



In the Absence of Structure, the Atmosphere Can Be Full: A Comparative Study in the Historical and Modern Uses and Effectiveness of Courtyards in Public Spaces

Citation

Barone, Annmarie Hirst. 2022. In the Absence of Structure, the Atmosphere Can Be Full: A Comparative Study in the Historical and Modern Uses and Effectiveness of Courtyards in Public Spaces. Master's thesis, Harvard University Division of Continuing Education.

Permanent link

<https://nrs.harvard.edu/URN-3:HUL.INSTREPOS:37370826>

Terms of Use

This article was downloaded from Harvard University's DASH repository, and is made available under the terms and conditions applicable to Other Posted Material, as set forth at <http://nrs.harvard.edu/urn-3:HUL.InstRepos:dash.current.terms-of-use#LAA>

Share Your Story

The Harvard community has made this article openly available.
Please share how this access benefits you. [Submit a story](#).

[Accessibility](#)

In the Absence of Structure, the Atmosphere Can Be Full: A Comparative Study in the
Historical and Modern Uses and Effectiveness of Courtyards in Public Spaces

Annmarie Hirst Barone

A Thesis in the Field of Archaeology and Anthropology
for the Degree of Master of Liberal Arts in Extension Studies

Harvard University

March 2022

Abstract

Courtyards evoke a sense of safety and beauty. Most people envision a quiet space for meditation and quiet gathering when imagining a courtyard—indeed, enclosed garden spaces have been a part of human structures for thousands of years. The restorative benefits of the refreshment of the outdoors is known and research continues to show how natural environments are beneficial. The purpose of this thesis is to examine the common elements of courtyards that have stood the test of time, are continuing to be visited because they are appealing places to be; literally just *be present* in them because they are inviting spaces and to apply those elements to public secondary school courtyards in the United States. This thesis analyzes the use of Jay Appleton’s theory of landscape preference of humans—prospect/refuge theory and proposes that academic courtyard spaces also need to combine two more elements to be appealing spaces—the essence of the oasis and the hearth. By examining past and present successfully used and enjoyed courtyards, comparing them to a case study of a neglected courtyard with a targeted survey of public secondary school staff, it was found that to be appealing in an academic space, a courtyard should be a place to gather (hearth), restore and refresh (oasis), have a view (prospect), and have a sense of protection from the elements (refuge). Regarding the hearth, a focus in the middle of the courtyard was not as important as much as the ability to gather socially or for academic purposes. The restorative properties of an oasis as a courtyard were also important. Research has shown that especially in an academic setting, where so much attention is intense on learning, a

break in nature which can be provided by a courtyard can be extremely beneficial.¹

Directed attention carries with it fatigue and natural environments can provide restoration for staff and students. By combining the four elements of the sense of prospect, refuge, oasis, and hearth, public secondary school courtyards can be restorative places for rest, learning, contemplating, and gathering for students, staff, and even the community.

¹ Stephen Kaplan, "The Restorative Benefits of Nature: Toward an Integrative Framework," *Journal of Environmental Psychology* 15, no. 3 (September 1995): 169–82, [https://doi.org/10.1016/0272-4944\(95\)90001-2](https://doi.org/10.1016/0272-4944(95)90001-2).

Frontispiece



Dedication

For my family—my husband, my sons, and my parents for their love and encouragement.

Acknowledgments

I would like to acknowledge Professor John Stilgoe, Harvard University, for his encouragement, patience, and insightful edits and ideas throughout this process. The guidance and experience of Dr. Stilgoe was invaluable and deeply appreciated. Dr. Ricky Martin at Harvard was instrumental in his ability to make my thesis more focused from the beginning and I appreciate his guidance. Dr. Don Ostrowski from Harvard listened to my early idea for researching courtyards and encouraged me to pursue it even amongst my doubts, reminding me that scholarship begins with genuine interest in the first place. Trudi Pires at Harvard had infinite patience and attention to detail and her assistance with editing is appreciated. I also enjoyed our conversations. Harvard is a special place because of its people.

I would also like to acknowledge the administration, staff, and students at SAU16/Exeter Region Cooperative School District in Exeter, New Hampshire; especially at the Cooperative Middle School and Exeter High School for the support to strive to keep learning and exploring. I thank them for their willingness to participate in my research for this thesis and for being ideal colleagues.

Finally, I would like to thank my father, William Hirst for his constant support and wisdom (I think Mom would have enjoyed that I evoked Spain) and Grace Kennedy who gave me amazing books, art, and the gift of life. Ultimately, gratitude goes to my husband, Christian Barone, for his inspiration and love; Paris awaits again!

Table of Contents

Dedication	vi
List of Figures/Graphs	ix
Introduction	1
Chapter I. The Beginning of Courtyards—Their Endurance in Deep Human History .	5
Chapter II. Courtyard Homes of Mesopotamia	7
Chapter III. Egyptian Courtyards	15
Chapter IV. Asian Courtyards East of Mesopotamia	20
Chapter V. Greco-Roman Courtyards; From <i>Temenos</i> to Temples	25
Chapter VI. Monasteries—Bastions of Faith and Learning Among the Cloisters	32
Chapter VII. Courtyards in Academic Spaces	40
Chapter VIII. The Courtyard at the Cooperative Middle School, A Case Study	57
Chapter IX. Findings	68
Chapter X. Methods	87
Chapter XI. Research Limitations	89
Chapter XII. Conclusion	90
Bibliography	97

List of Figures

St. Clement Basilica Courtyard, Rome. Annmarie Barone, 2014.	Frontispiece
Fig. 1 Court of Lions, Alhambra, Granada, Spain	14
Fig. 2 Monastery at Evora, Portugal	39
Fig. 3 Dover High School walking paths	45
Fig. 4 Dover High School courtyard from different angle	46
Fig. 5 Dover High School patio off cafeteria in courtyard	47
Fig. 6 Exeter High School courtyard with cafeteria tables outside	48
Fig. 7 Exeter High School courtyard with benches, landscaping, walkways	48
Fig. 8 Exeter High School courtyard with seating wall leading to parking	49
Fig. 9 Library of Congress courtyard garden beds	53
Fig. 10 Library of Congress courtyard, facing towards trees shading seating area	53
Fig. 11 Lake Braddock Secondary School, Burke, VA courtyard with seating	55
Fig. 12 Kings Glen School, Springfield, VA Redesigned courtyard	56
Fig. 13. Seating at Kings Glen using tree trunks in courtyard	56
Fig. 14 English class at Cooperative Middle School, Stratham, NH	58
Fig. 15 Architectural plans for CMS building with original beech tree	59

Fig. 16 CMS courtyard view from above	61
Fig. 17 Beech tree stump, CMS courtyard	62
Fig. 18 Picnic tables on patio, CMS, tree stump, library windows.	62
Fig. 19 Library with shades drawn at CMS to block sunlight/no view to courtyard . . .	63
Fig. 20 Construction on CMS beginning stages; courtyard off-limits for safety	63
Fig. 21 Tree stump is removed from CMS courtyard	64
Fig. 22 Snow in CMS courtyard	64
Fig. 23 View from classroom window into CMS courtyard	65
Fig. 24 Melting snow in morning hours of early spring in CMS courtyard	65
Fig. 25 Early fall, CMS courtyard view from staff breakroom	66
Fig. 26 September 2021 in CMS courtyard	66
Fig. 27 Survey question 1: Are places to sit in a courtyard important?	70
Fig. 28 Question 2: Are protected areas important in a courtyard?	71
Fig. 29 Question 3: Is a focal feature (focus) important in a courtyard?	72
Fig. 30 Question 4: Are plants or trees important for an appealing courtyard?	73
Fig. 31 Question 5: What features are the most important in an academic courtyard? . .	74
Fig. 32 Question 5 Detailed breakdown responses to important courtyard features . . .	75
Fig. 33 Question 6: Which is the least important feature in a courtyard?	76

Fig. 34 Question 7: Courtyards should be a restful place (scaled response)	77
Fig. 35 Question 8: Courtyards should be gathering spaces (scaled response)	78
Fig. 36 Question 9: Choose the most appealing walking surfaces in a courtyard	79
Fig. 37 Question 10: Respondents own responses (optional) regarding what features make a courtyard in an academic setting appealing (first response).	80
Fig. 38 Second group of responses	81
Fig. 39 Third group of responses to free answer question	82
Fig. 40 Final group of responses to optional question	83
Fig. 41 New patio at CMS outside cafeteria facing back parking lot	84
Fig. 42 Student created courtyard image; note seating options	85
Fig. 43 Second student created courtyard image; note seating again	85
Fig. 44 Approval letter from Harvard IRB for exemption for survey	88
Fig. 45 Calderwood courtyard, Harvard Art Museum	93
Fig. 46 Young people waiting in courtyard at Harvard Art Museum	94

Introduction

In a public middle school, a student takes a break from working on an assignment and looks out the window of the school building into the courtyard. Elsewhere, in the same school building, a teacher has just started a planning period and considers the school courtyard as an option for quiet time to work. A class in the school library also considers options on this nice day where to gather to discuss a book; this class happens to already have a view out of the large windows to the courtyard with the patio. But, none of them want to be in this particular courtyard and it remains empty and unused. The silence is not a peaceful, reflective kind of quiet, but the kind of abandonment and disregard. The school courtyard is a wide-open space, with cost-effective stretcher bond patterned brick walls straight from the grass to the sky; there are no covered walkways, no awnings or trees to protect anyone in the courtyard from the sun or from the sense of being in a fishbowl with classroom windows all around. There is a patio off the library with a few picnic tables, a few scraggly shrubs, also with no protection from the sun or elements. There is no place to gather easily as a class to have meaningful discussions and no comfortable seating for contemplation.

So the student looking out the window has at least the sky to view, but nothing else and turns back to the work at hand in the classroom, having seen little of interest. The teacher heads to an enclosed room with fluorescent lighting so at least work can be focused on without the feeling of being watched by the eyes of classrooms surrounding the exposed courtyard. The class in the library decides to stay inside the library as well since the seating is too scattered on the patio, not very comfortable, and there is no shade. Eventually, they close the blinds in library to the courtyard as the sun became so bright. This is all a true story in one public middle school on

any given day. It is the problem of a large open space with the potential to be used and enjoyed, yet so many public secondary schools have courtyards that are vastly underused, creating a literal void in what could be a productive and healthy place for staff and students each day. The courtyard at the Cooperative Middle School in New Hampshire is just one example of many courtyards that can benefit from a study of what makes an academic courtyard successful.

In contrast to the empty and virtually ignored courtyard at the Cooperative Middle School, a very small public park flourishes in a very busy section of a large northeastern city. It opens onto the sidewalk next to the constant flow of traffic from the main road. Railroad tracks bound its right side and buildings stand behind it and to its left. Yet it offers a setting of peace, gathering, and solitude if desired. How is this possible?

While not a courtyard, it provides an example of the combination of key pleasing elements that satisfy four desires people have when moving into and choosing to gather and rest in a public setting. It offers a central gathering core, a design element in the center to focus on like a hearth. It offers a sense of rest, like an oasis, as a quiet space dedicated to inviting one to sit. It offers two more elements humans desire—it has the sense of refuge—large trees frame its edges and the black benches that are symmetrically placed facing each other in three of the four quadrants are along the edges, giving a sense of protection. Finally, the view of each bench faces out to the busy street—the sense of prospect and possibilities. Gathered together, with all these four elements of hearth and oasis, refuge and prospect, Alfred Velucci Park in Cambridge, Massachusetts right on Cambridge Avenue is a little gem in a big city. It is occasionally empty, but it is inviting and commonly used because it is tidy and well-kept—or is it tidy and well-kept because it incorporates all four elements people desire in a setting, is consistently enjoyed, thus keeping it well-kept is a result of its popularity and effectiveness? It is what a courtyard aspires

to be. It is not surrounded by structure on all four sides, but the senses are the same. The small park shows on a grand scale what a courtyard can be when using these four elements in its design.

This thesis brings together elements that make spaces effective for people beyond a park setting, to what makes them function in an academic setting as well, specifically public secondary school settings. By looking at how people gather and rest, without even expecting to sometimes, it is possible to see how a courtyard can incorporate four key elements people desire in a setting. What does a firepit at a ski resort have in common with the Pentagon's courtyard café at its center? They are both a hearth that people who may not even know each other instinctively gather together. What does a public garden or fountain in a city have in common with a courtyard or chapel in a hospital? They are both places that provide a sense of rest, comfort, and replenishment—like an oasis. What does sitting on the grass under the dappled shade of a tree have in common with a wooden bench under a carved arcade at a church courtyard paved in stone? They both provide a sense of refuge and protection. Finally, the view from a skyrise penthouse provides the same sense as looking out from a hilltop or a view of the sea—they provide a sense of prospect and possibility.

In taking these elements together, this thesis examines what courtyards accomplish to combine the human needs of an oasis and a hearth with the theory of prospect and refuge of Jay Appleton.² His theory proposes that people prefer environments where they can easily survey their surroundings and quickly hide or retreat if necessary, much like a hare at the edge of a field. Jan Gehl, a Danish architect suggested that benches providing a good view of the surrounding activities are the main attraction for user of public spaces.³ By studying courtyards of the past

² Jay Appleton, *The Experience of Landscape*, Rev. ed. (Chichester ; New York: Wiley, 1996), 62-67.

³ Jan Gehl, *Life between Buildings: Using Public Space* (Washington, DC: Island Press, 2011), 27.

and the present, what has made them well-used and well-kept in secular and religious settings, I then move to what makes a courtyard effective in an academic setting. I show what makes a successful courtyard for public secondary schools. I compare building courtyards of the past, make observations of courtyards in public settings in the present, and also conduct surveys for secondary school staff on design and usage preferences.

The purpose of this thesis is to give value to secondary school courtyards and to find out why they may be underused spaces such as in the school where I teach. A courtyard can be a valuable space for students and staff. If they are ignored and underused, eventually they will be filled in for building space. Yet, studies have shown that even just a short time in a natural environment can elevate attention performance and concentration.⁴ Even small “doses of nature” have benefits to both students and staff. A courtyard is a safe environment that can be enjoyed if the space is designed thoughtfully with the intended users in mind.

⁴ Andrea Faber Taylor and Frances E. Kuo, “Children With Attention Deficits Concentrate Better After Walk in the Park,” *Journal of Attention Disorders* 12, no. 5 (March 2009): 402–9, <https://doi.org/10.1177/1087054708323000>.

Chapter I

The Beginning of Courtyards—Their Endurance in Deep Human History

The courtyard may not be a garden, but what Christopher Thacker wrote of gardens can be applied to a courtyard, “The history of gardens is like the study of icebergs: while a bit shows above the surface, much more lurks underneath.”⁵

Humans have always made courtyards. Perhaps that is what makes a courtyard so enduring; its elegant simplicity in purpose and form is because satisfies an interwoven network of human needs that runs deep. Since the beginnings of structure for human dwellings, courtyards have been at the literal center of homes and communities. Courtyards are a fascinating testament to the physical and psychological needs and wants of people because they have held much the same purpose and design features for thousands of years across different cultures and geographical regions. As varied as societies are, a courtyard is the architectural answer to the human need for rest, gathering, protection, and possibilities. Within these needs is another set that may be even more well-known across all disciplines: Abraham Maslow’s hierarchy of human needs.⁶ The foundation of all human potential according to Maslow is when physical needs are met, it can be built upon with safety, followed by the social, eventually the ego, and finally one’s unique self-fulfillment at the pinnacle. These needs need not be met all at once or completely and can fluctuate. At the core, however, is that once these needs are met, a human is satisfied. This satisfaction, and even peace, can be provided, even for a short time, by the physical comfort, safety, gathering, solitude, reflection, and restorative properties courtyards

⁵ Christopher Thacker, *The History of Gardens* (University of California Press, 1979), 7.

⁶ Saul Mcleod, “Maslow’s Hierarchy of Needs,” *Simply Psychology*, December 29, 2020, <https://www.simplypsychology.org/maslow.html>.

have always provided. In subsequent chapters, I explore the courtyards of homes from the earliest civilizations in Mesopotamia, Egypt, Asia, the Greco-Roman world and beyond; their designs, their functions, and why they were so ubiquitous, in the best sense of the word. Here, I focus on what makes a courtyard such an architectural symbol for all human needs across the world with the roots of their beginnings with people thousands of years ago.

From 10000 BC to 4000 BC, major events in our human history occurred—settled life was beginning, the first farming began, and the growth of the first cities began to emerge.⁷ Even before agriculture transformed the human migratory experience, our shared needs with our ancestors remains constant and our affinity for certain physical attributes of courtyards is a testament to their endurance over time and space. “Landscape is a kind of backcloth to the whole stage of human activity. Consequently we find it entering into the experience of many kinds of observers as it is encountered in many kinds of context.”⁸ The context of a courtyard ranges from a private home, a quiet temple, a hotel’s busy atrium, to a place to gather at a secondary school. Yet, each courtyard gives a feeling of fresh, open air, some privacy, perhaps gathering with others, and a respite and refreshment to continue. That courtyards exist in architecture throughout the world *sui generis* in different climates, different cultures, varying building styles and materials for thousands of years is a testament to our human needs of the origins of courtyards themselves—a hearth, an oasis, a refuge, and hope and a prospect. The courtyard, beginning with homes, moving into sacred spaces, public buildings and schools is the human created answer to human needs.

⁷ Geoffrey Parker, *Compact History of the World* (London: Harper Collins, 2003), 16.

⁸ Jay Appleton, *The Experience of Landscape* (New York, NY: John Wiley and Sons, 1996), 2.

Chapter II

Courtyard Homes of Mesopotamia

To find the earliest known examples of courtyards, one only has to explore the world's oldest known civilization—the Sumerian civilization of Mesopotamia. The word civilization comes from the Latin *civis*, meaning citizen or member or inhabitant of a community. Once people started to have more community around them, even if their society was agricultural, the need for separate space began, making the courtyard feature of a structure at least 5,000 years old. The courtyard solved many needs at once; privacy with access to open air, management of sunlight, enclosed area for cooking and family activity, security, and respite. As Jonathan Foyle from the World Building Fund states, “The solutions to problems in architecture are sometimes the simplest. Some things just work.”⁹ Foyle referred to another architectural design of the amphitheater, but his assertion fits for a courtyard beautifully. The simple design of a courtyard itself solves many problems and meets many needs.

In southern Mesopotamia and other warmer climates, many courtyards are smaller to exclude summer sun, while in the cooler north, the courtyards are larger to admit more of the winter sun.¹⁰ Early enclosed gardens also began in the western world in the region of Mesopotamia, from North Africa to the Euphrates. The gardens began as utilitarian since gardening for beauty may imply luxury, beyond subsistence, yet fortunately the enclosed gardens, surrounded and protected from outside elements, became decorative in their character

⁹ National Geographic Films, *Secrets of the Gladiators* (20th Century Fox, 2011).

