

Journal of Global Initiatives: Policy, Pedagogy, Perspective

Volume 10
Number 1 *Special Edition on "Understanding
Transformations in the Arabian Peninsula"*

Article 4

1-4-2016

Intercultural Connectivity: Intertwined through Islamic Design

Sandra Bird
Kennesaw State University, sbird@kennesaw.edu

Follow this and additional works at: <https://digitalcommons.kennesaw.edu/jgi>



Part of the Islamic Studies Commons, Islamic World and Near East History Commons, Near and Middle Eastern Studies Commons, and the Political History Commons



This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Recommended Citation

Bird, Sandra (2016) "Intercultural Connectivity: Intertwined through Islamic Design," *Journal of Global Initiatives: Policy, Pedagogy, Perspective*: Vol. 10 : No. 1 , Article 4.
Available at: <https://digitalcommons.kennesaw.edu/jgi/vol10/iss1/4>

This Article is brought to you for free and open access by DigitalCommons@Kennesaw State University. It has been accepted for inclusion in Journal of Global Initiatives: Policy, Pedagogy, Perspective by an authorized editor of DigitalCommons@Kennesaw State University. For more information, please contact digitalcommons@kennesaw.edu.

Intercultural Connectivity: Intertwined through Islamic Design

Erratum

This issue was updated from the original on 9/7/2021. The original had photos that were requested to be removed by the photographer.

Intercultural Connectivity: Intertwined through Islamic Design

Sandra Bird

Abstract

This paper is a critical inquiry examining the works of an art exhibit, *Geometric Aljamia: A Cultural Transliteration*, hosted during Kennesaw State University's Year of the Arabian Peninsula. It includes a brief interdisciplinary discussion of the importance of geometry to the development of Islamic art and design. The contemporary artists who produced these works under study integrate drawing and paper-cutting techniques that display characteristics of art found throughout the Muslim world.

Recently on a flight I had the pleasure of sitting in a window seat, thus allowing me to peer outside at the abstract wonder so many feet below. The arrangement of crop circles and squares seemed playfully juxtaposed between rectangular rooftops of farmhouses, all logically placed within the fractal patterns of the waterways. These images from my plane window forced a recollection of earlier stored visions in my brain - of hydra and other microscopic living forms derived from pond water that I viewed in biology classes long ago. The mingling of viewpoints, one from great distance and one from a magnified proximity, both communicated the same spatial order and suggested a

certain unity of structure among living forms that humankind has integrated for millennia into geometric formulas and other mathematical conceptions.

Perhaps one of the greatest experiments in geometry has been the art production that emerged from the Islamic World since the days of the Umayyad Dynasty. In *Symmetries of Islamic Geometrical Patterns* by Syed Jan Abas and Amer Shaker Salman (1995), the authors have drawn associations between the structure of life forms beneath the microscope (particularly DNA strands viewed in cross-sections) and the beautiful yet similar art forms that graced walls, floors, ceilings, and any other available surfaces in the Islamic World. For many, this may suggest that the parts are more similar to the whole than we had previously understood.

This exhibit, *Geometric Aljamia: a Cultural Transliteration*, displays the work of contemporary artists that revisit the techniques and aesthetic impact of Islamic arts by integrating traditional geometric principles into papercuts and architectural drawings. The use of the color white throughout the exhibit suggests the stone, stucco, or plaster carved surfaces found in Islamic architectural works, such as the Court of the Lion's at the Alhambra in Granada, Spain. Reni Gower's pieces provide the only use of color and reference the hues common to the glazes on Islamic tiles. In this case, the color has been applied to the reverse side of the paper. When installed, her papercuts float 1.5 inches off the wall with the white side of the paper facing forward to maximize the cast shadows and reflected color. Gower explains, "The color white functions as a unifying element despite the geometric variation. It was not explicitly selected for its symbolic implications. Rather it was chosen to present the pristine quality of the paper in its purest form" (email interview, April 21, 2014, p. 1).

