VOKE

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The Cabinet of Curiosities:
An Arts-Based Investigation into Curiosity and Learning

Abstract: The Cabinet of Curiosities: An Arts-Based Investigation into Curiosity and Learning, sets out to trace the history of wonder and inquiry through an examination of the phenomenon of the Baroque Cabinet of Curiosities or Wunderkammer. These encyclopedic collections of natural and manmade objects were comprised of items selected for their rarity, peculiar allure, and metaphorical significance, and were often compiled and exhibited for the purpose of wonder, enlightenment and scholarship. This study surveys the historical significance of the Cabinet of Curiosities in order to evaluate and document the contemporary value of curiosity-driven investigation. These findings are presented through an arts-based curatorial discourse, which focuses on the significance of curiosity in relation to learning, research and creativity.

Introduction

This investigation demonstrates the value of cultivating a sense of wonder and curiosity in relation to learning and education via the examination of the historical significance of the Cabinet of Curiosities, or German Wunderkammer. In tandem, this study aims to validate the effectiveness of creative, arts-based methodologies through the presentation of a visualized curatorial discourse.

The amassing of curiosity cabinets during the Baroque period in Europe was driven by a desire to document exploration, scholarship and scientific discovery. These eclectic collections of artifacts catalogued and classified the natural world and showcased the research of scientists and scholars. As such, these collections are a valuable source for surveying the development of the sciences, the arts, and scholarship. They also prove to be a useful resource illustrating the common beliefs and attitudes toward curiosity, wonder and scholarship during this time period.

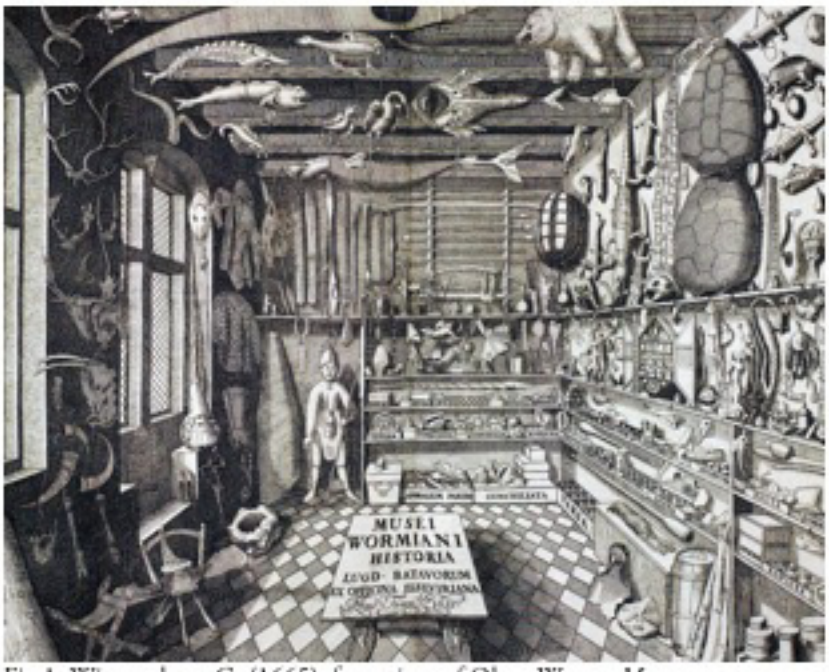

Fig.1. Wingendorp, G. (1665). frontpiece of Olaus Worm, *Museum Wormianum* [Print]. (Felfe, 2005, p.234).

This historical survey of the phenomenon of the Cabinet of Curiosities segues naturally into a review of the contemporary significance of curiosity in education and research. Through the assembly of a modern-day Wunderkammer, I illustrated that curiosity-driven investigation can emerge as a potent motivation for engaged learning and creativity. This study reveals that dynamic arts-based methodologies can be utilized as catalysts for research and scholarship, as well as for the presentation of concepts and ideas. As such, this investigation established that curiosity-driven inquiry supports cognitive development and encourages the cultivation of a wealth of skills, including creative problem solving, and self-guided learning.

