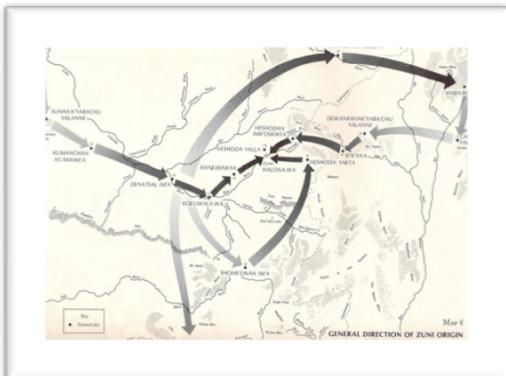


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# A Zuni System of Knowledge: The Arts

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## Preface:

*When the A:Shiwi ascended up through the four worlds and were making their way towards Halon:awa: Idi:wana, the middle place, they were presented with two different eggs; one was plain, gray and drab while the other was beautifully speckled with blue spots. One group*

*picked the **Figure 1. Migration routes**<sup>1</sup> plain egg, out of which a colorful parrot emerged. This group followed the parrot south, to The Land of the Everlasting Sunshine, never to be seen again. The A:shiwi picked the brightly colored egg, and to the dismay of the people, out hatched a black raven. The A:Shiwi followed the crow to where we live today.<sup>2</sup>*

This abbreviated and incomplete chapter in the creation story of the A:Shiwi is well known to many Zunis.<sup>3</sup> We tease each other about the aesthetic consciousness that permeates all aspects of our lives as Zuni people, yet we make no apologies for the level of sophistication and beauty that marks our creations as distinctly Zuni. There is an immense pride that we allow ourselves when someone from outside our community sees a piece of jewelry, a carving, a piece of pottery, one of our kachinas, and recognizes it as Zuni. We also realize –and sometimes take for granted—that we, as a community, understand the roles, functions and symbolism attached to those pieces so easily characterized as “art” by the outside world. We understand (and have for millennia) the

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<sup>1</sup> Ferguson and Hart, A Zuni atlas, 20.

<sup>2</sup> Adapted from the version told in Ferguson and Hart, A Zuni atlas, 22.

<sup>3</sup> A:Shiwi is the name for Zuni, in the Zuni language. Throughout this paper I will switch back and forth between the two names, as both are still used in the contemporary community of Zuni Pueblo.

value placed on these creations by outsiders; we have created a local economic climate that is largely dependant upon the arts market. The creation and sale of our artistic works does not mean that these pieces are created solely for sale to each other and tourists; every medium of art created in Zuni Pueblo also has a religious and spiritual function.<sup>4</sup>

## 1 Introduction

“Zuni art is a material record of the past.”<sup>5</sup>

The function of this paper is to examine material cultural expressions (art) as one system of knowledge in Zuni Pueblo. We will begin our exploration with a brief discussion of my use of the term “system,” and how Churchman (1968), Fidel (2009), Kidwell (1992) and Barnhardt & Kawagaley (2005) have shaped my understanding of this concept and approach to examining complex phenomenon. The system of arts in Zuni, is one such complex phenomenon. Our understanding of this phenomenon will take shape by examining: a.) methods of obtaining materials used in Zuni artforms (gathering, preparing, purchasing, obtaining through trade), b.) different types of art and their respective functions (whether created for sale or sacred purposes), and, c.) methods of transferring knowledge about the creation of arts (where, when and how to gather materials, how to create and design the pieces). In addition, the role of the arts in Zuni will be examined as critical elements for an understanding of both the religious and economic realms of life in Zuni. These realms are historic,<sup>6</sup> but their impact is felt in today’s economy and is a vital aspect to the perpetuation of our religion and thus, our entire way of life. The paper will conclude with some possible avenues for research in the field of Information Science that use the epistemological frame of ‘art’ as a knowledge system.

This paper is a modest attempt to characterize what might be considered a system of knowledge in Zuni. After 18 years combined experience with extensive ethnographic and archaeological field work conducted on behalf of the Zuni Pueblo, authors T.J. Ferguson

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4 Kidwell, “Systems of Knowledge,” 374. This resonates with Kidwell’s recitation of a Saulteaux (Ojibwe) man being asked if all the rocks were alive. His answer, was “no, but some are.” In this case not all the arts made in Zuni have a spiritual and religious function, but many do.