The word *aljamia* has been adopted from Castilian. Artist Jorge Benitez (2014), describes the word's origins and the rationale for the group's use of this term for visual literacy:

The use of *aljamia* by Iberian Christians, Jews and Muslims encapsulated the rich cross-fertilization that occurred between 711 and 1492. The Spanish Royal Academy's *Dictionary of the Spanish Language* defines the Spanish word *aljamia* as Arab and Moorish texts written in Iberian Romance languages with Arabic script. Although *aljamia* is a linguistic term, a glance at any part of Spain and Latin America reveals the depth of Islamic influence as a visual *aljamia*: a transliteration of one culture's visual language into the daily life of another. (p. 3)

The Islamic visual literacy described by Benitez is indeed quite apparent when examining the colonial sections of the Spanish towns established by the Conquistadors in 16th-century Latin America. For instance in Lima, Peru, it was customary for the builders to utilize Islamic conventions in their architectural plans. Celosias, intricately patterned screened galleries that extend over the streets, became so characteristic of the Lima Colonial style that these covered balconies were integrated into Catholic and governmental architecture (see Figures 1 and 2). These and other *mudejar* architectural conventions (carved wooden ceilings, delicately painted ceramic tiles, stucco geometric carvings, and metal enhancements of the central door) all added an aesthetic flourish to the adobe frame buildings characteristic to the desert climate of Lima.



Figures 1 and 2. Sandra Bird, *Inside the Celosias* (2012) and *Outside the Celosias* (2012) – both photographs taken at the Torre Tagle Palace in Lima, Peru.

In the case of *Geometric Aljama*, the transliteration transforms one mode of thinking through the influence of another. Gower (2013) states, “Our project acknowledges hybrid connections between the West and the Middle East, while revisiting the ongoing impact of Islamic art, poetry, science, and philosophy throughout the world today” (p. 1). The synergy of these intercultural and interdisciplinary relationships has forged a holistic exchange based in reason, faith, and aesthetics. Gower (email interview, April 12, 2014a) states,

These papercut works emerged from an interdisciplinary intercultural exchange that debuted at the 2013 *Hybrid Making* Tasmeeem Conference in Doha, Qatar. At this point, the project includes an exhibition, performances, workshops, presentations and catalog, which have been showcased at venues in the Middle East, Australia, and the United States. The Tasmeeem workshop was organized by several faculty from Virginia Commonwealth University’s School of the Arts (VCUarts) in Richmond, VA and its branch campus in Doha, Qatar. Participants

were invited from Dubai, Kuwait, Qatar, Afghanistan, and the United States. (p. 1)

The workshop (led by VCUarts professors Reni Gower and Jorge Benitez) utilized contemporary sensibilities to produce personal reflections on what some Islamic art historians relegate to the minor artisan work of “ornamentation.” According to Oleg Grabar (1992) in his important art and aesthetics text, *On the Mediation of Ornament*, these designs are categorized as ornament - “that aspect of decoration which appears not to have another purpose but to enhance its carrier” (p.5). Conversely, this exhibition recognizes the universal code embedded within this form of Islamic artistry. The formal and expressive power of the patterns and their adaptations far exceed mere ornamentation.

Cultural Background

Islamic geometric designs developed under many influences, but the drive to use it as a primary focus for most of its art forms; including the arts of the book (The *Koran*, and other religious and secular texts), architecture, adornment, miniature paintings, and the arts of the home (including textiles, ceramics, wood, and metal crafts, etc.) are rooted in religious doctrine. Islam has a reputation of avoiding images of living beings based upon the *Hadith*, sayings of the Prophet Muhammad, as much as on its leaning toward the Jewish commandment of avoiding “graven images,” but there is a wide interpretation of what is acceptable based upon differing histories and geographies. Still, according to one *Hadith*, the following guideline applies to all Muslims.

Said ibn Abi Hasab said: When I was with Ibn Abbas a man came to him and said, “Ibn Abbas, I am a man whose livelihood comes only from the work of my hands, and I make these representations of things.” Ibn Abbas replied that he would tell him only what he had heard from God’s Messenger. He had heard him say, “If anyone makes a representation of anything, God will punish him until he blows a spirit into it, and he will never be able to do that.” Then when the man gasped and became pale, he said to him, “Out upon you! If you must do so, make representations of these trees or anything which does not possess a soul.” Bukhari transmitted this tradition. (Peters, 1994, p.261)

What Bukhari says with authority, as one of the first Muslims to consolidate the traditional oral sayings attributed to the Prophet (including the authentic “chain of transmitters”), is that God alone must be viewed as *Creator* of living creatures (Nasr, 1979).