Historical significance of the Cabinet of Curiosities

The Cabinet of Curiosities, or in German, Wunderkammer, is often characterized as an eclectic collection of artifacts including natural history specimens, artworks, minerals and fossils as well as scientific objects and instruments- (see Figure 1). The amassing of extensive collections of ephemera was prevalent during the Baroque and Renaissance periods throughout Europe; however, this trend was especially ubiquitous in German speaking countries (Schramm, Schwarte & Lazardzig, 2005)

Through the preservation and presentation of artifacts, these collections document the history of exploration, scholarship and scientific discovery in Europe during the 16th and 17th centuries, thus acting as an archive, capturing and documenting the history and philosophy of this particular time and place. These encyclopedic collections of natural and manmade artifacts were comprised of items selected for their unique qualities, including rarity, peculiarity, lavishness, and metaphorical significance. In short, they were eclectic collections of disparate objects like: gems and fossils, insects, skeletons, astrolabes and automatons, pressed flowers, pickled mermaids, paintings and prints- all collected and displayed for the purpose of wonder, enlightenment and scholarship.

Baroque cabinets were the product of a time period before there was a clear delineation between the various sciences and the arts, and for this reason objects from the worlds of science, art and antiquities were often displayed together within the same framework- (see Figure 2). It was common to find natural history objects, biological specimens, archaeological relics and religious vestiges all displayed within

the same cabinet. Most collections also contained fantastical or "magical" specimens, documenting the Baroque period's very unique worldview (Van de Roemer, 2004). This was a time when scientists simultaneously pursued careers in seemingly unrelated disciplines like alchemy, astrology and metaphysics. As such, the academics of the Baroque period often made non-linear connections and scientific associations using methods and tactics which relied more heavily on mysticism than hard science, and which would be considered extremely questionable today. As such, these scholars' hypothesizes often parallel contemporary artistic inquiry more closely than any currently utilized scientific method. During the Baroque period curiosity was a way of life, so curious inquiry guided the investigations of academics and intellects working in all areas.

According to Weschler (1995), the craze for amassing these collections at this particular point in history is often attributed to the expansion of global exploration in Europe. One of the characteristics of this age of exploration was an encyclopedic preoccupation with the creation of comprehensive systems for classifying natural phenomena, as new species were constantly being discovered and documented by explorers abroad. This impulse to classify was also fueled by the fascination associated with the discovery of strange and exotic species like brightly colored parrots, poisonous frogs and gigantic insects. Encounters with oddities such as two-headed lizards and the fabricated existence of unicorns and other mythical beasts pushed the boundaries between fantasy and reality (Schramm, Schwarte & Lazardzig, 2005).

Fig. 3. Remps, D. (n.d.) *Wunderkammer* display case (second half of the seventeenth century). (Felfe, 2005, p255).

Explorers were responsible for the collection of the majority of the specimens displayed and housed in any given cabinet of curiosities, although eccentrics of all kinds commissioned these collections. According to Impey and MacGregor (1985), collecting natural history specimens was first attributed to doctors and pharmacists during the Baroque period, but the act of compiling a curiosity cabinet was soon taken up by wealthy European aristocrats shortly thereafter.

Fig.2. Kleiner, Salomon (1751). *Rear Section of Open Display Cabinet* [engraving]. (Stafford, 1994 ,p.224).

There was also a great deal of variety in the scale of different collections. For example, some were housed in a single closet or display case (see Figure 3), while others took up several rooms within a large palace. The Wunderkammer of Rudolf II (1552-1612), the King of Bohemia and the Holy Roman Emperor beginning in 1576, was so expansive that he commissioned a large addition to Prague Castle to house it (Schramm, Schwarte & Lazardzig, 2005). However, regardless of size there are a number of characteristics that were common amongst all of the collections. According to Goldyne, Garver and Nicholson (2000), historical

curiosity cabinets were not static. They were living growing organisms that were constantly shifting and changing as new artifacts were added to the collection or pieces were loaned, sold, or gifted to other connoisseurs of the curious. They were typically aesthetically organized, oftentimes utilizing a particular theme in the taxonomy of the arrangement.