5 Pueblo of Zuni, “Zuni History Page,” [www.ashiwi.org.culture.aspx](http://www.ashiwi.org.culture.aspx).

6 The term “historic” in this context follows the usage explained by Ramona Beltran, PhD, in that this practice started a long time ago, but does not, by any means represent a past-tense situation.

and E. Richard Hart acknowledged: “The relationship of the Zunis to their environment cannot be adequately captured in an atlas, or, indeed, in a shelf of books. The depth of feeling, the human experience, expression, symbolism, and values are as deep as the human condition.”<sup>7</sup> It is with this in mind that I proceed in a humble and conscientious way, knowing full well that all there is to know about how important the arts are to Zunis, cannot possibly fit into these few pages.

## **2 A blended systems approach to one Native knowledge system**

There are several ways to discuss a ‘system’ as it is used in the context of this paper. As stated, there have been four major influences for the use of systems: Churchman, Fidel, Kidman and Barnhardt and Kawagaley. C. West Churchman defines a system as “a set of parts, coordinated to accomplish a set of goals.”<sup>8</sup> While he recognizes several different variations of systems approach (in search of efficiency, scientific explanation, humanistic inquiry, or to determine that a system is not determinable),<sup>9</sup> the requirement stands that demands a particular epistemological stance by the definer of the system. Raya Fidel’s definition of a system, “a collection of elements that interact with one another in a defined environment with defined constraints”<sup>10</sup> is broad enough to encompass an indigenous system of knowledge, as long as it is defined as such by the person applying a systems approach to an indigenous context.

There are two main purposes to the systems approach as defined by Fidel: the first is to examine and understand complex phenomena, and the second is to improve on the system under examination (taking more of an efficiency standpoint). Using this definition we can begin to understand how art is interwoven into the spiritual and economic culture of Zuni, both in a historical context and in the lives of present-day Zuni people. The second part of Fidel’s definition regarding an improvement of the system is not an aspect of the systems approach that I will be using in this exploration.

For this paper I also examine the arts in Zuni taking an approach similar to that of Clara Sue Kidwell.<sup>11</sup> Her exploration of systems of knowledge in the Americas prior to

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7 Ferguson and Hart, *A Zuni atlas*, xi.

8 Churchman, *The systems approach*, 29.

9 *Ibid.*, 14.

10 Fidel, *Unpublished manuscript*, 6.

11 Kidwell, “Systems of Knowledge.”

European contact outlines various ways that Native peoples in the Americas observed and embodied knowledge in a variety of activities, ceremonies and lifeways. Kidwell illustrates how careful observation of, and a close relationship with the natural world allowed for the development of a complex set of knowledges. These sets of knowledges have been and are held by Zunis, allowing for a highly developed and nuanced understanding of the role of material culture as it functions in the religious and the economic arenas of the community. In this sense, there is certainly a Native knowledge system at work in Zuni, as described by Kidwell.

The description of indigenous knowledge systems in Alaska done by Ray Barnhardt and Angayuqaq Oscar Kawagley<sup>12</sup> is an excellent example of how a strong relationship with a particular environment can and does influence the centuries and millennia of ‘cumulative knowledge’<sup>13</sup> in a Native community. The ways in which Natives have managed their resources in a given location is one of the distinguishing characteristics of indigenous knowledge and provides insights as to how a specific community interacts with their environment.

Helping to set up the parameters or framework of this system, the next section briefly examines the environment of Zuni: the location, the people and the language. All of these environmental factors contribute to our understanding of the arts as they function as a system of knowledge in Zuni Pueblo.

