

**The Effects of “The Drone” CD and
Invitation of the Angels on
Seed Germination**

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The work reported in this thesis is original and carried out by me solely, except for the acknowledged direction and assistance gratefully received from colleagues and mentors.

Edith F. Skalitzky

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ABSTRACT

The Effects of “The Drone” CD and Invitation of the Angels on Seed Germination

The purpose of this study is to measure the effects of playing “The Drone” CD (the musical interval of the perfect fifth) on seed germination and the effects of inviting angels to participate in the germination of the seeds. A series of experiments were conducted in a small greenhouse using Organic Certified “Black Beauty” zucchini seeds. The study consisted of three groups of seeds: a control group, a group exposed to “The Drone” CD, and a group exposed to the invitation of angels. The pre-test post-test design was utilized. Each group had 200 seeds for a total of 600 seeds. Five groups of 40 seeds were germinated in Petri dishes which were placed in a small greenhouse. Every 12 hours the seeds that had sprouted were counted and digital photographs were taken. The temperature and humidity were also monitored and automatically recorded every 12 hours. The experiments took place over nine twelve hour periods. There was a slight difference in the percentage of seeds that germinated between each of the three groups. However there was only a marginally statistically significant finding according to the multivariate test known as Roy’s Largest Root.

Key words: Music, angels, oneness, seeds, prayer.

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CHAPTER 1: INTRODUCTION

The introductory chapter contains six subsections: Background of the Problem, Statement of the Problem, Purpose of the Study, Research Questions, Importance of the Study and the last subsection--Delimitations and Limitations. In the Background of the Problem, the author discusses her lifelong interest in the oneness of all life and how this interest influenced her choice of topics for the dissertation. The Statement of the Problem presents the overarching goal of this study using seeds, music, and the invitation of angels, while the Purpose of the Study highlights the three fundamental goals of the study. The Research Questions pose the two questions the author, also referred to as the Principal Investigator (PI), worked with in the study. The Importance of the Study puts forth the case that learning more about the possible communication between different species of life can make a difference in how we intentionally interact with the natural world. Finally, Delimitations and Limitations explain the boundaries and problems that this study posed.

Background of the Problem

The present dissertation research came about as the author began to join others in imagining what the world might be like if there was more conscious and intentional interspecies communication. When imagining the world we might like to see, know, and experience for ourselves and for future generations, we envisioned streams, rivers, and the oceans as being clear, fresh, and alive with abundant aquatic life. We felt the air clean and vibrant on our skin and as it entered our nostrils. We tasted fresh, delicious

produce of the land free from pesticides and rich in nutrients. We felt our homes, work environment, and places of worship being heated and cooled with renewable resources. All around us in the natural world, there would be healthy trees filled with singing birds, fields of grain swaying in the wind, and flowers bursting with color and sweet fragrance. Our visioning continued into other areas of the planet, seeing the grand potential for a world and all its inhabitants to become whole, healthy and happy.

Presently, though, our planet is not yet as whole or healthy nor as happy as we might vision it to be. We seem to be standing on the edge of a precipice with such occurrences as global warming, the extinction rate of plants and animals increasing at an alarming rate, less and less fresh water available, soil that is losing its fertility, air quality that is dangerous for living beings to breathe, along with all the related social, economic, and environmental problems. All around the globe, individuals, organizations, spiritual communities, and countries are working to address these monumental challenges.

On many fronts, in many ways, people are exploring what they can do in their corner of the world, with their unique gifts and talents, to assist in the healing of the world. Some scientists are exploring the body, mind, and spirit connection while others seek to understand the effects of sound, vibration, and music on plants, animals, and on human beings. Some individuals work with angels and nature spirits to discover the process of co-creating healthy, vibrant food for the table. Yet, others seek to record the expansive knowledge of indigenous peoples before it is lost.

For several decades, the author has had an interest in the power of sound and music. Her interest has been deeply influenced by various people she has met through

the years and by exposure to writers in the field of sound and music. Donald Hatch Andrews, a graduate of Yale University, was a professor of Chemistry at Johns Hopkins University, who wrote a fascinating book entitled *The Symphony of Life*. When the author read this book many years ago, a whole new world was opened. One of the key themes of the book is encapsulated in this quote, “We are finding the Universe is composed not of matter but of music.”¹ Andrews’ thoughts and concepts were seeds planted in the ground of the author’s consciousness, which became part of the process of her choosing this particular research project.