Some collections were clearly set up as serious study collections. Others were not necessarily scholarly or scientific in design, as the perusal of collections as entertainment was another common practice during this time period. As one would expect, the collection owned by a pharmacist differed greatly from one owned by a wealthy merchant. According to Stafford (1994), the particular intellectual interests of the owner shaped each collection, and collectors often accumulated art objects, paintings and illustrations to supplement their cabinet.

Fig.4. Lombardi, V. (1600). *Citrus Limonimedica* (Goldyne, Garver & Nicholson, 1994, p.31).

For instance, medical, botanical and biological illustrations made up a large ratio of the work housed in these collections. For example, according to Impey and MacGregor (1985), Ulisse Aldrovandi (1522-1605), an Italian professor of natural philosophy at the University of Bologna during the late 16th century, maintained an impressive collection and was well known for his encyclopedic ambitions. His collection was reported as having the follow materials, as documented in a register of the inventory dated 1595: 11,000 animal, fruits and mineral specimens, 7000 plant specimens and 8,000 tempera illustrations of botanical specimens- (see Figure 4). This exhibits how important the arts were in the creation of these collections; as well over a third of his collection was captured in paint.

The Wunderkammer certainly represented the marriage of science and art. Many collections reveal the unique power that the presentation of visual artifacts have in engaging the viewer, and prove that art can be an innovative and useful tool in organizing and ordering ideas and hypotheses.

This is demonstrated particularly well in an engraving by Johann Jakob Scheuchzer (1672- 1733), a professor, doctor and director of the citizen's library and Wunderkammer in Zurich in the early modern period- (see Figure 5) (Felfe, 2005). This particular illustration clearly depicts an accurate rendering of a human heart, thus alluding to the fact that the artist had likely spent considerable time studying and dissecting specimens in preparation for the creation of the image. However, the metaphorical and mechanical allusions in this illustration are even more intriguing. This image is collage-like in its execution and features both the demonstration of anatomical understanding as well as knowledge of the actual functionality of the organ--through the inclusion of a rendering of a water pump.

Fig.5. Scheuchzer, J.J. after Melchoir Fussili, J. (1731). *Kupfer-Bibel in welche die Physica sacra oder geheiligte Natur-Wissenschaft.* (Felfe, 2005, p.253).

At the same time, the individual centered in the composition holds his chest while gazing skyward, seeming to allude to other matters of the heart.

Robert Felfe, historian, characterized the engraving as, "an illustration concerning the composition and function of the human heart which combines anatomical specimens, a pictorial representation, and a machine as model of the working method of the organ" (Felfe, 2005, p 251). This image is quite demonstrative of the motivation of the Baroque artist-scientist, who was simultaneously trying to gain understanding on multiple fronts, and as such, embraced art as valuable tool in the classification, comprehension, and expression of the inner workings of the human mind, body and spirit.

This piece exhibits an overarching theme found in the majority of curiosity cabinets, and it also reveals the motivation behind curating the collections. Scholars and artists collaborated to create these Wunderkammern with the aim of organizing, classifying and understanding nature. According to the research of Impey and MacGregor (1985), artists commonly played the role of visual scribe. They worked alongside scientists to visually record data and clarify written records by providing images which illustrated theories and practices. For this reason, curiosity cabinets became unique multi-dimensional sources of knowledge, providing evidence documenting the value of aesthetic insight. Artists were often asked to fill the gaps in collections by producing detailed depictions of prized specimens for inclusion in a cabinet (Fortey, 2008). But illustration was also utilized in another more intriguing way. Rather than solely recording the details of a specimen, artwork was often used to reinforce and develop theories alongside the research of the scientist. It was through these illustrations that scientists often proposed dynamic ideas and theories. This suggests that the marriage of science and art was prevalent in Baroque society, and that intellectuals and artists were not at odds, but formed a very symbiotic partnership, perhaps best summed up by Joseph Goldyne, "Good art is frequently a process of learning before it becomes an act of expressing" (Goldyne, Garver & Nicholoson, 2000, p18).