### **3 Basic Facts: Location, Population, Language**

#### **3.1 Location**

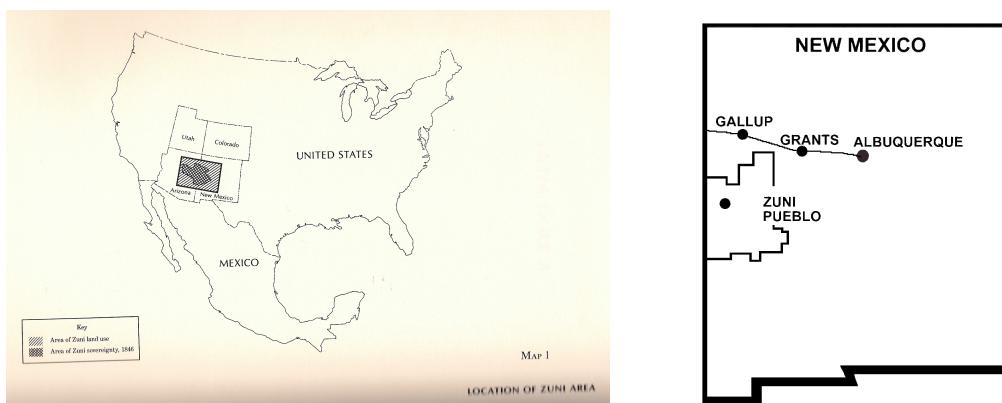
The present-day Zuni reservation is in west-central New Mexico and east-central Arizona (see figure 1). The village of Zuni sits ten miles east from the Arizona/New Mexico state border, approximately 35 miles south of Gallup, and 140 miles west of Albuquerque. The Zunis had seven villages which experienced fluctuations in population until the 15<sup>th</sup> and 16<sup>th</sup> centuries when colonizing settlers, war, drought, etc forced the Zunis to abandon most of their villages and relocate to the largest village of Halona:wa

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12 Barnhardt and Kawagley, “Indigenous Knowledge Systems and Alaska Native Ways of Knowing.”

13 Dei, “Rethinking the role of Indigenous knowledges in the academy,” 114.

I'diwanna,<sup>14</sup> the present day village of Zuni Pueblo. Over the past five centuries, encounters with the various colonial policies of Spain, Mexico and the United States have systematically reduced the traditional homelands of the Zuni. The reservation is comprised of 640 square miles of land, but is only a small fraction of the traditional territories of the tribe. The traditional boundaries of the Zuni stretched as far West as the San Francisco mountains, to the eastern border of Acoma pueblo, just east of present day Grants, New Mexico; as far north as Chaco Canyon to the northern edge of Apache territory; towards the southwestern areas of present day Arizona and New Mexico.<sup>15</sup>



**Figure 1. The traditional and current territories of the Zuni.<sup>16</sup>**

### 3.2 Population

The population figures of the Zuni tribe differ, depending on who is asked. The 2000 census figures claim that just under 7,500 Zunis were counted.<sup>17</sup> This figure is slightly contested by the Zuni Census office, which counts 12,000 people as residents of Zuni. The discrepancy can be accounted for by acknowledging how the people were counted (by enrollment numbers, if they counted members of the pueblo living off-reservation, and if they were able to reach residents the census collectors were not able to connect with). Most of the Zuni people still reside in Zuni and the neighboring hamlet of Blackrock. Numbers are not available about how many Zunis live off-reservation but conservative estimates easily number in the hundreds, possibly over a thousand.