Back in the late 1970's, when the author was still a new Unity Minister, she had the desire to put together Women’s Retreats for the Unity Churches in the St. Louis, Missouri area. A colleague recommended that Laurel Elizabeth Keyes be contacted as a possible retreat facilitator. Keyes facilitated that retreat, and over the course of a number of years, she became a treasured teacher and friend. Laurel Keyes was a lecturer, counselor, and author of books covering a wide range of topics including weight loss, sexuality, the joy of living, and an autobiography. Keyes book that held the greatest influence in impacting the choice of this research topic was *Toning – the Creative Power of the Voice*. In this book, Keyes brings forth, into our modern times, the ancient use of toning as a medium for health, healing, and transformation. The author had the opportunity to observe Keyes' utilizing the toning process with people who were in physical pain and watched their pain seem to dissipate. On occasion, the author personally used toning and found it helpful. These experiences appear to demonstrate the power of using intentional sound to bring the body, mind, and soul into greater harmony.

Laurel Keyes' son, Paul Chivington, was an aerospace engineer, writer, and speaker. He spoke at the author's church in Colorado Springs several times and was able to break down complicated scientific perspectives into language most anyone could understand. Keyes and Chivington, in their own unique way, influenced the author to see and comprehend the world in ways she would not have known, had they not come into her life. Because of Keyes' use of sound as an agent to move energy, the author could see how the use of sound, as in "The Drone" CD, could possibly be used in seed germination.

During an annual Association of Unity Churches Conference in the 1970s, the author had the opportunity to meet Don Campbell, one of the conference presenters. Campbell is a classically trained musician and educator. He has written numerous books on the power of music to heal the body and strengthen the mind. His presentations made a deep impression and, subsequently, the author took an extended workshop with him on the effects of music.

In researching experiments that had been done using music, prayer, and intention to assist in seed germination, the author came across experiments conducted at the University of Arizona by Katherine Creath, Ph.D. and Gary E. Schwartz, Ph.D. To the author, Creath and Schwartz's most interesting research project was *Measuring the Effects of Music, Noise, and Healing Energy Using a Seed Germination Bioassay*,² In this study, seeds that were exposed to music and seeds that received a healing treatment had a greater number of seeds germinating than the control group. Their research and findings were very intriguing and certainly encouraged the author in the direction of pursuing similar research.

The extensive work of the Findhorn Garden founders in Scotland was a motivating factor in the desire to work with angels on a project of this nature. Peter and Eileen Cady and Dorothy Maclean worked together to bring forth the lush gardens and spiritual community known as Findhorn. They believed that their work had a foundation in a co-creative process with angels and nature spirits who helped to guide them in the creation of these amazing gardens.

Biologist and anthropologist Christopher Bird and historical writer Peter Tompkins co-authored two books that were very inspiring. *The Secret Life of Plants* and *Secrets of the Soil* explore the findings of scientists, farmers, and mystics concerning the interrelationship of soil, plants, animals, humans, and sound. Stories of those who have worked to uncover how these many and diverse pieces of the universe fit and work together were quite enlightening. This information surely wove itself into the choice of this research project.

The research work in the 1970's of Dorothy Retallack at Temple Buell College is documented in her book, *The Sound of Music and Plants*. Retallack's book was discovered over 20 years ago and her fascinating research was based on the idea that plants that were exposed to different forms of music responded differently. Her experiments found that plants exposed to hard rock leaned away from the speakers and those that were exposed to the East Indian music of Ravi Shankar leaned into the speakers. Retallack was inspired to begin her work with music and plants by the work of Franklin Loehr of Princeton. Loehr's experiments and findings are described in his book, *The Power of Prayer on Plants*.

The present study is an out-picturing of these many years of interest and desire to further the understanding of how music and the prayerful invitation of angels might interact with the natural world and, specifically, with the germination of seeds.

