CHAPTER VI

ANALYSIS OF THE SURVEY DATA

As presented in the previous chapter, the first part of this research evaluated the Birding Trail site with guidelines derived from the literature on interpretation. The focus of the second part of this research were:

1. to understand the relationship between major domains of an interpretive nature tourism Web site and visitors' subjective experience while browsing the Web site, and

2. to measure the quality of the experience and to determine the relationship between the quality of visitors' experience and the effectiveness of the Web site to fulfill its intended goals of interpretation.

Specifically this part of the research sought to answer three questions:

1. can an interpretive Web site induce flow experience?

2. what are the factors that affect flow experience?

3. what is the consequence of flow experience as it relates to the effectiveness of the Web site, in this case, to meet the goals of environmental interpretation?

This chapter reports the data collected through an online survey, and answers the first research question. The first section of this chapter contains an overview of the respondents' demographic characteristics. The second section summarizes data in Likert scale. The third section examines findings from the survey data and answers the first research question – can an interpretive Web site induce flow experience? The next two chapters will provide answers to the second and third research questions through the process of structural equation modeling.

The Response Rate

A total of 1842 emails were sent out twice. Two hundred and eighty-one people responded to the survey. The response rate was 15.26 percent. Five replied with email messages expressing their opinions and concerns. The survey contained twenty-eight items. Four survey items collected information about the respondents' age, sex, education, and Zip codes. Answers to these questions were used to examine the general demographic characteristics of the respondents to this survey. The remaining twenty-four items were used to measure the measurement variables included in the proposed flow model (Figure 4.5 in chapter IV).

Demographics of the Respondents

Gender Distribution

The survey for this research shows a notably higher percentage of female respondents than male. 56.7 percent of the respondents were female, and 41.3 percent of the respondents were male (Figure 6.1).
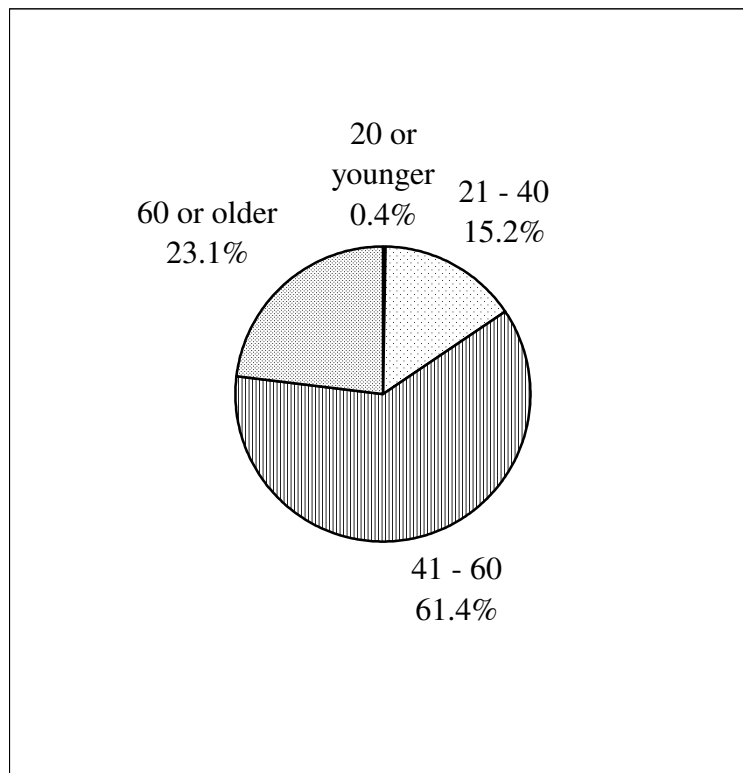
Figure 6.1. Distribution of responses for gender
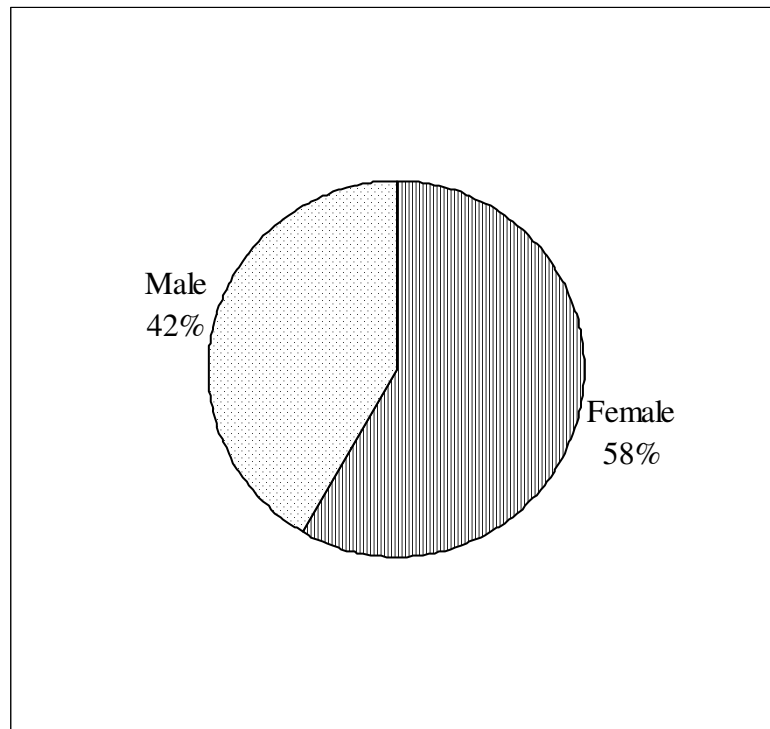
Respondents' Age