Such aniconism (restrictions to reproduce living forms) forced a very creative exploration of geometry in artistic expressions. I am often asked, “Is it true that Muslims do not depict living beings in their artwork?” This is not really a simple question, so there is not a simple answer. When in doubt, avoiding the use of living forms is traditionally preferred. Muslims, in general, do not have a problem with photography of living forms (as a machine did the work of capturing a likeness).

There are many images of living forms in some Islamic periods. There were historic eras when Muslims were more open to representations of living beings than we find even in our current period. A good example of that within the Arab Classical world,

is the 13th-century travelogue, *The Maqamat of Al-Hariri*, which was widely appreciated for its texts and illustrations. The further away from Mecca that the influence of Islam reaches, you will find living forms integrated into artworks. Historically, if you found them, they were generally in portable or utilitarian objects (in manuscripts, on plates, in carpets) rather than in obvious display, such as on the wall. There are also plenty of exceptions to that aniconic rule on the walls in Arabian pleasure palaces of the rich in history and on urban murals in contemporary Muslim culture. If using traditional representations of living forms, Islamic miniature artists would use a particular stylization to adapt those living forms – making the forms flat and very geometric in presentation.

The concept of geometry was codified by the Greeks, who used geometry not only to determine artistic proportions, but also for measuring land, military planning, astrological calculations, and teaching philosophical concepts. Geometry (and most things Greek) was readily accepted by the Islamic culture due to the Muslim emphasis on logic and ratiocination. One of the most learned mathematicians in Islamic history was a Persian, Abu Raihan al-Biruni (973-1050), who also linked the study of geometry to philosophy (Nasr, 1993). Al-Biruni advocated the Platonic concepts of “natural philosophy”; an assertion that recognized manifested forms as a product of the Ideal (Nasr, 1993). In al-Biruni’s time, the study of nature, for example, was not restricted to empirical methodologies. It included the influence of varied information sources: from observation, experimentation, reason, reflection, sacred texts, and philosophy (Nasr, 1993). For the purpose of explicating the symbolism of geometry, al-Biruni cited the relationships between regular geometric figures and the elements, (as derived from Plato’s *Timaeus*):

How many figures can be inscribed within a sphere? When the faces of the polyhedra are equilateral and equiangular and all equal and of one kind, only five: and these five are related by resemblance to the four elements and the sphere.

With regard to the five referred to: there are, first, the cube, bounded by six squares, called earthly; second, the icosahedron, by twenty equilateral triangles; it is a watery one; third, the octahedron, by eight equilateral triangles, the airy body; the fourth, the tetrahedron, by four equilateral triangles, the prickly body, fiery; the fifth, the dodecahedron by twelve pentagons. (Nasr, 1993, p.125.)

The use of geometric symbols as representations for the elements of the universe was not a new concept - its practice was borrowed from Pythagoras (540 B.C.E.). The Ancient Egyptians had been acquainted with the first four elemental shapes, but the Pythagoreans developed the dodecahedron for instructional purpose (Kokomoor, 1942). As the four shapes represented the four elements in the physical universe, the dodecahedron (the twelve-sided figure) represented the universe itself. The geometric shapes supported the philosophical teachings of the desired social order in the ancient world (Kokomoor, 1942).

Some Middle Eastern specialists have attested that these designs convey a connection between the Platonic world of ideals and the manifested world (Burckhardt, 1987; Michon, 2008,1991; Nasr, 2004,1993). This same analysis was utilized by several practicing artists, whose families still preserved the secrets of their traditional trade for centuries – including Omer Bilge, a *rahle* maker, in Glassie's (1993) thick description of traditional artisans' perspectives in *Turkish Traditional Art Today*. Wherever the designs are applied (either on a Koran stand, a decorative plate, or a wooden chest), they are

created with the belief that the designs they used were revealed to the originators, much in the way that the sacred sciences were delivered to the human intellect (Nasr, 1993).