Statement of the Problem

The primary goal of this study was to advance the knowledge of how music, specifically the sounds in “The Drone” CD, might affect the germination of zucchini seeds. A secondary goal was to discover what effect there might be on the germination of zucchini seeds when the activity of angels was prayerfully and purposefully invited to participate in seed germination.

Purpose of the Study

The fundamental goals of this study were three fold:

1. To explore the possible connection between sound and seed germination;
2. To explore the possible connection between angels and seed germination; and
3. To explore the possible connection between angels, a human being, and seed germination.

Research Questions

This study was undertaken with these questions in mind:

- Does the music of “The Drone” CD affect the rate of germination of zucchini seeds?

- Does the invitation of angels affect the rate of germination of zucchini seeds?

Importance of the Study

Daniel J. Benor, in his book, *Spiritual Healing: Scientific Validation of a Healing Revolution*, provides a most comprehensive definition of spiritual healing. He writes, “Spiritual healing is defined as a systematic, purposeful intervention by one or more persons aiming to help another living being (person, animal, plant or other living system) by means of focused intention, hand contact, or *passes* to improve their condition. Spiritual healing is brought about without the use of conventional energetic, mechanical, or chemical interventions.”³

In contemplating holistic health, there is, for example, the health and well-being of the entire person: body, mind, and spirit. For optimal health and healing to be present, these three aspects need to be in balance and harmony. Like a wheel that is divided into three segments, if any one of the segments is out of balance, the entire wheel will not move smoothly down the road but will be uneven and bumpy. And, so it is for human beings. If a person pays attention to only one or two aspects of their well-being and ignores or misuses the others, their life might have more challenges. And, of course, the ideal of the journey is to find balance so that, as a whole, the aspects of an individual’s well-being might work together to bring forth the health, happiness, and purpose that the soul yearns to experience.

It is the belief of the author that all things are connected in this universe and there is a web of energy that links everything in our lives and everything in our world. Just as

there is oneness between body, mind, and spirit, so, too, this idea is reflected in the rest of life on this planet and throughout the universe. There is no separation, even though to our physical senses, it may appear that there is. What happens in one area of life, in some way, affects the whole of life. This is what we are seeing in global warming. What happens on one part of the globe, can affect what occurs on the other side of the world. There is one thread, the Divine thread, which links all life including human, animal, tree, plant, bird, fish, insect, and microbe. Wolf Song of the Abenaki tribe spoke of this link in a most eloquent way when he said, “To honor and respect means to think of the land and the water and plants and animals who live here as having a right equal to our own to be here. We are not the supreme and all-knowing beings, living at the top of the pinnacle of evolution, but, in fact, we are members of the sacred hoop of life, along with the trees and rocks, the coyotes and the eagles and fish and toads, that each fulfills its purpose. They each perform their given task in the sacred hoop, and we have one, too.”⁴

The author, in contemplating her research project in the context of its effect in the fields of spiritual healing and holistic health, envisions some valuable pieces of information might highlight the thread that links vibration, nature, humans, and angels. In this research, there are at least four components involved: the seeds, the music/sound, angels, and a human being.

The germination of seeds represents the beginning stages of plants that might later be used for human or animal food, building material, medicine, and fiber for weaving. The food, medicine, building materials, and fiber are necessary items that provide for the needs of the physical body. Music/sound is energy vibration that may be used to aid in the healing of the body, bringing greater clarity to the mind and soothing the troubled

spirit. It is thought that angelic and nature spirits are beings who work within and with the natural world, assisting human beings in their evolutionary process and holding archetypal patterns for the unfoldment of the universe.

This study is but a thread in the tapestry of exploration into the possible energetic connections between various aspects of life and various forms of life. Other researchers, including Grad, 1963,⁵ Haid, 2001,⁶ Collins, 2001,⁷ Weinberger and Burton, 1981,⁸ Retallack and Broman, 1973,⁹ have explored how the laying of hands, meditation, and sound influences the growth of plants or seed germination. The author desired to contribute to this body of knowledge and add a new component, the angelic realm. If different types of seeds might be shown to germinate in greater numbers by being exposed to both music and angelic assistance, back yard growers, greenhouse growers, and large-scale farmers might find this exposure valuable. In this way, time and money might be saved.