¹⁰ John Reynolds, *Courtyards: Aesthetic, Social, and Thermal Delight* (New York, NY: John Wiley, 2002), ix.

once the garden was laid out for ease of irrigation and beyond and evolved their own beauty. The Sumerian poem, *The Epic of Gilgamesh*, circa 2000 BC, describing the city of Uruk: ‘One third of the whole is city, one third is garden, and one third is field with the precincts of the goddess Ashtar.’ Another fable of the time describes a king who has planted a date palm and a tamarisk (a type of tree with pine-like leaves) in the courtyard of his palace and held a banquet in the shade of the tamarisk.¹¹ Of course, not everyone in any civilization lives like a king with a luxurious courtyard, yet there is evidence of many homes having courtyards. The premise and usefulness and beauty of the home courtyard were still the same. The residents of more humble abodes were still screened from the outside world by a wall, and lingering in the space became pleasurable, even if only in a few basic forms. Simplicity heightens the usefulness and artistic effect because of the use of the space—whether with water, vegetation, stone, or hearth. The “harmonious integration of the courtyard space into the fabric of the home creates a sense of safety and intimacy and transforms into a monastic oasis. Courtyard architecture has always been an inviolable and respectful witness to contemplative seeing, to encounters and hospitality.”¹²

In 1985, archaeologists revealed an example of a courtyard house from 2000 BC in Mesopotamia found in the city of Ur on the Euphrates River. The plan of the house revealed a square courtyard surrounded by rooms on the ground floor with a second floor of the house open to the courtyard. A storeroom stood directly off the courtyard, as was common in palaces as well as private dwellings. The fact that it is a square courtyard does not discount other dwellings from antiquity that have more rounded courtyards. It could be the surrounding land or building materials that dictates what a society can build. Site limitation, topography, and function

¹¹ Penelope Hobhouse, *Gardening Through the Ages* (New York, NY: Simon & Schuster, 1992), 16.

¹² Werner Blaser, *Innen-hof in Marrakesch/Courtyards in Marrakech* (Basel, Switzerland: Birkhauser-Publishers for Architecture, 2004), 6.

determine what type of courtyard will be built.¹³ Even cave dwellings have the design of a type of courtyard within them—an example in North Africa even today are troglodyte dwellings.

The term ‘troglodyte’ comes from Greek, meaning ‘hole’ (trog) and ‘dyein’ (to enter in), thus to enter in the mouth of a cave. In these underground homes, rooms are carved out surrounding an excavated courtyard and provide protection from strong winds and sun for Berber peoples living in the Djebel Dahar region of southern Tunisia.¹⁴ In the blockbuster movie, *Star Wars*, these dwellings were put on the map when in the 1977 film, Luke Skywalker’s fictional home was actually a real type troglodyte in southern Tunisia. I find it amusing that the scenes I found the most fascinating in *Star Wars* as a child were the scenes in Luke Skywalker’s home—not knowing at that time they were actual dwelling places in the region of Matmatas. These troglodyte homes are carved into caves with rooms surrounding a circular courtyard¹⁵ and offer protection not only from the extreme summer sun, but also the winds of winter. These centuries old dwellings echo our collective prehistoric past with the common courtyard or heart of the home. Elsewhere in North Africa, douars are encampments of tents circling a core of open space—providing protection and refuge for many, like a prototype for a courtyard. Further west, in Benin, cities were surrounded by earthworks to determine boundaries, forming a center core. As Professor Emmanuel Akyeampong of Harvard University notes, ‘Boundaries are very important to many West Africans. The space of human settlement was maintained by constant work to keep the forest at bay.’¹⁶ A walled city is protected just as the courtyard of a home, the core, is protected by the outer walls from the outside.

¹³ Fatma Abass, Lokman Ismail, and Mohamed Solla, “A Review of Courtyard House: History Evolution Forms, and Functions,” *Journal of Engineering and Applied Sciences* 11 (January 1, 2016): 2557–63.

Bensemra, Zohra, “Last Residents Hold on in Tunisia’s Underground Houses,” *Reuters*, February 23, 2018.

¹⁵ Alan Taylor, “The Last Families Living in Tunisia’s Underground House,” *The Atlantic*, February 22, 2018.

¹⁶ Dr. Henry Louis Gates, *Africa’s Great Civilizations* (McGee Media, Public Television, 2017).

Once inside the courtyard, the outside world proves separate. The Sumerians also had temple gardens and sacred groves in addition to courtyard homes. The Akkadians succeeded the Sumerians ruling until roughly 2000 BC and they too gave trees and plants sacred significance with gardens. Eventually, by the fourth century BC, the Assyrians extended their empire to most of western Asia, Persia, Palestine, and even Egypt. Artwork from all of these places and time period depict the landscape with special attention to trees, flowers, and fruit. Archaeologists believe that Assyrian kings had private courtyards for retreat, ‘where palms, pines and fruit trees provided shade and were almost certainly laid out in a geometric pattern excavations of the temple garden at Assur (the Assyrian capital) and royal gardens reveal the formal layout of garden beds and flowers were for cutting to provide fresh offerings to the gods.’¹⁷

Assyrian palaces, what is left of them for excavation, provide a good glimpse into palace architecture (the palace at Nimrud in Northern Iraq was destroyed by ISIS, but much of what was already excavated is at the British Museum). It was built by the father and son duo of Ashurnasirpal II and Shalmaneser III on the east bank of the Tigris River, in Mesopotamia around 870 BC¹⁸ It contained receiving rooms and apartments, and also a central court, much like so many palaces to follow throughout history. Most rooms, just like a humble troglodyte built into caves, surround the central courtyard, showing its importance in the structure.

With the ebb and flow of societies, destruction of a previous overtaken empire is inevitable, and many of the gardens and courtyards of these mud-brick palaces were abandoned, turning into ruined mounds called ‘tells’ once the Assyrian center of Nineveh was destroyed. The demise of one empire means another begins; the famous Nebuchadnezzar II, grandson of a leading Babylonian warrior established his capital at Babylon and created one of the seven

¹⁷ Penelope Hobhouse, *Gardening Through the Ages* (Simon&Schuster, New York, New York, 1992), 18.

¹⁸ Stephen Tuck, *The Architecture of Power* (Miami University, Oxford, Ohio: The Great Courses, 2018) 107-110.

wonders of the ancient world, the Hanging Gardens of Babylon around 540 BC. Though not a courtyard in design, the effect is the same as a refuge, an oasis, a gathering place and because of the stepped ziggurat design leading up to a vista, a prospect. During the ninth to the fourth centuries, to the east of Mesopotamia, the Persians gave their enclosed gardens in courtyards a name: *pariridaeza*, where we get the English word ‘paradise’. Before that it was translated to Hebrew as *pardes* and into Greek as *paradeisos*. Persian enclosed garden courtyards were surrounded by walls, had many trees, and of course shielded the structure from the outside world. They also had irrigation systems for orchards and flowers, eventually becoming part of Persian artistic style in carpet-making—with the theme of rivers of life, crossing at the center with flowers and trees. Also, in these enclosed gardens were pavilions, which were shaded—cool breezes flowed across water features creating pleasant scents among the peaceful surroundings—as a symbol of paradise in a courtyard garden.¹⁹

Not all courtyards have gardens. West of Mesopotamia, but influenced by it nonetheless, in the North African country of Morocco is a city filled with courtyard homes, all influenced by the rich past of the influence of courtyard homes that came before them. The courtyard homes of Marrakech, Morocco have two distinct types of courtyards: a house with a small courtyard with stone slabs is called “dar”. If a courtyard has plants and the ambiance of an interior garden, it assumes the Arabian word for garden, which is “ryad” or “riad”.²⁰ All rooms open onto the central courtyard, stone or gardens, or onto the gallery that embraces the courtyard from the upper floors. Titus Burckhardt, who has studied house styles in the Middle East, worked with Werner Blaser, notes: “A Moroccan house is an enclosed world of its own . . . the house is not only a world of its own, it is also a crystallized universe, such as is symbolized in the tales of the

¹⁹ Penelope Hobhouse, *Gardening Through the Ages*, 18.

²⁰ Werner Blaser, *Innen-hof in Marrakesch/Courtyards in Marrakech*, 10.

Orient, with its four cardinal directions, the sky as a dome and spring at its depth...the roof of the interior space is the celestial sky. It is, as described in the Koran, a “building of the universe, an enclosed piece of the earth of paradisiacal beauty and profound tranquility.” In Islamic art, as in other cultures and religions, architecture is very symbolic. This symbolism is evident further in Moroccan homes that have a pool in their center. Water is the beginning, the origin of life and sacred in Islam and when it is calm in the pool in the courtyard, one is ‘home’.

The spread of Islam from Arabia brought with it exquisite architecture. Delicate and powerful all at once, at first glance beautiful, ornate with order, and pleasing to the eye. As Islam spread to North Africa, and into the Iberian peninsula by the Moors, the architecture, especially of gardens and courtyards became iconic and retained its timeless and almost magical appeal. Still within the home, albeit a palace, one of the finest examples of a majestic courtyard is the Court of Lions in Granada, Spain. The Court of Lions is quite literally at the heart of the Alhambra, a fortified palace complex constructed in the fourteenth century by Nasrid Sultans. I was taken aback upon my first visit to this beautiful space. One’s eye is immediately drawn to the center alabaster fountain, surrounded by twelve lions sculpted of white marble originally from Almeria in southern Spain.²¹ There are many theories on the chosen number of twelve for the lions, heads pointed out towards the courtyard of stone: the Zodiac, the twelve months of the year, or quite possibly the lions symbolizing the power of the Sultans in this life and even into the next.²² Each hour, one lion produced water from its mouth from one of the four irrigation channels leading to the fountain. There are no gardens in this courtyard, but only orange trees in each of the four corners. The entire oblong courtyard is surrounded by an Islamic style arcade of

²¹ Felix Arnold, *Islamic Palace Architecture in the Western Mediterranean: A History* (New York: Oxford University Press, 2017), 283-284.

²² Joyce E Salisbury and Teaching Company, *The History of Spain: Land on a Crossroad*, 2017, Lecture 9.

creamy white columns with intricate carvings on the arches above. The symmetry of the courtyard and the pleasing color palette of creamy white with the fresh green of the trees is immensely appealing. There is also the center fountain, at once providing an oasis of water and a focal gathering place, like a hearth. No wonder the Court of Lions holds a special timeless appeal the world over.

It is not that because of my experience there that I find courtyards so ravishing—it is their deep symbolic architecture that hearkens back to our most primitive needs in a dwelling space. Islamic architecture elevated the courtyard to a space full of meaning and beauty. Many homes and palaces have enclosed pools surrounded by carefully laid gardens signifying paradise surrounded by white marble, precious metals, and stones. Quotes from the Koran are inlaid in the walls inviting those pure in heart to enter the gardens of paradise.



Figure 1 Court of Lions, courtesy Denise Junkerman, 2000

Court of Lions, Alhambra, Granada, Spain. Photo is of thesis author.

Chapter III

Egyptian Courtyards

“Egypt is the gift of the Nile”²³ The Nile delta is a fertile region in an otherwise arid landscape flowing from its namesake, the Nile River. Because of the ability to use the river and the valley to harvest food, the valley was host to a civilization that remained constant in tradition and practice for thousands of years. An ancient society even to the Romans, the Egyptian civilization rarely changed its customs, lest it anger the gods. The landscape influenced their agricultural practices, dependent on the Nile flooding each year, and from an early period it (meaning the desert or the mighty river) imprinted itself on the people, their belief system, and on their structures.

For thousands of years before the construction of the Aswan Dam in the early twentieth century, followed by the Aswan High Dam, in the 1960's, Egyptians along the Nile witnessed the miracle of the annual flooding from its tributaries flowing from south to north. Once the flood waters retreated, the land was fertilized and irrigated, producing abundant crops. However, before the engineers better controlled the dams to maintain and stabilize the flooding each year, Egyptians knew the landscape was susceptible to deviations—some years not enough water flooded the landscape and other years, the crops would drown in fields soaked with too much water.²⁴ Even though a series of flood basins in the ancient world could be managed locally along the length of the Nile, Egyptian rulers were judged on the success or catastrophes of the annual flooding.

²³ Herodotus, Book II, Chapter 5.

²⁴ Toby Wilkinson, *The Rise and Fall of Ancient Egypt*, 2013, 14-24.

While Egypt is distinctive in its culture and its famous iconic architecture, much of the architecture was borrowed for certain structures, such as the rulers' palaces borrowed from Mesopotamia.²⁵ The royal buildings included multiple courtyards and conveyed the message of the power of pharaoh held above all. Egyptian palaces combined residential, administrative, and religious functions along with spaces and were massive. The courtyards within them also were used for different purposes because of their design qualities and functionality. Even when a palace was abandoned in favor of a new one for religious and political reasons, the central courtyard was a staple feature known from earlier temples and palaces. It was a place to impress visitors and provide refuge for the king. Visitors entering the North Palace in Amarna of the self-renamed, possibly first and not long-lasting Egyptian monotheist, Akhenaten (the father of Tutankhamen) would begin in a massive courtyard meant to impress with its space. The visitors continued into a garden courtyard next, centered on a large pool surrounded by trees, as in previous palaces. Just as in many other Egyptian palaces, the garden courtyard was an expression of the pharaoh's grandeur²⁶ and provided green space; an oasis within stone walls, part of a larger oasis of the Nile River valley among the desert. Even a pharaoh and his family desire the refuge and respite of an oasis within the palace. Modern studies show that within courtyards, especially those with water features and landscaping shading as in Egyptian palace courtyards, users experience thermal comfort from reduced air temperature during hot, sunny hours.²⁷ A refuge indeed.

²⁵ Wilkinson, 31.

²⁶ Steven Tuck, *The Architecture of Power: Great Palaces of the Ancient World* (Great Courses, Chantilly, VA, 2018), 56.

²⁷ A. Almhafdy and N. Ibrahim, "Courtyard Design Variants and Microclimate Performance.," *Procedia-Social and Behavioral Sciences*, 2013, 172-174.

Not all courtyards in Egypt were for refuge and impressing visitors. Besides palace courtyards that also were refuges for the royal family, many palace courtyards were also used for storage and many others were part of temples and used for worship.²⁸ Gardens were not part of these courtyards, but gatherings of the elite took place in the unroofed areas. Many of these courtyards were also public gathering spaces as well—especially since in ancient Egypt, the pharaoh was not separate from his position. There was no sense of true privacy because the pharaoh was a public persona. To illustrate the public sense of the rulers, the exterior of the palaces where they resided were whitewashed to dazzle in the sunlight, comparable to the White House for its iconic symbolism of power.²⁹ Still, even with the public sense of the palace, the inner garden courtyards were treasured as refuges. There are many wall paintings of Egyptian gardens that survive depicting Egyptian plants in a structured, enclosed setting, showing their value. Even funerary gardens had their place in ancient Egypt. A well-preserved garden dating back to 1900 BC was discovered buried in more than fifteen feet of debris in 2017 in Luxor (ancient Thebes) by Spanish archaeologist José Manuel Galán. The garden was divided along with trees and shrubs, with the fruits and flowers as offerings for the deceased. Writing about the gardens in Egyptian literature shows their importance; *The Tale of the Sinuhe* from the 12th Dynasty (1900 BC) reads “. . . and there was made for me a sepulcher garden in which were fields, in front of my abode, even as is done for a chief companion.”³⁰

In the 4th Dynasty, Egyptians were still using courtyards even as part of pyramid temple complexes. Even though the pyramids at this point were massive, their surrounding temples meant for eternal residences included enclosures and central meeting spaces in open courtyards

²⁸ Steven Tuck, *The Architecture of Power: Great Palaces of the Ancient World*, 49.

²⁹ Wilkinson, *The Rise and Fall of Ancient Egypt*, 31.

³⁰ “The Archaeology of Gardens,” *Archaeology* 71, no. March/April (2018), 37.

meant for receiving visitors. In modest dwellings surrounding pyramids and temples, excavations show small estates consisting of a core house with a central room flanked by open courts with hearths. Further courts contained a small round silo, indicating residents may have gathered together to ground grain into flour, all within protective enclosures.³¹ Courtyards had a prominent place in Egyptian architecture, in both common and grand spaces.

North of Egypt, between Europe and Asia, are ruins of Minoan palaces on the island of Crete in the Mediterranean Sea. These palaces resemble Near East and Egyptian palaces because of their crossroads location between the two areas. Minoan civilization developed from around 2600 BC during the Bronze Age until around 1400 BC independently from Greek culture. The independence from direct outside influences because of being on an island may have contributed to unique aspects of its palace design—which, from archaeological remains appears as an unplanned, ‘jumble’ of rooms clustered haphazardly together. Many scholars even believe the story of Daedalus in mythology was inspired by the labyrinth-like architecture of these Minoan palaces.³² Within these maze-like structures were multiple courtyards with varying functions, and in most palaces a grand, rectangular, central courtyard. The central courtyard had many functions—performances, gatherings of political or military groups, and business activities (whether in the palace at Phaistos, Knossos, Malia, or Zakros). Just as in the troglodytes of Morocco, the central court was surrounded by rooms and corridors and storerooms. Courtyards were also used for simply letting air and light flow into surrounding rooms, as well as for worship, as evidenced by a low table in the center of specific Minoan courtyards, most likely an offering table based on archaeological finds of cups and statuettes. In Minoan religious art were

³¹ Mark Lehner and Zahi A. Hawass, *Giza and the Pyramids: The Definitive History* (Chicago: University of Chicago Press, 2017), 308.

³² Steven Tuck, *The Architecture of Power: Great Palaces of the Ancient World*, 75.

also images of columns or pillars; Minoans worshipped trees and pillars (perhaps the pillars symbolized trees) with evidence of offerings attached to these pillars in sanctuary courtyards.³³

The western court at the palace at Phaistos also served as a gathering place for theatrical entertainments and spectacles. These gatherings may have also been intended to centralize and enforce the spiritual authority of the ruler and his political authority.³⁴ Gatherings in these courtyards were not just for the royal family since the goal was to enforce authority and centralize events that may once have taken place in rural areas. Gathering together in a large courtyard for spectacles is like gathering at a hearth conversing or for entertainments, an oasis as a break from the mundane and a rest.

Further east, the ancient city of Aphrodisias in Turkey archaeological work shows that this rest, an oasis, was always a part of ideal life in the ancient world. The South Agora, or public square, reveals remains of an urban park complete with a monumental pool, fountains, promenades, and evidence of rows of palm trees imported from coastal locations.³⁵ The purpose, much like an oasis and a hearth, was to gather in a relaxed setting for rejuvenation, either alone or with others.

³³ Louise A. Hitchcock, *Aegean Art and Architecture*, ed. Donald Preziosi and Louise Anne Hitchcock, Oxford History of Art (Oxford: Oxford University Press, 1999), 120-135.

³⁴ Joseph W. Shaw, *Elite Minoan Architecture: Its Development at Knossos, Phaistos, and Malia*, Prehistory Monographs 49 (Philadelphia, Pennsylvania: INSTAP Academic Press, 2015).

³⁵ "The Archaeology of Gardens", 38-39.

Chapter IV

Asian Courtyards East of Mesopotamia

Asian courtyards also have the same purposes and similar architecture to early Mesopotamian courtyards, with their own symbolism. In China, primary houses were significantly influenced by religion and philosophy. Even with the differing religious and philosophical practices in China, the early dwellings are strikingly similar to those troglodytes found in Morocco—cave dwellings built by digging into the ground to make a large courtyard and digging caves in the walls around it. The Yan'an area has the largest number of these dwellings in China.³⁶ From these developed an earth-sheltered brick house on the ground similar in shape to the cave dwelling showing the importance of the courtyard for the hearth, the restful oasis, the protection, and the view beyond one's own 'occupied' space into a clear, open space—the vista or prospect, setting the stage for the well-known Chinese traditional home courtyards.