14 Ferguson and Hart, *A Zuni atlas*, 24.

15 Ibid., 88.

16 Ferguson and Hart, *A Zuni atlas*, 2; Pueblo of Zuni Homepage, "Zuni History Page."

17 US Census Bureau, "87327-Fact Sheet."

### 3.3 Language

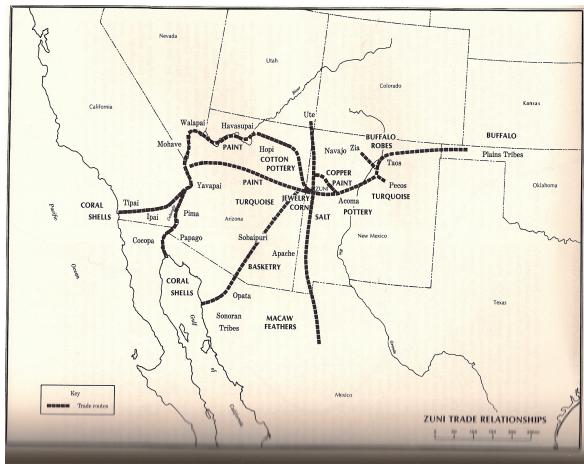
The Zuni language is a linguistic isolate.<sup>18</sup> There is no other language in the world like Shiwi:ma Bena:we. As a language isolate, there are unique characteristics found in the language that reflect the world-view of the Zunis. This world-view is reflected in the religion and the arts. The religious calendar of the Zuni determines the majority of life in the Pueblo. A complex ceremonial cycle determined annually by the religious leaders of the village follow matrilineal clan relationships and are dependent upon sponsored initiation into one of six religious groups. The religious calendar determines a large portion of the community wide activities that drive the Pueblo and maintains a collective focus on the annual goals of hosting the various *kokkos* (kachina spirits representing deities) throughout the year, with major events happening around the winter and summer solstices. These relationships, affinities and cycles are dependant on the use of Shiwi:ma Bena:we for prayers, songs, and every-day communication.

## 4. Raw Materials

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18 Davis, The Zuni enigma, xxi.

The A:shiwi reside in an area of the world rich in geologic resources. The birth of the land-forms in what is now the Southwest U.S. left large deposits of clays, pigments,



**Figure Two. Trade routes and relationships<sup>21</sup>** Pacific Ocean; traded for macaw and parrot feathers from tribes south of the current Mexico border; basketry from Apaches; buffalo robes from the tribes on the Great Plains; and minerals for paints and jewelry from all trade relations.<sup>22</sup>

The traditional knowledge of the resources found on our homelands continues into the present day. When asked about where to gather clay for pottery and pigments for paints, Zuni potters note Bayye, or Paiye Mesa to the south of the main village as a bountiful spot to gather clay. As stated by world-renowned Zuni potter Anderson Peynetsa: “We all go to the same spot to get clay, it’s on the south side.”<sup>23</sup> Both Upper and Lower Nutria Lakes are noted as a favored location to gather ground iron mineral and wild spinach for paint.<sup>24</sup> “All the other colors that are on our pots, we get from local areas. The brown paint we get from Nutria, right near the clay source,” explains Rowena Him, another well-known potter.<sup>25</sup> Rowena also alludes to present day trade still active amongst the artists in the area. When asked about the micaceous sparkle on some of their pots, she admits “We first got the clay from an Apache potter. He didn’t really want to give it to

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19 Ferguson and Hart, *A Zuni atlas*, 7.

20 Ibid., 32.

21 Ibid, 54

22 Ibid., 53.

23 Nahohai and Phelps, *Dialogues with Zuni potters*, 55.

24 Ibid., 59.

25 Ibid., 39.

obsidian, salt and turquoise.<sup>19</sup> The A:shiwi used these resources to trade with their neighbors, establishing the southern most village of Hawikku as a major trading center in the region<sup>20</sup> (See Fig. 2). The A:shiwi traded cotton and wool with the Navajo and Pima to the west; obtained shells and coral from peoples along the southern coasts of the

me but I asked for it and he gave me about a ball-size of it. We screened it and made a lot of slip. We got some more from Lonnie Vigil, a potter at Nambe.”<sup>26</sup> Knowing where to get the materials in the local areas is as important as being aware of other resources in the region. Not only did this knowledge lead to historically lucrative trade relations, the present day knowledge of the vast variety of materials and where to get them still contributes to the considerable repertoire of practicing Zuni artists.

## **5. Types of Arts and their functions in Zuni society**

This section provides a brief overview of the major different types of art practiced in Zuni and their secular and sacred functions in Zuni society. Items in every one of these categories of art are available for sale; however, certain pieces can also serve a ceremonial function. Their creators, particularly potters, are often commissioned by the different religious leaders/groups for pieces to be used during ceremonial occasions, but, jewelry, textiles, and fetish carvings all play integral roles in both the ceremonial and economic life in Zuni.

