

**Evaluating the Effectiveness of the Texas Parks and Wildlife Hueco Tanks  
State Historic Site Orientation/Conservation Video:  
A Media System Dependency Theory Perspective**

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**Abstract**

The major purpose of this study was to provide an evaluation of the effectiveness of Texas Parks & Wildlife Hueco Tanks State Historic Site orientation/conservation video and how the video impacted the way people perceived Hueco Tanks State Historic Site through their media dependencies.

A principal components factor analysis of the 16-item dependency scale of the respondents' post awareness levels, using a varimax rotation factor analysis, yielded three dimensions. The first dimension, passive interest, includes individual orientation, action orientation, solitary play and social play (Cronbach alpha = .87); the second dimension, active interest, includes self-understanding, action orientation and solitary play (Cronbach alpha = .86); and the third dimension, activism, includes social understanding and solitary play (Cronbach alpha = .81).

This study provided a test of the media system dependency theory and, in the process, extended the knowledge of the relationships state park attendants have with the orientation/conservation video. A significant association was determined between the three goal dimensions and personal video dependency relationships. The significant association is important due to the fact that previous media system dependency studies have yielded four or more goal dimensions and have not explored personal video dependency relationships.

**Key Word:** Media System Dependency Theory, public awareness, media evaluation, state parks

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**Introduction**

Recent trends of wildlife-based recreation in state parks and environmental issues across Texas have contributed significantly to an explosion of knowledge in media communications. Consequently, a demand for program evaluations has been placed upon wildlife programming (K. Loke, personal communication, August 24, 2002).

Texas Parks & Wildlife compiled a Public-Use Restriction Plan in 1998 after evaluating Hueco Tanks State Historic Site's vandalism issues. The park was closed for a period of reconstruction efforts and an orientation/conservation video was developed by the Texas Parks & Wildlife Media Production Department and sent to Hueco Tanks in spring of 2000 for state park attendees to watch before entering the grounds. The mission of Hueco Tanks orientation/conservation video is: (a) to restore and preserve the prehistoric, historic, geologic and natural features of the area; (b) to provide interpretation to the public; and (c) to provide recreational opportunities which are compatible with the preservation goals of the site.

According to Erickson (1969), our response to wildlife and conservation varies, but the basic appeal in anthropomorphic features still exists. As we become older, we have a heightened interest in wildlife preservation and conservation of the vanishing nature. Morris (1969) explains the reason for this is that the older person is about to become extinct and views vanishing wildlife and nature as symbols of an impending death. Their concern for wanting to preserve wildlife and conserve nature reflects a person's desire to extend his own survival. Morris' (1969) observations suggest that the effectiveness of a message about wildlife conservation may be dependent upon the kind of wildlife/nature issues used in the communicator's message.

As a problem with the interaction between man and animal, many wildlife species have been reduced by hunting, trapping or other means of a loss of habitat. Concern for the conservation of wildlife species and the environment has resulted in the establishment of many governmental agencies. These agencies have started realizing that the key element in the survival of wildlife and conservation of nature lay with an informed and educated public.

Powers (1994) stated that if the audience is to meet the needs of wildlife/nature conservation, educational videos must answer the question of whether wildlife programming ever inspires anyone to take active, positive action toward conservation.

Rogers (1996) explained, “the mass media is the primary sources used by people to gather initial awareness...mass media sources have a great influence upon public perception” (p.215). DeFleur and Ball-Rokeach (1989) stated, “The ultimate basis of media influence lies in the nature of the interdependencies between the media and other social systems and how these interdependencies shape audience relationships with the media. The greater the media dependency in connection with a particular message, the greater the likelihood that the message will alter audience cognitions, feelings and behaviors” (p. 3). Ball-Rokeach and DeFleur (1989) explained that the media system dependency theory predicts a cognitive psychological process that increases the probability of someone being affected by a particular medium. This process begins with either an individual who scans the media to actively decide what he or she wishes to listen to, watch or read, or one who comes into contact with media content.

