variables in five categories were collected on each subject. The relationship of personality traits and states, demographic information, level of interest or degree of involvement in the game and game violence to spectator aggression was assessed.

Trait Aggression

The Buss-Durkee Hostility Guilt Inventory (See Appendix A, pp. 135-137) consists of seventy-five statements requiring a response of true or false and is designed to measure trait aggression. Although frequently used in aggression research, the inventory is not published. It

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GAME VIOLENCE

JUDGE _____

PERIOD		INTERVAL	TOTAL
1	1		
	2		
	3		
	4		
2	5		
	6		
	7		
	8		
3	9		
	10		
	11		
	12		

Behaviors to look for:

goal scored
shot at goal
disallowed goal
puck flies out of rink
stalled puck
loose puck

stick contact
stick checks
broken play
lost or broken stick

physical contact
fights
injuries
crashing into boards
body checks
being pushed or
  falling onto ice

face off
changing lines

penalty called
play stopped by
  official
offside
icing
power plays

FIGURE 4

GAME VIOLENCE FREQUENCY CHART

was developed originally for a 1957 study by Dr. Arnold
Buss, currently with the Psychology Department of the
University of Texas at Austin.

The inventory produces seven sub scores and a
total score. These are: assaultive behavior, indirect
aggression, irritability, negativism, resentment, sus-
picion, verbal aggression, and guilt.

One point is scored for each statement marked
true, except numbers: 2, 6, 12, 14, 17, 21, 24, 29, 41,
52, 53, 58, 62, 65, and 66 which are given a point for
being marked false. Mean scores were determined for an
average population (Indiana University students).

TABLE 4

NORM BUSS-DURKEE SCORES

AGGRESSIVE BEHAVIOR MEASURED	STATEMENT NUMBERS	MEAN SCORES	
		MALE $\overline{M}$	FEMALE $\overline{F}$
assaultive behavior	1-10	5.1	3.3
indirect aggression	11-19	4.5	5.2
irritability	20-30	5.9	6.1
negativism	31-35	2.2	2.3
resentment	36-43	2.3	1.8
suspicion	44-53	3.4	2.3
verbal aggression	54-66	7.6	6.8
guilt	67-75	5.3	4.4
TOTALS		30.9	27.7

Goldstein (1976) in discussing problems associated with the conducting of field research suggested advantages of using the Buss-Durkee Inventory as a measurement tool in assessing aggression. It is possible to administer the inventory verbally. And, it is possible, if necessary because of time constraints, to use a short subscale rather than having to administer the entire inventory.

State Aggression

The Multiple Affect Adjective Checklist (MAACL) was designed by Marvin Zuckerman and Bernard Lubin, both clinical psychologists, and is published by Edits (Educational and Industrial Testing Service © 1965) in San Diego, California (See Appendix A, p. 138).   The MAACL measures emotional change or personality states, affects, rather than stable traits. Affect is defined as an emotional response which is assessed by means of verbal reports.

It is a self-administered test which provides a valid measure of "3 clinically relevant negative affects"-- anxiety, depression, and hostility. Scales were developed using the empirical method of test construction.

The inventory exists in two forms: "today" and "general" for use in assessing immediate emotional change in response to an event or happening, or usual changes in emotion. The MAACL consists of one hundred adjectives. Directions are to check or not check an adjective depending on if it describes how you feel "now, today" or "in general." A scoring key along with a computerized scoring service are

available. Positive items are scored if the subject checks them; negative items are scored if the subject does not check them. This system gives partial control over response set checking.

Response sets such as social desirability, the tendency to respond to items in a socially desirable way rather than responding to the content of the statement, and acquiescence, the tendency to choose positive categories rather than negative categories of response, are taken into account. K scales for defensiveness, L scales for lying, and F scales for general response deviancy are included in the MAACL. Correlations with other tests suggest response set, especially in the "today" form, does not appear to have an important influence in the MAACL.

Means and standard deviations of normal populations and patients (job applicants, college students, Carter Memorial Hospital patients, Central Islip Hospital, and two samples of V.A. Hospital patients) have been assessed. Normative data suggests no significant sex differences exist within samples.

Validity of the MAACL has been tested using test anxiety replications, hypnotically induced anxiety, perceptual isolation, state fright, changes induced by pictoral stimuli, clinical observation, drug studies, correlations with psychological and biochemical measures, correlations with the Taylor Manifest Anxiety Scale (MAS), correlation

with other anxiety tests, and correlation with other
personality trait measures.

Since the normal population fluctuates in day to
day mood, the "today" MAACL scores should not have a high
day to day reliability. But assuming that the daily changes
in affect are randomly distributed within a group, the
group should not change significantly from occasion to
occasion unless the whole group is exposed to some common
stress situation on one occasion" (Zuckerman and Lubin,
1965).