There has been much discussion about whether these traditional designs have meaning. I suppose ultimately it depends on who is creating the designs. I once asked a Kuwaiti artist if the designs meant anything to him. He replied, “Oh art? That is not God’s territory.” To this particular artist the designs served a *terpnopoietic* purpose - that pertaining to the provision of pleasure (Grabar, 1992). The geometry was just an effective organizer, a tool in the artist’s creative arsenal.

Although Arabic culture gave an important place to mathematics and although geometry characterized the decorative arts, Arabic literature does not discuss the visual or aesthetic aspects of geometry. In all classifications of the sciences, geometry is described as a basic tool for a number of crafts including mensuration and building, with no reference to its artistic aspect or its application as decoration or surface treatment. (Behrens-Abouseif, 1999, p. 120)

For other artists, as those interviewed in Glassie’s ethnographic work, the use of sacred geometry has more relevance. The order established by the geometric surface effectively conveys *al-tawhid* (unity) – an expression of the divine within the fabric of the world (Burckhardt, 1987).

The Artists

With participants from Afghanistan, Dubai, Doha, Kuwait, Jordan, England, and the United States, some of the artists were born into the Islamic culture, while others recognized aspects of their culture within it. All were attracted to the universality of the patterns, which are often described as *sacred geometry*. Gower states,

During the Tasmeeem workshop, we discussed the patterns as sacred geometry versus pattern as visual ornamentation. We talked about the pervasive use of the patterns in the Middle East and how these patterns function as a universal language that was transliterated throughout the Mediterranean Basin, Western Europe and beyond. Even though we were a very diverse multicultural group, we communicated easily despite the language barriers we encountered. The universality of the patterning proved to be true. (Gower, 2014a, p.2)

With the installation of her papercuts, Reni Gower “creates a private space within a public one to foster contemplation or quiet reflection” (Gower, 2013, p.8). For example, *Papercuts: White/Copper* (Fig. 3) is an artwork that demands sustained attention. On first examination the hexagon pattern appears to be emphasized, but this focus is quickly overwhelmed by interlocking vertical and diagonal stripes that birth a myriad of rectangular forms at the center of each hexagon. This suggests a sense of movement, and with the addition of the light source the copper color from the back of the papercut reflects its light onto the wall and back through the cutout design. One could believe in the existence of an entire patterned physical layer beneath the hexagonal surface, but in reality it is an ephemeral interplay of color, light, and shadow. Gower’s work is an excellent example of the optical illusions that result from measured rotations of rational proportions. It also conforms to the textile mentality codified by the Islamic art historian, Lisa Golombek (1988). The emphasis on the undulating lines bears a strong reference to weaving techniques, in which the structured warp threading supports a complicated interaction of weft variation.