Curiosity
1. the desire to learn or know about anything; inquisitiveness.
Etymology: late 14c., "careful attention to detail," also "desire to know or learn" (originally usually in a bad sense), from O.Fr. curiosete "curiosity, avidity, choosiness" (Mod.Fr. curiosité), from L. curiositatem (nom. curiositas) "desire of knowledge, inquisitiveness," from curiosus (see curious). Neutral or good sense is from early 17c. Meaning "an object of interest" is from 1640s.
Wonder
1. to think or speculate curiously: to wonder about the origin of the solar system.
Etymology: O.E wundor "marvelous thing, marvel, the object of astonishment," from P.Gmc. *wundran (cf. O.S. wundar, M.Du., Du. wonder, O.H.G. wuntar, Ger. wunder, O.N. undr), of unknown origin. In M.E. it also came to mean the emotion associated with such a sight (late 13c.).

Fig.6. Definitions and Etymology of Curiosity and Wonder (n.d.). Retrieved from http://dictionary.reference.com/etymology.

Contemporary significance of wonder and curiosity in relation to learning and creativity.

It is important to begin an exploration of the contemporary significance of the concepts of curiosity and wonder with an investigation into the etymology and roots of these words- (see Figure 6). As I highlighted earlier, the translation of Cabinet of Curiosities in German is Wunderkammer, and for this reason both words: curiosity and wonder, are at the center of these investigations. Although there is a good deal of overlap in the meaning of the two words, there are also some distinct differences.

Both curiosity and wonder relate to the seeking of knowledge; however curiosity is often characterized by a focused investigation, while wonder is usually associated with meditation and grander explorations. In A Treatise of Human Nature, the Scottish philosopher, David Hume (1711-1776), referred to curiosity as the "love of truth" (Hume, 1888, p. 448). Following this logic, curiosity can be equated with the seeking out of knowledge, and is often classified as something which is applicable to real world problems. Curiosity often leads to investigation, resulting in the acquisition of skills and knowledge related to research, examination, and/or hypothesizing (Schmitt & Lahroodi, 2008). It aids in reflection, and ultimately assists in pedagogical development thus demonstrating the interconnectedness of curiosity, investigation and learning (Opdal, 2001). On the other hand, wonder is often looked at as a sentiment and experience occurring outside the norm.

Wonder is a notion characterized as a practice requiring larger philosophical consideration and meditation. It challenges our expectations and pushes boundaries into the unknown, often leading to new discoveries. The French philosopher, Rene Descartes (1596-1650), wrote of the origin of wonder,

> When the first encounter with some object surprises us, and we judge it to be new, or very different from what we knew in the past or what we supposed it was going to be, this makes us wonder and be astonished at it (Descartes, 1989, p.52).

As such, wonder is more closely related to philosophy. Wonder sets out to evaluate, explain, suggest connections, and explore new ideas, rather than discover predetermined data or answers. As Opdal (2001) notes, "Wonder is the state of mind that signals we have reached the limits of our present understanding and that things may be different from how they look" (p.332). Wonder can be classified as a state of mind that results in inspiration and contemplation and that often leads to new discoveries due to the sense of awe that accompanies it.

The historical research completed in conjunction with this study revealed the interconnectedness of curiosity, learning and the creative process during the Baroque period. Similarly, this investigation aims to establish the significance of cultivating a sense of wonder and curiosity in relation to modern-day learning and education.

Dr. Matthew McFall, a scholar whose research focuses on educational history and philosophy, presents a compelling example illustrating the value of curiosity-driven exploration. McFall designed a curriculum unit modeled around the cultivation of curiosity which seeks ways, "… to bring manifold 'wonder' to classrooms/ learning spaces, with the intent of generating engagement, delight, curiosity, and memorable educational experiences" (McFall, 2010). His curriculum unit entitled, Boxes of learning delight and cabinets of curiosity: working with wonder for wonderful learning, encourages students to explore and research their individual interests in a variety of fashions, with the ultimate goal of presenting their findings to the community (McFall, 2009). McFall's work with students clearly demonstrates the value of curiosity as a catalyst for engaged learning- (see Figure 7).

Fig.7. McFall, Matthew (2009). *Working with wonder for wonderful learning* [PowerPoint presentation slides] (McFall, 2009).