### **5.1. Pottery**

Of all the art styles described, dewa, or pottery has the longest relationship with the Zuni and other Puebloan groups. The archeological record indicates the presence of ceramics among the pueblo people (ancestors of the Zuni included) for at least two thousand years, a conservative estimate.<sup>27</sup> The Zuni’s use of pottery has always been two fold: for ceremonial and utilitarian use. Early ethnographers noted Zuni women using pottery vessels to carry water from the river, wells, and streams back to their homes but also remarked on the uses of large vessels by religious leaders during ceremonial events. The use of the pottery bowls by various religious groups for different ceremonial activities is a point of obligation and pride for potters. Randy Nahohai, a Zuni potter states:

The Rain Priests use pottery to collect water from springs, medicine groups use pots to hold the medicine. In summer you see a lot of painted bowls for the ladies to take food over to the kivas.<sup>28</sup>

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26 Ibid., 38.

27 Bunzel, *The Pueblo potter a study of creative imagination in primitive art*,

28 Nahohai and Phelps, *Dialogues with Zuni potters*, 40.

Eileen Yatsitte continues this sentiment by stating that even though the majority of her work consists of commissioned orders, she creates “a lot of religious ceremonial bowls for the people here in Zuni.”<sup>29</sup> Even the casual observer can see the use of the terrace-walled cornmeal bowls by Zuni people, as they welcome the kachina figures into the pueblo during ceremonial activities.

The design motifs of the older pieces seen in 20<sup>th</sup> century photographs, and which can be found on pottery shards scattered in different areas of the Pueblo, reflect the role of water as a central element for all life.

Common design elements that mark Zuni pottery are water waves, rain birds (simple and elaborate), raindrops and rain, thunderclouds, water animals (frogs, tadpoles), water-seeking insects (dragonflies, butterflies) and the plumed water serpent *kolowasi*.<sup>30</sup>



**Figure Three: cornmeal bowl**

Potters in Zuni create pottery for two main reasons: for sale and for use. They market their vessels via the web, in local and off-reservation galleries, and in person, at art shows all over the world. Despite their dedication to their livelihood, they take the commission of pieces for

**Figure Four: rain bird design** ceremonial purposes very seriously. Gabe Paloma once remarked that his pottery for the annual Southwest Indian Art Association Market (better known as ‘Indian Market’) “will have to wait, until I get the pieces for my kiva done,”<sup>31</sup> even though the Market is generally considered the most lucrative art markets of the year, and one in which Paloma routinely sells his entire inventory.

Depending on the training of the potter, gathering the materials and working with the clay also requires a serious spiritual commitment. When asked about learning the prayers for making pottery, Yatsatti noted that she “didn’t realize that there were prayers for each stage of pottery. Once I learned the prayers, everything really fell into place.”<sup>32</sup> Ms. Yatsatti provides an example of a Zuni who understands and uses the religious methods

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29 Ibid., 66.

30 Ibid., 24.

31 Personal Communication, July 2009.

32 Nahohai and Phelps, Dialogues with Zuni potters, 66.

of gathering and preparing materials for her pottery, creates pieces for ceremonial use by the spiritual leaders of the Pueblo, but also creates vessels that she markets to galleries, private collectors and museums in the U.S. and abroad.<sup>33</sup>

## 5.2. Clothing/Textiles

Clothing and textiles are always reflective of the cultural values of a community. The materials, iconography, techniques and uses of Zuni textiles reflect the dedication to the ceremonial cycle. Traditional textiles in Zuni were woven from cotton grown in Zuni or traded with the bands of the Pima to the West. Sheep wool was introduced by the Spanish in the early 1500s and quickly became incorporated into the mantas, the traditional dress of Zuni females. Trade cloth blankets brought and traded by English, French, Dutch, and American traders from the East were also incorporated into the clothing of the Zuni.<sup>34</sup> Despite the influx of materials and variously colored threads and cloth, traditional clothing used to dress the kokkos, or kachinas, their assistants or helpers, and to decorate the host houses during ceremonies, have remained distinctly “Shiwi,” in design composition (including colors used). The exception to this case would be when the ceremonial dance is one that explicitly is in honor, or referencing another tribal group in dress, language and/or song (e.g. the Ku:man’chi’ or A:ba’tchu kokko, referencing and honoring the Comanche and Navajo).