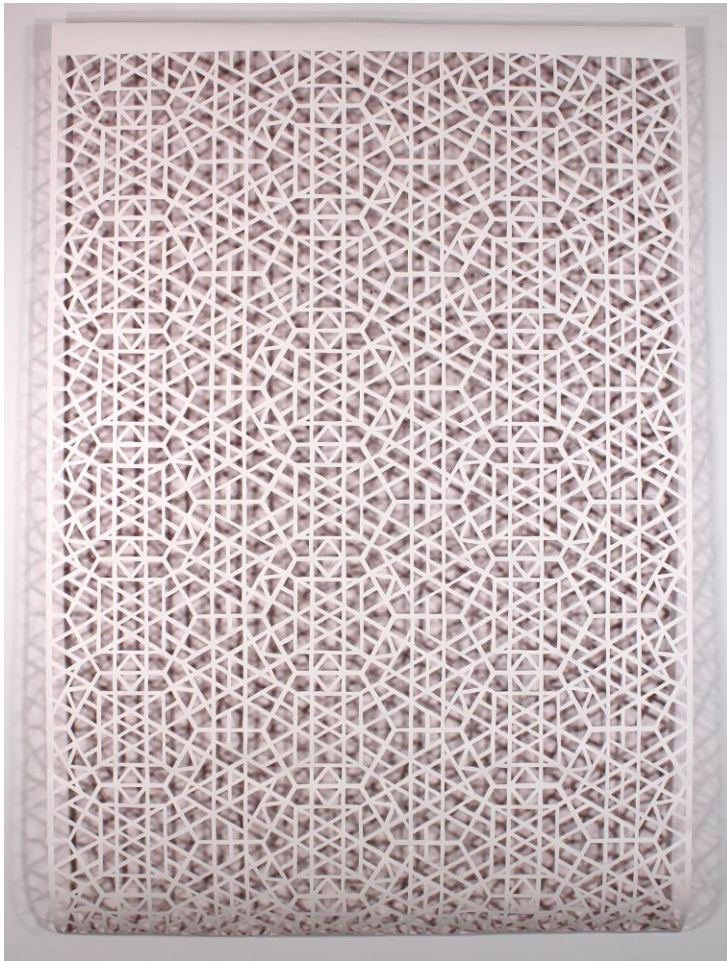


Figure 3. Gower, Reni, Papercuts: White/copper, 2013, 81” x 56”, Acrylic on hand cut paper.

Hanane Korchi is a Moroccan Canadian living in Doha. Gower states, “She used sacred geometry to blend subtle imperfection with structured repetition” (2013, p 10). Suspended off the gallery wall, Korchi’s papercut appears to float (Fig. 4). The precisely cut positive shapes that are repeated and allowed to curl at certain points sustain this illusion. The impression within this abstract design is quite vegetal, suggesting a reference to the ancient Mediterranean “Tree of Life.” Despite the more fluid lines and shapes of this work, for which there is no variation added to the original design, each of the cut shapes conforms to a clear rational relationship based on the diameter and radius of the central dot and the organizing circle around it. The lights that shine through the

paper-lace (maybe a slight nod to the “stone lace” common in some traditional stucco details like those at the Taj Mahal in Agra, India) provides a sense of light and shadow play, and thus adds another level of value to this white on white work.



Figure 4. Korchi, Hanane, Dancing Buds, 2013, 70” x 10”, Hand cut paper.

Julia Townsend is an American teaching at American University Dubai. Her papercut, *Untitled*, also appears to float off the gallery wall (Fig. 5). With direct lighting, the cutouts produce ornate cast shadows on the wall. A stenciled drawing in graphite is also applied beneath the hovering design and extends the pattern well beyond the papercut. Gower (2013) reports, “Julia Townsend was inspired by Koran Illumination Tehzip patterns in the Ottoman style for her wall tracings and paper cut” (p.11). According to Townsend’s biography, her media expertise is painting - “a painter of cartoons and surrealistic imagery” (Gower, 2013, p.11). However, after two years of

traditional studies in Koranic illustration at the Topkapi Palace in Istanbul, Turkey, she became fascinated with geometry.



Figure 5. Townsend, Julia, *Untitled*, 2013, Hand cut paper and wall tracing 72" x 48".

Through his work, Jorge Benitez the cultural historian of this group, comments on hybridization. All of his drawings are created without the use of photographic or computer-generated references, although they clearly reference Islamic architectural structures from around the world. The works in this exhibit represent various stages of architectural design without the intention of ever realizing any specific project. He skillfully uses manual drafting tools to create an illusion of buildings (or architectural

details) in perspective. According to Benitez (email interview, April 21, 2014a, p. 1) his goal is to unite a people from one family who now regard one another as *the other*:

In the aftermath of September 11, 2001, I asked a straightforward question, “Why did two interrelated civilizations take such divergent paths?” The question was not about the event itself but about larger, older issues of shared culture, science, mathematics, language, philosophy, religion, and art. Islam and Christianity share common religious roots. Furthermore, they share a common Mediterranean heritage centered on ancient Greece, the Middle East, and North Africa. Every day we Americans use words such as sugar, cotton, alcohol, algebra, and algorithm that can be traced etymologically to Arabic. Indeed, there may not have been a Renaissance had the Arabs not preserved the knowledge of the Classical World. In light of these historical and cultural facts, I developed a series of perspectival drawings that addressed, through their forms, the shared language of geometry and optics as well as the fact that, as Hans Belting suggests, perspective owes much to Arab optical and mathematical discoveries for which traditionally non-mimetic Muslim artists had little use. I found through perspective two understandings of the world that seem irreconcilable yet are completely intertwined. By combining Islamic visual motifs with Western perspective I spoke, without resorting to politics or superficial identity polemics, to the larger tragedy of a divided family within a very large single civilization. As I said to an Arab audience in Doha, Qatar, “Western Civilization began in

the Middle East.” No one questioned the veracity of the statement. (p.1)