Chinese home courtyards are a hybrid of privacy differing from the earliest Mesopotamian courtyards at Ur and beyond. In China, the courtyard is not just surrounded by one home and its multiple rooms, but by individual houses which belong to different people.³⁷ This design is like a small version of a modern-day residential apartment building, or an office building, or a school, where there are steady, consistent occupants of differing areas facing the courtyard and all have access, making it semi-private to only those within the structure to enjoy the courtyard, but not of just one group. The essential features of the courtyards are similar;

³⁶ Qijun Wang, *Traditional Chinese Residences*, 1st ed, Zhonghua Feng Wu = Culture of China (Beijing: Foreign Languages Press, 2002), 28.

³⁷ Abass, Ismail, and Solla, "A Review of Courtyard House.", 2558.

garden and water features were important as well as philosophical features as well. There are four basic norms for traditional Chinese dwellings: bilateral symmetry, axiality, hierarchy, and enclosure. These norms flow from *fengshui*, the orderly arrangement of space and warmth for those living within.³⁸ A *minglou* meaning ‘open or bright building’ faces south and has a double-sloped roofline, open to the sky to collect rainwater. A distinct feature of Chinese architecture are the upward extent of the eaves in many structures—the raising of the roof edges have two purposes: to throw away rainwater and to permit light to enter the inside even with a large overhang.³⁹ Courtyards also have the inclines of the protective eaves towards the interior to create a human scale to constrictive high walls, while still open to the sky giving the sense of openness while shielded. These high walls also protected against winter winds while still providing sunlight. Careful thought in planting choices gives enjoyment of the courtyard all seasons in all weather, creating the atmosphere of a physical oasis or if the weather is less than ideal to be outdoors, a visual oasis. “It is said, because the sound of all the tree names uttered together in Chinese—*shishi ping’an*—represent the homophonic invocation “always safe”.⁴⁰ A refuge is part of the courtyard purpose and whether provided by walls, eaves, or trees is an essential feeling meant to be invoked by the occupant.

In Beijing, the Qianlong Garden complex of 27 buildings and pavilions is part of the Palace Museum and was created 230 years ago. It is now accessible to the public after many years of restoration, and in the palace, one portrait evokes the ambiance a courtyard can provide with the elements of hearth, oasis, prospect, and refuge in place:

³⁸ Ronald G. Knapp, *Chinese Houses: The Architectural Heritage of a Nation* (North Clarendon, Vt: Tuttle, 2005) 56-58.

³⁹ Sicheng Liang and Wilma Fairbank, *Chinese Architecture: A Pictorial History* (Mineola, NY: Dover Publications, 2005), 16-18.

⁴⁰ Knapp, *Chinese Houses*, 105.

“A middle-aged, moustached man with a gold crown upon his head and dressed in a green, embroidered Chinese robe is seated comfortably on an armchair composed of tree roots and branches, under a veranda of small one-story residence looking out on a snow-dusted garden.”⁴¹ The Qianlong Emperor, ruling during the eighteenth century, created many garden buildings for his retirement, of which the same satisfying sense of retreat and rest are enjoyed by many today.

Religions, philosophies, and styles are constantly intermingling throughout the world. This mingling affects architecture as ideas migrate with people. In Korea, many structures are based on traditional Chinese housing—and the philosophy associated with the design. Traditional Korea was a Confucian society, with its philosophy based on Confucius and I-Ching. Having received many aspects of its culture and philosophy from China, the *O-Haeng* (five directions), even depicted on the Korean flag with the symbol of the Yin-Yang (the center) and four trigrams from the I-Ching, each indicating the cardinal directions.⁴² What makes these associations special to traditional Korean architecture is how they relate to the placement of the courtyard. The *SaJu* concept is the ‘four pillars’ of the house or building in relation to each other—an architectural way of predicting the fortune of the house and the courtyard is at the core, in the middle, keeping the other spaces joined and placed in harmony. According to architectural scholars, the four sides of the courtyards are not always defined, but there is typically a garden space, creating an oasis of green.⁴³ This courtyard space is also important as in many structures, there are layers of protection from the outside world, and the courtyard provides

⁴¹ Nancy Zeng Berliner and World Monuments Fund, eds., *Juanqinzhai: In the Qianlong Garden, the Forbidden City, Beijing ; Published on the Occasion of the Restoration and Opening of Juanqinzhai (Studio of Exhaustion from Diligent Service) Undertaken by the Palace Museum*, World Monuments Fund Series (London: Scala, 2008), 8.

⁴² Gabriel Kroiz, “‘Courtyard Transformations’: A Project for Three Houses, Heyri Art Valley, South Korea” (College Park, Maryland, University of Maryland School of Architecture, 2004), 27.

⁴³ Kroiz, 28.

the universal semi-private protection—accessed and shared, while providing open space and some separation. The importance of the courtyard cannot be underestimated. It is likened to a separate story of a structure providing a clearly defined separate space with its own experience attached to it; “distinct spatial types around which completely separate sets of emotional experience are organized.”⁴⁴ Local materials are also used as often as possible in the modern Korean building and courtyard landscape. In Korea, instead of mass standardization of construction materials, products and technicians, a robust and skilled construction force is strong⁴⁵, and more customization can happen in each structure according to the unique needs of its occupants and traditions, including the building of courtyards relating to other spaces.

In Japan, Imperial palaces also had enclosed gardens. The palace of the Emperor in Kyoto, completed in AD 804, had private apartments and an Enthronement Hall that enclosed a garden. The enclosed garden is a respite as well as a show of power by the Emperor. For public ceremonies, other palaces had enclosed sand gardens, like that of the Shishinden palace—along the perimeter are protective eaves and the only plants are an orange tree and on the opposite side, a cherry tree.⁴⁶ “Throughout history in Japan, and reflected in the architecture, men, animals, plants and rocks, all things animate and inanimate, had speech and were *kami*, much like the *numina* of Ancient Rome; whatever evoked a thrill of awe, mystery, or affection, whatever possessed a feeling of superior merit, was in some sense miraculous and therefore sacred: *kami*.⁴⁷ The enclosed gardens of Japan evoked a communion with nature. Any objects protected by enclosed shrines in Japan are not worshipped, but the *kami* that has made it its resting place. This

⁴⁴ Gaston Bachelard and M. Jolas, *The Poetics of Space*, New edition, Penguin Classics (New York, New York: Penguin Books, 2014).

⁴⁵ Kroiz, “‘Courtyard Transformations’: A Project for Three Houses, Heyri Art Valley, South Korea.”, 24.

⁴⁶ Arthur Drexler, *The Architecture of Japan* (Museum of Modern Art, New York, New York: Museum of Modern Art, 1955), 101-103.

⁴⁷ Drexler, 23.

focus of worship could be an entire forest, or the focus could be one tree—acknowledged by encircling the tree with a fence. Over time, updates to enclosures are rebuilt and the new building and enclosures will be consecrated so the garden and focus, like a hearth, can be the central view. In Seiryoden, another Imperial palace frames a garden and only two groups of trees—small clumps of bamboo on either side, originally with a water feature to give a feeling of a water oasis, but in the tenth century, this was modified to be more austere. The open vista is the prospect, leaving room for thoughts to come in while gazing at simplicity. It is interesting to note, in modern times, there is an application used in education (I discovered this app while teaching online during the COVID-19 pandemic) that is called *Kami*. According to the company website, *kamiapp.com*, *Kami* means ‘paper’ in Japanese. This strikes me as an astonishing coincidence that in many enclosed gardens in Japan, there is a conspicuous empty space, like a vista and a prospect waiting to be filled with thoughts and inspiration of the visitor, much like a blank piece of paper or even an empty document on a computer waiting to be filled. Different styles of enclosed gardens—courtyards—whether filled with symbolic greenery and sculptures, or minimal in their use, still are composed of the same elements of focus, oasis, refuge, and prospect.

Chapter V

Greco-Roman Courtyards – From *Temenos* To Temples

It is common to classify structures and spaces as ‘traditional’ in style. *Trado* in Latin means ‘I hand down’ meaning to hand over or pass down something to the next generation. When multiple features of certain structures are similar across space and time, it is not because something just came into being—rather, it is the culmination of years of experience, common needs and desires, and the passing on from one generation or culture to another. Improvements and changes may be made, but the essence endures. A courtyard combines a mixture of landscape and structure—open confined space. Within the courtyard throughout history, there are many styles, yet the elements of a continually useful courtyard have been passed down and emulated. “Historical study involves the investigation of the world as it is (evidence) combined with logical conjecture about how it got to be that way. (argument and interpretation)”⁴⁸ The essence of courtyards remains essentially the same since their inception in Mesopotamia thousands of years ago. Some features have changed depending on the culture, philosophy, religions, and purpose of the building or a space, but it is noteworthy that the courtyards we can look back on from history’s beginnings are similar to courtyards today. “That about which we know nothing, we cannot speak.”⁴⁹ Courtyards give us a physical glimpse into our collective deep past and what was important and continues to be important today. Physical evidence over the past few thousand years of remaining and current courtyards shows the refuge of a courtyard

⁴⁸ Don Ostrowski, “Three Criteria of Historical Study” (Harvard University, 2003), 1.

⁴⁹ Ludwig Wittgenstein and C. K. Ogden, *Tractatus Logico-Philosophicus* (Mineola, N Y: Dover Publications, 1999), 7.

was crucial from the outside world. Inside the courtyard, evidence shows a hearth was used for not just cooking, but a focal point to gather and in some cases a statue to honor a god, becoming the focal point. Remaining courtyards from antiquity still visited today also have covered walkways around the perimeter to provide refuge, and being able to look out over the courtyard while still protected, much like wearing a pair of sunglasses when one's eyes cannot be seen, but they can see and observe. Gardens and trees were planted, giving the sense of refreshment and oasis.

Borrowing from ancient Egypt with temples and their enclosures to being the influencer of Rome's temples, Greece had a huge impact on its surrounding cultures. In Egypt, homes and sanctuaries had enclosures. The Osiris temple in Cairo most likely had a statue of the god as did many temples in Greece. Temples of Isis were also considered the 'House of Isis' as were the temples of Osiris, the 'House of Osiris'⁵⁰. Temples of Isis made their way to Rome, as Rome was heavily influenced religiously by Greece. Tradition is passed down culturally, and cultures mix as civilizations come in contact and influence each other, influencing architecture as well as beliefs as evidenced by the landscape and the architecture.

The Greek temples we admire today had their origins in the fields. Temenos were shrines that were no more than a sacred tract of land that was considered the domain of the god, its home, a sacred grove.⁵¹ Eventually, a small temple may have been built to officially give the god a home, a sacred domain for the priests to visit, and eventually the public. Whether making an offering, or simply to honor the god, "in the experience of the sacred there is a separation from ordinary life and an opening to a transcendent reality. . . a life devoid of the sacred, has much

⁵⁰ Lehner and Hawass, *Giza and the Pyramids*, 494-510.

⁵¹ Margaret Eileen Meredith, *The Secret Garden: Temenos for Individuation: A Jungian Appreciation of Themes in the Novel by Frances Hodgson Burnett*, Studies in Jungian Psychology by Jungian Analysts (Toronto: Inner City Books, 2005), 91.

activity, but little renewal.”⁵² Part of the origin of private and public temples were *temenos*, a spiritual oasis in a field and where one can find a sense away from the mundane and touch something mystical and sacred. In the ancient Greco-Roman world, the *temenos* was literally cut-off from the world by a stone wall or simple enclosure, separating the sacred nature of the land from the surroundings. The *numina* of the land was addressed—there was a holy and sacred nature attached to everything, whether alive or inanimate. To keep certain *numina* sacred, *temenos* were created. *Temno* means ‘cut-off’, the *temenos* were aptly named for being the separated and holy spot for a dwelling of a god, or the many *numina*, even the home of a king, who could be a spiritual leader as well. For the Romans, this sacred space was paramount and the spirits or gods did not need to have human forms. Romans believed that everything had an intention and all objects and events had capabilities of a purpose of action.⁵³ A farmer intending to alter the land needed to first address the *numina* of the land, possibly make a sacrifice, and if all went well, the farmer proceeded with his intention, only proceeding if he sensed the auspices were in his favor.

Vesta was the goddess of the fire on the hearth, and Janus was the god of beginnings and ends. In the middle of the Roman forum stands the temple of Vesta, housing a public hearth, symbolizing the spirit of Rome with a fire kept aflame at all times, never to go out, protected by Vestal priestesses. For Janus, protector of gates, doorways, beginnings and ends, the protection of a public community was important—a special ditch was believed to keep early Romans safe as it kept the community as a refuge to which the dead and other supernatural powers could not pass and *Janus* was the gatekeeper and special passage through the ditch. Early in Rome’s

⁵² Meredith, 25 .

⁵³ Charles Jenney, Scudder, Rogers, and Eric Baade, *Jenney’s First Year Latin* (United States: Allyn and Bacon, Inc., 1987), 414-416.

history, the hearth and the need for protection and refuge were central to life. Connection with nature was also important; Romans enjoyed garden spaces and painted the walls of their homes with floral garden scenes. The central space of the Roman home was the atrium opening up to the peristyle courtyard, complete with plants and sculptures, fountains and walking paths--pleasant surroundings to enjoy the open air while still maintaining privacy from the busy hustle and bustle of the Roman market streets mere steps away. The courtyards of Roman homes also functioned as the center of religious life for each family and their own personal household gods with the *pater* as the family leader in honoring the gods, giving the courtyard another important function as a bridge between the gods and men.

Temples were built to give the gods dwelling places in structures in a public setting—these are the famous temples of Greece and Rome and many were also part of public sanctuaries. The earliest Greek temples were built of wood and mud-brick on stone foundations until by the end of the seventh century BC, stone had become the preferred material for the temple itself.⁵⁴ Designed with free-standing colonnades surrounding the entire temple, the view from any approach angle of a Greek temple enclosing the god's sanctuary would be satisfying and proportional; the Greeks kept their design consistent. Roman temples were meant to be approached from directly in front of the temple. Owing to the earlier Etruscan builders, vaulted ceilings and monumental gates were incorporated into Rome's architecture as well as the raised platform to enter a Roman temple⁵⁵—from the clear front entrance only, not approached from essentially any side, as a Greek temple. The free-standing colonnades stop past the enclosure of the *cella* and the colonnade now attaches to the walls surrounding the sanctuary. The high podium at the entrance

⁵⁴ Susan Woodford, *The Art of Greece and Rome*, Cambridge Introduction to the History of Art 1 (Cambridge [Cambridgeshire]; New York: Cambridge University Press, 1982), 23-24.

⁵⁵ Mark Cartwright, "Etruscan Architecture," *Ancient History Encyclopedia*, January 31, 2017, https://www.ancient.eu/Etruscan_Architecture/.

is dominating and the clear entrance. The theme, however, is the same—to safely enclose the dwelling place of the god.

In Jerusalem, the Holy Temple built as written in the book of Ezekiel (43.10-12) also was meant to be the house of God. It was built in antiquity as a sanctuary: “And let them make Me a sanctuary, that I may dwell among them...” (Exodus 25.8-9) The courtyard was an essential part of the inner temple. The *Azarah* (inner courtyard) was the setting where the Holy of Holies stood and the altar which were the most important part of the temple. The courtyard also had colonnaded corridors and *stoas* (colonnaded porticos). The protection from the elements was essential in the progression of the courtyards.⁵⁶ Even the remarkably original Pantheon, possibly designed by the Emperor Hadrian himself, with its circular design and use of novel cement was meant to house ‘all the gods’. Although temples had been built in rectangular and circular styles in antiquity before⁵⁷, what set the Pantheon apart from previous circular cramped temples was its vast domed interior, open at the top to the sky, giving the sense of a prospect, a view to the heavens and where the gods could view the visitor as well.

In the Greco-Roman world, homes were very often public spaces as well as private spaces and homes to the gods as well. The courtyard began to play a key role in their domestic architecture. For the Greeks, public access was for the men who gathered in courtyards of their homes, the *andron*—a courtyard specifically for men, as women had their own separate courtyard in the Greek home.⁵⁸ The homes were typically built around a central open courtyard, in the center of which is an altar to Zeus Herkeios (Zeus of the Enclosure). Moving to the middle

⁵⁶ Joseph Good, *Measure the Pattern* (Crosby, Texas: www.hatikva.org, 2015), 99-102.

⁵⁷ Woodford, *The Art of Greece and Rome*, 107.

⁵⁸ Hans-Friedrich Mueller, *The Pagan World: Ancient Religions Before Christianity* (Chantilly, VA: The Great Courses, The Teaching Company, 2020).

of the house, another *andron*, men gathered for dining, drinking, and talking (as in a *symposium* in Latin) but at the center of this space was another altar; this altar was to Hestia, goddess of the hearth, truly the center of the home in the center courtyard.

Romans also emphasized the peristyle courtyard, even more so as social changes changed the focus of a Roman home from the atrium to prominent dining rooms and large peristyle courtyards with elaborate fountains to gather with guests, much like a public space and meant to hold wide appeal to many as an inviting space.⁵⁹ These spaces, while sometimes still honoring the gods via an altar to commune with the god, were also meant to encourage coming together and among the covered walkways and gardens, enjoy a *promenade*, or a meditative walk, make deals, and host many in a mix of public access of visitors to a private home in an inviting setting.⁶⁰ A villa garden had features that were meant to publicly display wealth, but also provide simple pleasures—shade, produce, play, find retreat for politicians, and for young people to meet. Archaeological evidence shows that these spaces, both public and private at the same time, had porticoes, footpaths, fountains, and a variety of trees.⁶¹ Domestic architecture in Rome was meant to contribute to the public persona. The well-designed inner courtyard—the peristyle courtyard (colonnaded court owing to Greek architecture)⁶² with covered walkways, open to the sky, with fountains, and gardens provided the attributes of a prospect, a refuge, an oasis, with a nod to the hearth of the gods to gather with each other.

⁵⁹ Andrew Wallace-Hadrill, *Domestic Space in the Roman World: Pompeii and Beyond* (Portsmouth: Journal of Roman Archaeology, 1997).

⁶⁰ Mary Beard, *SPQR: A History of Ancient Rome*, (London: Liveright Publishing Corporation, 2016), 321-324.

⁶¹ “The Archaeology of Gardens, 35.”

⁶² Robert Garland, *Greece and Rome: An Integrated History of the Ancient Mediterranean* (Chantilly, VA: The Teaching Company, 2008).

Pleasure gardens within enclosures were also common in Greek and Roman temples, schools, and with those of the elite. Within the enclosure of the Academy, there were temples as well as shrines and tombs as well as at the entrance, an altar showing the central importance of the focal point. Among the shrines and tombs there was also an enclosed space, where Theophrastus (circa 370-286 BC) a philosopher contemporary of Aristotle had a garden.⁶³ This garden was used for walks and for study with his friends, gathering together among a refuge.

Pliny the Younger describes Roman enclosed garden spaces that were meant for relaxation and rest. His description of his plants are detailed. In his own home, the symmetrical layout alongside the actual living space also gave way to topiaries, focusing towards east and the rising sun as well as trees providing shade and a cascading fountain, the oasis meant for family and visitors alike. The sense of oasis as an appealing feature of a courtyard appears throughout history and is part of the success of a modern courtyard as well.

⁶³ Christopher Thacker, *The History of Gardens*, 21.

