

MAPPING TREATIES:

**CONCEPT MAPPING
AS A GUIDE
FOR DEVELOPING
A NEW
EXHIBITION AT
THE NATIONAL
MUSEUM OF THE
AMERICAN INDIAN**

**Office of Policy & Analysis
Smithsonian Institution
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Director's Preface

This project started with conversations with Carolyn Rapkiewian, Assistant Director for Education and Museum Programs at the National Museum of the American Indian (NMAI). The museum is engaged in planning a new exhibition on treaties. The complexity of the topic is difficult to describe to Native American and Non-Native American audiences. As a result, the idea of gleaning information from visitors that would assist in the development of the exhibition surfaced and the Office of Policy and Analysis (OP&A) was asked to assist in this initiative.

Andrew Pekarik, a senior OP&A analyst, designed and managed this study, which emphasized the mapping of the concepts by two groups of participants: Indians and Non-Indians. Barbara Mogel, Exhibition Manager for the Treaties exhibition development team, coordinated the preparation of the materials and participated in the data collection along with Chris Turner and Wayne Smith of NMAI, and Andrew Pekarik and Christine Sansone, an OP&S intern. The data was analyzed by Andrew Pekarik, who wrote the excellent report.

The method that was developed for this study significantly enhances knowledge of the topics to be explored, and is expected to be utilized by the

museum. It highlights the subject matter that prospective visitors find interesting, and, to my way of thinking, can improve how museums fulfill their public purposes of understanding our past and making it accessible to present generations.

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Director
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Executive Summary

This study was done to assist an exhibition planning team at the Smithsonian's National Museum of the American Indian (NMAI) as they create a new, major exhibition on the topic of treaties. This report presents an overview of the findings, offers some basic interpretation, and provides the detailed data (in graphs, maps, and lists) that the team will study and use to inform their work.

The study uses a method that was developed specifically for this project. Visitors engaged in a simple exercise of selecting from a set of either images or texts the ones that interested them, then arranging their selections into groupings (in whatever way they chose), and, finally, naming their groupings. This data was analyzed statistically to determine which images or texts participants were most likely to associate with one another.

The primary result of the analytic process is a list of clusters – images or texts that were most likely to be put together by participants in the same grouping – and a “concept map” that graphically represents how these clusters, in turn, are associated.

Because Indians and Non-Indians differed markedly in the images and texts they found interesting and in the ways they associated them, the analysis was conducted

separately for the two groups, and the results are presented in a way that aids comparison of these two perspectives.

Overall the images and texts in this study were very interesting to visitors. Out of the 50 images 40 were chosen as very interesting. Out of 50 texts 36 were considered very interesting.

Some images and texts had outstanding power for both Indians and Non-Indians. The image on the cover of this report and the word “tribal rights” were very interesting to 84% and 90% of participants respectively.

Some images and words were much more interesting to Indians than Non-Indians and vice versa.

There are both remarkable similarities and striking differences between the ways that Indians and Non-Indians associate these images and texts. For example, both Indians and Non-Indians associated the same artifact photographs with one another. But a photograph of two Indian women by a Reservation signpost were associated by Indians with portraits that expressed Indian sovereignty, while Non-Indians associated the photograph with images of injustice.

Some associated groups of images and texts were very interesting to both Indians and Non-Indians,

and some were not very interesting to either. For example, words associated with tribal rights and tribal government were very interesting to both groups. Images of artifacts were not very interesting to either Indians or Non-Indians. Both Indian and Non-Indian participants were most drawn to the images in the clusters that were labeled *People*, *Injustices*, and *Interactions*. These would be especially compelling as the visual core of the exhibition topic.

The analysis reveals the structure of associations in the minds of the participants regarding these images and texts. The concept map illustrates an underlying mental structure. For example, among images there is a clear division between those that represent the inter-relationships of Indians and Non-Indians, and those that include Native ways and artifacts on their own. Among the words there is a divide between words about sovereignty and human values on one side, and abuse and mistreatment on the other.

However the exhibition is presented, this data suggest that its fundamental structure would be most effective if it aligned with the clusters whose contents were most interesting to both Indians and Non-Indians across both texts and images: Indian sovereignty, Indian Negotiators, Interactions, and Injustices.

Background

This study began with conversations about ways that the Office of Policy and Analysis might assist the National Museum of the American Indian (NMAI) in planning for its new exhibition on treaties. This exhibition will be a major initiative of the museum, possibly replacing one of the three current permanent exhibitions, and because of its high visibility and the complexity of its theme, the exhibition planning team wanted to somehow include the views of visitors in the planning process.

The team has been meeting for some time already, and some information about visitor attitudes has been obtained through a small interview study prepared by the museum and through ongoing interviews with visitors conducted by the team's exhibit manager. Some of the language from these interviews was included in materials for the present study. The majority of the words and phrases used in the text cards for this study come from the Exhibit Narrative of July 2007, provided by Suzan Shown Harjo. Most of the images used in the study were selected from among those being considered for the exhibition, since they show historical events discussed by the team. The remaining images were recommended by the team's educator.

The method used in this study provides four particular benefits to the planning process. First, it provides

specific information on the extent of interest in particular images and ideas. Second, it shows how Indians and Non-Indians differ in the associations they make among these. Third, it illustrates the level of interest participants had in these groups of associated items. Fourth, it produces a conceptual map that graphically illustrates the structure of associations in the minds of the participants regarding these images and ideas.

Because most of the participants in this study were first-time visitors to the museum, the data offers insights into how such visitors could be expected to respond to these materials when they encounter them in an exhibition. The results can thus guide exhibition makers in organizing an exhibition that is both compelling and effective in reaching new visitors.

Method

The method utilized in this study is based on the concept mapping process developed by William Trochim and associates to guide planning and evaluation. The heart of the method is a card sort that is analyzed using Multi-Dimensional Scaling (MDS) and Hierarchical Cluster Analysis. Details can be found in numerous publications, most notably Kane and Trochim, *Concept Mapping for Planning and Evaluation* (2007, Sage Publications). The aim of this process is to obtain a collective view of the way that

participants conceptualize a given topic, in this case, Native American treaties.¹

First, two sets of 3x5 cards were assembled, based on the resources available to the project at the time, one with 50 images and one with 50 words and phrases (see Appendix B for the complete set of images and texts).

Second, the researchers set themselves up at tables on several floors of NMAI in heavily trafficked locations.² As visitors walked by they were asked to help the museum plan for a new exhibition by looking at some pictures and words. When they agreed, they took seats at the table and were given either the set of 50 images or the set of 50 texts. They were asked to select from these images or texts the ones they found most interesting. After they did that, they were asked to arrange only the cards they found most interesting into groups, however they wished. They were told that they could have as many or as few groups as they wanted, and that a group could have only one card in it, if they so desired.

After they completed this task, participants were asked to describe each of their groups with a title that would

¹ See Appendix D, footnote 1 for details on how the method used here differs from Trochim's method.

² Some participants were engaged at other locations that had tables, including the Cultural Resource Center and the museum's restaurant.

identify it. These titles were recorded by the researcher along with the cards in each grouping.

Finally study participants were asked if they self-identified as Native Americans, and if this was their first visit to NMAI. Researchers marked sex and estimated the participant's age on the data form. Participants seemed to enjoy the process and some volunteered to do it and waited until a seat became free. (See Appendix D for a detailed description of the process of data collection and analysis.)

Participants

Altogether 160 individuals participated in the sorting process. There were 145 visitors, 2 museum volunteers, 12 Cultural Interpreters (young Native Americans who work for the museum as guides and explainers), and one other staff member. Participants included more females than males (87 vs. 73) and ranged in age from 8 years old to their 80s. Most were making a first visit (99 visitors), and one-fourth of all participants (40 individuals) were Indian. This is a much higher ratio of Native Americans than is usually found in the museum, because the study was done just before and after a National Powwow was held in Washington, an event which drew large numbers of Native Americans to the museum. Overall 88 of the sorts were image sorts and 72 were text sorts.