The respondents to the survey were generally mature visitors. The average age of

the respondents for this survey was 51.92. The largest group of respondents was in the

age range of 40 –60 (Figure 6.2).

Figure 6.2. Respondents' age distribution

Respondents' Highest Level of Education

The respondents were well educated. About 55.1 percent of the respondents in

this survey have completed college or graduate school (Figure 6.3).

Figure 6.3. Distribution of responses for education

Completed
graduate
school
20.7%

Completed
H/S
44.9%

Completed
college
34.4%
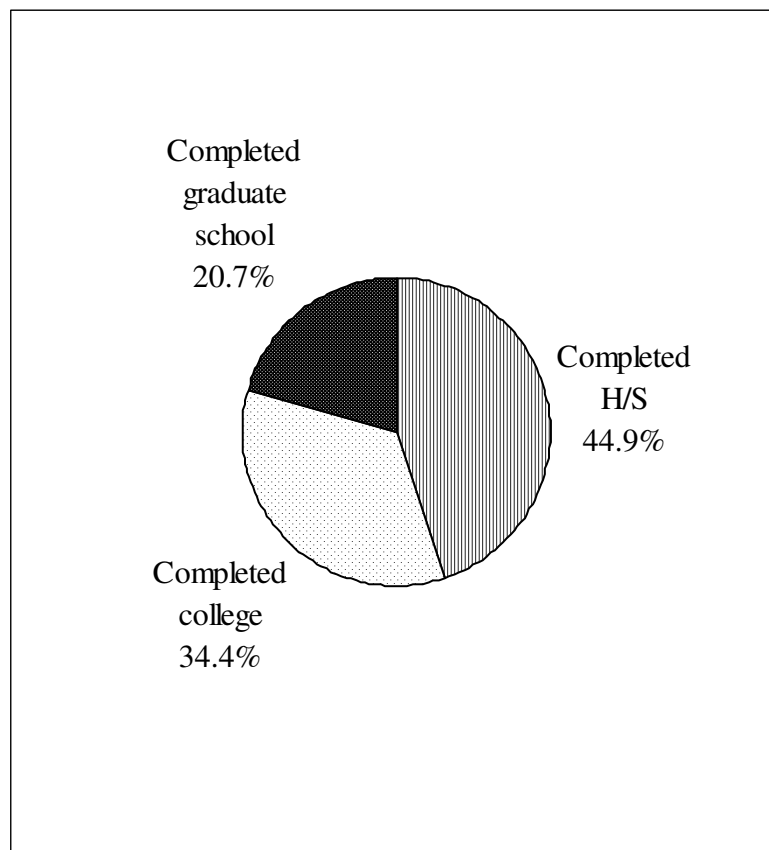
Respondents' Geographical Location

This survey collected information about respondents' home zip code to identify their geographical locations. Only 262 respondents provided their zip codes. With the zip code information an Arcview map was created (Figure6.4). Figure6.4 shows that, although people from thirty-seven states in the US participated in the survey, about half of the respondents were from Texas (49.82 percent).