Chapter VI

Monasteries—Bastions of Faith and Learning Among the Cloisters

A man shall be as a hiding place from the wind, and a covert from the storm, as streams of water in a dry place, as the shade of a large rock in a weary land

Isaiah 32:2

Separated from the world, yet still a contributor to it, monasteries were and are dwelling places that have their inhabitants dwelling in quiet and clear spaces, yet most certainly the monks are not ignorant of the dark. Monasteries are the places throughout their history that were for those that escaped the world, yet still remained so much a part of it. The monastery may well be the transitional architectural space from a dwelling to a separate place for religious devotion, and also a learning space intended for the common good. After the fall of the Western Roman Empire, the monastic cloisters kept the literature and study of the classics and science alive. Those who live within the monastery walls are often living connected, however solitary they may appear to outsiders. Very early communal monasteries go back to the Nile river valley around the year AD 320 when St. Pachomius established a community of monks.⁶⁴ Before this time, an actual structure for an individual seeking individuation stood in the desert alone; hence the word *monk*, from *monos*, Greek for alone.

The simplicity of the monastery cloister is like an empty stage, waiting to be filled with the next thought, whether there is an audience or not. As a visitor to monasteries in France and Spain, I was entranced by the courtyards of the monasteries, the cloisters with their covered porticoes and stone floors, unencumbered by complicated paths and symbolic statues. These

⁶⁴ C. H. Lawrence, *Medieval Monasticism: Forms of Religious Life in Western Europe in the Middle Ages*, 3rd ed (Harlow, England ; New York: Longman, 2001), 7-9.

courtyards, mainly of stone were open to the sky, as well as very grounded in their purpose. There may be a fountain or well used by a worshipper to wash their hand before entering the church⁶⁵, but the space is otherwise empty, waiting for thoughts, devotions, inspirations, or rest, to fill one's mind and spirit. Christian monasteries came to Ireland before St. Patrick, but in the fifth century he introduced Latin and writing to the Irish. Ireland developed many monasteries since that time and from the fifth century over the following next five centuries, Ireland built even more. These monasteries were major influencers not just Ireland, but from them missionaries went all over Europe to bring classical learning to the European countries—and monasteries were large and important centers of learning, art (especially religious art), and manuscript-based cultural activity.⁶⁶ Daily life and experience may have been different for a monk from the eleventh century than the fifteenth century, but their contributions were long-lasting and many times focused in the *scriptorium*, or writing-room.⁶⁷ Providing a service to the world by copying texts or composing books was a service that was requested often. The work space was sometimes alongside a church, but more often was a separate room off the cloister, with access to light from beyond the covered walkways.

By the twelfth century, the monasteries were established with close ties economically to local communities. Other work done by those from the surrounding community, such as attorneys, physicians, and plumbers also kept the cloister running smoothly. Cloisters, especially those associated with those of the abbey of Cluny in France, enjoyed wide reputations of not just piety, orderliness and serenity in a chaotic world, but also the beauty of their chants that so many

⁶⁵ Abass, Ismail, and Solla, "A Review of Courtyard House.", 2559.

⁶⁶ Leslie Carola, *The Irish: A Treasury of Art and Literature* (Place of publication not identified: Beaux Arts Editions, 1995), 13.

⁶⁷ Lawrence, *Medieval Monasticism*, 112-113.

appreciated.⁶⁸ One of the most mesmerizing experiences of my life was in the Alps in Switzerland, in an empty stone space meant for worship and hearing the recording of Gregorian chants playing softly through the hidden sound system, transporting me to another realm. No wonder the community appreciated the music as well as the sense of peace that often emanated from the cloisters.

Although the monastery began as a solitary venture, the eventual monastic practice was not charity to serve oneself, but to serve others. St. Basil, in the years AD 357-358 toured many ascetic colonies in Palestine and Egypt and Asia Minor. He concluded that even hermits gather in colonies because human nature is social and in the context of charity, to be in service of others, one cannot simply wash one's own feet. He regarded the purpose of the monastery was to love God, but that is done by passing on gifts in many different ways to others.⁶⁹ His influence was far-reaching in monasteries and their expressed purposes built after his mark or 'rule'. In modern day Bulgaria, visitors to the Rila Monastery are entranced with the architecture of the cloister—founded in the ninth century and rebuilt one thousand years later in the same architectural style. Those who walk through the gates into the UNESCO heritage site experience the same tranquil space as when it was first built. Surrounded by colonnades and covered walkways, the stone courtyard still beckons as a refuge. It functioned as a place to separate oneself and remained the seat of Bulgarian identity, diffusing Slavic religious culture and contributed to the region's musical legacy protected by royalty.⁷⁰ The work of the inhabitants of the monastery itself besides worship was learning and providing services back to those in the community—lessons in music for those and education, but their chief focus was as scribes reproducing books to order for

⁶⁸ John P. McKay, Bennett D. Hill, and John Buckler, *A History of World Societies*, 3rd ed (Boston: Houghton Mifflin Co, 1992), 335-356.

⁶⁹ Lawrence, *Medieval Monasticism*, 8-9.

⁷⁰ "Rila Monastery - Rila Mountain," 2015, panacomp.net/rila-monastery-rila-mountain/.

scholars and secular patrons. Paintings and the creation of icons as well were very popular—which is why the monks did not appreciate iconoclasts since they banned icons, a good source of income for the monks. Eventually, expansion of secular schools and the rise of universities became like the passing of the torch from the cloisters to the quads.

From these cloisters, learning reached new heights. Monasteries and convents in medieval Europe were beacons of literacy and well versed in medicinal herbs. In Finland, scholars are able to employ a combination of archaeological, historical, and botanical research to learn the types of plants grown by the monks and nuns of the Naantali Cloister in southwest Finland. From the only surviving section of the cloister, circa 1500, research teams discovered species now well known for healing properties, showing the gardens and courtyards with gardens were used for more than just kitchen gardens.⁷¹ Surviving documents from the monastery of St. Gall in Switzerland, built in 816, detail the plans for three separate gardens and one within a square cloister which is beside the church. One of the three separate gardens is next to the infirmary, known as the *herbularius*, the physic garden to nourish the ill.⁷² Known as the monk in the garden, Gregor Mendel entered the St. Thomas monastery around 1850 in Moravia (near Brno, modern day Czech Republic) as an Augustinian monk. This was not the ideal place for monks as the building was in disrepair after originally being built as a nunnery in 1322. It was occupied in 1793 by the new denizens of monks when Emperor Josef II, evicted the monks from their former lavish dwelling so he could use it for his own residence.⁷³ The solid brick walls and floors of stone guaranteed a year-round chill, but a courtyard saved the day.

⁷¹ “The Archaeology of Gardens.”, 36.

⁷² Christopher Thacker, *The History of Gardens*, 81-82.

⁷³ Robin Marantz Henig, *The Monk in the Garden: The Lost and Found Genius of Gregor Mendel, the Father of Genetics* (Boston: Houghton Mifflin, 2000), 13.

In the corner of the courtyard, Mendel was given the a glasshouse for research on plants. This did not come easily as a visiting bishop felt studies beyond the Church were not appropriate. It was the abbot, fortunately for Mendel, who was intent on running his monastery like a university and reached a compromise with the bishop that Mendel could continue his studies of plants as long as he gave up his studies of rodents. A deal was made and Mendel made his research at home in the glasshouse tucked in the corner of the monastery's courtyard. There, he 'painstakingly crossed and backcrossed pollen and egg cells from the common pea plant to reach a better understanding of inheritance.'⁷⁴ The Augustinian order of Mendel and his supportive abbot was among the most liberal among the Catholic orders and emphasized teaching and research over prayer and was more civic-minded. The genetic research that followed and that continues vigorously today is because of the discoveries of Mendel's work—he was given an open space to work and more importantly, to think and analyze. To have the figurative space of time to work and literal empty space of the surrounding courtyard enclosing the research space of Mendel's glasshouse was a gift to discover the foundations of inheritance that is so much a part of human research today. As the modern artist, Lilian Porter suggests "The empty space is where things happen. When things are small, you have to approach it."⁷⁵ From other monasteries flowed diffusion of Greek mathematics, Biblical studies, Arabic mathematics and medicine, and new questions and studies, quite possibly ideas flowed because of the refuge provided by an enclosed space that was still clear enough to envision new ideas.

Could this be the reason so many years after the first monasteries were built, that those who designed colleges in Oxford and Cambridge in the fourteenth century and later chose an

⁷⁴ Robin Marantz Henig, *The Monk in the Garden: The Lost and Found Genius of Gregor Mendel, the Father of Genetics* (Boston: Houghton Mifflin, 2000), 14-15.

⁷⁵ Ted Loos, "Lillian Porter Finds Art in the Empty Spaces," *New York Times*, September 21, 2021.

open courtyard (the open court was without the church or cloister even though the colleges were surrounded by clergy) William of Wykeham built uncloistered courts for his scholars at Winchester and New College, Oxford, but added them for scholarly contemplation and other activities outside the main court and quad.⁷⁶ Many of these quads were covered in short grass, not stone, but having the same appeal as open space. A grassy lawn is first mentioned in *De vegetalibus* of Albertus Magnus circa 1260: *Nothing refreshes the sight so much as fine short grass. One must clear the space destined for a pleasure garden... little by little the grass pushes through like fine hair, and then covers the surface like a fine cloth.*⁷⁷

St. Benedict used the word *claustra* for the entire enclosure of where a monk was enclosed, thus ‘cloister’. Monastic cloisters have an amazingly common design whether the cloister is in a southern climate or in the much colder climate of northern Europe—the design has flourished composed of covered porticoes with arches open to the weather.⁷⁸ The cloister itself is the hearth, the gathering place for the monks; the heart or *cor*, possibly the courtyard of the church. While *cor* is Latin for ‘heart’, and *cour* is French for ‘open air’, the combination of the two is fitting for a courtyard. A courtyard is often at the heart of the structure, while the open air of the courtyard was originally meant so all could view a trial, whether it was the public or those directly involved in a trial. The open air yet enclosed space gave the court a protected space, yet open to those that needed to view the proceedings. The steadfastness and success of the consistent design including the protective coverings, the open space—literally and figuratively for contemplation and research, the gathering place, and the oasis from the world all add to the mystique and aura of the monasteries.

⁷⁶ Christopher Brooke, *The Age of the Cloister: The Story of Monastic Life in the Middle Ages* (Mahwah, N.J.: HiddenSpring, 2003), 8.

⁷⁷ Christopher Thacker, *The History of Gardens*, 84.

⁷⁸ Brooke, *The Age of the Cloister*, 7.

A small book called *Quiet Corners in Paris* gives away the secret spots in Paris where if a small escape in a serene setting is what one craves, it will show the way, much to the chagrin possibly of locals. It includes two cloisters that one can find refuge in to experience serenity in the city. The first is the *Cloitre des Billettes*, the Billetes Cloister, built in the fifteenth century. Filled with arches of thick stone that are part of a covered walkway that look out onto the stone center and open sky, with simple potted plants on the stone where one can sit, one can find also find silence.⁷⁹ The *Maison de L'Architecture*⁸⁰ in the 10th Arrondissement (or neighborhood) is a seventeenth-century convent with a very interesting story. It had been ransacked, then turned into a barracks, then a wool-spinners' headquarters, a hospice for terminally ill, then a military hospital, amongst other uses. It is now open to the public as part of a hospital and is filled with the short, pleasant grass to look upon, covered arches to provide refuge from the sun and elements. It is a hidden gem as now a place for Parisians to catch a breath and a break to enjoy some peace, no matter how short the time is spent there, it is treasured.

⁷⁹ Jean-Christophe Napias and Christophe Lefébure, *Quiet Corners of Paris: Unexpected Hideaways, Secret Courtyards, Hidden Gardens* (New York: Little Bookroom, 2007), 36.

⁸⁰ Napias and Lefébure, 94.



Figure 2 Evora Monastery, Portugal. Ulrika Stigsdotter, 2002, “*What Makes a Healing Garden*”, American Horticultural Therapy Association.

Monastery at Evora in Portugal evoking a ‘healing garden’ sense.

Chapter VII

Courtyards in Academic Spaces

A courtyard invites lingering. Sometimes standing promotes no rest. To sit for a time, even a short time, becomes key to take the time to reflect and contemplate. Unfortunately, in many public spaces and parks, the number of benches are dwindling and the number of comfortable benches is even more rare. To linger, one must be comfortable. Yet, in some cities, “hostile architecture” is becoming more popular—it is an urban design strategy to impede “antisocial” behavior—and if the bench is not removed, the bench is made totally uncomfortable.⁸¹ These uninviting benches are frigid in winter with their cold metal or slabs of polished granite and painfully hot at the apex of summer. Many times the benches are backless, further reducing the time able to linger because of physical discomfort and lack of support. “A park bench allows for a sense of solitude and community at the same time, a simultaneity that’s crucial to life in a great city.”⁸² That dual purpose is the essence of the academic courtyard. Especially in an academic courtyard, an individual may be contemplating a lesson or meet a study partner, catch up with school friends, or simply inhale a breath of fresh air. I had a lovely moment capturing a breeze on my face just this evening before writing this section and it reminded me exactly why the open-air courtyard is such a gift in a school. The cool air hit my cheeks as I opened a window and I instinctively looked up to the sky. Leaves from a nearby tree rustled and I was caught in a moment of pure wonder at the sensations of sight of the setting sun on the leaves, the dusky sky and the pleasantly brisk air on my face. The staff and students in a school building, typically enclosed by practical, yet very thick and formidable concrete walls,

⁸¹ Jonathan Lee, “The Park Bench Is an Endangered Species,” *New York Times Magazine*, October 17, 2021, 20.

⁸² Lee, 20.

should be able to enjoy this rejuvenating sensation on occasion during the school week to refresh during the day or even after the day is done, if not even before the school day starts. In a courtyard, especially one enclosed on all sides—not open to a parking lot or another open space—the sky is the vista, with the other elements as the parts that enhance the experience. Looking up to the freedom of the sky is instinctual and invites contemplation and wonder. If trees are in the courtyard, they act as a refuge from others' view or the sun, or as the focus and in itself the refuge. This freedom of the sky and beauty of nature within structure is a juxtaposition that for a young student or a weary adult can be the refuge and the possibility of what can be.

A courtyard may sound so simple, yet its mere presence can be a true comfort. Who knows how many weary students and staff enjoy a moment in a courtyard or even just a moment looking into one? Anne Frank wrote in her famous diary in the few years she was hiding with her family that her one view to the outside world was into a courtyard at her father's factory in Amsterdam. Before her family was taken away by the Nazis in 1944, Anne wrote of her experiences and of the horse chestnut tree in the courtyard. I mention this writing because of her age and the sense of refuge and beauty the tree provided Anne during a time of hardship, enabling her to still see the freedom and wonder of the world; "The two of us looked out at the blue sky, the bare chestnut tree glistening with dew, the seagulls and other birds glinting with silver as they swooped through the air, and we were so moved and entranced that we couldn't speak."⁸³ Anne wrote of this chestnut tree about the age of thirteen, the age of many students in secondary schools. In this brief moment, even under duress (which some students may feel by just being in school) Anne was able to appreciate a moment of freedom and observation and was

⁸³ Jeff Gottesfeld and Peter McCarty, *The Tree in the Courtyard: Looking through Anne Frank's Window*, First edition (New York: Alfred A. Knopf, 2016), 2.

experiencing it with someone else as well (“we”). The horse chestnut tree died in 2010, but her saplings were planted in many places, including Capitol Hill and Boston Common.⁸⁴

Besides the many uses of courtyards for individual purposes of reflection and rest, courtyards have always been an important place in the socialization of people.⁸⁵ Beyond socialization, courtyards are places perfectly suited to observation, alone or together. Even the most minute change in the weather, the elements, the angle of the sun, the shading of a plant, the actions of other occupants of the courtyard all lend themselves to observation. A courtyard encourages lingering to observe more than most places can do because of its purposeful ‘suggestions’ of rest and observation, including observing others. “We seldom settle down quietly to study something—even things we find beautiful and satisfying . . . and one of the best ways of learning observation is to draw . . . because you have to look and look again.”⁸⁶

Recently, a student about the age of thirteen in my classroom noticed during class that in our own school’s courtyard, half the grass had an inch of snow and the other half was bare because the morning sun had already melted it. Other students wanted to see the unusual look of the half-carpeted courtyard of green and white; some even asked to take a photo to show their parents. It was a moment of not just observation of weather, angle of the sun, and design of buildings, but unique beauty for its own sake. I appreciated that the students noticed and took the time to observe; thanks to the courtyard.

In an academic setting, especially public schools, it is in the best interest of the school for the sake of its staff and its students to have an outdoor space that is specifically meant to for

⁸⁴ Jeff Gottesfeld and Peter McCarty, *The Tree in the Courtyard: Looking through Anne Frank’s Window*, First edition (New York: Alfred A. Knopf, 2016), Afterword.

⁸⁵ "The Effect of Courtyard Designs on Young People, Which Have Been Made According to Different Functional Preferences: Bartın University (Turkey) | Gaye Taşkan - Academia.Edu," <https://www.academia.edu/6245034/>.

⁸⁶ Hugh Johnson, *Principles of Gardening: The Practice of the Gardener’s Art*, Rev. ed (New York, N.Y: Simon & Schuster, 1996), 47.

those in it to slow down, rest, think, gather and observe. “Public schools should always be in good repair. The atmosphere should be pleasant and encouraging to learning.”⁸⁷ Studies have also shown that secondary students benefit from a view of nature during their school day. In 101 public high schools investigated in southeastern Michigan, the analyses revealed consistent and systematically positive relationships between nature exposure and student performance. Further, views with greater quantities of trees and shrubs from classroom and cafeteria windows were positively associated with higher test scores, graduation rates, and fewer occurrences of criminal behavior.⁸⁸ A study from 2017 revealed the correlation between natural outdoor environments (NOE) and the benefit of that environment on cognitive function.⁸⁹ The journal article called the time spent in nature an opportunity for mental restoration. The courtyard could also be looked at like a gift to students and staff—and its influence could be long lasting and beneficial for all temporary occupants of the school structure. The Latin term *alma mater*, referring to one’s school of graduation, literally means nourishing mother. To nourish students, the nurturer must provide. A courtyard is one way to provide the public and refuge space for staff and students to experience mental restoration and a renewing during the academic day or even at its conclusion for rest and rejuvenation. The open sky is a catalyst for the creation of ideas with endless possibility. If the courtyard is looked at as a gift for the occupants, it could be a true exchange, weaving together the lives of the participants in the exchange.⁹⁰ Ideas and restoration, conversations and inspirations can all flow from a well-designed outdoor space of prospect and refuge.

⁸⁷ Amanda Menas, “Fix School Buildings Now,” *NEA Today*, May 21, 2021.

⁸⁸ Riley Matsuoka, “Student Performance and High School Landscapes: Examining the Links,” *Landscape and Urban Planning* 97, no. 4 (September 2010), <https://doi.org/10.1016/j.landurban.2010.06.011>.

⁸⁹ Wilma Zijlema, “The Relationship between Natural Outdoor Environments and Cognitive Functioning and Its Mediators,” *Environmental Research* 155 (May 17, 2017), doi.org/10.1016/j.envres.2017.02.017.

⁹⁰ Londa Schiebinger, ed., *Colonial Botany: Science, Commerce, and Politics in the Early Modern World* (Philadelphia, Pa: University of Pennsylvania Press, 2007).