On average visitors chose 27 image cards or 27 text cards from the 50 when asked to select what was most interesting. They formed their selections into as few as one grouping and as many as nine groupings. The average number of image groupings was 4; the average number of text groupings was also 4. The average size of an image grouping was 7 items; the average size of a text grouping was 8 items. Altogether the data included 355 image groupings and 261 text groupings. The names that participants gave these groupings illustrate the diversity of their thinking (see Appendix C for the complete list).

Findings

Indians and Non-Indians

As a first step in the analysis, data for texts and images were compared across the demographic variables. Responses of males were compared to those of females, those of first-time visitors to repeat visitors, younger to older, and Indians to Non-Indians. Although there were some differences in all of these cases, the greatest differences appeared to be between Indians and Non-Indians. In view of this observation and the nature of the subject matter, the analysis was run separately for Indians and Non-Indians and all findings will be compared between these two sub-groups of participants.

Most interesting images

Overall participants found the images interesting. Only 16 out of 50 were selected by less than half of all participants, and, of those, only two (“Pickering” and “Casinos”) were chosen by less than a third of all participants. At the other end of the scale, one photo – “Ponca Delegates” – stood out by being selected by



84% of all participants (see the image on the cover of this report). Three others were chosen by 75% or more of all participants: “Lincoln Negotiating,” an engraving (above) of Lincoln negotiating with the Southern Plains nations for their neutrality during the Civil War, “Warning” (right), a 20th century photograph of the Yakama people marking the boundaries and sovereignty of their tribal lands, and “Little Wolf,” a portrait. The complete ranking is shown in Figure 1.



Figure 1. Most Interesting Images (in percent of all participants who chose each image)

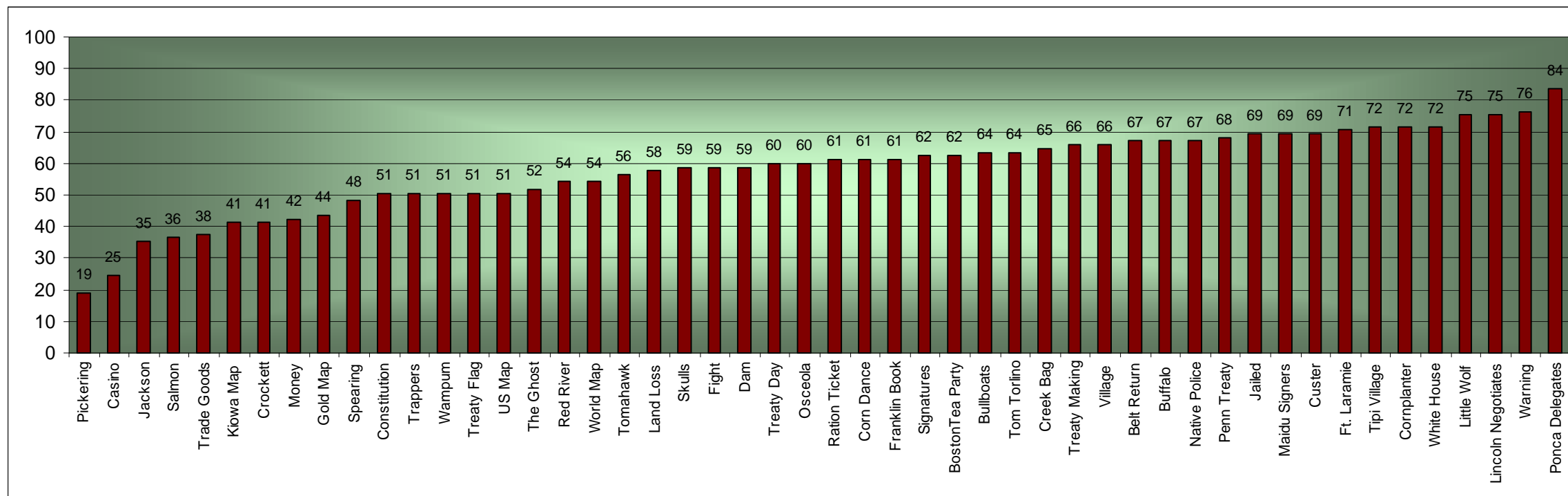


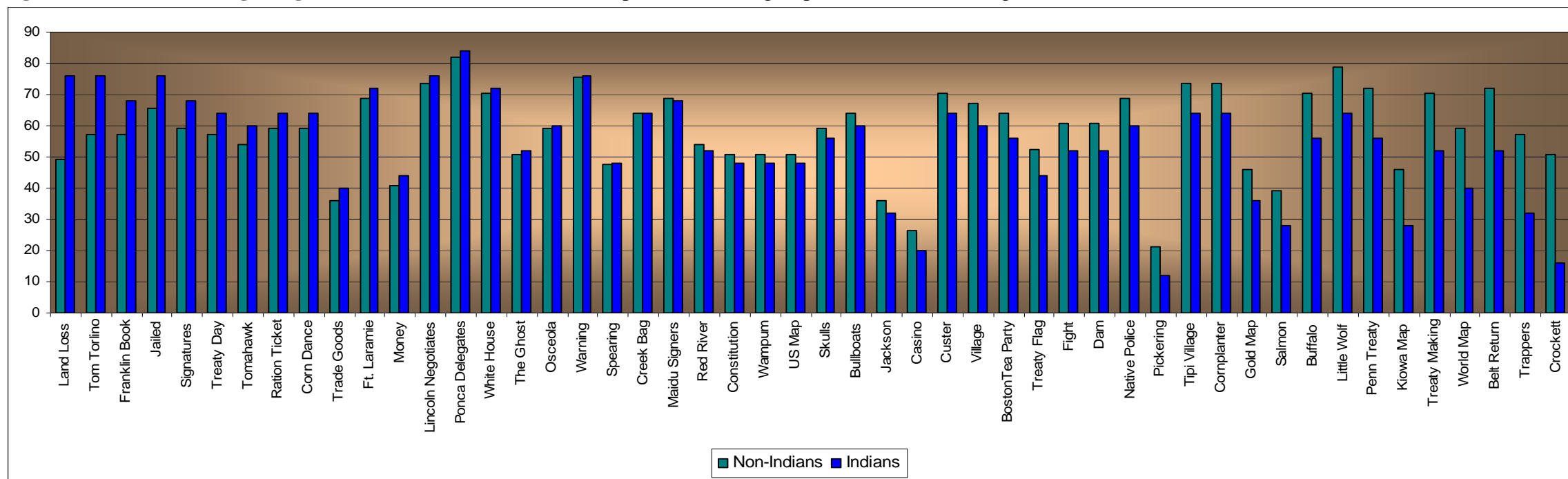
Image preferences between groups

Indians and Non-Indians expressed markedly different levels of interest for some images. Indian participants, for example, showed much more interest in the photograph of the Signing Order to Transfer Lands for Garrison Dam (here called Land Loss), a moment

when Indian ranchers had to give up land for the construction of a dam. At the other end of the scale, the portrait of Davy Crockett in his fur-trapping garb was much more interesting to Non-Indian participants than to Indian participants. Most notably, the majority of images were about equally interesting

(for 33 out of 50 the difference varied by less than ten percent). As shown in Figure 2, there are only a few cases where Indians were much more interested in an image than Non-Indians (left side of the graph), but considerably more where Non-Indians were much more interested in the image than Indians (right-hand side of the graph).