In step one, active selectors expose themselves to media content that they have reason to expect will help them to achieve one or more of their understanding, orientation or play goals. Their expectations are based upon their prior experience, conversation with family or friends, or cues obtained from media sources. Casual observers encounter media content incidentally with no preformed expectations (e.g., walking into a room where the TV is on). The observers may find that one or more dependency is activated that motivates them to continue exposure. Other observers might not experience dependency activation and exposure will terminate. In step two, variations in intensity of individuals' media

dependencies will be a function of differences in their personal goals, their personal and social environments, expectations with regard to the potential utility of the specific media content under consideration, and ease of access to that content. The source of the variation in the intensity of the dependency does not matter; however, the greater the intensity of relevant media dependencies, the greater the degree of cognitive and affective arousal. In step three, involvement refers to active participation in information processing. People who have been cognitively and affectively aroused will engage in the kind of careful processing of information that will allow them to recall or remember the information after exposure. The fourth step, individuals become intensely involved in information processing and are more likely to be affected by their exposure to media content. (Grant, 1989 p. 311)

The step by step process of the effects of specific media content on individual is illustrated in Figure 1.

Emerson (1962) explored the nature and importance of dependency relationships in an article relating the power of a variable (individual, organization, etc.) to the dependence of other variables upon resources controlled by the first variable. Ball-Rockeach (1989) defines the media system as "...an information system in control of three types of 'dependency-engendering' information resources...that others have to have access to in order to attain their goals" (p. 9). These three types of 'dependency-engendering' information resources are identified by Ball-Rockeach (1989) as information gathering or information creating, information processing, and information dissemination.

Ball-Rockeach (1984) investigated three primary dimensions of human motivation, including understanding, orientation and play, that individuals have a dependency relationship with the media system. Grant (1989) stated that "the three dimensions are essential to individual welfare, but they are also not mutually exclusive since any media message may serve more than one type of dependency" (p. 33).