Designing an inviting space is key and it must be noted that the typical school year for most public high schools is August through June. This timing affects the weather experienced in the courtyard, especially for the thousands schools in cool climates. Designers need to account for the reception of the sun for warmth, and for schools in warmer climates, refuge from the sun. Seating and spaces meant for gathering and rest in the northern climates should locate their seating as much as possible in areas in the south of the courtyard to receive the sun for most of the day, as warmer climates should locate their primary seating areas to the north of the courtyard where the rays of the sun will warm it early, when temperatures are cooler.⁹¹ Walking paths are also inviting to move around and access different points of a building—as noted in design publications, people will generally take the shortest, most direct walk from where they are to where they want to go and some professional site planners leave the paths out of initial construction to assess where these walks naturally occur.⁹² In a courtyard, the purpose could be dual—sometimes it could be the most direct route from one part of the school to the other, as illustrated in following images of the courtyard from Dover High School, Dover, NH. The walking paths serve as an efficient and pleasant way to access fresh air and quickly move from one part of the building to another. Even in inclement weather so common during the school year in the northeast not suited for lingering, the blast of outside air on the way to class serves as a rejuvenator.

⁹¹ Kathie Robitz and Creative Homeowner Press, *Ultimate Guide: Walks, Patios & Walls* (Upper Saddle River, N.J.: Creative Homeowner, 2010), 36.

⁹² Robitz and Creative Homeowner Press, 37.



Figure 3 Walking paths, Dover, NH. Annmarie Barone, 2018

Walking paths through the courtyard at Dover High School, Dover, NH.



Figure 4 Exposed and directed walking paths, Dover High School. Annmarie Barone, 2018

Open courtyard with walking paths, no refuge or seating in this area, encouraging users to continue on their way to different sections of the building of Dover High School. The paths are clearly laid out for students and staff to follow.



Figure 5 Patio off cafeteria, Dover High School. Annmarie Barone, 2018

At the entrance of the courtyard at Dover High School is a patio with a few benches and possibility for more seating.

Many secondary school courtyards employ the use of a patio within the courtyard for eating nearby the cafeteria, as does Dover High School. Another example is the three-quarter surrounded courtyard at Exeter High School, Exeter, New Hampshire. The Exeter High School courtyard is adjacent to the indoor cafeteria and has seating on stone walls that meander among the wide walking and gathering area as well as typical cafeteria style tables for eating lunch.



Figure 6 Patio at Exeter High School, Exeter, NH. Annmarie Barone, 2021

Cafeteria style tables for students in the Exeter High School courtyard.



Figure 7 Benches in courtyard, Exeter High School. Annmarie Barone, 2021

Walkways with benches leading towards more outdoor seating then into the cafeteria, Exeter High School.



Figure 8 Courtyard view of back parking, Exeter High School. Annmarie Barone, 2021

View of courtyard from vantage point of the building cafeteria towards the back parking lot, Exeter High School.

Courtyards can encourage lingering beyond the patio/eating area by encouraging both the actions of moving with intent or lingering for gathering with others, restoration, and contemplation by providing seating beyond a patio area throughout the space. “Courtyards are the connection points between the buildings constituting the focal point of the design center. Various design approaches will enhance the quality of education in schools, and bring them different visions and missions . . . young people will gain an opportunity of having fun together with both their peers and different groups . . . the open green areas for socializing. The passive relations based on visibility, which the people establish with nature, would provide them with

significant psychological benefits.”⁹³ The most liked design by students from a series of differing courtyard layouts included one where the seating area was used functionally and the least liked for only for visual appeal, like a palace garden.⁹⁴ The visual appeal is important, but students and staff instinctually know that this open space in a school should be used and not just viewed. When a courtyard is only viewed, many times, that is when it falls into disrepair and ignored, wasting valuable space. Indeed, students may be onto something regarding use of space of the courtyard—stemming from antiquity. In ancient literature, as in the *Odyssey*, there are references to enclosed orchard-gardens where the plants growing in them were all useful and beautiful, as opposed to the uncultivated land and woods surrounding the enclosure.⁹⁵ Perhaps, in modern times in a public school courtyard, the usefulness of the courtyard could be students and staff enjoying the space, the open air for restoration, and the gathering place to have pleasant social interaction, as well as a space to encourage taking a moment to observe and think. It could be looked at as another space amongst the building—a liminal part of the building, connecting outside to inside (physically and mentally), and to foster and cultivate ideas; thus, the reason schools are called *alma mater*, ideally a safe space to learn and grow.

Secondary school students also find long, unattended grasses unappealing, as shown by the experience of a public middle school in Anne Arundel, Maryland at Annapolis Middle School.⁹⁶ This affinity for maintained landscaping has been innate in people since the beginning of enclosed gardens and students of today are no different. Perhaps it is the sense of order and learning to tame the elements from what one has learned besides the beauty aspect.

⁹³ “The Effect of Courtyard Designs on Young People, Which Have Been Made According to Different Functional Preferences”: Bartın University (Turkey) | Gaye Taşkan - Academia.Edu.”

⁹⁴ “The Effect of Courtyard Designs on Young People, Which Have Been Made According to Different Functional Preferences”: Bartın University (Turkey) | Gaye Taşkan - Academia.Edu.”

⁹⁵ Hobhouse, Penelope, *Gardening Through the Ages*, 20-22.

⁹⁶ “School Grounds for Learning, Case Study Habitat: Courtyard/Outdoor Classroom,” *Maryland Association for Environmental and Outdoor Education*, October 2020, MAEOE.org.

While a school setting comes with time constraints from the nature of the school day, a courtyard in a secondary school can be a welcome respite in a world where open-air seating is becoming less tolerated by city officials to curb behaviors that no one wants to see—such as homelessness. Removing public seating in bigger cities has become the norm and privatizing areas into restaurants, etc. is meant to ‘clean up’ the area from unwelcome behaviors. Jerold S. Kayden, professor of urban planning at Harvard University, documented the trend of disappearing public benches across New York City as official privatized the space.⁹⁷ However, a courtyard in a school has finite times it can be used, following the cadence of school hours, so ‘cleaning up’ of undesirable behavior is not an issue and along with open space to dream and rest for students and staff, courtyards also provide a social gathering place as well, very important to students and society as a whole. Much like a teahouse in Shanghai, sometimes a courtyard can provide solitude among strangers⁹⁸, and as William Whyte notes in his study *The Social Life of Small Urban Spaces*, people are attracted most to other people⁹⁹. In other words, if a park or restaurant is pleasantly busy, more people will want to be there along with seats, the sun, air (wind, the breeze), trees, and water.¹⁰⁰ To feel creative, many students do not need to be encumbered with complicated courtyard designs either. On the contrary, many may desire seats and a gathering place, but the courtyard should not feel cluttered. “To feel creative, I need plenty of white space, coffee, and good light.”¹⁰¹ With the benefit of outdoor space, just as in an office space, the courtyard has an ability to ‘deliver daylight to windows, and a courtyard’s value as a place to take a break.’¹⁰²

⁹⁷ Lee, “The Park Bench Is an Endangered Species.”, 20.

⁹⁸ Ligaya Mishan, “Alone Together,” *New York Times Style Magazine*, October 17, 2021.

⁹⁹ William Whyte, “The Social Life of Small Urban Spaces,” *Project for Public Spaces*, 1980.

¹⁰⁰ Whyte.

¹⁰¹ Karen Callaway, “Beauty in Simplicity,” *Victoria Magazine*, September 2021, 91.

¹⁰² Reynolds, *Courtyards*, 98.

Unfortunately, sometimes the courtyard has a demise, which is when it is seen as a luxury or convenient and not necessary to carry on its open-air space. ‘When a courtyard is seen more as a convenience than a necessity, its open space will be sacrificed, piece by piece, for building expansion.¹⁰³ Indeed, it is fortunate to have a courtyard at all since in the earliest days of monasteries, circa 1270, Dominican Humbertus de Romanis wrote of the need to provide a quiet, well-lit space within monasteries where the monks could consult the best books (the books were chained to the desk to prevent theft and some books were given metal studs to be able to be placed on damp stone without getting wet).¹⁰⁴ At least bookrooms in libraries are not damp and books are not chained, but the use of a well-lit space is always welcome and the filling in of a courtyard for more building must bring with it a tinge of sadness at the loss of the outdoor world of breezes and refreshment. This repurposing of the landscape to enclose the entire courtyard as part of the building it once gave refuge from is more common than one may think. The Library of Congress once had four courtyards—it has one courtyard left of the original four of the main building, the southwest courtyard.¹⁰⁵ The courtyard is large and meant for staff of the library, accessible to visiting researchers currently only through the windows. Typically, from April through September, the Jefferson courtyard (the name of the southwest courtyard) is open from 9:30 until 3:00 for a breath of air amongst the collection housed all around it.¹⁰⁶ It has a patio for seating with the shade of trees and an oasis among an oasis of books in the middle of the nation’s capital city.

¹⁰³ Reynolds, 98.

¹⁰⁴ James W. P. Campbell and Will Pryce, *The Library: A World History* (Chicago: The University of Chicago Press, 2013), 85.

¹⁰⁵ John Young Cole, *America’s Greatest Library: An Illustrated History of the Library of Congress* (Washington, DC: The Library of Congress, Washington, DC, in association with D Giles Limited, London, 2017), 53-54.

¹⁰⁶ <https://www.loc.gov/rr/main/infoareas/food.html>



Figure 9 Garden beds in Library of Congress courtyard. Annmarie Barone, 2021

Courtyard of the Library of Congress making use of the open space with raised garden beds.



Figure 10 Seating under trees, Library of Congress courtyard. Annmarie Barone, 2021

Library of Congress courtyard. At the far end, under the trees, are tables and seats for lunch.

Courtyards can also be disrespected: a recent wave on the popular TikTok app challenged secondary school students to vandalize public school facilities beginning with restrooms in September 2021 and I can attest as a public school teacher that this unfortunate trend was real and some students followed suit. In March 2022, the next possibility is to “make a mess in the courtyard or cafeteria” according to some reports of TikTok challenges. School systems are making their constituents aware to hopefully curb the destructive behavior. The target, as I see it, is known to be something valuable; the courtyard is an important place and thus, the destruction of it would be seen as taking away something meaningful.

On a positive note, some courtyard environments have improved in public secondary schools over the last thirty years. In Annandale, Virginia, the science department at Edgar Allen Poe Middle School added a small pond to their school courtyard to encourage the students to come outside and observe the life in the pond; from turtles brought in to fish added and other studies of biology to enhance the students’ educational and outdoor experiences and to beautify the space. The investment of time and money into the endeavor paid off as generations of students benefitted from the lessons learned as the courtyard became part of their classroom.

Another example of the improvements of courtyard space over the last thirty years is my own high school of Lake Braddock Secondary School, in Burke, Virginia. Thirty years ago, the courtyard in the back of the school led out to an access road that led to more parking behind the school. It was also known as the ‘smoking court’ among many other nicknames. Now, the courtyard is fully enclosed, but not by brick, but by a clear glass window wall that still provides a view to the outside, but protection for those in the school who choose to eat outside in the fresh air since the courtyard is still open to the sky.



Figure 11 Enclosed courtyard at Lake Braddock, Burke, VA. Annmarie Barone, 2021

Courtyard seating area at Lake Braddock Secondary School, Burke, Virginia. The once open access to the back parking area and access road is now enclosed with glass, as seen surrounding the entrance/exit.

It will be interesting to see the success of the busy courtyard of Kings Glen, a school in Springfield, Virginia that serves students up to sixth grade, in many states, considered middle-school aged. The courtyard at Kings Glen used to be a typical mix of lovely, ‘ordinary’ plants, such as the ubiquitous perennials, including hostas and some lilies. In the last few years, an initiative to redesign the courtyard has brought many new ideas—not exactly open vista space, but space to learn and explore with a wealth of seating, which could be key to enjoying the courtyard in a relaxed way while still engaging with others and learning.



Figure 12 Courtyard for young middle school students at Kings Glen. William Hirst, 2021

Redesigned courtyard at Kings Glen Elementary School, Springfield, Virginia.



Figure 13 Tree stump seats in courtyard at Kings Glen. William Hirst, 2021

Seating using tree trunks painted by students at Kings Glen Elementary courtyard.

Chapter VIII

The Courtyard at the Cooperative Middle School, A Case Study

Once the architect saw the beautiful giant beech tree, a school was designed around it. Encircling the beech tree was a vast, open courtyard brimming with possibilities to give light to classrooms in the interior of the building and create an outdoor space for students and staff. But, the beech tree died. For many years, a giant stump was instead the focal point of the courtyard. Then, in 2020, the stump was ground down to a wood chip pile and is now where about six metallic pinwheels are placed to unsuccessfully deter the killdeer birds from nesting each year. When the killdeer come to nest, no one has access to the courtyard because killdeer are a protected migratory bird species and protected under federal law. The killdeer usually have four hatchlings and the parents' killdeer high pitched cry to their young is heard throughout the school day by all courtyard facing classrooms—some, like myself, love the sound. Others are officially annoyed and would rather have another animal that is not so loud, like a chicken or a goat, which could be questionable. When an abandoned rooster found its way to the front doors of the Cooperative Middle School in Stratham, New Hampshire, a courtyard chicken was a real possibility until a community member adopted it. Amongst the bird activity, there have been few classes held in the courtyard, if any. Every now and then, students who need outdoor time for behavioral issues or just needing a quick fresh air break can be seen throwing a ball in the courtyard while the surrounding classrooms close their shades so the students will not be distracted. There are a few picnic tables on the patio by the library, with no bushes to enclose the space from the view of all the windows, no tree to shade the patio, no grasses swaying in the wind, no shelter from the sun or elements. Some classes still try to make the outdoor space work.



Figure 14 Cooperative Middle School courtyard. Courtesy of Sarah Cook, 2021

Students in the CMS courtyard reading for English class, Stratham, NH.

The library must also close its twenty-foot beautiful windows during the day because the sun is blindingly bright shining into the library with the big beech tree gone, so that no one can see the courtyard from the library either. Many students do not even realize the school has a courtyard until I point it out to them. Then, they have many excited plans for it once they see the possibilities of the uninviting space with no shade, no focus for gathering, no shelter or refuge, no planned vegetation for a sense of greenery—just an abandoned looking open space that is sadly underused. The architects who designed the building would be disappointed to learn that the beautiful beech tree died and the courtyard became essentially abandoned. Before planting another tree, agreement over what to do with the massive stump that remained became an obstacle, both literally and figuratively. The information on the firm’s website about the

courtyard and its tree were so promising for future plans.¹⁰⁷ Perhaps that can be rectified.

The wooded site selected for the new building offered the opportunity to incorporate many 24"-40" beech and oak trees into the school grounds. Through much adjusting of the site plan, we were able to save more than 60 trees, including a 40" beech in the central courtyard, which has since become the symbol of the school.

In a school this large, circulation becomes a major design issue, leading us to a courtyard layout which minimizes bottlenecks and allows common use classrooms located around the interior perimeter of the court to be easily accessible from all teams.

Figure 15 Marinace Architects. Courtesy, [Marinacearchitects.com/project/Exeter-middle-school/](https://marinacearchitects.com/project/Exeter-middle-school/)
Architect's description of trees on the school property intended for center of courtyard.

There are plans to help change the future of this courtyard for the benefit of all who attend or work at the school, and even for the community to be able to enjoy it, as it is a public school. The Cooperative Middle School is a school in Stratham, New Hampshire that is one hour north of Boston. It officially opened its doors to students in 1998 after a process of creating a middle school to educate five surrounding towns as the junior high school in Exeter was becoming too small. About 1300 students are at CMS when it is high enrollment and it fluctuates very little in numbers. This current year of 2021, there are less than one thousand students. In

¹⁰⁷ <https://marinacearchitects.com/project/exeter-middle-school/>

2019, approval was given by the voters in the district to renovate some of the structure¹⁰⁸, but the main push for the project was to increase the size of the building to ensure each student had a positive learning experience and each teacher felt supportive and as autonomous as desired—almost every teacher was able to stay in one classroom instead of having to travel from class to class to teach with a multitude of materials. Construction began in 2019 and students are in the building once again and enjoying new classrooms and facilities. The filling in of the courtyard was never discussed, to my relief. Through all the overcrowding and lack of classroom space, the courtyard was important enough to leave alone and not fill in. But, it is still so uninviting as a space, that essentially no one uses it on a regular basis anyway.

There are many who try to add small things to make the courtyard inviting. A few years ago, a teacher planted irises and they come up each year. There are a few picnic tables on the patio, but with only four to a table, only smaller classes can gather. Looking out, a few have tried to start small kitchen gardens, but those get ignored almost as soon as they are planted because of other needs during the school day. A few teachers decided that this space is too valuable to waste—working together, they are charged with a sense of purpose on how the courtyard will improve its design to be useful and inviting and also frugal with funds, as it is a public venue when school is not in session for the community.

¹⁰⁸ <https://cmsrenewal.com/2018/12/19/enrollment-demographics/>



Figure 16 Overall view of CMS courtyard. Courtesy of CMS Renewal Committee, 2017

Overall view of Cooperative Middle School courtyard. The raised grassy area near the patio once had a large beech tree that has since died.



Figure 17 Dead beech tree stump in CMS courtyard. Annmarie Barone, 2020

Beech tree stump. The tree had died years earlier in CMS courtyard.



Figure 18 Patio off library at CMS courtyard. Annmarie Barone, 2020

Patio area outside library at Cooperative Middle School. There are seats, but no refuge from the elements, like sunlight or light rain, or the sense of being exposed.



Figure 19 Seating area off library at CMS. Annmarie Barone, 2020

Patio outside the library – note without the beech tree providing shade, the library windows must keep shades drawn from the direct sunlight; it becomes uncomfortable for students and staff.



Figure 20 Second story classroom view of CMS courtyard. Annmarie Barone, Spring 2021

Construction scaffolding at Cooperative Middle School – the courtyard is kept unused for safety.



Figure 21 View to library and tree stump removed. Annmarie Barone, Spring 2021

Library is able to open blinds when the sun is not blinding. Note the beech tree stump is removed, allowing for more options on how to utilize the space.



Figure 22 Winter view of courtyard from classroom. Annmarie Barone, Winter 2021

Cooperative Middle School courtyard on a winter day – looking towards the library across the way.



Figure 23 View of courtyard at CMS with construction. Annmarie Barone, 2021

Looking out of the classroom window on ground floor to courtyard with no green or evergreen vegetation during the winter, which is what the original plan was for the courtyard.



Figure 24 Melting snow in CMS courtyard. Annmarie Barone, 2021

Snow melting in early spring in the courtyard. Students do not as of yet have much to look at outside the window except for an open space with no seating, no greenery, no focus, and no refuge. Many are gathering ideas to make the courtyard more inviting and useful.



Figure 25 Early fall, CMS courtyard. Annmarie Barone, 2021

Early fall in the Cooperative Middle School courtyard from the new staff lounge. Someday there may be seating outside for staff and students to have some outside time and trees to enjoy.



Figure 26 View from staff room, early fall at CMS courtyard. Annmarie Barone, 2021

Early fall, view from staff breakroom. More trees to provide refuge and seating would be ideal.

The Cooperative Middle School has just completed in the summer of 2021, a multimillion-dollar renewal project that added two more teaching wings and new multiuse spaces for students and staff. The entire project made sure the courtyard was still intact, but now it

needs thoughtful design to make it an appealing and useful space. For this thesis, I wanted to test my theory that what occupants of a secondary school building really want in a courtyard is a place that feels like an oasis, has the focal gathering potential of a hearth, and follows Jay Appleton's theory of the most desired landscape for humans; that is a landscape that has a good view, the vista, combined with a bit of shelter, a refuge, from which to view the vista while maintaining a feeling of safety. To truly be useful and inviting, many staff and students expressed interest in doing something to improve the courtyard's appeal, but the initiatives have not taken hold yet as the school year kicks into high gear. Therefore, to gather information in a straightforward manner a survey was conducted to get feedback on their view of an inviting courtyard so this potentially great space can thrive for students and staff.