Figure 2: Most Interesting Images for Indians vs. Non-Indians (in percent of each group that selected the image)



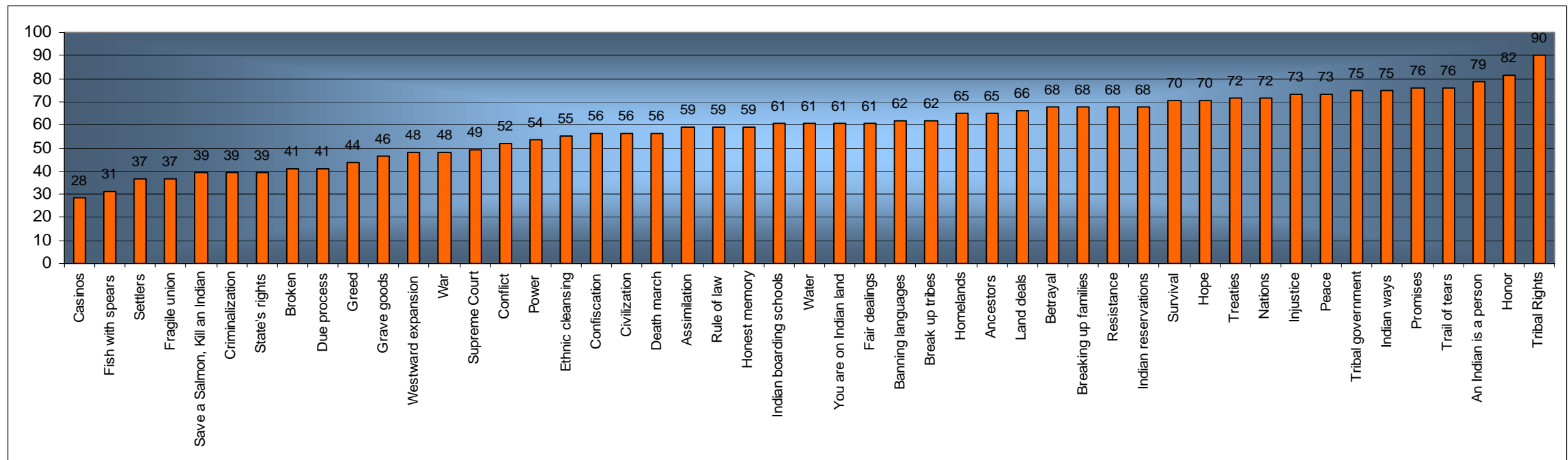
Most interesting texts

The percentage of visitors interested in the ideas on the 50 cards varies from a low of around 30% for “casino” and “fishing with spears” to a high of 90% for “tribal rights.” As Figure 3 illustrates, 36 of the

50 terms were very interesting to over half of all participants (compared to 40 of the images). So the overall level of interest in the texts and the images was roughly the same.

Note also that the 13 most compelling terms (those that were very interesting to at least 70% of participants) are positive or neutral in tone (except for “injustice” and “trail of tears”).

Figure 3. Most Interesting Texts (in percent of all participants who chose each text)



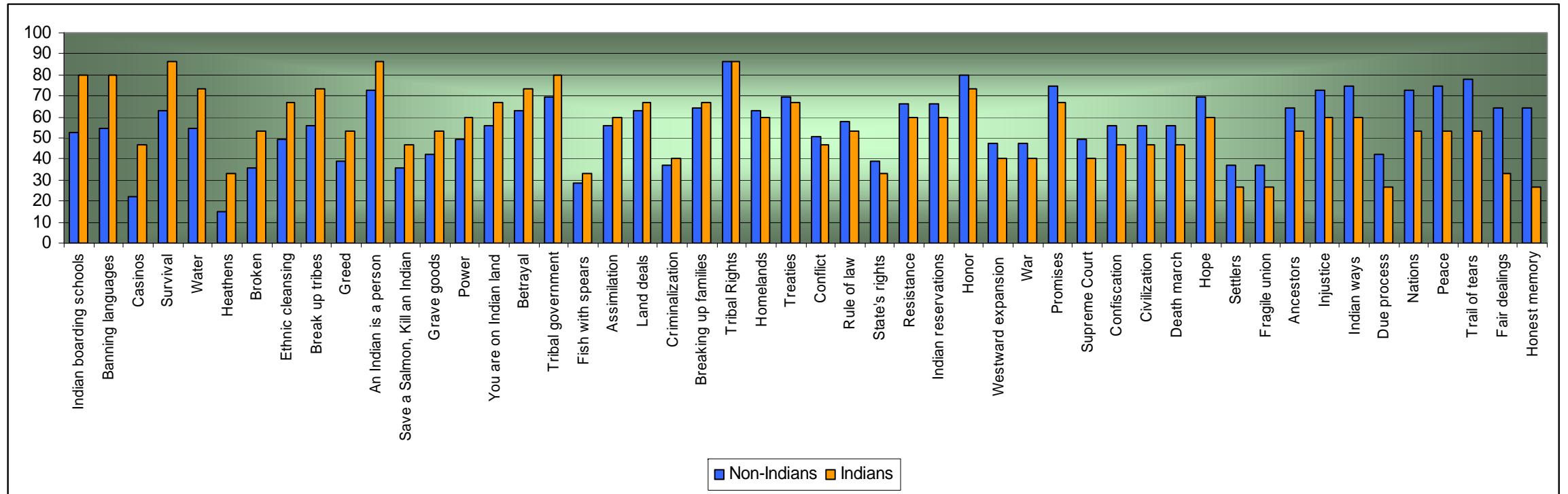
Text preferences

Differences in levels of interest between Indians and Non-Indians were much more prominent with texts than they were with images. As Figure 4 illustrates, there are 17 terms – at the left end of the graph – that

Indians found notably more interesting than Non-Indians (i.e., difference over 10%). The difference was greatest for “Indian Boarding Schools,” “Banning Languages,” and “Casinos.”

Conversely Non-Indians considered 11 terms – at the right end of the graph – considerably more interesting than Indians (i.e., difference over 10%). In this case the difference was greatest for “Honest Memory,” “Fair Dealings,” and “Trail of Tears.”

Figure 4: Most Interesting Texts for Indians vs. Non-Indians (in percent of each group that selected the text)



What are Clusters?

This study divides the images and texts into groups, called “clusters.” The elements in a cluster are the cards that were more likely to have been placed together with one another in the groupings made by participants. In other words, images or texts are listed together in a cluster because whenever one of those cards was placed in a grouping by participants, the other cards in the cluster were more likely to be included in the same grouping than any of the other cards. The elements of a cluster reflect which images or texts are most associated with one another in the minds of participants. The division of images and texts into clusters is the result of a two-stage statistical procedure that is described in detail in Appendix D.

How are Clusters Named?

For each cluster there is one element (in a few cases there are several) that is closest to the center of the cluster. This element is called the center point because all the other cards in the cluster were

more closely associated with that card than they were with any of the other cards in the cluster.

Text clusters were assigned the name of their center point. Image cluster titles represent the analyst’s opinion of the cluster theme, as informed in some cases by the participants’ names for similar groupings.

What is a Concept Map?

A concept map (See Figure 5 and Figure 6) is a graphic illustration of the relationships among clusters. Each cluster is represented as a circle. The closer two clusters are on the map, the more closely associated are their contents.

There are a few individual images or texts that do not properly belong to a single cluster. They are equally associated with the contents of more than

one cluster. They are referred to here as “bridge points” and are shown as points on the concept map placed equidistant between the clusters with which they are most closely associated.

In this study the concept maps also indicate the overall level of interest that participants had in the cluster. The larger a cluster is, the more participants considered its contents to be interesting on average.

For comparative purposes, clusters that share many of the same images or texts have been given the same color.

Text Clusters

In the case of the texts in this study, the clusters formed by Indians and Non-Indians are remarkably similar to one another. A number of them have the same center points. For details on the contents of each of these clusters, see Appendix A. The concept map, Figure 5, illustrates the relationships among the text clusters

Figure 5. Concept Map of Text clusters for Indians and Non-Indians



As the colors indicate, many of the clusters are very similar between Indians and Non-Indians. For example, three of the five elements in the Non-Indian cluster *Honor* also appear in the Indian cluster *Honest Memory*. The size difference between them shows that the elements in *Honor* were much more interesting to Non-Indians than the elements in *Honest Memory* were to Indians. Only two clusters do not share any elements between Indians and Non-Indians, and therefore have a unique color: *Survival* for Indians and *Homelands* for Non-Indians are completely different.

The map illustrates both similarities and differences in the ways that Indians and Non-Indians conceptualize these words. Both Indians and Non-Indians have similar levels of interest in *Tribal Rights/Tribal Government* and in *Assimilation/Ethnic Cleansing*.