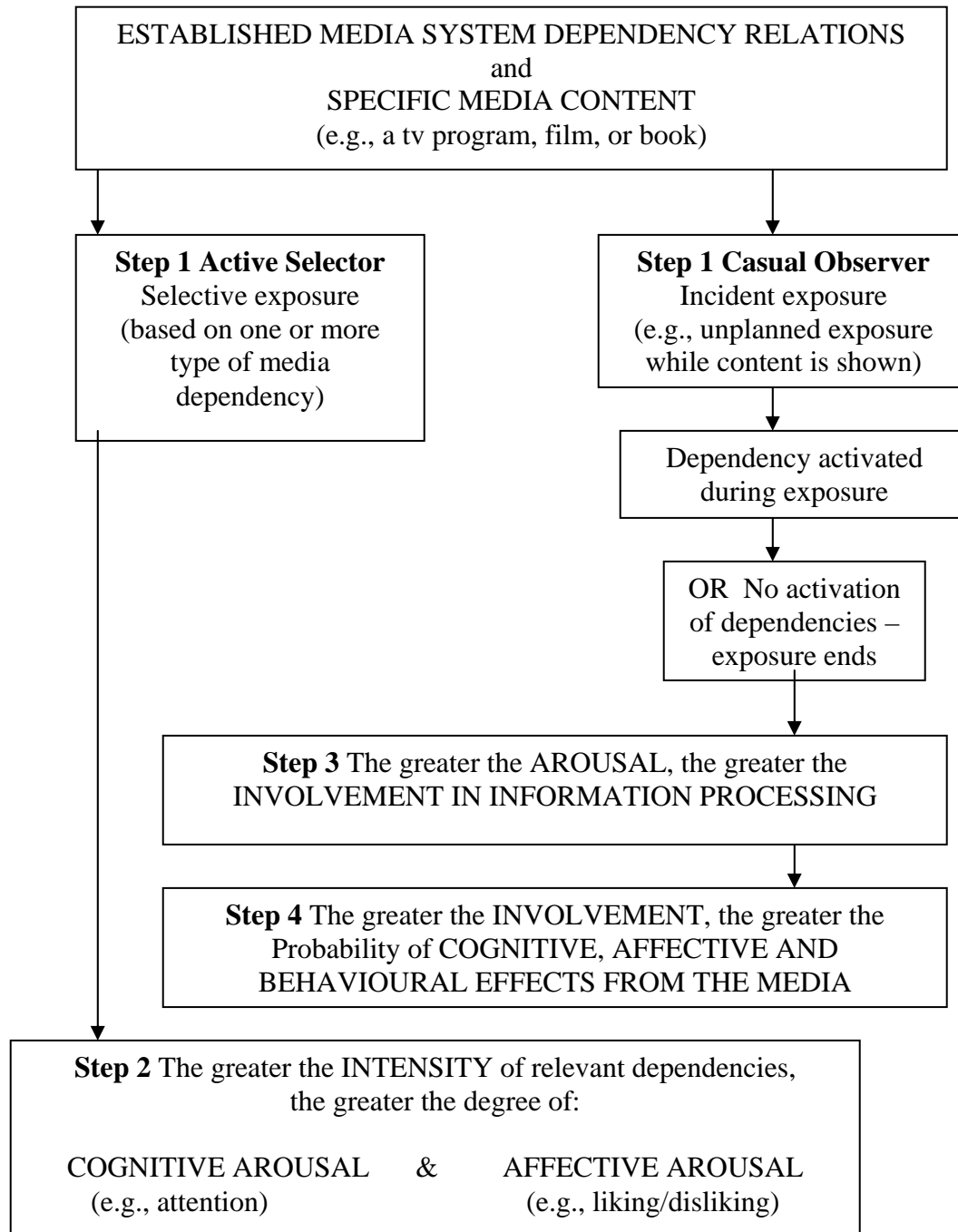


Figure 1: The Process of Effects of Specific Media Content on Individuals (Grant, 1989)

Ball-Rockeach (1984) also explored two sub dimensions for each of the three dimensions yielding six types of goal dimensions of media systems dependency relations shown in Figure 2. The six sub dimensions include: action orientation, interaction orientation, self-understanding,

social understanding, solitary play and social play. The first row refers to individual application and the second row is a more social approach.

<b>Understanding</b>	<b>Orientation</b>	<b>Play</b>
<p><b>Self understanding</b> Refers to increasing the understanding of who we are.  (e.g. learning about your understanding of conservation)</p>	<p><b>Action orientation</b> Refers to pursuing goals regarding personal behavioral decisions.  (e.g. deciding on how to conserve the park)</p>	<p><b>Solitary play</b> Refers to attaining individual goals of enjoyment, escape, etc.  (e.g. enjoying conserving the park as an individual)</p>
<p><b>Social understanding</b> Increasing the understanding of the larger social environment.  (e.g. interpreting the conservation message of the park)</p>	<p><b>Interaction orientation</b> Attaining goals relating to how to interact with other individuals.  (e.g. conserving the park while interacting with others)</p>	<p><b>Social play</b> A shared experience where the presence of others is necessary for attaining goals.  (e.g. gain pleasure in conserving park with family/friends)</p>

Figure 2: Goal Dimensions of Media System Dependency Relation (DeFleur & Ball-Rokeach 1989)

### **Purpose and Research Questions**

The purpose of this study was to provide an evaluation of the effectiveness of Texas Parks & Wildlife Hueco Tanks State Historical Site orientation/conservation video. As a means of achieving this purpose, the following objectives were selected:

1. Determine the underlying factors related to the goal dimensions of the media dependency theory.
2. Determine if differences exist between pre and post awareness based on the identified underlying factors.