Chapter IX

Findings

To determine what staff members consider an inviting courtyard space at the Cooperative Middle School, an anonymous online survey was given at the beginning (in early September) of the 2021-2022 school year. The survey was also offered to staff at Exeter High School in the same school district because many teachers who instruct at the high school were also teachers at the Cooperative Middle School as well and have experience with the school. The survey was meant to test my hypothesis that to be an inviting academic courtyard space, a courtyard should have four main elements to follow in its design: 1) the prospect 2) the refuge (from Jay Appleton's theory of appealing landscape for humans) and my theory that an inviting courtyard should also include 3) the sense of a hearth (a focus and gathering place) and 4) an oasis (a sense of restfulness and restoration).

Each question in the survey aimed to target the one or more of these four elements to get a sense from staff what was most appealing to them as well as share if they wished in their own words what makes a secondary school courtyard appealing. Of the ninety-two staff members at the Cooperative Middle School and one hundred staff members at Exeter High School, eighty-nine teachers responded to the survey, with sixty-six responding from CMS and twenty-three from EHS. Of the eighty-nine teachers responding, twenty chose to complete the optional question: 'What makes a secondary-school courtyard appealing to you?' as an open answer and there were varied responses. Of those twenty who wrote their own thoughts, common themes laced through many of the responses and will be presented after the initial question findings.

Question 1 had very strong results in favor of seating in a courtyard. As seen in figure 27, 70.8% strongly agreed seating is appealing and 27% agreed it is important. This totals to 97% of staff in favor of having seating in a courtyard to make it appealing. This question regarding seating appealed to both the hearth and the oasis and even can include the prospect/refuge theory. When gathering by a hearth, many times one is seated to take in the warmth of a fire, whether alone or with others. While seated, one is also resting the body—the mind could still be working, but the body is at rest, letting the mind focus on the task at hand or let go and wander. This can be likened to being at an oasis, gathering strength for the next task while also resting. The choice to sit and look out into the courtyard and the sky as opposed to standing gives one the opportunity to look without physical limitation to the open space—the prospect—perhaps to observe others, perhaps to meditate while viewing the sky and space. The refuge taken while seated moves into the next question, but it should be noted that even with seats in the form of picnic tables and seating areas in the open courtyard at the Cooperative Middle School, very few times (literally a handful) are those seats used—there is no protection from the sun or from classroom windows looking on surrounding the courtyard or from rain showers.

Having places to sit like benches or tables in a courtyard is important.

89 responses

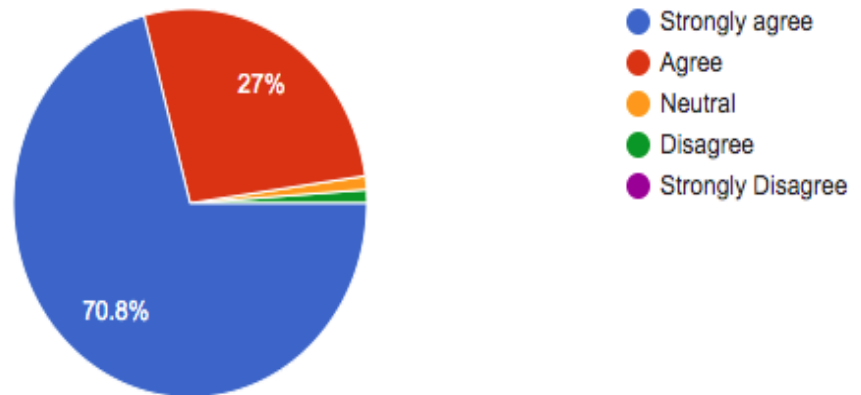


Figure 27 Question 1, seating. Annmarie Barone, 2021

Results show that seating is very important in a school courtyard to staff surveyed.

There should be protected areas for people in courtyards. (cover from the sun, for inclement weather, or from windows into the courtyard, etc.)

89 responses

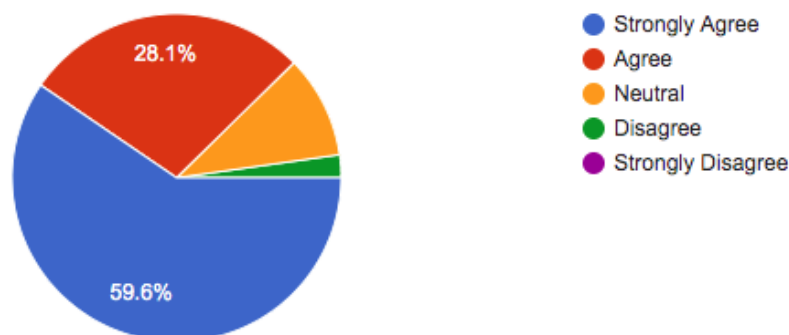


Figure 28 Question 2, protected area. Annmarie Barone, 2021

For question 2, staff was asked about the appeal of having a protected area in the courtyard – i.e. shade of a tree, awning, arcade, or covered patio or walkway. This question was to gain insight into the theory of a sense of refuge is appealing in a courtyard, especially in an academic setting to protect from glaring sun, rain showers, or from being exposed to onlooking windows with no sense of cover, like being on center stage with no curtain.

59.6% strongly agreed that there should be a refuge, with 28.1% agreeing – 87.7% in a form of agreement that a sense of refuge is what makes a courtyard appealing. A small number actually disagreed that there should be protected areas.

When asked the third question about the appeal of a focal feature of a courtyard, such as a fountain or a statue, the number of responses showed that less staff believed that a focal feature is necessary in a courtyard to be appealing, which initially was a surprise to me. 74.1% agreed (33.7% strongly and 40.4% agreed) and a full 25.8% felt neutral or ambivalent about a focal

feature. There was no disagreement to indicate a focal feature does not need to be in a courtyard to be appealing, however it is not as strong of a need.

There should be a focus in a courtyard to gather with others or view for aesthetics or both. (ex. a fountain, gazebo, garden, sculpture, clock, etc.)

89 responses

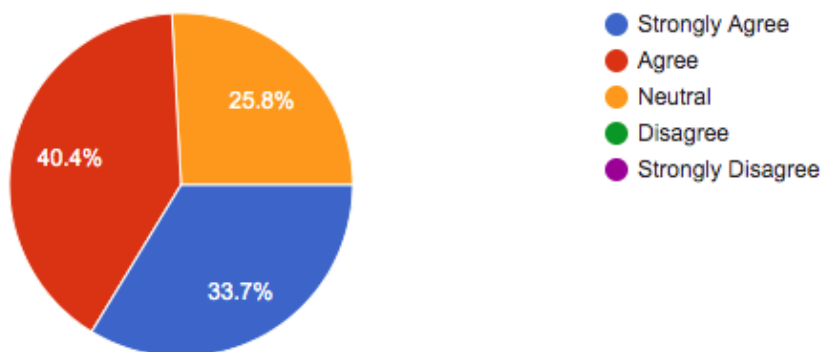


Figure 29 Question 3, focal point. Annmarie Barone, 2021

Question 3 asked if a focus should be part of an inviting courtyard; many agree, but it was not nearly as important as seating.

It appears from the survey results thus far, that as long as there are seating options with cover, the focus is not as necessary because the gathering and seating area is the focus, wherever it may be in the courtyard, even multiple locations throughout. This can be interpreted in another way as well—if there was a focal feature such as a centerpiece sculpture, pool, fountain, etc. perhaps the refuge aspect would not be as needed. The idea that one can look on from a protected place to the prospect as in the prospect/refuge theory is to be considered here—the attention is taken away from the refuge or perimeter to the prospect, which could be simply the open space

or the sky may explain why if there is seating in a protected area, the focal feature is not as needed.

The fourth question asked about the appeal of plants and the sense of an oasis in a courtyard. The responses showed no aversion to plants—on the contrary, 96.7% either agreed or strongly agreed (65.2%) that plants are a big part of courtyard appeal. A small percentage was neutral. It should be noted that there was not one response in disagreement with having plants and green space in a courtyard. Plants provide immediate access to the natural world, inside or out, and the sense of living and connection. Plants also need water, so possibly the connection of a living plant associated with water as in a refreshing oasis for replenishment and rest is an underlying and instinctual appeal of a courtyard. Whether the water is in the form of a fountain or pool, in a well or basin for the washing of hands, or stored and used by a plant, the sense of an oasis in a courtyard is clearly a resonating factor in its appeal.

There should be plants and/or trees in a courtyard.

89 responses

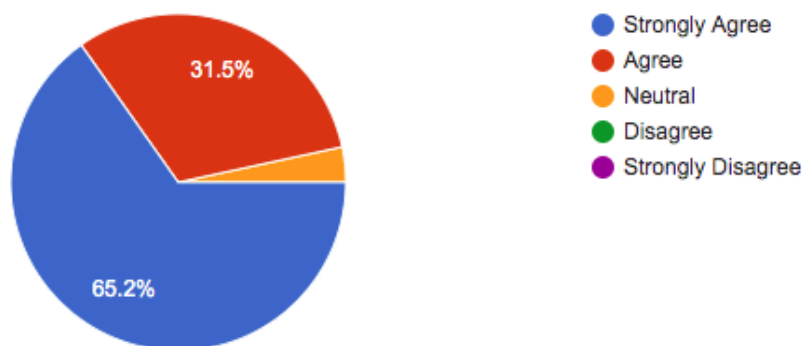


Figure 30 Question 4, plants and greenery. Annmarie Barone, 2021

Question 4 regarding if plants and trees are appealing in a school courtyard.

The next few questions asked specifically which features were most or least important. Responders were able to choose more than one option or choose even the option that all features are important or not necessary for courtyard appeal. This allowed for a more detailed insight into what features matter to staff when envisioning an appealing and inviting academic outdoor space. In Question 5 – ‘Which factors are most important in an academic courtyard?’- for responses, staff could choose more than one that makes a courtyard appealing. Of the eighty-nine responses, a third (thirty staff members) chose all items as the most important in an inviting courtyard with twenty-three staff members specifically choosing three factors that key elements in an inviting space: 1) seating, 2) plants and 3) protected/covered areas.

Which of these features is most essential in a courtyard to you? You may choose more than one.

89 responses

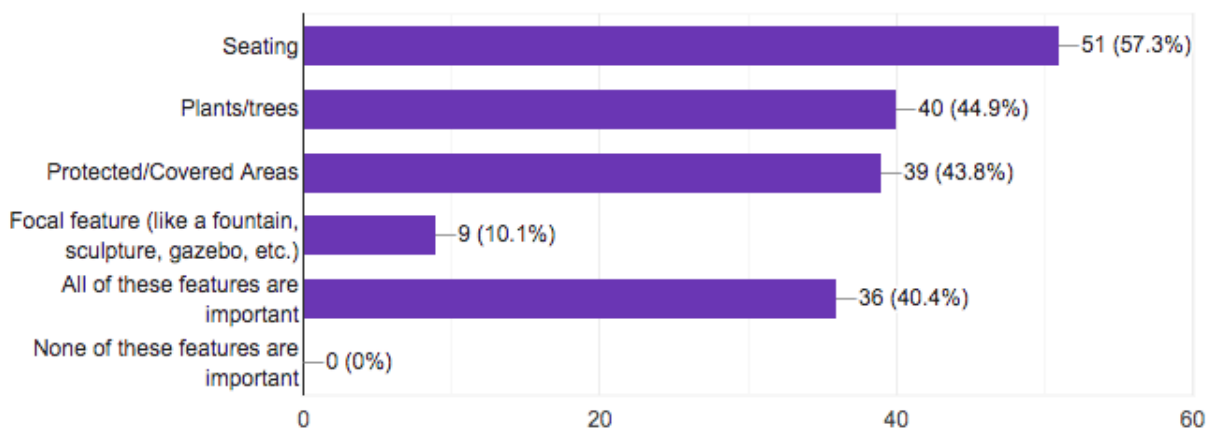


Figure 31 Question 5, most important aspects of an appealing courtyard. Annmarie Barone, 2021

Question 5: Seating is still the most important feature in an academic courtyard, followed by plants and trees, protected areas, and still many chose all features as important.

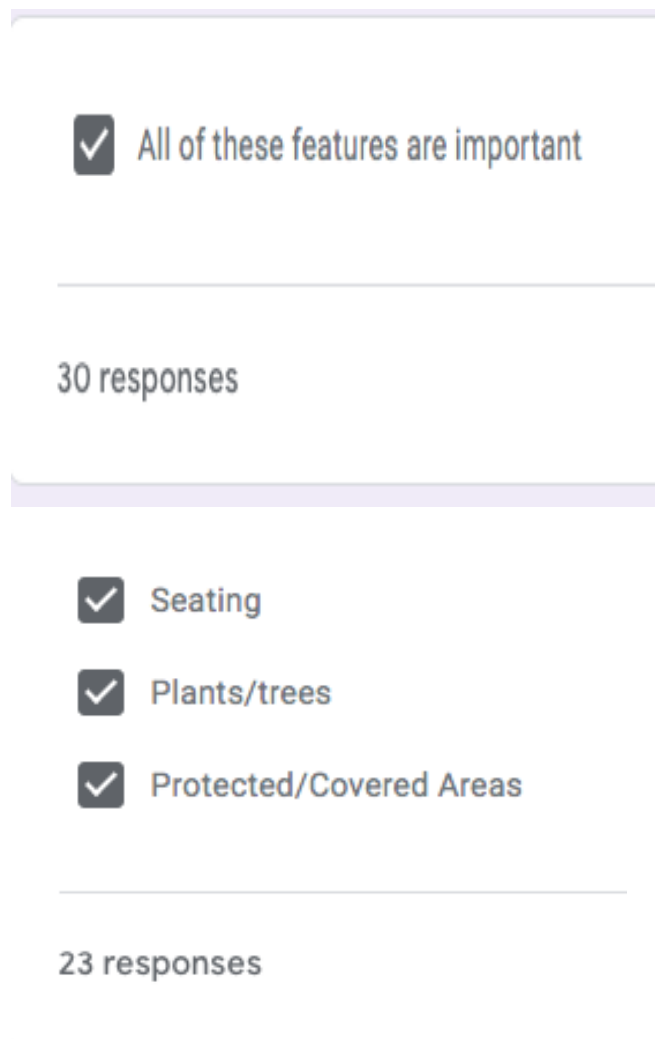


Figure 32 Detailed breakdown of important aspects of courtyard. Annmarie Barone, 2021

The responses show that most people in the survey chose all features as important in an appealing courtyard. Twenty-three were specific and chose seating, plants, and protected areas.

To gauge what staff felt about what was not necessary to make a courtyard inviting, the question was asked: Which is the least important factor to make a courtyard inviting? There was a clear stand-out for this question—the least important factor to staff was a focal point in a courtyard, such as a statue or fountain, following what was shown in the results of Question 3, which showed the focal feature is not as important to make a courtyard appealing. Perhaps the

focal feature could be adapted to a gathering space instead.

Which of these features is least important in a courtyard to you? You may choose more than one.



89 responses

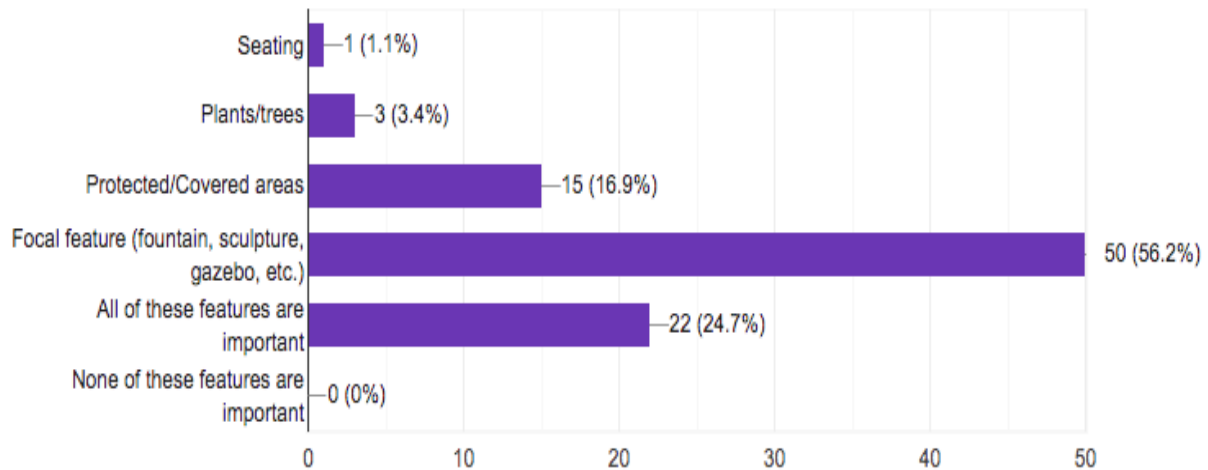


Figure 33 Question 6, least important aspects of a courtyard. Annmarie Barone, 2021

Question 6 – The focal feature is least important – and seating clearly is something not to be ignored in the design of a courtyard

Question 7 resonated with the respondents with the restorative, oasis sense of courtyard. When asked if a courtyard should be a restful place, most strongly agreed, if not simply agreed, as shown in the results in Figure 34.

A courtyard should be a restful place.

89 responses

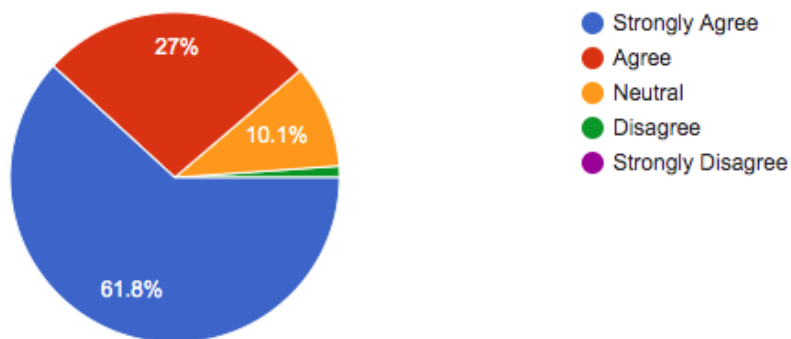


Figure 34 Question 7, restful space. Annmarie Barone, 2021

A courtyard should be a restful place – says 89.8% of those surveyed.

Although 10% were neutral about a restful atmosphere is important in a courtyard, more than 88% responded that a courtyard in an academic courtyard space should have a restful quality to make it an inviting and used often. The features and elements that make a courtyard a sense of rest and rejuvenation, like an oasis, is important in the design of the space. When asked about a courtyard's appeal as a gathering space in question 8, the responses were more varied. More people, about 25% were neutral about this element, and while a majority still felt gathering was an important feature of a courtyard, 71% of respondents, only 28% strongly felt it was

important, with two respondents opposed as well.

A courtyard should be a gathering place.