Supreme Court contains “Due process,” “Rule of law,” and “Treaties,” and is therefore the cluster closest to the exhibition topic. Note that there is a remarkable difference in the ideas that Indians and Non-Indians associate with these terms. Among Indians they are associated with *Tribal Rights*, but among Non-Indians they are nearest to the *Betrayal* cluster.

Among both Indians and Non-Indians the clusters overall divide into one half that includes primarily positive concepts (the top half) such as *Tribal Rights/Tribal Government* and *Honest Memory/Honor* on the one hand, and primarily negative concepts such as *Assimilation/Ethnic Cleansing*, *Criminalization*, and *Confiscation/Betrayal* on the other (the bottom half). Indian views are consistent in this regard, but the close relationships between *Honor* and *Conflict*, and between *Betrayal* and *Supreme Court*, among Non-Indians suggest a difference in viewpoint.

Image Clusters

In the case of the image clusters, there is a striking division for both Indians and Non-Indians between the lower clusters, which pertain to the independent world of Native Americans (*Native Way of Life* and *Artifacts*), and the upper ones, which focus on pictures of Native Americans and the interaction between Indians and Non-Indians (*People*, *Interactions*, and *Injustices*).

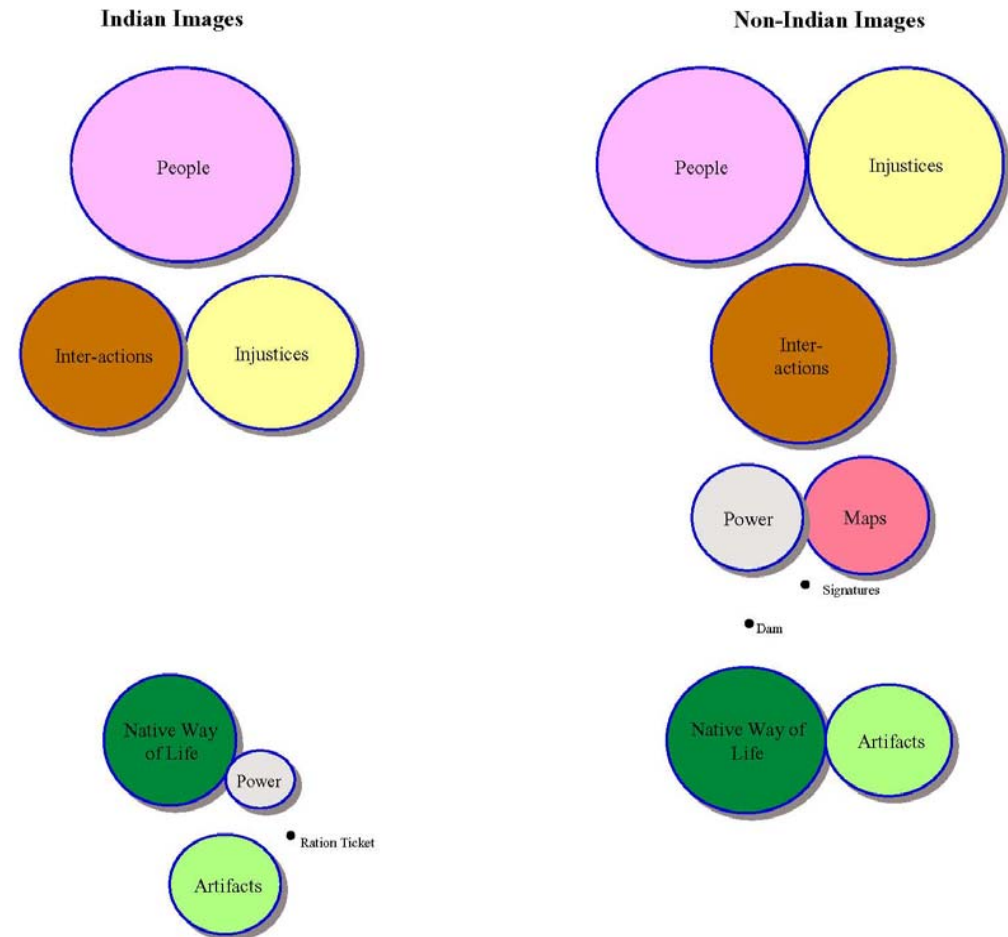
Among Non-Indians, the cluster named *Power* falls between these two dimensions, together with the *Maps* cluster that depicts the land that was fought over.

The bridge point “Signatures,” which shows the signatures of Native Americans on a treaty, lies midway between *Power* and *Maps*. The bridge point “Dam,” a combined photo showing a river before and after a dam was built on it, is midway between *Power* and *Native Way of Life*.

One other bridge point cannot accurately be shown on this diagram. “Trappers,” an image of fur trappers, is equidistant from the centers of all seven of the image clusters in the Non-Indian set. In other words, it is equally likely to be grouped with images in any of the other clusters. This suggests that Non-Indians overall had trouble reading this photograph and could not agree on what it was about.

Although both Indians and Non-Indians associated the artifacts together in their own cluster, neither group considered them to be very interesting, certainly not as interesting as the images of Native Americans or historical events.

Figure 6. Concept Map of Image clusters for Indians and Non-Indians



Differences within text clusters

The contents of the clusters (presented in Appendix A) can be examined in the same way for similarities and differences. In order to aid such a review, the clusters have been listed in vertical pairs.

There are too many relationships to elaborate here, but a few examples might help to demonstrate how this data can be useful to the exhibition team.

Non-Indians, for example, associated “Boarding Schools” with “Indian Reservations” and “Tribal Government,” while Indians associated “Boarding Schools” with “Assimilation” and associated “Indian Reservations” with “Confiscation.” Did these Non-Indian participants tend to think that boarding schools were schools on reservations established by tribal governments? Since “Tribal Government” was such an interesting term for these visitors (overall 75% of participants selected it as interesting), it might deserve an important place in the exhibition, and, as such, would offer an opportunity to clarify the realities of tribal government and its relationship with boarding schools.

Another example: the second-most-interesting term to Non-Indians was “Honor,” (first was “Tribal Rights”), and it was closely associated with “Peace,” “Hope,” “Honest Memory,” and “Survival.” Indian participants also closely associated “Honor,” with “Hope” and

“Honest Memory,” but they also tied them to dimensions of heritage – “Fish with spears,” “Ancestor,” and “Indian Ways.” And Indians linked “Peace” to “Nations,” “Treaties,” and “Fair Dealings,” ideas related to formal, legal relationships, rather than “Honor.” An exploration of different perspectives on the word “honor” could be very illuminating.

Differences within image clusters

As the concept map in Figure 6 illustrates, both Indian and Non-Indian participants are most drawn to the images in the clusters that were labeled *People*, *Injustices*, and *Interactions*. These would be especially compelling as the visual core of the exhibition topic.

The attraction to people was especially strong, and the images associated by Non-Indians in the *People* cluster are all formal portraits of Native American individuals and groups. All the same images were associated by Indians as well in their *People* cluster, but with some significant additions.

The additional images that Indian participants associated with these portraits: “Maidu Signers,” “White House,” “Warning,” and “Corn Dance,” are quite different. Two of them, “White House” and “Maidu Signers” portray Indian and Non-Indian treaty negotiators as equals, and two of them, “Warning” and “Corn Dance,” are expressions of Indian

connectedness with the land. These additions suggest that while Non-Indians see these portraits mainly as depictions of individuals, Indians see them also as expressing sovereign rights and power.

“Warning,” a photograph of two Indian women standing by a sign that reads “WARNING INDIAN LAND DO NOT ENTER,” is associated by Non-Indians with *Injustices*, such as “Jailed,” “Buffalo Skulls,” and “Custer’s Expedition.” Similarly, Non-Indians also tended to associate “White House,” a photograph of Native Americans meeting with President Andrew Johnson at the White House, with images of abuse and mistreatment in the *Injustice* cluster.

The *Interactions* cluster is dominated by images of treaty making and negotiation, and both Indian and Non-Indian participants tended to place the painting of “Fight” and “Fort Laramie” in this cluster, as if highlighting the dramatic, life-and-death dimensions of the negotiations.