All the garments used to dress the kokkos are made or fashioned by locals, usually by women. Quanita Kalestewa, a Zuni elder, remembered when her mother and grandmother lived in the old plaza and “used to do handiwork like weaving and making clothes for the kachina dancers.”<sup>35</sup> Several fashion designers in Zuni are responsible for many of the shirts and other garments worn by entire kiva groups (religious societies). The fashion designers themselves have their own businesses, which must be put on hold in order to finish the commissioned work in time for the ceremonies that take precedent for most of the community. Some, like Delphine Pooacha, have been known to have a two and three year back log of custom orders for appliquéd shawls, Pendleton coats,

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33 Ibid.

34 Wheat and Hedlund, Blanket weaving in the Southwest; Ferguson and Hart, A Zuni atlas, 52.

35 Nahohai and Phelps, Dialogues with Zuni potters, 13.

manta-inspired dresses, and other clothing items because of her sense of obligation to the kiva groups who commission shirts and other garments to dress the kokkos. As important as Mrs. Pooacha's clients are to her livelihood, it would never occur to Mrs. Pooacha to refuse the request made by the religious leaders to create garments to be worn during ceremonies.<sup>36</sup> The burden of the work is a point of pride for her and many other artists asked to create objects used to honor the ancestors and the spirits.

The dedication to creating beautiful objects of function is not a task taken lightly by the religious societies; the generosity of time spent by the artists is repaid during various public occasions throughout the year. Financial payment may be part of the compensation but food, art pieces, everyday items which have been sanctified by the various healing societies and public acknowledgement by the religious society are also given and taken as payment for the pieces made for the group/ceremony.

The iconography on the fabrics usually reflects those found on other pieces created in Zuni. Stacked, black triangles represent thunderclouds, juxtaposed sections of blue and red generally indicate duality (day and night, winter and summer, male and female, etc) and are usually on a green and black background. Trained observers can distinguish the



kiva groups and/or the dance group simply by the clothes worn by the dancers. While some elements representing earth, breath/wind, water, fire, or the universe are found in some form in almost every dance groups regalia, the specific combination and placement of the pieces help to distinguish groups from each other. The houses that host the ceremonial dances undergo a similar 'dressing.'

**Figure Five: kokkos** During ceremonies the walls are adorned with kilts (men's traditional wear), mantas (women's traditional overdress), shawls, woven sashes, aprons, hides, furs, Pendleton blankets, and other textiles that are worn by those participating in the ceremonies. In this way, even the houses are dressed and "made special" by the use of textiles.<sup>37</sup>

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36 D. Pooacha, Personal communication, July 2009.

37 Dissanayake, What is art for?, 74-106. The term "making special" was coined by Ellen Dissanayake when describing art and its function in human society. Her book describes various aspects of making special and the etiological functions art plays drawing on many different schools of thought including anthropology, art history, and psychology.

Similarly, mounted deer, elk, buffalo and bear heads are mounted on the walls of different ceremonial houses and given places of honor, as indicated by the multiple strands of turquoise, coral and shell necklaces worn by the animal busts as well as the various nuggets used as earrings.

### 5.3. Fetishes/carvings

Carvings of animals are a well-known Zuni art form in contemporary Native art markets. These carvings are commonly referred to as fetishes, and are collected by stone carving collectors as well as by those wishing to capitalize upon the strength associated with those animals. There has been a boom in the art market since the 1980's and today the number of stone and antler carvers in Zuni number more than 300.<sup>38</sup> Several definitions can be given for fetishes, one of the more succinct definitions is provided by Mark Bahti, a non-Zuni art dealer: "...if you believe it is a fetish, it is. If you don't, it isn't, since a fetish spirit will not help an unbelieving owner."<sup>39</sup>

Personal and group fetishes in Zuni are gifted, bestowed, created, blessed, and take



many forms. Fetishes can be found stones gifted from the gods, perfect ears of corn selected by paternal aunts to protect babies, or, created by humans to be blessed during ceremonies.<sup>40</sup> They function as protective talismans, aids for those engaged in healing practices, and as spiritual encouragement for their owners. Similarly, they are blessed, cared for and *prayed over*, but not *prayed to*; only deities are prayed to.<sup>41</sup>

**Figure Six: Fetish necklace**

Another distinction between carvings made for spiritual purposes and those for material consumption, is the display of the carvings. Fetishes are not generally openly displayed or shown (when used for personal protection), nor are they used as jewelry. The innovative stringing of small carved animals and marketed as "fetish necklaces" in the 1980's elevated the visibility of the carved figures and popularized the carvings. The average tourist in Zuni has come to know the carvings for sale in the stores as fetishes

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38 Bahti and Gentry, Spirit in the stone, 12.