Internal test reliability (odd vs. even items)
coefficients are significant and high while test-retest
correlations are low and not of much significance. Cor-
relation between the three MAACL "today" scales using
college students and psychiatric patients are very high.
This suggests that the three scales are measuring a common
factor at a given time. The high correlation between the
three scales does not necessarily invalidate their use
as separate scales, since the scales are intended to measure
change in psychological states rather than static emotional
traits.

Advantages of using the checklist are that it takes
less than five minutes to administer, instructions are
simple, and words (adjectives) are not above an eighth
grade reading level.

Demographic Information

Information was obtained through an author-designed pre/post game questionnaire. The information collected included age, sex, number of others accompanying subject to game, level of education, income, occupation, alcohol, soft drink, and snacks consumed during game.

Level of Interest or
Involvement in Sport

Information was also obtained through an author-designed pre/post game questionnaire. The information collected included team preference, distance travelled to game, projected number of NHL hockey games planning to attend during 1980-1981 season, number of NHL hockey games actually attended during 1979-1980 season, whether subjects follow hockey at any level other than professional, if subjects watch televised hockey games, if subjects ever played hockey themselves, the cost of their ticket for this game, distance subjects sat from the ice, feelings about game outcome, other sporting events (aggressive and nonaggressive) subjects attend as a spectator, other sporting events (aggressive and nonaggressive) subjects watch on TV or listen to on the radio, sports that subjects participate in regularly (team, individual, aggressive and nonaggressive), whether a bet was placed on the outcome of the game, which team's uniforms subjects preferred, and why they chose to attend this particular game.

Game Violence

Game violence scores were obtained from the frequency chart, and recorded game statistics. Information was collected on game violence intervals 1-12 and periods 1-3, scoring by intervals, running score, penalties, injuries, and fights (See Table 30, p. 105).

Spectator Aggression

Spectator aggression was obtained through observed behavior using Spectator Activity Rating Scale (SAR) with one observer per every five subjects. Information was collected on behavior observed during intervals 1-12 and periods 1-3.

Treatment of the Data

In order to combine both relevance and economy of procedure data was coded (See Appendix C, pp. 154-170) for data and instructions on translating coded data) and analyzed using BMD computer programs, P1D--Simple Data Description, P2V--ANOVA, and P6M--Canonical Correlation.

Simple Data Description (P1D) computes univariate statistics for each variable including mean, standard deviation, coefficient of variation, largest and smallest values and standard scores, frequency, and range (See Appendix B, pp. 140-153).

Analysis of Variance (P2V) determines if significant differences exist between largest and smallest means. Systematic and error variance are separated.

Canonical Correlation Analysis (P6M) is a general-
ized multiple regression analysis for use with any number
of dependent variables. Multiple regression gives rela-
tionships among a single criterion measure (dependent
variable) and two or more prediction measures (independent
variables). The program prints, in addition to the
canonical correlations, canonical variable coefficients
and correlations of the original variables with the
canonical variable loadings. Eigenvalues associated with
each pair of canonical variables are also printed along
with Bartlett's test for significance of remaining
eigenvalues.

Using least squares analysis, two linear composites
are formed, one for the independent variables and the other
for the dependent. The correlation between these two
linear composites or the square root of the eigenvalues
is the canonical correlation.

The canonical coefficient is the maximum possible
correlation between two sets of variables. More than one
source of common variance can be identified; therefore,
there can be more than one set of equations. From the
equations, dependent variable responses can be predicted
from knowledge of certain independent variables (Kerlinger,
1973; Cooley, 1971). Coorelations were run among the
following groups of variables: (1) demographic information
and level of interest; (2) personality variables and level
of interest; (3) level of interest and spectator aggression;

and (4) and (5) demographic information, personality
variables, and level of interest, and spectator aggression
(intervals 1-12) and (periods 1-3).

Summary

This study was conducted in a realistic field setting.
Subjects were 105 regular paying spectators attending a
professional ice hockey game between the Washington Cap-
itals and Hartford Whalers.

Information was collected on each subject in an
attempt to identify factors which contribute to the probabil-
ity of the occurrence of spectator aggression. The effect
of viewing aggressive competition on subsequent elicited
aggressive responses was also appraised.

Personality traits were assessed using the Buss-
Durkee Hostility-Guilt Inventory. Changes in personality
states due to the observation of game violence were
measured using the Multiple Affect Adjective Checklist.
Author-designed questionnaires were used to evaluate
demographic information and level of sport interest and
involvement. Spectators were observed throughout the
game and the frequency of eight aggressive behaviors
were recorded. A videotaped TV replay of the game was
also later judged for frequency of game violence.

Data was analyzed and descriptive statistics
summarizing the collected variables were generated.

Canonical correlation analysis was used to compare (1) demographic information with sport interest and involvement, (2) personality variables with sport interest and involvement, (3) level of sport interest with spectator aggression, and (4) demographic, personality, sport interest variables with spectator aggression. Analysis of variance was used to determine if significant differences existed between and within intervals and game periods in observed behavior. Aggressive spectator behavior was compared with corresponding game violence to see if recognizable trends emerged. Relationships among the various factors were identified.