Conclusion

There are many ways to think about these concept clusters and their contents, and the team planning the Treaties exhibition will likely have unique insights into these results, due to its deeper understanding of the subject matter.

The value of concept mapping in planning exhibitions is not only in establishing levels of interest in particular dimensions of the exhibition. As shown in this study, it can highlight subtle differences in perspective and knowledge. It also offers a guide to themes that would be most compatible with the underlying viewpoint that visitors bring into the museum. By directly engaging that perspective the museum is most likely to evoke a meaningful response – whether that response is cognitive, emotional, or introspective.

In this case, when presented with texts, participants made fundamental distinctions between issues of sovereignty and human values on the one side

(Honor/Honest Memory, Tribal Government/ Tribal Rights, Survival, Supreme Court, Homelands) and abuse and mistreatment on the other (Ethnic Cleansing/Assimilation, Confiscation/Betrayal, Criminalization).

When presented with images, they contrasted Native artifacts and ways of life on one side, with the Indian negotiators, negotiations, and unfortunate outcomes of those negotiations *(People, Interactions, Injustices).*

However the exhibition is presented, this data suggest that its fundamental structure would be most effective if it aligned with the clusters whose contents were most interesting to both Indians and Non-Indians across both texts and images: Indian sovereignty, Indian Negotiators, Interactions, and Injustices.

Next Steps

As the exhibition team continues its work on this project, it would be beneficial to consider alternative ways of presenting the topic that would make use of the findings from this study. Such alternatives could then be discussed with visitors to elucidate strong points and weak points, and revised accordingly.

Appendix A: Contents of Image and Text Clusters

Text Clusters for Non-Indian Participants

Honor		Tribal Government		Betrayal		Ethnic Cleansing	
% who chose	Contents	%	Contents	%	Contents	%	Contents
80	HONOR	69	TRIBAL GOVERNMENT	63	BETRAYAL	49	ETHNIC CLEANSING
75	PEACE	56	CIVILIZATION	56	CONFISCATION	64	BREAKING UP FAMILIES
69	HOPE	75	INDIAN WAYS	36	BROKEN	56	DEATH MARCH
64	HONEST MEMORY	73	AN INDIAN IS A PERSON	73	INJUSTICE	54	BANNING LANGUAGES
63	SURVIVAL	66	INDIAN RESERVATIONS	75	PROMISES	56	BREAK UP TRIBES
Mean: 70		53	INDIAN BOARDING SCHOOLS	61		78	TRAIL OF TEARS
		86	TRIBAL RIGHTS			60	
		68					

Text Clusters for Indian Participants

Honest Memory		Tribal Rights		Confiscation		Assimilation	
% who chose	Contents	%	Contents	%	Contents	%	Contents
27	HONEST MEMORY	87	TRIBAL RIGHTS	47	CONFISCATION	60	ASSIMILATION
33	FISH WITH SPEARS	53	RULE OF LAW	27	SETTLERS	67	BREAKING UP FAMILIES
53	ANCESTOR	80	TRIBAL GOVERNMENT	47	DEATH MARCH	67	ETHNIC CLEANSING
73	HONOR	73		40	WESTWARD EXPANSION	47	SAVE A SALMON, KILL AN INDIAN
60	INDIAN WAYS			33	HEATHENS	80	INDIAN BOARDING SCHOOLS
67	PROMISES			53	GRAVE GOODS	73	BREAK UP TRIBES
60	HOPE			60	INDIAN RESERVATIONS	80	BANNING LANGUAGES
47	CIVILIZATION			27	TRAIL OF TEARS	68	
Mean: 53				42			

KEY

- Center point of the cluster, i.e., the point closest to the center around which the other points are clustered
- Core points, i.e., points closest to the center point. See Appendix C for detailed definition.
- Bridge points, i.e., outliers that are equally close to the center(s) of other clusters. See Appendix C.

Text Clusters for Non-Indian Participants

Homelands		Supreme Court		Conflict		Criminalization	
%	Contents	%	Contents	%	Contents	%	Contents
63	HOMELANDS	49	SUPREME COURT	51	CONFLICT	22	CRIMINALIZATION
29	FISH WITH SPEARS	42	DUE PROCESS	39	GREED	36	CASINOS
73	NATIONS	58	RULE OF LAW	47	WAR	37	SAVE A SALMON, KILL AN INDIAN
54	WATER	39	STATES RIGHTS	49	POWER	37	FRAGILE UNION
56	YOU ARE ON INDIAN LAND	63	LAND DEALS	66	RESISTANCE	15	HEATHENS
64	ANCESTOR	69	TREATIES	50		37	SETTLERS
57		64	FAIR DEALINGS			42	GRAVE GOODS
		55				47	WESTWARD EXPANSION
							ASSIMILATION
						34	

Text Clusters for Indian Participants

Supreme Court		Conflict		Criminalization		Survival	
%	Contents	%	Contents	%	Contents	%	Contents
40	SUPREME COURT	47	CONFLICT	40	CRIMINALIZATION	87	SURVIVAL
27	DUE PROCESS	53	BROKEN	47	CASINOS	87	AN INDIAN IS A PERSON
67	TREATIES	60	INJUSTICE	33	STATES RIGHTS	87	
53	NATIONS	40	WAR	27	FRAGILE UNION		
33	FAIR DEALINGS	60	POWER	53	GREED		
53	PEACE	60	RESISTANCE		YOU ARE ON INDIAN LAND		
73	WATER	73	BETRAYAL	40			
67	LAND DEALS	56					
60	HOMELANDS						
53							

Image Clusters for Non-Indian Participants

People		Injustices		Interactions		Native Way of Life	
% who chose	Contents	%	Contents	%	Contents	%	Contents
57	TOM TORLINO	66	JAILED	70	TREATY MAKING	54	RED RIVER
69	NATIVE POLICE	59	BUFFALO SKULLS	74	LINCOLN NEGOTIATES	64	BULLBOATS
82	PONCA DELEGATES	75	WARNING	72	PENN TREATY	70	BUFFALO
74	CORNPLANTER	70	WHITE HOUSE	59	OSCEOLA	59	CORN DANCE
79	LITTLE WOLF	69	MAIDU SIGNERS	69	FT. LARAMIE	48	SPEARING FISH
72		72	BELT RETURN	64	BOSTON TEA PARTY	39	SALMON
		70	CUSTER'S EXPEDITION	61	FIGHT	74	TIPI VILLAGE
		69			TRAPPERS	67	VILLAGE
				67		43: DAM	
						59	

Image Clusters for Indian Participants

People		Injustices		Interactions		Native Way of Life	
% who chose	Contents	%	Contents	%	Contents	%	Contents
68	MAIDU SIGNERS	52	BELT RETURN	56	PENN TREATY	60	VILLAGE
84	PONCA DELEGATES	76	LAND LOSS	60	OSCEOLA	60	BULLBOATS
64	CORNPLANTER	64	CUSTER'S EXPEDITION	56	BOSTON TEA PARTY	56	BUFFALO
64	LITTLE WOLF	56	BUFFALO SKULLS	76	LINCOLN NEGOTIATES	52	RED RIVER
72	WHITE HOUSE	64	TREATY DAY	52	FIGHT	64	TIPI VILLAGE
60	NATIVE POLICE	68	FRANKLIN BOOK	52	TREATY MAKING	48	SPEARING FISH
76	TOM TORLINO	76	JAILED	72	FT. LARAMIE	52	DAM
64	CORN DANCE	48	CONSTITUTION	61		56	
76	WARNING	63					
70							

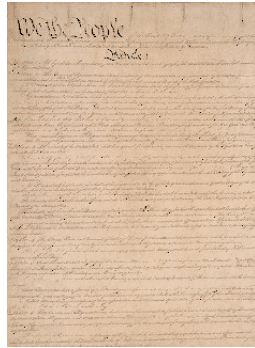
Image Clusters for Non-Indian Participants