39 Ibid., 5.

40 Kidwell, "Systems of Knowledge"; Bahti and Gentry, Spirit in the stone.

41 Bahti and Gentry, Spirit in the stone, 7.

and they do function as a major source of revenue for local carvers.<sup>42</sup> The carvings function as fetishes in ceremonial and economic contexts in Zuni, but it is important to remember that not all carvings are fetishes and not all fetishes are carvings.

#### 5.4. Jewelry

Zuni Pueblo is world famous for its jewelry. There is no direct citation to back up this claim, however there are a plethora of titles of books and museum exhibits that help to substantiate this statement.<sup>43</sup> There are likewise many museum collections that have prehistoric shell and stone mosaic inlay pieces alongside strands of hand drilled hishi beads of shell, turquoise and jet. While pieces of jewelry are not spiritually significant in themselves, the role of jewelry in Zuni, used to decorate kokkos, people, and even stuffed animal heads should not be overlooked. The piercing of the ears of Zuni people is significant as well, as an important aspect of the dressing of the men during ceremonial participation as kokkos, and in the dressing of those who have passed away, in preparation for their journey to Kołuwala, Zuni heaven.<sup>44</sup> The tradition of jewelry in Zuni also points to the elaborate trade relations of both historic and contemporary times. The shells, turquoise and coral used in prehistoric pieces came to us through trade. The methods of silverwork that now defines Southwest jewelry was a contribution by Spanish settlers, which was then developed and refined by mainly Navajo and Zuni jewelers. The contemporary art market surrounding the creation of jewelry is a huge component to the economic engine and a vital aspect to the marketing of cultural tourism for the entire Southwest region.<sup>45</sup>

## 6. Traditional and contemporary knowledge transfer

Various art forms are taught and passed on which embody specific cultural knowledge. This can be seen most easily in the practice of pottery making. In order to create a vessel in the traditional way, a person has to know the prayers for the various stages of gathering materials and creating the vessels. They have to know where in the

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42 Ibid., 12.

43 See the references section for a long list of books on the silversmith industry in Zuni.

44 H. Lewis, personal communication, December 2009.

45 Dissanayake, What is art for?; Bahti, Silver and stone; Riley, "Mother Earth, Father Sky - Zuni jewelry; Levy, Who's who in Zuni jewelry; Bell and Bell, Zuni; Bassman, Bassman, and Balzer, Zuni jewelry; Ostler, Zuni; Bell et al., Zuni.

Zuni territories to get the clay, which plants to gather in order to make the paints. A:shiwi bena:we, the Zuni language, is still used to impart the knowledge of how to create the forms, the formation and the meaning of the designs on the vessels. The type of dung and the design of the outdoor kiln, as well as the procedure for firing the vessels is an art in itself. The use of the pots by ceremonial leaders to carry prayer sticks and blessed water, by Zuni residents to carry blessed cornmeal to sprinkle on the shoulders of the kokkos, and by Zuni women to carry offerings to the kivas, is indicative of the high sense of value placed on the vessels by the entire community, as well as the centrality of the pieces to the religious and spiritual events in the community.

In an economic light, the selling of arts in Zuni has an equally important impact in modern society and requires the transfer of specific types of knowledge. The ability of artists to support their families active roles in the ceremonial cycle (if they are participating in such a way), to create their own livelihood or supplement their wage/salaried income from their ‘day job,’ and the ability of many artists to navigate the art market as an independent seller requires a nuanced view of the art market, and the economic factors that drive the tourist and art collecting industries.

The use of dewa, the ceramic vessels created, used and sold in Zuni is only one example of how the ‘arts’ function as an entire Native knowledge system. The historic base, the contemporary continuation of the gathering, creating, ceremonial use and the selling and trading of dewa reflect an ancient practice that is a vital component in the everyday, economic and spiritual lives of Shiwi people. The complex role of ceramics in Zuni is used as an example of a system of knowledge, not to the exclusion of other art forms, but as a means of providing a clear example of the many levels of complexity hidden behind a seemingly simple and ancient ‘art’ form.