Analysis of the Likert Scale Data

This section summarizes the weighted mean values of the data in Likert scale. These data were used to measure the factors in the proposed flow model. Detailed information about the distribution of the responses to these questions is listed in Appendix D.

The survey participants responded to twenty-three Likert scale items using the following scale:

1 = strongly disagree
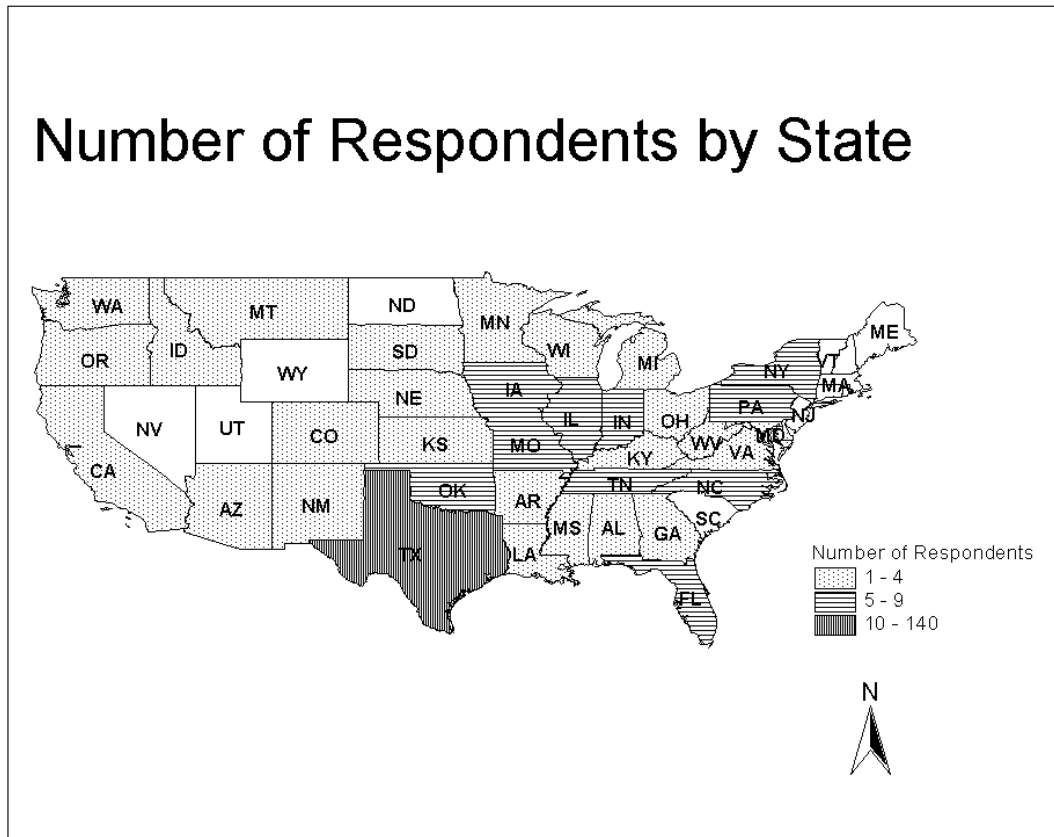
2 = disagree

3 = neutral/undecided

4 = agree

5 = strongly disagree

The Likert scale for item 24 (How often have you visited virtual tour Web sites?) was defined as:

1   Never before

Figure 6.4. Respondents' geographical distribution

Number of Respondents by State

2   Once every several months

3   Once every several weeks

4   Once a week

5   More than once a week

Answers to survey item 21 and 22 were intended to measure if the Web site stimulated visitors' new interest in birding or had made visitors like birding more. The answers to these questions should be exclusive. However, the questionnaire was unclear to the respondents because most of them answered both questions. This caused ambiguity for interpreting the results, so these two questions were eliminated from the analysis. This should not affect the overall assumptions of the model because it is only one of the measurement variables for the latent variable -- changes of attitude and behavior.