Artifacts		Maps		Power	
%	Contents	%	Contents	%	Contents
52	TREATY FLAG	46	GOLD MAP	41	MONEY
51	WAMPUM BELT	51	U.S. MAP	51	THE GHOST
54	TOMAHAWK	46	KIOWA MAP	49	LAND LOSS
36	TRADE GOODS	59	WORLD MAP	26	CASINO
64	CREEK BAG	51		51	CONSTITUTION
49	RATION TICKET			57	FRANKLIN BOOK
	SIGNATURES			36	JACKSON
51				57	TREATY DAY
				51	CROCKETT
				47	

Image Clusters for Indian Participants

Artifacts		Power	
%	Contents	%	Contents
44	TREATY FLAG	28	KIOWA MAP
40	TRADE GOODS	32	JACKSON
64	CREEK BAG	36	GOLD MAP
48	WAMPUM BELT	20	CASINO
60	TOMAHAWK	16	CROCKETT
68	SIGNATURES	12	PICKERING
	RATION TICKET	44	MONEY
54		40	WORLD MAP
		48	U.S. MAP
		32	TRAPPERS
		28	SALMON
		52	THE GHOST
		32	

Appendix B: Images and Texts



1: Constitution

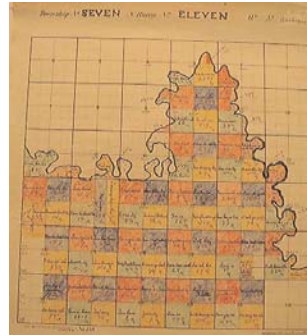


2: Little Wolf

Return of Eleven Wampum Belts



3: Belt Return



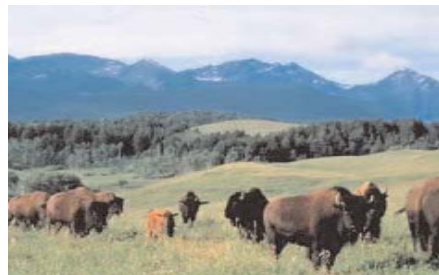
4: Kiowa Map



5: Bullboats



6: Treaty Making



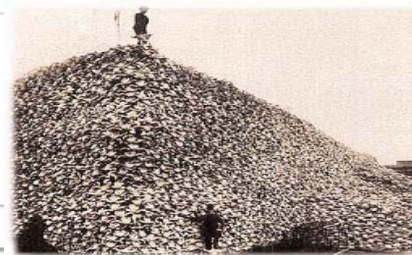
7: Buffalo



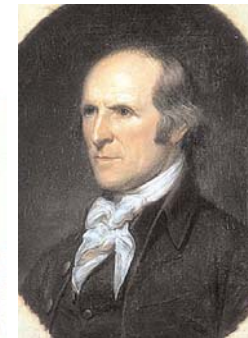
8: Land Loss



9: Jailed



10: Buffalo Skulls



11: Pickering



12: Native Police



13: Red River



14: Lincoln Negotiates



15: Maidu Signers



16: Penn Treaty



17: Fight



18: The Ghost



19: Treaty Day



20: Trappers



21: Signatures



22: Tipi Village



23: World Map



24: Cornplanter



25: Boston Tea Party



26: Ponca Delegates



27: Wampum



28: Tomahawk



29: Treaty Flag



30: Ration Ticket



31: Creek Bag



32: Trade Goods



33: Crockett



34: Money



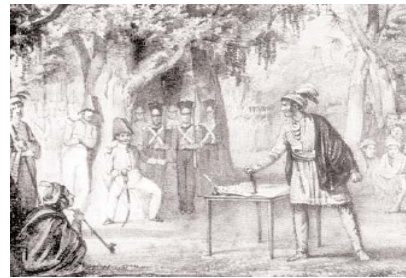
35: Gold Map



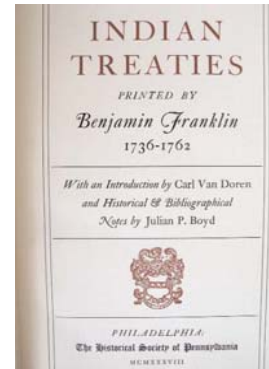
36: White House



37: Corn Dance



38: Osceola



39: Franklin Book



40: Fort Laramie



41: Custer's Expedition



42: Tom Torlino



43: Dam



44: Salmon



45: Jackson



46: U.S. Map



47: Casino



48: Spearing



49: Warning



50: Village

Texts

Promises
Betrayal
Honor
Nations
Fair dealings
Rule of law
War
Peace
Death march
Tribal Rights
Fish with spears
Civilization
Conflict
Westward expansion
Treaties
Broken
Indian ways

Criminalization
Indian boarding schools
Assimilation
Confiscation
Breaking up families
Banning languages
Heathens
Greed
Injustice
Land deals
Fragile union
Honest memory
Trail of tears
Indian reservations
You are on Indian land
Due process
Grave goods

An Indian is a person
Settlers
Break up tribes
Ethnic cleansing
Resistance
Hope
Survival
Casinos
State's rights
Save a Salmon, Kill an Indian
Tribal government
Supreme Court
Water
Power
Ancestors
Homelands

Appendix C: All Titles that Participants Assigned to Groupings

19th century ideas/problems/events	bad	culture
20th and 21st century-only concepts	bad almost criminal things	current
A crime	bad things	daily life
about the Indians, nations, lands	basic needs	daily tools
across time	Beauty	dealings with the Indians
actions	beauty of land	death march
activities	before and after	dehumanization
aesthetically appealing artifacts	before treaties	delegations to Washington
after the White man came	beginning of exploration	describe treaties
American government dealings	betrayal	descriptive words
American- not related to Native Americans at all	boarding schools	destruction and greed
americanization of Native Americans	Boarding schools and assimilation	did not recognize/not interesting
animals	bureaucrats	differences between before and after white people came to America
apaches	Buzzwords	different instruments, tools
areas	buzzwords and propaganda	different people and cultures
areas of interest to Europeans	casinos	documentation
Artifacts	casinos	documentation of Native American life in 20th century
Artifacts	casinos	documents
artifacts	changing ways between Native Americans and whites	documents
artifacts	coming together	Documents
artifacts	coming together - Indians and non-Indians	documents
artifacts	commitments (legal) and history of western expansion	Documents of the reality
artifacts	communications- understandings and misunderstandings	domination
artifacts	comparison of rights between governments	don't want to hear about it but will be part of it (want to come to these conclusions, not be told)
Artifacts	conceptual	due process
artifacts	conflict	early American colonial life and the beginning of the U.S.
artifacts	conflict	early contact
Artifacts	conflict	early European influence
artifacts	conflict	early Indians
Artifacts and pictographs	conflict between expansion of nation and Indian reservations	early outcomes from treaties
Artistic documentation of Native American interaction with Americans	Conflict between Native Americans and Americans	ecological change
Artistic documentation of native life	conflict of two worlds	effects on Indians
artists' conception of Indian life	conflict/trail of tears	emotional bondage
Artwork of Native Americans	conflicts	Emotions
assimi+C255lation	confusion	emotions- frame around whole story
Assimilation	connection with nature	emotions that native people would feel
assimilation	consequences of westernization	encounters between Native Americans and government and white people in general
assimilation	Constitution	essentials
assimilation	contemporary	ethics
atrocities	contemporary Indian life	ethnic heritage
Atrocities	Contributing factors	Europeans corrupt Native Americans, how they need stuff
attack on culture	courts and rights	everything else that happened
attempts to solve conflicts	cultural	Evidence
attitudes of White people	cultural convergence - peace/war	exodus and adapting to changing world
bad	culture	Expansion

expansionism and White-Red dealings
expressions of life as it was
facts
Failed way government tried to manage Native American ways
Families
Family
feelings of the person of the Indians
fight between new settlers and Native Americans
fighting
fighting back
fighting-taking a stand
forced governments
fundamental life
future
Genocide, holocaust-we need to know about this
geography
good
government
government
government
government
government
government
governmental
governments - the stuff of treaties
grave goods
hardships felt by the Indians
Heavy-duty white man's view of what's going on
heritage
historical
historical
Historical events
historical Indians
Historical photographs
historical things- want more information
history
history
history
history
history
history
History
History
history
history and hope

history of the people and their land
history of tribal genealogy
home
Homeland
homelands
Homelands
homes and lands confiscated- way of life taken from them
honest memory
honest portrayal of what we did, how we took it away/the real portrayal of what we did to them
honor
hope
Hope
hope
hope of the nation
hopeful that a new era is coming along
horrible things that U.S. did to Indians
hostilities
How Government screwed the Indians
how Indians had to adapt to new ways
how it should have been done
how the Europeans dealt with the Indians
How they lived and what their traditions were before white people came
how they looked
How they really felt
How they were treated and confiscated the lands and whether or not it was fair
how to be an Indian
human conditional feelings
human emotion or qualities that lead them down the path through all of history
human relationships
hypocrites
iconography
identity
images of Europeans
Importance of Native American resources
important figures
important figures
important papers
incidents where Native Americans were treated unfairly
Indian and European interaction
Indian and white man coexisting
Indian as a person
Indian camps/schools - Making them into pictures of ourselves
Indian culture
Indian culture itself
Indian government