In a world where the norm is the memorization of facts and figures in preparation for standardized testing, McFall's research illustrates the importance of creative inquiry and reflection. Contrary to this example, the model employed in most classrooms typically disregards the innate abilities and interests of each individual, rather than embracing curiosity and wonder. It is no surprise that so many students fail, as this fragmentary type of learning doesn't serve the development of real world thinking and problem solving skills. Real learning is diverse and dynamic, and promotes the cultivation of original thoughts and ideas (Robinson, 2006).

We often find that when students are held to predetermined frameworks and standards these mandates often suspend and slow their development (Opdal, 2001). In this sense, curiosity is directly related to and drives cognitive development. And for this reason exploration, curiosity and inquiry should be promoted, as they bring a natural order to learning. Further, the research of Schmitt and Laroodi (2008)

reveals that inquiry arising from curiosity-driven investigations naturally teaches important skills like the measuring of hypotheses, the testing of theories, and the classification of thoughts and ideas.
It serves students of all ages to treat the classroom, as well as the world around them, as a place of inquiry and to work with their teachers as collaborators and facilitators of investigation rather than proctors that simply spew facts and figures. Conversely, by building an educational model that esteems the value of novel investigations, educators allow students to develop the ability to explore and make informed judgments, which ultimately results in the development of critical thinking skills. Creative, curiosity-based methodologies teach students to develop new ways of thinking about problems, which leads to gains in knowledge and insight about the world.

Furthermore, curiosity-driven investigation promotes engaged learning, and because engagement is essential for success throughout every stage of educational development, a pedagogical model that inspires students to teach themselves to take the initiative to seek out information is extremely desirable. Teaching practices which focus on dynamic inquiry and investigation lead to the creation of lifelong learners, who are invested in their education, make meaningful connections and who are excited to gain new knowledge (Cahnman-Taylor & Siegesmund, 2008).

Curiosity-fueled investigations teach the practice of deeper perception and understanding, and perhaps most importantly, they demonstrate the important skills of learning how to learn, while viewing the world through your own eyes (Opdal, 2001). The value of a curious inquisitiveness is illustrated in a quote taken from an essay by Thomas Garver, which explores the significance of the Cabinet of Curiosities to contemporary artists and collectors. "Looking at objects, touching them, hearing their distinctive sounds, even on occasion smelling or tasting them, intensifies their meaning." (Goldyne, Garver & Nicholson, 2000, p 51).

Students need to be given opportunities for this type of exploration because curiosity and wonder are impulses that are not easily taught, but rather methods that develop organically when the right elements are present. It is natural for students to want to learn and discover more, but oftentimes curiosity isn't encouraged and nurtured in the classroom. This unfortunate attitude is not a new issue as illustrated in this quote from the British philosopher John Locke (1632-1704). "Curiosity in children, is but an appetite for knowledge. The great reason why children abandon themselves wholly to silly pursuits and trifle away their time insipidly is, because they find their curiosity balked, and their inquiries neglected. (Locke qtd. in Edwards, 1908, p.100). Students are expected to do what they are told, memorize facts, and regurgitate figures. But when we look closely, we find that by disregarding curiosity-driven learning we are neglecting the innate abilities within students. This is why students need to be given opportunities to partake in dynamic learning environments which are relatable and relevant. When students are allowed to investigate their interests and solve problems that they find stimulating, they respond with a desire to learn more. This engagement promotes collaboration with teachers and peers and opens the door for continued learning and success.

Arts-Based Research Approach

The final theme I would like to discuss in association with this study is the production of artwork that I created in cooperation with my research, which documented my own cultivation of curiosity. An essential part of my arts-based research process, this artwork represents another manifestation of the knowledge I gained through my investigation of the Wunderkammer. The creation of this work served a number of purposes. It demonstrated the significance of curiosity in my own learning and creative process, and documented the power of images in the translation of information and knowledge.