Figure 6.5 illustrates the weighted mean response to each of the survey items in Likert scale. Items in the chart are arranged in the following sequence: measures of flow experience, measures of factors that contribute to flow experience, and measures of the consequences of the flow experience.

Measurements of Flow Experience

Two items asked about respondents' experience with the Web site in terms of time distortion (FL1) and enjoyment (FL2). The weighted mean values of these items were around 4.0. These results indicate that the respondents enjoyed the Web site and lost track of time while browsing it.

Figure 6.5. Weighted mean values of responses to the survey items in Likert scale

Item	Description
FL1: While I was browsing the Web pages, time seemed to go by very quickly.	
FL2: Overall, I enjoyed the virtual tour.	
EP: How often have you visited virtual tour Web sites?	
A1: The Web site is interesting.	
A2: The design of the Web site is attractive.	
SP1: There is little waiting time for the Web pages to load.	
SP2: The Web site's speed is fast.	
EU1: I had no problem finding what I wanted.	
EU2: Navigation of the Web site was simple and easy.	
I1: I felt that I has the freedom to go anywhere in the Web site.	
I2: Interacting with the Web site was easy.	
I3: The Web site's response to my actions (such as clicking a link) was fast.	
T1: While browsing the Web site, I was not aware of my immediate surroundings.	
T2: I felt that I was in the world created by the Web site – the Texas Coastal Birding Trail.	
C: The Web site provided some information that was new to me.	
SK1: I consider myself to be a knowledgeable birder.	
SK2: I know a lot about the Texas coastal region.	
LP1: After visiting the Web site, I feel that I have learned more about the birding resources along the Texas coast.	
LP2: I have gained more knowledge about the Texas coast after visiting the Web site.	
CA1: After visiting the Web site, I want to find out more about the Great Texas Coastal Birding Trail.	
CA2: I will return to the Web site for birding information.	
CA3: After visiting this Web site, I am interested in visiting the Great Texas Coastal Birding Trail.	

Bar chart values:

- FL1: 3.96
- FL2: 4.14
- EP: 1.67
- A1: 4.32
- A2: 4.31
- SP1: 4.11
- SP2: 4.02
- EU1: 3.89
- EU2: 4.03
- I1: 4.11
- I2: 4.09
- I3: 4.22
- T1: 3.12
- T2: 3.11
- C: 4.42
- SK1: 2.8
- SK2: 2.51
- LP1: 4.15
- LP2: 4.12
- CA1: 4.1
- CA2: 4.19
- CA3: 4.05

Measurements of Factors that Contribute to Flow Experience

Experience with virtual tour Web site ranks the lowest in its weighted mean value, only 1.67. It is apparent that most of the respondents are not experienced with virtual tour Web sites.

Four items were used to measure respondents' impression about the Web site's design, performance, usability, and their interaction with the Web site. These items are attractiveness (A), speed for downloading Web pages (SP), ease of use (EU), and interactivity (I). The weighted mean values of all of these items are all around 4.0. These results indicate that the respondents had a positive perception of the design, performance and usability of the Birding Trail site, and had satisfactory interactions with the Web site.

Items T1 and T2 were used to measure visitors' experience of telepresence, either being unaware of their immediate surroundings, or feeling present in the world created by the Web site. They both have means slightly higher than the median, 3.12 and 3.11 respectively. These values indicate a fairly normal distribution. The largest portion of respondents felt that they were in between the state of being in the world presented in the Web site and their immediate surroundings.

Item C asked if the Web site's content provided something new to the respondent. It has the highest weighted mean value, 4.42. The overwhelming responses of agree or strongly agree indicate that most of the respondents were unfamiliar with the birding resources presented.

Items SK1 and SK2 were used to measure respondents' knowledge about birding, or the area presented on the Web site. Their weighted mean values are 2.8 and 2.51, just

below the median value of 3.0. These results suggest that the majority of people did not

consider themselves to be very knowledgeable about birding or about the place depicted

on the Web site.