### **Methodology**

The research framework used for this study was designed after Grant's (1989) media system dependency theory on individuals, and the questions were formatted using a post then pre design allowing respondents to assess their perceived awareness level through a pretest and post test of the same referencing frame. This method minimizes response-shift bias, which can be a source of contamination in self-report assessments (Rockwell & Kohn, 1989). Response-shift bias is a change in an individual's frame of reference because of program participation (Howard & Dailey, 1979).

The target population of this study included the Hueco Tanks State Historic Site attendees during the summer season (May 1 – September 30, 2003). All attendees must view the orientation/conservation video for entering the park. The average number of attendants oriented for the summer season is 4,113. The researchers used a purposeful/criterion sample (n=1,813) (Krejcie & Morgan, 1970). This number was the population entering the park during the second portion (July 4 – September 30, 2003) of the summer season. The population size excluded children 15 years of age and younger for competency reasons. Respondents were asked to voluntarily complete the questionnaire before entering the Hueco Tanks' interpretation center to view the orientation/conservation video. The volunteers were asked to complete the post-test portion of the questionnaire after viewing the video and return their completed questionnaire to the researcher. The researcher collected 270 completed questionnaires with a response rate of 15%.

The instrument used in this study was modeled after Kistler's (2002) Ranch to Rail post then pretest questionnaire. Part one of the questionnaire was used for the educational assessment of the awareness levels before and after they watched the orientation/conservation video. Sixteen statements about the areas covered by the orientation/conservation video were included

in the survey. Those 16 areas were: conservation is a group effort, protecting plant/animal life, privilege of public access, outdoor recreation activities, participating in tours, conserving Hueco Tanks, park conservation, history of Hueco Tanks, Native American culture, conserving wildlife/nature, conservation responsibilities as an individual, respecting Native American art/history, preserving rock art/pictographs, park rules, preventing vandalism, and human impact on the park. A four-point Likert-type scale was used where 1=low awareness level through 4=high awareness level. The instrument was pilot tested with 30 participants outside the sample. Reliability of the test instrument was measured using Cronbach's alpha. Pre awareness and post awareness level scales were .94 and .93 respectively. Part two consisted of five statements dealing with the satisfaction levels of the orientation video. Respondents were asked to rate their satisfaction levels of the video using a four-point Likert-type scale where 1=Very Dissatisfied, 2=Slightly Dissatisfied, 3=Mostly Satisfied, and 4=Completely Satisfied. Part three included demographic questions.

### **Findings**

A principal components factor analysis of the 16-item dependency scale of the respondents' post awareness levels, using a varimax rotation factor analysis, yielded three dimensions. The first dimension, passive interest, includes individual orientation, action orientation, solitary play and social play (Cronbach alpha = .87); the second dimension, active interest, includes self-understanding, action orientation and solitary play (Cronbach alpha = .86); and the third dimension, activism, includes social understanding and solitary play (Cronbach alpha = .81). Factor loadings, eigenvalues and alphas for each factor are reported in Table 1.

Table 1 explains 64.49% of the variance in the original correlation matrix among the 16 items representing the six sub dimension of personal media system dependency relations.

Two considerations are relevant to an interpretation of this three-factor outcome. First, all 16 questions were loaded on all three factors. The first group of questions loaded into the first factor including four of the six sub dimensions of personal media system dependency relations. Those sub dimensions include individual orientation, action orientation, solitary play and social play. Respondents had a 50% variance dealing with this first group of questions and