## **7. Information Science research possibilities**

Information Science research is in a unique position, poised to tackle some of the most pressing issues facing Indian Country today. Using the knowledge systems—epistemological, cultural, linguistic, economic, legal and otherwise—inherent in the production of artistic materials in Native communities, the research possibilities are infinite. Below is an incomplete list outlining the range of research areas that could be developed, using the production of material culture in Native communities as a base.

*Indigenous Knowledge Systems:* This paper serves as a small, specific example of a knowledge system at work in the Pueblo of Zuni. There are countless other examples of knowledge systems found in Native and Indigenous communities around the globe. Explorations of indigenous knowledge systems can expand the definitions of systems to include the holistic examples employing every aspect of Native lifeways, and in doing so, can expand awareness of other ways of knowing, learning and operating. This awareness can help remind the field of Information Science of the human component necessary to make all other aspects of information relevant.

*Indigenous Knowledge Visualization:* The study of semiotics as it applies to Native ‘art’ and material culture has broad application possibilities, ranging from the study of embedded codes of history, culture, language, and spirituality to the acquisition and use of visual literacy as it can affect the creation, interpretation and representation of Native material culture in both tribal and mainstream settings.

*Tribal Archives, Libraries and Museums:* The ongoing projects in Native communities to promote cultural perpetuation and preservation can and have been centered around the creation of community specific artistic creations. Tribal communities have been working at the level of practice for the last few decades. Real-world experience based on the strengths and constraints of Native communities, coupled with researchers in Information Science, can raise the level of discourse from practice to theory, benefiting community members by identifying best practices, alternative solutions and carrying enough ‘weight’ to influence policy in these areas at the local, state, national and global levels.

*Information Ethics:* The study of Native arts involves complex issues not adequately addressed by current discussions regarding information ethics. The range of ethics surrounding the arts ranges from representation (who has the power/authority) to the repatriation of cultural and intellectual property/patrimony involved with sacred pieces and images of the sacred being distributed through mainstream avenues, in museums and via the World Wide Web.

*Personal Information Management:* Just as the ancient Greeks used architecture and artistic works to remember important aspects of history, artistic cultural works can and do serve as pneumonic devices that help perpetuate the oral and aural traditions in Native communities. The retelling of sacred history, recounting genealogies and tribal histories

are necessary for the maintenance of tribal identity and can be aided through the use of ‘visual aids’ such as artistic material culture in all forms.

*Master of System Information Management:* There are countless applications for MSIM work in Native communities involving the arts. Tribal enterprises can either be improved or developed to manage the flow of customers, linking customers directly with artisans, to act as virtual trading hubs, to develop tools for artists as they market their works via the web or with the development of their own online businesses.

*Knowledge Organization:* Exploring different ways of organizing knowledge around the arts can benefit the field of knowledge organization. Native communities and their uses of artistic works can be used to challenge westernized and mainstream knowledge structures to accurately reflect the epistemologies of Native communities. This practice would ultimately help to make library and archival resources available to Native constituents using the more widely used forms of oral and visual narratives.

## **8. Conclusion**

I have shown the arts, as they function in Zuni society, to be a self-sustaining system of knowledge. The creation of the arts includes elements and environments that fluctuate depending on which aspect of the system we choose to focus on. The use of the Zuni language in transferring knowledge about how to make the pieces, the prayers to offer before and during the creation of pieces, a knowledge of tribal-specific history, a knowledge of the surrounding geology and geography of the land, plant knowledge and historic and contemporary trade relations all point to the ways in which this system functions within the constrained environment of the Pueblo of Zuni. This example, and others like it, can broadly expand awareness of the application of Information Science concepts to the realities of Native life and to the study of Indigenous knowledge. More importantly, the study of Native and Indigenous visual knowledge systems has the potential to empower Native communities. As we address the multiple problems ailing our communities, visual knowledge systems help to reinforce our talents, skills and strengths, all traits we can pass on to our future generations.

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