Measurements of the Consequences of Flow Experience

The last group of items investigates whether the respondents felt that they had

gained more knowledge about the place (LP), and whether they planned to take any

positive actions after visiting the Web site (CA). The weighted mean values of these

items were all around 4.0. These results indicate that the respondents believed that they

had learned more about the birding resources in the area presented in the Web site. The

new knowledge about the place had also stimulated their interests to find out more about

the Birding Trail. They would come back to this Web site for birding information. They

even suggested they were interested in visiting the place.

In summary, the survey data indicates that the respondents of this research, who

did not know much about the birding resources along the Texas coast and had limited

knowledge about birding, were fairly impressed with the Web site's content, design and

usability. They enjoyed the Web site and lost track of time while browsing it. After

visiting the Web site, they believed that they had learned more about the place from the

Web site, and were willing to take positive actions.

Flow Experience on the Web

Flow experience on the Great Texas Coastal Birding Trail Web site appeared to

be common. The survey result shows that 74.5 percent of the respondents reported an

experience with at least one of the flow characteristics, time distortion or enjoyment. The weighted mean values for time distortion and enjoyment were 3.96 and 4.14. 72.24 percent reported time distortion when they responded that – time seems to go by very quickly (FL2). 77.23 percent reported that they enjoyed the tour (FL1). 61.57 percent of the respondents reported having both flow characteristics at the same time – enjoyment and time distortion. The chi-square test of the relationship between these two characteristics was statistically significant, with chi-square value of 159.9 (df = 16, p-value = 0.0). Table 6.1 reports the cross table for time distortion (FL1) and enjoyment (FL2).

Regarding my first research question, these results indicate that an interpretive Web site may induce a flow experience. Then, what are the causes of the flow experience in the context of human-computer interactions with a particular interpretive Web site? Why would this experience be desirable? How does flow experience relate to people's behavior outcomes whether directly or indirectly? Answers to these questions will be derived from the testing of the proposed flow model. The flow model detailed hypothetical relationships among various factors associated with an interpretive Web site, visitors' individual differences, and the outcomes anticipated by Web developers or program interpreters. Chapter VII discusses the process of empirically testing and modifying the conceptual flow model. Chapter VIII discusses implications of the final flow model and answers the remaining research questions.

TABLE 6.1

Cross tables for time distortion (FL1) and enjoyment (FL2)

Column Variable is FL2.
Number of cases in data file are 281
Number of cases used in this analysis are 279

FL1	1.000	2.000	3.000	4.000	5.000	TOTAL
1.000	1	2	0	1	0	4
CELL %	0.36	0.72	0.00	0.36	0.00	1.43
ROW %	25.00	50.00	0.00	25.00	0.00	100.00
COLUMN %	25.00	15.38	0.00	1.08	0.00	
2.000	1	4	4	3	0	12
CELL %	0.36	1.43	1.43	1.08	0.00	4.30
ROW %	8.33	33.33	33.33	25.00	0.00	100.00
COLUMN %	25.00	30.77	8.70	3.23	0.00	
3.000	2	6	23	21	8	60
CELL %	0.72	2.15	8.24	7.53	2.87	21.51
ROW %	3.33	10.00	38.33	35.00	13.33	100.00
COLUMN %	50.00	46.15	50.00	22.58	6.50	
4.000	0	1	14	55	48	118
CELL %	0.00	0.36	5.02	19.71	17.20	42.29
ROW %	0.00	0.85	11.86	46.61	40.68	100.00
COLUMN %	0.00	7.69	30.43	59.14	39.02	
5.000	0	0	5	13	67	85
CELL %	0.00	0.00	1.79	4.66	24.01	30.47
ROW %	0.00	0.00	5.88	15.29	78.82	100.00
COLUMN %	0.00	0.00	10.87	13.98	54.47	
TOTAL	4	13	46	93	123	279
TOTAL %	1.43	4.66	16.49	33.33	44.09	100.00
ROW %						
COLUMN %	100.00	100.00	100.00	100.00	100.00	

STATISTICS	VALUE	D.F.	P-VALUE
Pearson Chi-Square	159.8789	16	0.0000
Likelihood Ratio	135.8994	16	0.0000