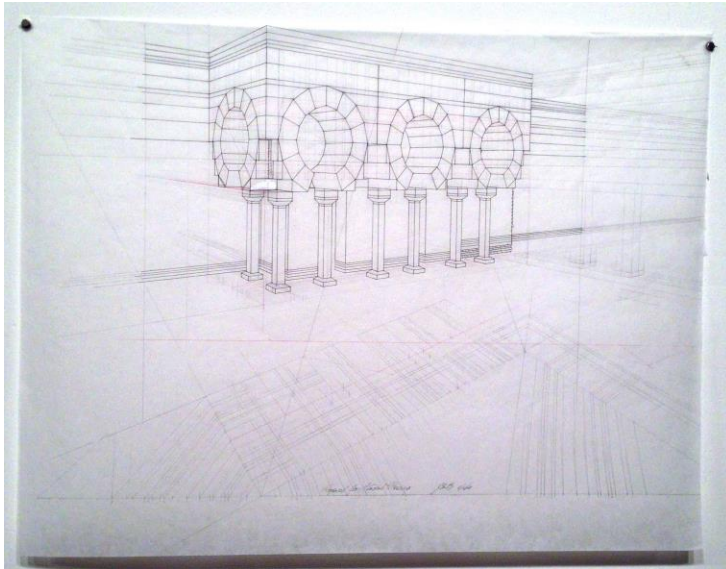


Figure 8. Benitez, Jorge, Proposal for Student Housing, 2013, Graphite / ink on tracing paper, 18" x 24".

In *Proposal for Student Housing* (Fig. 8), Benitez’s drawing revisits the horseshoe arches proper to the “forest of columns” at the Great Mosque of Cordoba, Spain. *Masjid* (Mosque) architecture is a close second in the hierarchy of Islamic arts, following the arts of calligraphy and psalmody in importance due to their service in delivery of the Koran’s content. The mosque serves as the space for communal prayer, but also often housed many social services that are important to the functioning of the Islamic faith (including schools, libraries, hospitals, soup kitchens, and lodging for the poor). This particular exemplar at Cordoba is perhaps one of the most mysterious sacred environments of all periods of architecture, but certainly serves as an excellent symbol for a merged society of Muslims, Christians, and Jews for over 700 years in Medieval Spain.

In this fictitious drawing, Benitez utilizes the shorter Visigothic columns proper to Medieval Iberia and integrates the uniquely Muslim solution of spring arches that elevated the negative space within the cornice above the passageway. Such invention

was consistent to Islamic architectural production, where local materials and technologies were reused to forge new visual statements (Ruggles, 2013). Benitez transforms the famous horseshoe arches of Abd al-Rahman's Mosque into circular arches, illustrating either full forms or nearly completed sections. As already addressed in a previous article, *Islamic aesthetics* (Bird, 2011), the *halqah* (circle) in Islamic artistic and cultural manifestations (such as the scholars' circles, teaching circles, circular seating for mealtimes, etc.) "symbolizes in the deepest sense our recollection of the perfection of the circle as form" (Nasr, oral interview, 1997, p. 14). Within a social situation, a seated circle of people represents their equality - there is no one person who is above another; therefore, it is commonly used in establishing order for community interactions. The guiding perspective lines that Benitez leaves (even elaborates) within the drawing reinforce the structural relationship, where we can see that each part is related to the whole.