Indian government
 Indian government is running things now but with some of what their ancestors had before
 Indian is a person
 Indian items
 Indian land
 Indian life
 Indian life
 Indian life
 Indian life
 Indian life
 Indian life
 Indian life without Europeans
 Indian oppression
 Indian people
 Indian peoples
 Indian portraits and impressions
 Indian responses
 Indian society
 Indian way of life
 Indian way of life
 Indian Ways
 Indian ways
 Indian ways
 Indian ways
 Indian ways
 Indian ways
 Indian ways of living/identity
 Indians
 Indians as a nation
 Indians doing their thing and how they were taken over
 Indians get their money back (sort of)
 Indians in modern times
 Indians in their original lifestyle and when Europeans came their disrespect of Indian civilization
 Indians interacting with themselves
 Indians lashing back
 Indians struggle to maintain their independence
 Indians then and now
 Indians vs the government
 Indians were misrepresented and their images have been tainted
 indigenous cultural images
 indigenous ways of life
 influence of the White Man
 influential leaders
 injustice
 injustice
 Injustice
 Injustices

institutions
 Interaction between Native Americans and white people
 interactions between Anglo and Indian cultures
 Interactions between Native Americans and non-Native Americans
 interesting document
 intersection of England/colonization and Native Americans
 introduction between Indians and U.S. government as our country expands
 intrusion
 Issues- hot topics
 Jackson and trail of tears
 justice and injustice of the treaties
 land
 land
 land
 Land
 land and animals
 land and people
 lands
 landscape
 landscapes
 landscapes
 landscapes
 landscapes and portraits
 landscapes of America
 law
 law
 laws that applied
 leaders
 leaders
 legal
 legal aspects
 legal history of our relations with the Indians
 legal-how it works -legal history
 Lewis and Clark connection and damming of rivers
 life before
 life of the Indians
 Life on the prairie
 logical consequence of some kind of treaty
 loss
 lost homeland
 Lydian life
 manifest destiny
 maps
 maps
 maps

maps
 maps
 maps
 maps
 Maps
 maps
 maps
 maps
 maps and the west
 maps and treaties
 maps and treaties
 maps beofre and after
 maps bureaucrats
 materials
 materials
 meetings
 Midwest - where my heart is
 Misleading Indians - the beginning
 mix between government and family
 modern day
 modern day living
 modern history with new technologies not just ceremonies
 modern thinking- what's happening to Native Americans today
 modern times and the fight for sovereignty
 modernization
 Modernization of American Indian surviving the modern world
 modernization-would like to see nature without pollution
 money
 Money and how it played a role
 morality
 movement west
 My reservations
 mythology of Indian American relations
 nations
 Native American contributions to Civil War (Lumbee in particular) - Civil Rights
 Native American life
 Native American perspective
 Native American shown in major parts of us history
 Native American treatment by the government
 Native Americans
 Native Americans
 Native Americans as they interact with Europeans
 Native Americans meet the white man
 Native leaders
 native people

Native things	people	pre-westernization of cultures
native traits	people	promises
Natural stuff	People	promises
nature	people	promises made and broken
nature	people	propaganda
nature	people and culture	Pushing people westward
nature	people and their land	Putting on a show - Indians dressed as Whites
nature and culture	People in their homes	rare footage of Native Americans
nature crafted artifacts	perceptions	Reality of how they feel
nature, land, the nations	persecution	reclaiming their history
Nature/Land	persecution	reflections
need to affirm self through false symbolism!	personal	relations through treaties - carving up the land
negative consequences	personal values	relationship with Europeans
negative effects of cultures interacting	philosophical things (spiritual goals)	relationships between peoples
negative things done to Indians	photo documentation of Native American interaction with Americans	Relationships between Whites and Native Americans
negative things done to Native Americans	photographs	reservation identity
negative things that are also important	photos of treaty makers	resistance to an interloper
negatives	Photos of what happened including why they were photographed	resources and land
negotiations	pictorial representations	respect
neutral interaction of cultures	pictures of heroes	respect for the land- Indians take what they need and leave the rest alone
new settlers	pitfalls of what happened, how Indian people were abused	result of treaties
Northwest treaties role in saving the salmon	Plains and Oklahoma land rush and despite trade goods and ration	results of the treaties
not interesting	tickets, they retained some cultural practices because they're together	return of native culture
Not viewing people as human	political	rights/human rights
novelties	political	romantic portraits and images
objects	political issues	sacred items
objects	politics	Scenery and lifestyle
official documents	portrait	scenes of native and environmental and wildlife and landscapes
old ideas they were trying to save versus being wiped out by law	portraits	seeking justice but it is not found
old Indian life	portraits	semi-modern-day photos
older photos	Portraits	sentimental things
Opposites	Portraits of famous people	separation
Oppression	Portraits of famous people	Sequoia -- Cherokee alphabet
Outcomes	positive areas	settlement
outside pictures - nature	positive conceptions	settlers
overall -- trander scheme of federal ideas	positive things that are important	Show of good faith - things have changed
overview ideas - background	post-European influence	skulls
paintings	power	social issues
paintings of chiefs and gatherings	power	sovereignty
paintings of the corrupt White Man	power and resistance	sovereignty
papers	powerful things	sovereignty
Past and present ideas that people learn from - break up the myths	Present-day	specific conflicts
Peace	president with Indians	spirit of the nation
People	pretty stuff	state issues
people	pre-western influence	story of how the land was taken away, broke up tribes and took over their lives

Struggle for the land, deals, punishments
supreme law of the land
Survival
Survival
survival
survival
symbols
symbols
tales of Indians
tangible things
the afterlife
the American conqueror
the Americanization of Indians
the breakup of tribes and families
the buffalo back
the encounter
the faithful
the future
the future tied to the past
the ghost
the goods
the highest priority
the Indian now
the joke of it all
The Journey - the reality
the kind of life they lived
the lies
the movement of Indians and the land and animals
the natural world and Indians, untouched by the European influence
the negotiations
The New World
the original
the past before the settlers
the people
the people the ones involved, who they were and what they did
the people's land
the propaganda/torture of Indians
the result of how we dealt with them
The sad outcome
the shrinking realm of Native Americans
the way the Indians were treated by the U.S. government
The way they lived - skillfully and resourcefully
the whole big thing, reliability of oral histories
the way these ideas affect my life
Their land

they're holding their own
things that actually happened- events
things that should never have happened
things that were fought over
tipi
tools and beading symbolism
total freedom
trading-mixture-sad
traditional way of life
trail of tears
trail of tears
transference to the modern nations
Transition from current ways to colonized
treaties
treaties
treaties
Treaties
treaties
treaties - want to know more
treaties and government
treaties and how they worked them out and how some of them went bad
treaties, gaming and their desire for privacy and respect for their lands
treaty "descriptions" and opinions
trials and tribulations
tribal government
tribal government
tribal government
tribal government
tribal persons - what they've been through
tribal vs. federal
tribe/band thing -- tribal identity
tribes/people
U.S. governments
unfair
unfairness
unique photo of a Native American Indian
unity
universal
unknown - how we pushed them off the land, where the buffalos were
want to know how Europeans treated Native Americans- what they went through
war
war and weapons
warriors
warriors
Water
water

way of life- traditions
ways of assimilating
we pushed them into the land we felt we didn't want
westward expansion
westward movement
what a native person experienced
What happened-the story of how they were betrayed
What I hope is the future
What Indians make
what is
what the White people did
what they did
What was
What was happening to the Indians - schools
what we should know about
what you think of when you see Indians
where they live
where they lived
where tribes or nations were located
white man
white man making everybody miserable
White men law
White settlement
White vs Indians interaction
white/European American conquering attitudes
wildlife
with the settlers
Writings/Documents
written details and documents