As part of my investigation, I collected data in a number of unorthodox ways, pushing the boundaries of traditional research methodologies, oftentimes emulating the practices of the Baroque scholar. The study of objects and specimens, and the recording of findings and discoveries as images was central to my process. Throughout the development of this study I kept a journal in which I recorded detailed notes and sketches which documented data, and highlighted specific findings that I unearthed- (see Figure 8). The process of the creation of my curiosity journal was an essential step in the building of this study, in that it assisted in the distilling of various concepts, and promoted the creative analysis of data. As such, these

Fig.8. Wuttig, Angela (2012) *Wunderkammer sketches* [Ink on paper].

sketches became a valuable archive, documenting my findings and tracing my research process. For example, rather than just taking notes to record the history of the Wunderkammer, I oftentimes created sketches, or collages to record the knowledge I gained, essentially building my own cabinet of curiosities as I moved through my investigation. Utilizing techniques employed by the artist-scholars of the Baroque period, I also presented my findings in words and images in order to convey the complex layers of meaning in the work.

One particular example I would like to highlight is the inspiration I drew from a print that was created by the Swiss naturalist Johann Jakob Scheuchzer (1672-1733) (see Figure 5). This print illustrating the anatomical structure as well as the mechanical and metaphysical function of the heart resonated with me in its form and function. Most importantly, it struck me as a concrete example of curiosity-driven arts-based learning. I was impressed by the mastery of the artistic medium, and the sublime way the artist combined the representation of science, art and philosophy in the production of this work. It truly is a beautifully poetic piece which represents the vast amount of knowledge the artist must have possessed. Because I wanted to emulate the Baroque process of the translation of data and knowledge into a visual representation, I sketched this image of a heart as a representation of the knowledge I gained in conjunction with my investigation of this particular print- (see Figure 9).

Fig.9. Wuttig, Angela (2012). *Heart* [Ink on paper].

As a response to my research, I have produced a series entitled Curiosities, which demonstrates the value of curiosity-driven arts-based learning. This series represents the wealth of knowledge I have gained as the result of my research in conjunction with this study. For example, I'd like to reference Curiosities, Plate I, to illustrate my creative process further- (see Figure 10). While this piece may seem relatively simple in its execution, the process of creating it was actually quite complex. It was conceived as the result of a number of different investigations. As I completed my research, I found numerous references to the documentation of butterflies and moths in both historical and contemporary Wunderkammers, as well as in the work of numerous artists and writers who also look to these

insects for inspiration. I emulated the eclectic wonder of Baroque scholars by referencing a variety of different sources including: the investigation of fossilized butterfly remains, a review of botanical illustrations, as well as a passage taken from a poem by the German philosopher poet and playwright Johann Wolfgang von Goethe (1749-1832) entitled "The Holy Longing"

Distance does not make you falter,
Now, arriving in magic, flying,
And finally, insane for the light,
you are the butterfly and you are gone.
(Goethe qtd. in Goldyne, Garver & Nicholson , 2000, p.60)

Fig.10. Wuttig, Angela (2011). *Curiosities, Plate I.* [Mixed Media].

All of these sources presented an opportunity for learning scientific, theoretical and philosophical concepts about butterflies. The production of this piece, along with all of the other pieces in the Curiosities series trace these investigations through words and images, again documenting the importance of curiosity in the production of knowledge. And while knowledge can be an immaterial concept, the production of artwork provides very real documentation of the learning process. As such, this work sets out to trace the path along which curious investigation occurs and document the myriad of facts and notions I have learned in conjunction with my investigations.

All of the pieces created in conjunction with this study demonstrate that learning can drive the creation artwork, and that curiosity often acts as the impetus behind dynamic inquiry. The Curiosities series also documents that the motivation behind the creation of work can take many different forms. For instance, some pieces represent the kind of investigation which inspires artists and scientists to focus on a subject with the intention of presenting an accurate representation of a particular phenomenon. Still other pieces are the result of research which was approached through a more philosophical lens, interpreting data and making symbolic connections. However, one commonality present among the whole of the series is the utilization of the creative process as medium for visual problem solving. This process allows the artist to engage curiosity as a tool for understanding both theoretical and biological workings of a concept, specimen or object on a deeper level. Concisely, curiosity-driven investigations encourage the presentation of information through the juxtaposition of science, art, and representation; and arts-based representations of these inquiries invite dynamic discourse which creates a space for continued creativity and learning.

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