Summary

At the start of this essay I wrote about the mingling of viewpoints, spatial order, and unity of structure among beings that humankind has integrated for millennia into geometric formulas and other mathematical conceptions. Perhaps this is where Oleg Grabar's (1992) *daimon* theory can truly find its productive life. The daimon is an intermediary between worlds. In essence, these artists have used this daimon to explain worldviews, invite conversations, introduce sacred symbols and ideas, provide visual pleasure, and ultimately help humans to understand more about how connected we really are, rather than how we are at odds as competing civilizations.

In a report, “Making a Difference Through the Arts: Strengthening America’s Links with Asian Muslim Communities” by Levin and Cooper (2010), the authors defined six core principles for managing effective cross-cultural engagement between American and Muslim cultures. The first step is to collect knowledge and accurate information concerning the specific cultures and geographies. The authors also suggest that “the arts offer a powerful domain in which individuals and communities can acquire knowledge about the achievements, values and aspirations of other cultures” (Levin & Cooper, 2010, p.88). This exhibition program certainly attended to this principle through its inclusion of artists from differing geographies, that no doubt expanded discussions of certain themes regarding geometric patterns and the underlying meaning and purpose.

The second principle involves the assurance of parity and equity between the collaborators. Through VCUarts’ commitment, faculty from Richmond were paired with faculty from their branch campus at Doha, Qatar. This collaboration involved “frequent consultations, sharing of information, and consensus building about tactics” (Levin & Cooper, 2010, p.89). All participants produced artwork for the exhibition and the performance following the workshop, and were invited to become part of this traveling exhibition.

The third principle involves sustained interaction of the collaborators over a duration of two years. This core concept was clearly attained through the development of this group exhibition and the resulting publications/scholarship that have emerged within and beyond this group. The fourth principle involves the use of new technologies, such as digital media, for sharing those developments with a broader audience and “enhancing intercultural connectivity” (Levin & Cooper, 2010, p.89). Most of the artworks and

documents described in this exhibit have been published electronically through various websites and are becoming part of a growing cache of activities and works from a circle of scholars, artists, nongovernmental organizations, donor organizations, policy makers, academic institutions, advocacy groups, journalists, etc. committed to changing the way America sees the Islamic world. The fifth principle requests a change of viewpoint, from thinking of culture as “monetizing” opportunities into understanding art as an irreplaceable vehicle of social transmission that builds and strengthens communities.

The sixth principle, perhaps the most important, is to create a *frisson* – a blending of cultural norms that transforms the original points of view (of both participants and audiences). This principle allows for the integration of cultural norms but also tests how well those norms can stretch based upon the synergy of the active mingling of perspectives. The exhibition that resulted from this *frisson* is powerful in imagery, in mathematical principles, but its greatest contribution is to help mend the tensions that have separated an ancient bond between the Middle East and Western Civilization.

Bringing *Geometric Aljamia: a Cultural Transliteration* to Kennesaw State University’s Zuckerman Museum is an important contribution to our 2014-2015 Year of the Arabian Peninsula. This exhibition (and accompanying workshop and lecture sessions) will hopefully have broadened viewpoints both on our campus and beyond. KSU faculty and staff from various disciplines have also strived to fill the vast lacuna of accurate information concerning the Muslim world within common public knowledge. Changing historically embedded misconceptions, reaching back well beyond the horrific events of 9-11, requires active collaboration between western institutions and our Muslim partners at the local level (such as the Islamic Speaker’s Bureau of Atlanta and the Alif

Institute of Atlanta) and at the national level, (the Sultan Qaboos Cultural Center of Washington, D.C. and other collaborative entities related to the NEH/ALA *Bridging Cultures Bookshelf: Muslim Journeys* initiative). The new international partnerships that will be developed are also essential to our ongoing professional commitment to the Muslim world - a result of the dedicated concentration and professional activities initiated during this interdisciplinary focus on the Arabian Peninsula. The work that was initiated through VCUarts represents an extremely effective vehicle for intercultural connectivity – offering the opportunity to mend broken relationships that continue to haunt our contemporary consciousness.