Table 1: Factor Analysis<sup>1</sup> of Television Dependency Scale

Scale Item (abbreviated)	Factors		
	Passive Interest	Active Interest	Activism
Conserving group (Action Orientation)	<u>.63</u>	.44	.11
Protecting plant/animal life (Solitary Play)	<u>.53</u>	.31	.52
Privileged public access (Interaction Orientation)	<u>.73</u>	.23	.31
Outdoor rec activities (Interaction Orientation)	<u>.84</u>	.21	.19
Participating in tours (Social Play)	<u>.75</u>	.25	.23
Conserving Hueco Tanks (Social Play)	<u>.57</u>	.27	.47
Info on park conservation (Self Understanding)	.30	<u>.71</u>	.14
History of Hueco Tanks (Self Understanding)	.17	<u>.80</u>	.15
Learning NA culture (Self Understanding)	.21	<u>.68</u>	.23
Conserving wildlife/nature (Action Orientation)	.37	<u>.60</u>	.39
Conserving individual (Action Orientation)	.27	<u>.67</u>	.37
Respecting NA art/history (Solitary Play)	.21	<u>.51</u>	.46
Preserving rock art/picot (Solitary Play)	.20	.40	<u>.60</u>
Following park rules (Social Play)	8.380E-02	.26	<u>.79</u>
Preventing vandalism (Social Play)	.36	.14	<u>.72</u>
Human impact on park (Social Play)	.29	.15	<u>.74</u>
Eigenvalue	8.04	1.15	1.12
Percent of variance explained	50.28%	7.23%	6.98%
Reliabilities (alpha) of high-loading items	.87	.86	.81

<sup>1</sup>Principle Components; Varimax Rotation

how they related to the four sub dimensions. The respondents learned about their understanding of conservation, decided on how they were going to conserve the park, realized they could enjoy conserving the park as an individual, and they could gain pleasure in conserving the park with family/friends. The second group of questions loaded into the second factor including three of

the six sub dimensions of personal media system dependency relations. Those sub dimensions included social understanding, action orientation and solitary play. Respondents had a 7.23% variance towards the second group of questions and how they related to the three sub dimensions. The respondents once again learned about their understanding of conservation, interpreted the conservation message of Hueco Tanks, and decided on how they were going to conserve the park. The third group of questions loaded into the third factor including two of the six sub dimensions of personal media system dependency relation. Those sub dimensions included social understanding and solitary play. Respondents had a 6.98% variance dealing with the third group of questions and how they relate to the two sub dimensions. The respondents once again decided how they were going to conserve the park, learned they could attain their conservation goals if they interacted with other individuals, and they could gain enjoyment in conserving the park as an individual.

The second objective was to determine if differences exist between pre and post awareness based on the three underlying factors (passive interest, active interest and activism) of state park attendants whom watched the orientation/conservation video.

In terms of passive interest, a statistically significant difference was found between the pretest and post test. The results indicate the passive interest dimension post awareness ( $\underline{M}=3.02$ ,  $\underline{SD}=.46$ ) was significantly greater than the passive interest dimension pre awareness ( $\underline{M}=2.06$ ,  $\underline{SD}=.69$ ),  $t(269) = -24.05$ ,  $p=.000$ . The mean difference was -.96 points between the two four-point Likert ratings for passive interest pre and post awareness. Participants' passive interest was enhanced after viewing the orientation video. Similarly, active interest dimensions pre and post awareness had a statistically significant difference. The active interest dimension post awareness ( $\underline{M}=3.10$ ,  $\underline{SD}=.37$ ) was significantly greater than the active interest dimension pre

awareness ( $\underline{M}=2.03$ ,  $\underline{SD}=.67$ ),  $t(269) = -27.27$ ,  $p=.000$ . The mean difference was -1.07 points between the two four-point Likert ratings for active interest pre and post awareness.

Participants' active interest was enhanced after viewing the orientation video. The third dimension, activism, had a statistically significant difference between the pre and post awareness. The activism dimension post awareness ( $\underline{M}=3.04$ ,  $\underline{SD}=.31$ ) was significantly greater than the activism dimension pre awareness ( $\underline{M}=2.20$ ,  $\underline{SD}=.75$ ),  $t(269) = -19.34$ ,  $p=.000$ . The mean difference was -.84 points between the two four-point Likert ratings for active interest pre and post awareness. Participants' activism was enhanced after viewing the orientation video.

### **Conclusions and Recommendations**

This study provided a test of the media systems dependency theory. The 16 items representing the six sub-dimensions of the media system dependency theory explained 64.49% of the variance in respondents' post-awareness level toward the orientation video. A significant association was found between three goal dimensions and personal video dependency relationships. This is important due to the fact that previous media dependency studies have yielded four or more goal dimensions and have not explored personal video dependency relationships.