89 responses

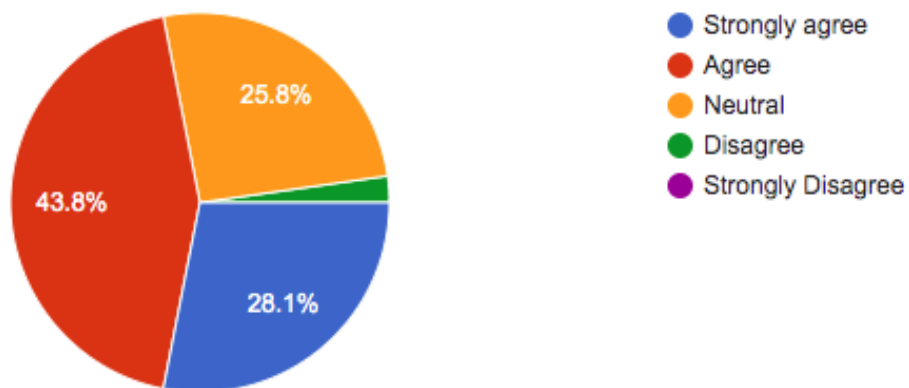


Figure 35 Question 8, gathering space. Annmarie Barone, 2021

Question 8 - the gathering space; could be interpreted like gathering around a hearth..

In question 9, regarding the physical feature of walking paths, etc. the overwhelming majority chose stonework as most appealing. Other choices for possible appealing choices were grass, mulch/wood chips, pebbles/gravel, and cement. The combination of grass and stonework also was a popular choice, along with the combination of pebbles and stonework. Stonework clearly has appeal in a courtyard for respondents as a connection with earth and stability and design appeal. Figure 36 shows the responses with stonework as the clear favorite amongst the staff at a school. To make a courtyard more accessible to everyone, especially important in a public school, ease of walking and access to the courtyard surfaces for all abilities is essential.

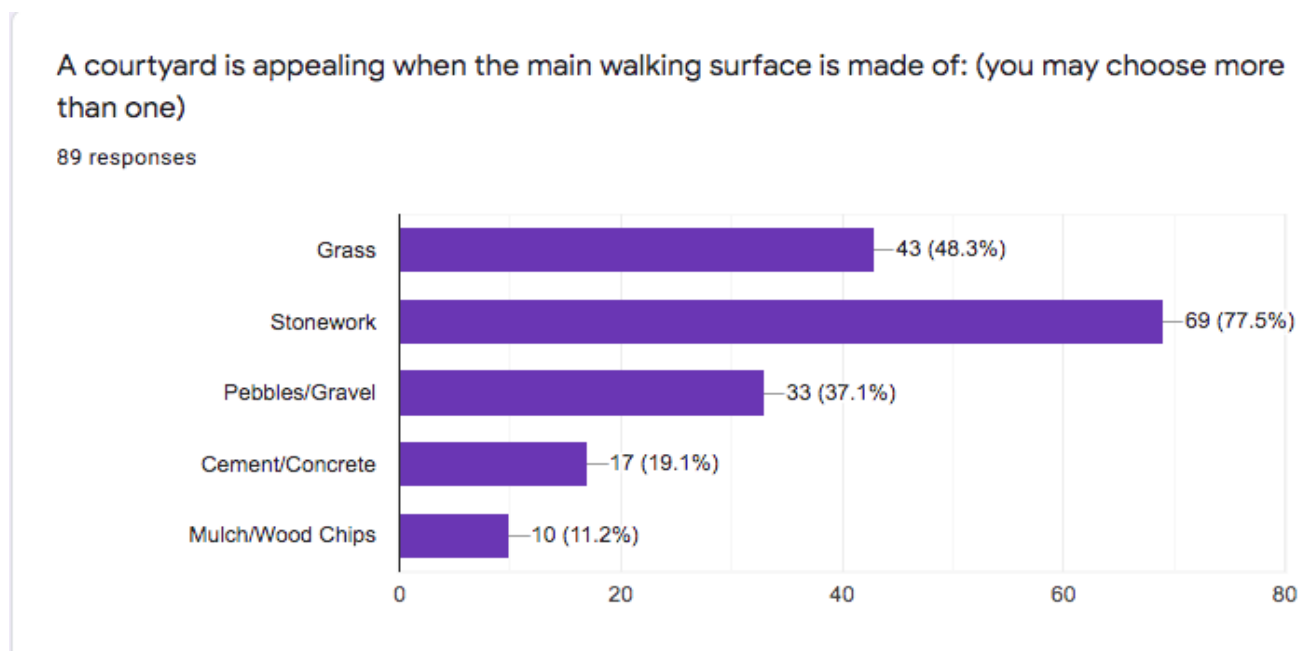


Figure 36 Question 9 preferred walking surfaces. Annmarie Barone, 2021

Question 9 - Walking surface materials preferences – results strongly favored stone.

The final question was optional and was an open response. The survey asked respondents directly what makes a secondary school courtyard appealing. Of the eighty-nine overall survey responses, twenty respondents chose to give their own thoughts on their idea of an appealing academic space.

Of these twenty responses, more than half mention the appeal of seating options as well the need for protection from the elements—the desire for shade or refuge from weather. Half the responses mentioned the quiet and restful appeal, with gathering for classes and small group discussions as an option. Many responses mention the appeal of taking in the outdoor natural elements of absorbing sunshine and observing nature, whether that is in the form of the green grass, trees, birds, or the sky itself. The next few images are taken directly from the respondents.

If you wish, in the space provided, please describe your idea of a great courtyard for a secondary school! (not required) And THANK YOU for your time to complete this survey; your responses are valued!

20 responses

It should have protected areas, especially around the perimeter and seating, plus something to focus on besides empty space to provide interest and promote gathering

Green space with a stone pathway through middle, with seating on the sides and corner area gardens with plants and flowers, as well as some kind of covered area for those sensitive to sun/so courtyard can still be enjoyed if raining/snowing.

Lots of water features like a small pond or rain chain, bird baths, etc.

We need courtyards in our schools and if we have them we need to use them more!!!

It should have purpose, be usable to all, and not be a space void of elements (as I have seen in other schools). It should definitely have natural elements such as trees and grass.

For a school, protected seating and solid walking surfaces seem important to make the space accessible in the maximum number of conditions.

Figure 37 Question 10, open responses to what makes a school courtyard appealing. Annmarie

Barone, 2021

First six responses on courtyard appeal free answer survey.

Something that is designed by students for students that is durable and made of sustainably sources products.

I believe the courtyard should be a gathering place with an academic focus instead of a restful focus. Thank you!

To me, the perfect school courtyard would feature gardens and some shady places to sit and learn, relax, read, or do research. Students could learn about the types of plants and the creatures that inhabit the courtyard. The space would be a calming place for students and staff to go during their day.

Shade. CMS was designed around a grand beech tree. It was home to bluebirds and gave shade and visual appeal.

At a school, it would be nice to have a place to sit for eating or studying.
:)

Having a place where students and teachers could gather or have quiet time would be wonderful. It might be nice to have a place to bring students for class activities, too, but not necessary.

Figure 38 More responses to what makes a school courtyard appealing. Annmarie Barone, 2021

Second group of open responses for courtyard appeal

I think it should be a quiet spot, not used for crazy running around students.

A courtyard should offer both space for a "larger" group and smaller areas for small sub-groups for quiet / close discussion. All seating in a circular, group- or community-friendly structure.

flat surfaces are best to walk on

Amphitheater in a courtyard would be ideal for the performing arts! Similar to an atrium, etc.

Thank you!

Good luck!

I would like to see a courtyard as a place to get some peaceful outside time. A place where a class could come for a quiet outdoor learning space. it should NOT be a place for soccer/frisbee which is distracting for all.

Figure 39 Staff responses to what makes a school courtyard appealing. Annmarie Barone, 2021

Third group of open responses for courtyard appeal; note the continuation of the appeal of seating and a quiet outdoor space for learning.

I don't necessarily want the courtyard to be a place to play but rather a place to gather, chill, learn, etc... Kids played in their before and it literally killed all of the grass but if students are just sitting and standing on the grass it might survive better!

It doesn't have to be "benches" but a place to sit other than grass is nice, like stepping stones.

I believe a courtyard should be a place to respect & feel benefits of nature (plants, birds, maybe fish in a fountain/pool). For me, it needs to be a quiet place for sitting & meditating, absorbing sunshine, reading OR a spot for a quiet walk (mask break?) without talking or technology interruptions. Perhaps there could be a sign to "Respect the silence"/ "No cell phones zone". I don't envision "hanging out" there if it is noisy or just like the tables outside the cafe. Can there be faculty times (escape cocoon) without students [much like "adult swim" times at the public pool?]

An area for students to go to for all different reasons (rest, free time, learning)

Figure 40 Final responses to courtyard appeal free responses from staff. Annmarie Barone, 2021

Fourth and final group of comments about what makes an academic courtyard appealing. Most common request was the need to have seating. The comment of 'gather, chill, learn' is key to overall use of an academic courtyard.

In the academic setting, students and staff work together and the courtyard must be for all those in the school. Students did not take the survey given to staff, but are asked to give feedback often about ideas for the courtyard by various teachers. It is fitting to show two examples of student ideas for a secondary school courtyard and how similar they are to the teachers' responses for optional survey question on what makes a school courtyard appealing. Note in student created design ideas in figures 42 and 43 the gathering/focal point of the central area, the greenery with the trees added along with shrubs and flowers, and especially prominent are the seating options—benches in the middle, lining the perimeter; there are many options. Recently, with the ongoing renovation of the Cooperative Middle School, a patio was built to accommodate those who would like to eat outside, facing one of the parking lots and not part of the original courtyard. It is not a fully enclosed courtyard in the strict sense of the word, but it is

a useful outdoor space open to the sky and more plantings are being planned to add more greenery.



Figure 41 New seating area off cafeteria at CMS, Stratham, NH. Annmarie Barone, 2021

Updated patio outside cafeteria at middle school. The circular pods are moveable seating options.

Usefulness is key to the appeal of a courtyard in a secondary school alongside with any of the other four elements of prospect, refuge, oasis, and hearth.

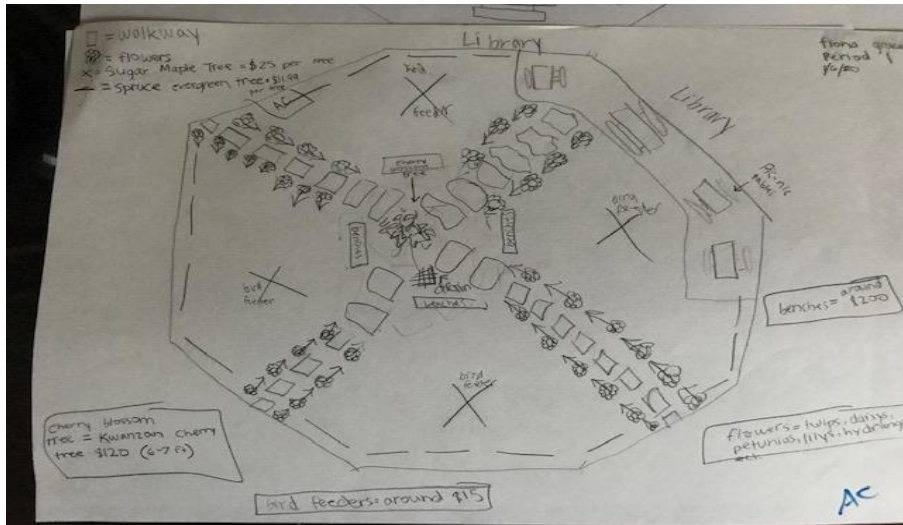


Figure 42 Fiona Grace, 2020. Used with consent of student Fiona Grace and parent Jennifer Grace

Student courtyard idea example; note the walkways with a focal point, seating and vegetation.

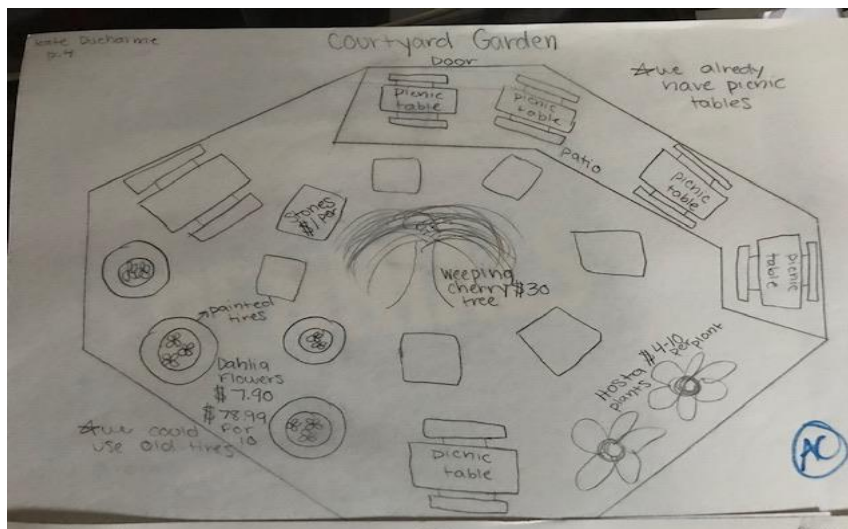


Figure 43 Kate Ducharme, 2020 Student courtyard idea. Used with consent of student, Kate Ducharme and parent Miranda Ducharme

Student courtyard idea example; note the abundance of seating, vegetation, and a focus.

A student also had some thoughts written about guidelines; *“I think having a courtyard would be a great idea because it will help reduce stress. The courtyard needs rules so it stays tidy and clean and is a relaxing place for all students. Without strong rules, students will ruin the plants of the courtyard. The tables for a student and teacher to meet is important because with the fountain there with flowing water, it relieves stress from both the teacher and student.”*

Anonymous

Essential elements include and are not limited to: seating (prospect looking out and for rest and work), trees and shrubs (oasis of greenery, refuge under the trees), gathering spots of larger tables (hearth). It is clear that students, as well as the staff, have essentially the same sense of what makes their school courtyard appealing, even if just on paper hoping to be realized.

Chapter X

Methods

A targeted survey was sent to ninety-two staff members at the public middle school part of the case study regarding courtyard appeal in secondary schools. The survey was also sent to one hundred staff members of the public high school in the same district to include their viewpoints as well, with the knowledge many teachers at the high school previously taught at the middle school or had visited the middle school on occasion.

The survey was sent out early in the school year (September) and remained open for approximately two weeks. The survey was sent via Google Forms in an online only format for ease of collecting data from only staff members of the district and for the anonymous option to complete the survey, with the intent that only staff of the middle school and high school could complete the survey. The survey was given in a multiple-choice format for ease of the respondent with one optional short answer for freedom of the respondent to express thoughts in their own words regarding courtyard appeal. The questions were directly tied to the thesis, with only ten questions to avoid any survey fatigue and all respondents were aware the survey was optional, anonymous, and to ascertain their views on courtyard appeal in an academic setting.



Harvard University-Area
 Committee on the Use of Human Subjects
 44-R Brattle, Suite 200 (2nd floor)
 Cambridge, MA 02138
 IRB Registration - IRB00000109
 Federal Wide Assurance - FWA00004837

Notification of Initial Study Exemption Determination

June 25, 2021

Annmarie Barone
 abarone@g.harvard.edu

Protocol Title: In the Absence of Structure, the Atmosphere Can Be Full: A Comparative Study in the Historical and Modern Uses and Effectiveness of Courtyards in Public Spaces
Principal Investigator: Annmarie Barone
Protocol #: IRB21-0646
Funding Source: None
IRB Review Date: 6/25/2021
IRB Effective Date: 6/25/2021
IRB Review Action: Exempt

This Initial Study submission meets the criteria for exemption per the regulations found at 45 CFR 46.104(d) (2). As such, additional IRB review is not required.

The Principal Investigator is responsible for ensuring compliance with any applicable local government or institutional laws, legislation, regulations, and/or policies, whether conducting research internationally or nationally. Additionally, if local IRB/ethics review is required, it must be obtained before any human subjects research activities are conducted in the field. If assistance with applicable local requirements is needed, please contact the Harvard University-Area IRB office.

The documents that were finalized for this submission may be accessed through the IRB electronic submission management system at the following link: [IRB21-0646](#)

Instructions on how to get approval for in-person research from your School/Department may be found here - https://cuhs.harvard.edu/instructions-returning-person-human-subjects-research?admin_panel=1 You will also find on this site an outlined process, guidance, templates, and standard operating procedure examples to assist researchers and their Schools/Departments to get in-person human subjects research up and running.

NOTE!

Figure 44 IRB Exemption Approval, Harvard University. Annmarie Barone, 2021

Approval document for survey/exemption of Harvard's IRB review

Chapter XI

Research Limitations

The scope of studying and analyzing courtyards is a massive undertaking, so to gauge the targeted response of those directly impacted by an ignored courtyard, a case study was conducted at the chosen public secondary school location. This inherently limited the amount of people that could be surveyed to the specific case study, yet did provide valuable feedback.

The courtyard that was part of the case study is only a small sampling of what could be a case for further study at many more secondary schools across the United States and even worldwide on how to make a courtyard space in an academic setting more inviting for students and staff. Another limitation to the research is legally not being able to survey students without express parental/guardian permission for each student in writing. This legal limitation lessened the amount of people surveyed, but creates another path to research in the future for the students written perspective. For this thesis, staff at the secondary school were chosen (with full approval) because of the number impacted by the disuse of the courtyard and their closeness with working with students each day who would use the courtyard if it was a more appealing space.

The impact of COVID-19 also limited the observations that could also be added to the research endeavor. Museums, schools, and various other public spaces reduced visiting capacities to observe natural behavior in an outdoor (and especially indoor courtyard) because of the severe limitations of social distancing during the pandemic.

Chapter XII

Conclusion

Frodo said once in J.R.R. Tolkien's *The Lord of the Rings* "I wish we could get away from these hills. I hate them. I feel naked on the east side, stuck up here with nothing but the dead flats between me and that Shadow yonder."¹⁰⁹ People need to feel protected from the elements and have a sense of control and protection while looking out, which is why an appealing courtyard in a school ideally would have some sort of 'refuge' for students and staff.

Much of the 'prospect' aspect of a courtyard can be looking out to a green carpet of grass, an expansive space of stone, or pools and fountains. The sky also cannot be ignored. In my Latin class recently, I was teaching the students the story of Daedalus and Icarus. I realized, while relating the story, that Daedalus had the epiphany about how to escape from the labyrinth by looking at the expanse of the sky above and realizing that was his way out of the maze of his own creation. The sky is the prospect and can be a source of inspiration. The importance of a view and/or fresh air is the source of some contentious building design in student housing at UC Santa Barbara. The proposed design of a residential building for students without windows in their living space caused one architect to resign from the project in complete disagreement with the direction of the endeavor. Dennis McFadden cited in his resignation letter that "interior environments with access to natural light and nature improve a person's physical and mental well-being . . . The Munger Hall ignores this evidence and seems to take the position that this

¹⁰⁹ J. R. R. Tolkien, *The Lord of the Rings*, 50th anniversary 1 vol. ed. (Boston: Houghton Mifflin, 2005).

doesn't matter."¹¹⁰ The project may still move forward and will be a possible place to research the effects of a lack of natural light in an academic and living space.

While not an academic space, another space where the public gather for a specific purpose in a building are airports. Recently redesigned airport terminals show that stressed-out travelers waiting for flights, rescheduled for flights, and hoping their next flight is not cancelled or delayed benefit from a more peaceful environment rather than one with blaring television screens showing the news; which is rarely a pleasant break. These redesigned terminals incorporated expansive views, added more comfortable seating, brought in more indoor garden and green space and added more outlets for individual use for technology. The goal is to provide a prospect view out large windows, spaces to gather and sit like a hearth along with the refuge of being able to check one's own individual device rather than depending on mass technology and noise, and finally an oasis of sorts with plants for a feeling of revitalization. "Existing concourses from New York City to San Francisco demonstrate ways both small and large—from muting the televisions to installing indoor gardens—that airports are trying to ease psychic turbulence on the ground."¹¹¹

The phrase *ease psychic turbulence* strikes a chord because that is what a courtyard in any setting, especially a secondary school setting, has the potential to do when designed with the four factors of providing a prospect (whether the sky or the simple view of a cared-for expanse of land), a refuge, a hearth, and the feeling of an oasis for staff and students.