References

- Abbas, S. J., & Salman, A. S. (1995). *Symmetries of Islamic geometrical patterns*. City, Singapore: World Scientific Publishing Company.
- Behrens-Abouseif, D. (1999). *Beauty in Arabic culture*. Princeton, NJ: Markus Wiener Publishers.
- Benitez, J. M. (2014). "Geometric aljamia: A visual transliteration." *Tasmeem*, volume 2),pp.1-15. .Retrieved from <http://dx.doi.org/10.5339/tasmeem.2014.2>
- Benitez, J.M. (2014a, April). Email interview.
- Bird, S. (2011). Islamic aesthetics. In J. Tatlock (Ed.), *The Middle East: Its History and Culture* (pp.227-244). Bethesda, MD: University Press of Maryland.
- Burckhardt, T. (1967). *Sacred Art in East and West*. (L. Northbourne, Trans.). Bedford, England: Perennial Books.
- Glassie, H. (1993). *Turkish traditional arts today*. Bloomington, IN: The Indiana University Press.
- Golombek, L. (1988). The draped universe of Islam. In P. Soucek (Ed.), *Content and context of visual arts in the Islamic World* (pp.25-38). University Park, PA: The College Art Association of America, The Pennsylvania State University Press.
- Gower, R. (2013, July). *Exhibition materials*. Presented at Geometric Aljamía: a Visual Transliteration. Virginia Commonwealth University, Doha, Qatar.

- Gower, R. (2013a, March). *Proceedings from "Hybrid making."* Tasmeem Conference, Virginia Commonwealth University, Doha, Qatar.
- Gower,R.(2014, April 21). Email interview.
- Gower,R.(2014a, April 12). Email interview.
- Grabar, O. (1992). *The mediation of ornament*. Washington, D.C.: Trustees of the National Gallery and Princeton University Press.
- Kokomoor, F. W. (1942). *Mathematics in human affairs*. Englewood Cliffs, NJ: Prentice Hall, Inc.
- Levin, T, & Cooper, R (2010). Making a difference through the arts: Strengthening America's links with Asian Muslim communities (Asia Society Special Report).Retrieved from https://asiasociety.org/files/pdf/as_making_difference_report.pdf
- Michon,J.L.(1991). From the Koranic Revelation to Islamic Art. In S.H. Nasr & W. Stoddart (Eds.) *Religion of the Heart*. Washington,D.C.: Foundation for Traditional Studies.
- Michon, J.L. (2008). *Introduction to Traditional Islam: Foundations, Art, and Spirituality*. Bloomington, IN: World Wisdom.
- Nasr, S. H. (1979). *Ideals and realities of Islam*. London, England: George Allen and Urwin (Publishers) Ltd.
- Nasr, S. H. (1987). *Islamic art and spirituality*. Albany, NY: State University of New York Press.
- Nasr, S. H. (1993). *An introduction to Islamic cosmological doctrines*. Albany, NY: State University of New York Press.
- Nasr, S.H. (1997, May). Oral interview.
- Nasr, S. H. (2004). *The Heart of Islam: Enduring values of humanity*. San Francisco, CA: Harper Collins Publishing, Inc.
- Peters, F. E. (1994). *A reader on Classical Islam*. Princeton, NJ: Princeton University Press.
- Ruggles, D. F. (2013). *Islamic Art Spots* (video series). St. Paul, MN: Twin Cities Public Television.

Figures:

Fig. 1 Bird, Sandra, *Inside the Celosias*, photograph taken at the Torre Tagle Palace in Lima, Peru (Photo courtesy of Sandra Bird)

Fig. 2 Bird, Sandra, *Outside the Celosias*, photograph taken at the Torre Tagle Place in Lima, Peru (Photo courtesy of Sandra Bird)

Fig. 3 Gower, Reni, *Papercuts: White/copper*, 2013, 81" x 56", Acrylic on hand cut paper

Fig. 4 Korchi, Hanane, *Dancing Buds*, 2013, 70" x 10", Hand cut paper

Fig. 5 Townsend, Julia, *Untitled*, 2013, Hand cut paper and wall tracing 72" x 48"

Fig. 6 Benitez, Jorge, *Proposal for Student Housing*, 2013, Graphite / ink on tracing paper, 18" x 24"

(Figs 3 – 8: Photos courtesy of Reni Gower)