Appendix D: Detailed Description of Method

The approach used in this study is based on the concept mapping method developed by William Trochim and his associates.³

Visitors passing by the table in the public area off of the galleries were asked to “help the museum plan for a new exhibition by looking at some pictures or words.” Those who agreed and sat at the table were asked if they preferred words or pictures (if both were

³ Kane and Trochim, *Concept Mapping for Planning and Evaluation* (2007, Sage Publications). Two important differences should be noted, however, between Trochim’s method and the one used here. First, participants in this study were initially asked to choose only the cards that interested them and those cards were the only ones they grouped. They did not group the entire set, as in Trochim’s method. The participant selections were later used to calculate the interest level of clusters, instead of scaled ratings, as in Trochim’s method. Second, this study used the 6-dimensional multi-dimensional scaling solution to approximate the similarity matrix of all groupings rather than the much less accurate 2-dimensional solution recommended by Trochim. The benefit of the 2-dimensional solution is that it immediately produces a concept map, but the map can include numerous inaccuracies. A 6-dimensional spatial representation is more accurate, but the spatial representation cannot be visually examined. Therefore, in this study the core and bridge points were determined mathematically, on the basis of the proximity matrix generated by the cluster analysis (using the Ward’s Linkage clustering method, as Trochim recommends).

available). Each table had one deck of images and one of texts.

Participants were told that the exhibition was about “treaties.” Only one participant asked what was meant by treaties. The response prepared by researchers in advance was “treaties are agreements made by groups of people.” The participant was then asked to select the cards that were most interesting, “in other words, divide the set into two piles, those that are very interesting to you and those that are less interesting.” In making their choices participants often went through the entire set multiple times and a few of them laid out all the cards on the table to aid in their decision-making process.

When their selection was complete, the researcher removed the pile of “less interesting” cards and asked the participant to group the remaining cards “in whatever way you choose. You can have as many groups as you want, and, if you want, you can have only one card in a group.” In general, participants took longer with this process than they did in selecting the cards that most interested them.

After they completed that task, they were asked to name or describe each of the groups that they had

created. These names were recorded verbatim by the researcher. In some cases (most notably with teens), participants created a grouping that had no defining name other than “miscellaneous” or “things I’d like to learn about.” These were not included in the analysis of groupings.

Finally the researcher asked participants if this was their first time in the museum and whether they “self-identify as Native American.” The researcher then thanked visitors for their time and recorded the contents of each grouping on machine-scannable forms, along with the answers to the two questions, the sex of the participant, and the estimated age of the participant.

The forms were scanned and the data was arranged in a dataset in which the variables were the individual cards or characteristics of the participant and the cases were the individual groupings.

The data was processed using the multi-dimensional scaling (MDS) program in SPSS (Alscal). Separate 2-dimensional solutions across each of the non-card variables in the set were visually reviewed to see which differences were most striking. In other words, the MDS map for men was compared to the one for

women, etc. It was determined that the greatest variation occurred across the variable that denoted whether or not the participant identified as Native American. All subsequent analysis was then divided into four parts: Native American groupings of images, Native American groupings of texts, Non-Native-American groupings of images, and non-Native-American groupings of texts.

The MDS solutions in 2-dimensions through 6-dimensions were then compared to determine the accuracy with which they represented the original similarity matrix. The Alscal program represents each grouping as a square binary matrix indicating which pairs appear within the grouping. These matrices are then summed to create a similarity matrix which represents the extent to which pairs appear together in groupings across the entire set. The relationships in this matrix are then approximated by points in a multi-dimensional space. The greater the co-occurrence of two items in the similarity matrix, the closer the program places the two points that represent those items in the multi-dimensional space. Since the spatial representation is always an approximation of the similarity matrix, statistics have been created to suggest how accurate that approximation is. "Stress" is a statistic that measures the extent to which the spatial representation deviates from the matrix. Lower stress values are better. Values around 0.1 are generally considered very reliable. R-squared (r^2) is a statistic measuring the extent to which the variance in the

similarity matrix is represented in the multi-dimensional space. Higher r-squared values are better (they can range from 0 to 1). In this study, the 6-dimensional solution (the largest space possible in SPSS 15.0) was selected.⁴

The output of the Alscal program is a set of six spatial coordinates for each of the image or text variables in each of the four sets. These coordinates were entered into SPSS as datasets of their own and clustered using hierarchical clustering with the Ward's Linkage method. Ward's linkage method calculates the sum of the squared Euclidian distances from each variable in a cluster to the mean of all the variables. It minimizes the sum of the squared Euclidean distances between any pair of clusters. It tends to produce tighter clusters than other clustering methods. The outputs of this process are a proximity matrix showing the squared Euclidean distances between each pair of variables, and a dendrogram, a graphic representation of the hierarchical clustering.

The next step in the process is to determine how many clusters would be most useful. This is a matter of judgment since the cluster analysis offers numerous alternatives (in these clusterings the number of

⁴ Values for the 6-dimensional MDS solutions were as follows. Native American groupings of images: Stress = 0.11, r^2 = 0.85. Native American groupings of texts: Stress = 0.11, r^2 = 0.86. Non-Native-American groupings of images: Stress = 0.12, r^2 = 0.86. Non-Native American groupings of texts: Stress = 0.10, r^2 = 0.89.

clusters ranged from 2 to 24). The principle followed in this study was to examine the contents of each cluster and to consider how similar those contents were as the clustering illustrated by the dendrogram merged them into ever larger clusters. When the next step in clustering would have combined two clusters that the analyst felt would be more useful if kept separate, the level of clustering that just preceded that point was accepted as the preferred clustering. In this way of the four sets was divided into six to eight clusters.

Within each cluster there is one point (sometimes there are several next to one another) that is closest to the center of the cluster. This is referred to here as the center point. Sometimes there is also an outlier point that is relatively distant from this center, and, in fact, might be equally close to the center of another cluster. Such points are called bridge points because they exist between clusters and their assignment to one cluster over the other is not particularly meaningful.

Center and bridge points were determined using the proximity matrix output from the cluster analysis. The sums of the squared Euclidean distances from each point in the cluster to all the other points in the cluster were calculated in Excel. The point in the cluster with the smallest sum was identified as the center. The point in the cluster with the largest sum was considered a potential bridge point. It was identified as a bridge point only if the sum of its squared Euclidean

distances to all other members of the cluster was at least twice the average of all the other sums. Bridge points were excluded in any subsequent calculations of cluster distances, since they would have skewed the results.

Additionally a distinction was made between core points and extended points. Core points were defined as those for which the sum of the squared Euclidean distances between that point and all the other points was below the average of the sums across all points in the cluster (excluding bridge points). The remaining points, i.e., the points that were not center points, not bridge points, and not core points, are here referred to as “extended points.”

Each cluster was also given a rating, based on the percentage of participants who selected the items in the cluster as being very interesting. The rating is the average of those percentages. Thus, the clusters with the highest ratings are those whose elements were of greatest interest to the participants.

Finally each cluster was given a name. The names for text clusters are the items that are the center points for their clusters. In order to find words for the image clusters, the cluster contents were mapped back on to the original groupings to find those groupings which most closely resembled the final clusters. When these mappings were relatively close (i.e., the groupings were identical to the cluster or included many of the

same items but did not include many additional items), the identifiers provided by participants were used as suggestions for titles. The final titles thus represent the analyst’s opinion of the cluster theme, as informed in some cases by the participant names for similar groupings.