Simplicity in an academic space balanced with refuge and restful spaces, whether with greenery or protection from the elements, gathering features and even walking paths to draw

¹¹⁰ Maria Cramer, "After a Billionaire Designed a Dorm, an Architect Resigned in Protest," *The New York Times*, October 30, 2021.

¹¹¹ Elaine Gusace, "The Trouble With Airports and How to Fix Them," *New York Times*, September 7, 2021.

people together to have conversations and academic or social dialogue along with the openness of the sky as a prospect view is a way for a public secondary school to have a more inviting courtyard. The results from the case study at the Cooperative Middle School are clear that a courtyard at a school should be a place with a place to sit for a time, whether for study, reflection, teaching, gathering to socialize or engage in discussion, or simply think with open space around and above. While in the school setting, the reminder of the function of the courtyard is two-fold; to rejuvenate while in the courtyard and to rejuvenate to return to the classroom, whether as the teacher or the student or both. The courtyard also simply functions as a space for a break—to sit for a time and have a conversation or quiet time to check, in the modern world, email and texts for work and school and home. As Francesca Brewer wrote in her history of Harvard’s Fogg Museum, precursor to the present-day Harvard Art Museums, “Whatever teaching and research materials the laboratory museum assembled...its greatest resources were human.”¹¹² The recent renovation of the Harvard Art Museums centers around the Calderwood Courtyard. The museum itself is meant to be a research and teaching museum as well as a space for the public to enjoy the art collections of the University, and gather at its courtyard. The original courtyard with its distinct arches, was modelled after the façade of a 16th century canon’s house of the San Biagio church complex in Montepulciano, Italy by noted architects Coolidge, Shepley, Bulfinch, and Abbott. (the monastery essence continues its influence!). The recent renovation completed in 2014 was designed by architect Renzo Piano. The courtyard has a role to host both formal and informal gatherings, much like an Italian piazza. “I hope people will rendezvous in the piazza” Piano said of the space.¹¹³ I had the fortunate experience of visiting the

¹¹² Francesca G. Brewer, *A Laboratory for Art: Harvard’s Fogg Museum and the Emergence of Conservation in America, 1900-1950* (Cambridge, Mass. : New Haven: Harvard Art Museum ; Yale University Press, 2010).

¹¹³ “The Calderwood Courtyard,” December 21, 2016, harvardartmuseums.org/article/the-calderwood-courtyard.

museum with my extended family and when we were all exploring the museum space, the courtyard was a lovely place to take a rest from taking in all the wonderful art. Young people, such as my own children and nieces, when finished with their own limit of an art museum visit, were patiently waiting for the adults to enjoy the art because they had a place to sit and rest in the courtyard. Others I observed were checking in on their phone, talking to each other, or sitting quietly observing others as well. It was a pleasant, piazza-like experience. This could occur at a secondary school as well during various break times for students and staff. Formal events like the re-opening gala in November of 2014, would also be a lovely an experience because of the appealing architecture of the space.



Figure 45 Renovated Harvard Art Museum courtyard. Photo by Nic Lehoux, Harvardartmuseums.com, 2016

Calderwood Courtyard at the Harvard Art Museums; note the seating, protected walkways, and open space as a prospect.



Figure 46 Taking a break in the Calderwood courtyard. Annmarie Barone, 2018

Harvard Art Museums; My family taking a break in the Calderwood Courtyard at the Harvard Art Museums.

In a public school, the greater community also has access to the space, so a well-designed, appealing courtyard could also be used for the greater good on evenings and weekends and throughout summer for various occasions as well. A useful and appealing courtyard is one fulfilling its potential for students, staff, and the community, especially in a public secondary school.

There are principles in landscape aesthetics that are widely accepted—“the biological principle states that aesthetic pleasure in landscape derives from the dialectic of refuge and prospect . . . on the other hand, aesthetic pleasure derives from a landscape that contributes to

cultural identity and stability.”¹¹⁴ This thesis aimed to show that prospect and refuge are important *as well as* the sense of a hearth for gathering and an oasis for rest and refreshment. Perhaps these four elements can overlap each other, but with the results of the case study survey of the Cooperative Middle School, seating in a courtyard was a key element to make a courtyard appealing. Instead of a focal point as I had originally thought would be like the hearth, instead, it became clear that the hearth element was for gathering and seating is the main part of that, like sitting around a campfire. During the height of the pandemic, gathering safely outside around a fire was extremely popular, even more than before the pandemic. “It gives a place to chat, nibble, and to linger and backyard fire features became near mandatory during the pandemic when they allowed us to gather safely outside with a few friends....a sanity saver.”¹¹⁵

The actual firepit is not the necessary element for a school, but the gathering areas in a courtyard space are needed. Whether picnic tables, tree stumps, benches, or the most appealing round tables or circular seating areas are provided, seating is key for the feeling of a hearth for gathering. I was once told by an elder woman in Spain, the grandmother of a classmate while studying abroad, that the key to a well-designed social function is the placement of many small seating areas in the space for people to gather. I see where this concept not only applies to parties, but schools—we as humans need spaces to gather together, to speak and to listen to each other; a key function of education. The other element is the oasis, which is evident in appealing designs for schools—the greenery provided gives a sense of the natural world outside of the built one and a source of refreshment. Whether as evergreen trees and shrubs in colder environments, indoor gardens in fully enclosed spaces, or climate permitting green space all year, the beauty of

¹¹⁴ Murat Ozyavuz, *GIS in Landscape Planning*. (INTECH Open Access Publisher, 2012), <http://www.intechopen.com/articles/show/title/gis-in-landscape-planning>.

¹¹⁵ Lili Regen, “Gather Round,” *Better Homes and Garden*, September 2021, 15.

nature is key to the feeling of an oasis in a courtyard. To combine the gathering with the greenery in an enclosed space is the most optimal for psychological restoration, as one study in Chicago found. Residents were surveyed about the environment they found most appealing in a city and it was found that dense plantings and enclosure are the most preferred attributes of gathering spaces as well as seating areas that encourage socializing.¹¹⁶

Too often, public school designs with courtyards do not take account of what makes a courtyard appealing using these principles and also do not ask the users of the building what is preferred in the outdoor space. “In landscape planning and environmental impact studies, evaluation of visual landscape character is often based on assessment of physical characteristics of landscapes and is done by experts. On the other hand, public or user preferences are generally neglected.”¹¹⁷ For a secondary school, a courtyard can be a beautiful and useful place for gathering and restoration, with the prospect and refuge part of the success, if only designers took the time to understand what truly makes courtyards in a school appealing to those who are using the building the most. That is the goal of this thesis—to present the elements that aim to make public secondary school courtyards not a neglected space, but a useful, restorative, gathering space, and an integral part of the larger building enjoyed by the students, the staff, and the overall community.

¹¹⁶ Sara Hadavi, Rachel Kaplan, and Mary Carol R. Hunter, “Environmental Affordances: A Practical Approach for Design of Nearby Outdoor Settings in Urban Residential Areas,” *Landscape and Urban Planning* 134 (February 2015): 19–32, <https://doi.org/10.1016/j.landurbplan.2014.10.001>.

¹¹⁷ Ozyavuz, *GIS in Landscape Planning*.

Bibliography

- Abass, Fatma, Lokman Ismail, and Mohmed Solla. "A Review of Courtyard House: History Evolution Forms, and Functions." *Journal of Engineering and Applied Sciences* 11 (January 1, 2016): 2557–63.
- Almhafdy, A., and N. Ibrahim. "Courtyard Design Variants and Microclimate Performance." *Procedia-Social and Behavioral Sciences*, 2013.
- Appleton, Jay. *The Experience of Landscape*. Rev. ed. Chichester ; New York: Wiley, 1996.
- Appleton, Jay. *The Experience of Landscape*. New York, NY: John Wiley and Sons, 1996.
- Arnold, Felix. *Islamic Palace Architecture in the Western Mediterranean: A History*. New York: Oxford University Press, 2017.
- Bachelard, Gaston, and M. Jolas. *The Poetics of Space*. New edition. Penguin Classics. New York, New York: Penguin Books, 2014.
- Beard, Mary. *SPQR: A History of Ancient Rome*, 2016.
- Bensemra, Zohra. "Last Residents Hold on in Tunisia's Underground Houses." *Reuters*, February 23, 2018.
- Berliner, Nancy Zeng, and World Monuments Fund, eds. *Juanqinzhai: In the Qianlong Garden, the Forbidden City, Beijing ; Published on the Occasion of the Restoration and Opening of Juanqinzhai (Studio of Exhaustion from Diligent Service) Undertaken by the Palace Museum*. World Monuments Fund Series. London: Scala, 2008.
- Bewer, Francesca G. *A Laboratory for Art: Harvard's Fogg Museum and the Emergence of Conservation in America, 1900-1950*. Cambridge, Mass. : New Haven: Harvard Art Museum ; Yale University Press, 2010.
- Blaser, Werner. *Innen-hof in Marrakesch/Courtyards in Marrakech*. Basel, Switzerland: Birkhauser-Publishers for Architecture, 2004.
- Brooke, Christopher. *The Age of the Cloister: The Story of Monastic Life in the Middle Ages*. Mahwah, N.J: HiddenSpring, 2003.
- Callaway, Karen. "Beauty in Simplicity." *Victoria Magazine*, Volume 15, page 92, September 2021.
- Campbell, James W. P., and Will Pryce. *The Library: A World History*. Chicago: The University of Chicago Press, 2013.

- Carola, Leslie. *The Irish: A Treasury of Art and Literature*. Place of publication not identified: Beaux Arts Editions, 1995.
- Cartwright, Mark. "Etruscan Architecture." *Ancient History Encyclopedia*, January 31, 2017. https://www.ancient.eu/Etruscan_Architecture/.
- Cole, John Young. *America's Greatest Library: An Illustrated History of the Library of Congress*. Washington, DC: The Library of Congress, Washington, DC, in association with D Giles Limited, London, 2017.
- Cramer, Maria. "After a Billionaire Designed a Dorm, an Architect Resigned in Protest." *The New York Times*, October 30, 2021.
- Drexler, Arthur. *The Architecture of Japan*. Museum of Modern Art, New York, New York: Museum of Modern Art, 1955.
- Durant, Will. *The Story of Civilization - Our Oriental Heritage, Part I*. Simon & Schuster, 1954.
- Faber Taylor, Andrea, and Frances E. Kuo. "Children With Attention Deficits Concentrate Better After Walk in the Park." *Journal of Attention Disorders* 12, no. 5 (March 2009): 402–9. <https://doi.org/10.1177/1087054708323000>.
- Garland, Robert. *Greece and Rome: An Integrated History of the Ancient Mediterranean*. Chantilly, VA: The Teaching Company, 2008.
- Gates, Dr. Henry Louis. *Africa's Great Civilizations*. McGee Media, Public Television, 2017.
- Gehl, Jan. *Life between Buildings: Using Public Space*. Washington, DC: Island Press, 2011.
- Good, Joseph. *Measure the Pattern*. Crosby, Texas: www.hatikva.org, 2015.
- Gottesfeld, Jeff, and Peter McCarty. *The Tree in the Courtyard: Looking through Anne Frank's Window*. First edition. New York: Alfred A. Knopf, 2016.
- Gusace, Elaine. "The Trouble With Airports and How to Fix Them." *New York Times*, September 7, 2021.
- Hadavi, Sara, Rachel Kaplan, and Mary Carol R. Hunter. "Environmental Affordances: A Practical Approach for Design of Nearby Outdoor Settings in Urban Residential Areas." *Landscape and Urban Planning* 134 (February 2015): 19–32. <https://doi.org/10.1016/j.landurbplan.2014.10.001>.
- Henig, Robin Marantz. *The Monk in the Garden: The Lost and Found Genius of Gregor Mendel, the Father of Genetics*. Boston: Houghton Mifflin, 2000.
- Hitchcock, Louise A. *Aegean Art and Architecture*. Edited by Donald Preziosi and Louise Anne Hitchcock. Oxford History of Art. Oxford: Oxford University Press, 1999.
- Hobhouse, Penelope. *Gardening Through the Ages*. New York, NY: Simon & Schuster, 1992.

- Jenney, Charles, Scudder, Rogers, and Eric Baade., *Jenney's First Year Latin*. United States: Allyn and Bacon, Inc., 1987.
- Johnson, Hugh. *Principles of Gardening: The Practice of the Gardener's Art*. Rev. ed. New York, N.Y: Simon & Schuster, 1996.
- Kaplan, Stephen. "The Restorative Benefits of Nature: Toward an Integrative Framework." *Journal of Environmental Psychology* 15, no. 3 (September 1995): 169–82. [https://doi.org/10.1016/0272-4944\(95\)90001-2](https://doi.org/10.1016/0272-4944(95)90001-2).
- Knapp, Ronald G. *Chinese Houses: The Architectural Heritage of a Nation*. North Clarendon, Vt: Tuttle, 2005.
- Kroiz, Gabriel. "'Courtyard Transformations': A Project for Three Houses, Heyri Art Valley, South Korea." University of Maryland School of Architecture, 2004.
- Lawrence, C. H. *Medieval Monasticism: Forms of Religious Life in Western Europe in the Middle Ages*. 3rd ed. Harlow, England ; New York: Longman, 2001.
- Lee, Jonathan. "The Park Bench Is an Endangered Species." *New York Times Magazine*, October 17, 2021.
- Lehner, Mark, and Zahi A. Hawass. *Giza and the Pyramids: The Definitive History*. Chicago: University of Chicago Press, 2017.
- Liang, Sicheng, and Wilma Fairbank. *Chinese Architecture: A Pictorial History*. Mineola, NY: Dover Publications, 2005.
- Loos, Ted. "Lillian Porter Find Art in the Empty Spaces." *New York Times*, September 21, 2021.
- Matsuoka, Riley. "Student Performance and High School Landscapes: Examining the Links." *Landscape and Urban Planning* 97, no. 4 (September 2010). <https://doi.org/10.1016/j.landurban.2010.06.011>.
- McKay, John P., Bennett D. Hill, and John Buckler. *A History of World Societies*. 3rd ed. Boston: Houghton Mifflin Co, 1992.
- Mcleod, Saul. "Maslow's Hierarchy of Needs." *Simply Psychology*, December 29, 2020. <https://www.simplypsychology.org/maslow.html>.
- Menas, Amanda. "Fix School Buildings Now." *NEA Today*, May 21, 2021.
- Meredith, Margaret Eileen. *The Secret Garden: Temenos for Individuation: A Jungian Appreciation of Themes in the Novel by Frances Hodgson Burnett*. Studies in Jungian Psychology by Jungian Analysts. Toronto: Inner City Books, 2005.
- Mishan, Ligaya. "Alone Together." *New York Times Style Magazine*, October 17, 2021.

- Mueller, Hans-Friedrich. *The Pagan World: Ancient Religions Before Christianity*. Chantilly, VA: The Great Courses, The Teaching Company, 2020.
- Napias, Jean-Christophe, and Christophe Lefébure. *Quiet Corners of Paris: Unexpected Hideaways, Secret Courtyards, Hidden Gardens*. New York: Little Bookroom, 2007.
- National Geographic Films. *Secrets of the Gladiators*. 20th Century Fox, 2011.
- Ostrowski, Don. "Three Criteria of Historical Study." Harvard University, 2003.
- Ozyavuz, Murat. *GIS in Landscape Planning*. INTECH Open Access Publisher, 2012.
<http://www.intechopen.com/articles/show/title/gis-in-landscape-planning>.
- Parker, Geoffrey. *Compact History of the World*. London: Harper Collins, 2003.
- "(PDF) The Effect of Courtyard Designs on Young People, Which Have Been Made According to Different Functional Preferences: Bartın University (Turkey) | Gaye Taşkan - Academia.Edu." Accessed December 2, 2020.
https://www.academia.edu/6245034/The_effect_of_courtyard_designs_on_young_people_which_have_been_made_according_to_different_functional_preferences_Bart%C4%B1n_university_Turkey_.
- Regen, Lili. "Gather Round." *Better Homes and Garden*, September 2021.
- Reynolds, John. *Courtyards: Aesthetic, Social, and Thermal Delight*. New York, NY: John Wiley, 2002.
- "Rila Monastery - Rila Mountain," 2015. panacomp.net/rila-monastery-rila-mountain/.
- Robitz, Kathie and Creative Homeowner Press. *Ultimate Guide: Walks, Patios & Walls*. Upper Saddle River, N.J.: Creative Homeowner, 2010.
- Salisbury, Joyce E and Teaching Company. *The History of Spain: Land on a Crossroad*, 2017.
- Schiebinger, Londa, ed. *Colonial Botany: Science, Commerce, and Politics in the Early Modern World*. Philadelphia, Pa: University of Pennsylvania Press, 2007.
- "School Grounds for Learning, Case Study Habitat: Courtyard/Outdoor Classroom." *Maryland Association for Environmental and Outdoor Education*, October 2020. Maeoe.org.
- Shaw, Joseph W. *Elite Minoan Architecture: Its Development at Knossos, Phaistos, and Malia*. Prehistory Monographs 49. Philadelphia, Pennsylvania: INSTAP Academic Press, 2015.
- Taylor, Alan. "The Last Families Living in Tunisia's Underground House." *The Atlantic*, February 22, 2018.
- Thacker, Christopher. *The History of Gardens*. University of California Press, 1979.
- "The Archaeology of Gardens." *Archaeology* 71, no. March/April (2018).

- “The Calderwood Courtyard,” December 21, 2016. harvardartmuseums.org/article/the-calderwood-courtyard.
- Tolkien, J. R. R. *The Lord of the Rings*. 50th anniversary 1 vol. ed. Boston: Houghton Mifflin, 2005.
- Tuck, Stephen. *The Architecture of Power*. Miami University, Oxford, Ohio: The Great Courses, 2018.
- Tuck, Steven. *The Architecture of Power: Great Palaces of the Ancient World*. Great Courses, Chantilly, VA, 2018.
- Wallace-Hadrill, Andrew. *Domestic Space in the Roman World: Pompeii and Beyond*. Portsmouth: Journal of Roman Archaeology, 1997.
- Wang, Qijun. *Traditional Chinese Residences*. 1st ed. Zhonghua Feng Wu = Culture of China. Beijing: Foreign Languages Press, 2002.
- Whyte, William. “The Social Life of Small Urban Spaces.” *Project for Public Spaces*, 1980.
- Wilkinson, Toby. *The Rise and Fall of Ancient Egypt*, 2013.
- Wittgenstein, Ludwig, and C. K. Ogden. *Tractatus Logico-Philosophicus*. Mineola, N Y: Dover Publications, 1999.
- Woodford, Susan. *The Art of Greece and Rome*. Cambridge Introduction to the History of Art 1. Cambridge; New York: Cambridge University Press, 1982.
- Zijlema, Wilma. “The Relationship between Natural Outdoor Environments and Cognitive Functioning and Its Mediators.” *Environmental Research* 155 (May 17, 2017). doi.org/10.1016/j.envres.2017.02.017.