The following recommendations are made based on the purpose of this study:

#### **Recommendations for Practice**

1. The Hueco Tanks State Historic Site orientation/conservation video should be evaluated on a yearly basis to ensure that state park attendants are receiving the conservation message of the video.

2. Other Texas Parks and Wildlife state parks, national parks, natural resource managers and agencies, television programming producers, and wildlife conservation organizations should consider modeling this study to evaluate additional conservation videos in their effort to inform the public and increase awareness on conservation issues.

#### Recommendations for Further Research

1. Additional studies should be conducted in order to further review how the media system dependency theory interacts with other conservation mediums such as guided tours, brochures, television, videos, interactive computer software, etc.
2. A study should be conducted on the Hueco Tanks State Historic Site English and Spanish orientation/conservation videos to determine language barriers compared to ethnicities of state park attendants to improve the understand of the conservation message of the video.
3. A study should be conducted on the visual effects the orientation/conservation video compared to a live-guided orientation to determine the best way to spread the state park conservation message.
4. Contrary to DeFleur and Ball-Rokeach (1989) the 16-item instrument which they proposed appears to not be one-dimensional in this context. Figure 3 depicts three unique dimensions that should be explored in other situations.

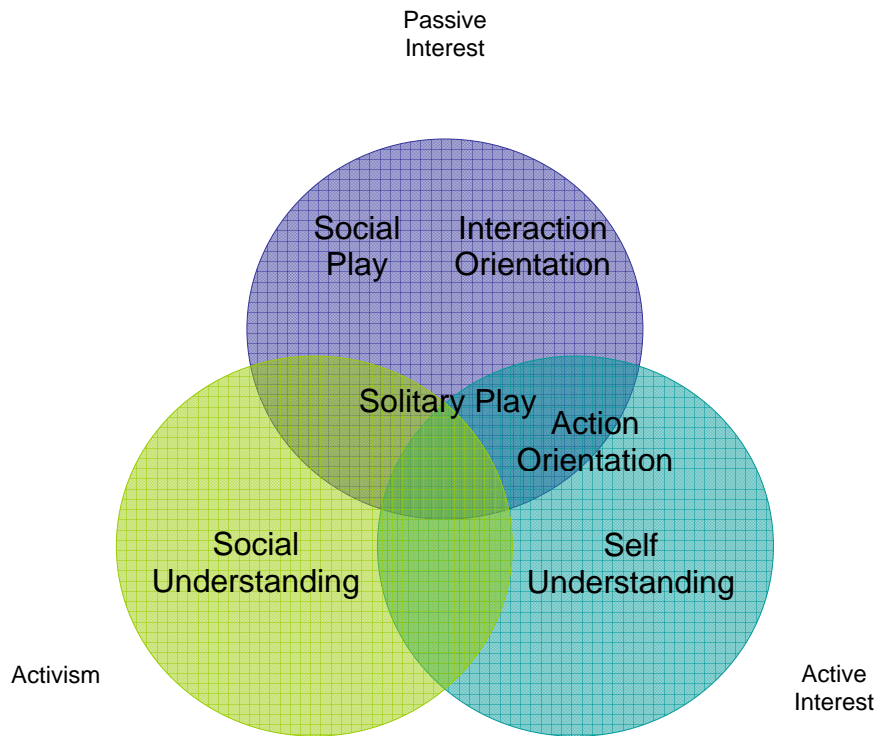


Figure3: Three Factors/Goal Dimensions of Media System Dependency Relations

5. Items related to solitary play were the common denominator in the three dimensions.

According to Taylor (1959), play is associated with spontaneous creativity. Spontaneous creativity is often seen in children and is exemplified in drawing and play. Subsequent research should further examine the linkage between spontaneous creativity and media dependency.

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