The work of this research is connected to spiritual healing for there are human and angelic beings aiming to help another living being, in this case plants, consistent with the Daniel Benor definition at the beginning of this chapter. The work of this research will add to the information and discussion of utilizing sound on seed germination and the possible added impact of interspecies communication on seed germination.

Delimitations and Limitations

The delimitations for this study include:

- The author is an ordained Unity Minister with a full time church ministry, and has an Alternative Unity Ministry called Oneness Ministry.

- The concept of the interconnectedness of all life has been a focal point of the researcher's life and the author recognizes that this view defies being treated objectively.
- The experiments were conducted in the researcher's home in the country.
- The author assumes that seeds are a good medium in co-creative research.
- The author has personally experienced the presence of angels and nature spirits.

The limitations for this study include:

- The experiments were conducted during the early stages of the researcher's grief process in the loss of her husband of 44 years. The energy of grief may have caused a resonance of that energy in the seeds, therefore slowing the rate of germination.
- The basement of the author's home was used for the study and, again, the energy in the home during this time was one of deep sadness.
- Though the study included 200 seeds in each of the three experiments, a greater number of seeds might have shown a stronger statistical relationship.
- Not having a Research Assistant to randomly choose the seeds, sew the seeds in the Petri dishes, do the twice daily monitoring, photographing, and recording of information.
- Having a longer period for the germination of the seeds might have improved the results.

- Conducting the experiments in the spring of the year rather than in the fall may have allowed the seeds access to those particular energizing vibrations.

Chapter Summary

The first chapter included some foundational ideas around why the study was undertaken and some basics around the format of the study. The author described how she came to determine the importance of the study of possible intercommunication between species and what that might mean in the world. Also highlighted were the initial goals of the study that intended to demonstrate how sound and the invitation of angels might affect the germination of seeds. Included in the chapter were the variables that the author brought to the study in the way of background and perspective and aspects the author would potentially do differently in future experiments of a similar nature.

In the next chapter, Chapter 2: Review of Literature, the author continues to build upon the initial ideas in Chapter 1: Introduction by delving into some of the important, fascinating information to be found in the religious, indigenous, and scientific communities concerning the interconnectedness of all life. Also, Chapter 2: Review of Literature will include ideas of visionary thinkers, dreamers, and explorers who dream of what could be for the planet and its inhabitants were a change of view brought to bear on the reality that life is not separate but interconnected at the most basic levels of being.

CHAPTER 2: REVIEW OF LITERATURE

INTRODUCTION

This study is for the purpose of determining the effects of “The Drone,” a CD recording composed by Harold Moses, musical cosmologist, based on the sound of the tone, the tonic, and the Perfect Fifth, on seed germination. Secondly, this study explores the effect of inviting the participation of angels in the seed germination process. The research, therefore, has three elements to be explored and woven together. These aspects include music/sound, angels, and seeds/nature. The following thoughts provide an initial foundation relative to these three components.

In the opening scene of the movie “*The Sound of Music*” Maria is singing these words,

“The hills are alive with the sound of music
With songs they have sung for a thousand years.”¹⁰

The song seems to suggest that the hills themselves are alive with a kind of vibration and that this vibration or sound can be heard in some manner either through the inner ear of intuition or the outer ear of physical hearing or possibly in both. There are those who put forth the idea that the singing of the birds in the early morning dawn help in some mysterious and subtle process in the germination of seeds and in the growth of plants.¹¹ Others believe that “waves of unseen ‘light’ and of ‘unheard’ sound are truly around us and within us at all times.”¹² Audible composed music, as well as a variety of sound, has been used for centuries to uplift the spirit and to soothe and heal the mind and body.

Indigenous cultures around the globe believe in a spirit world that can be contacted by the shamans, regarded as “the last ones able to talk with all of nature, including the plants, the streams, the air, and the rocks.”¹³ Mircea Eliade, the notable scholar of comparative religion and shamanism wrote of her belief that the shamans were some of the last people to know the language of the animals and therefore could communicate with them and receive needed guidance for their people.¹⁴ Since the early part of this decade, a Chinese woman has had over 180 experiments conducted in which she has used her psychic powers to affect the growth of seed germination. Within 20 minutes, Chulin Sun is said to be able to mentally project Qi energy and have plant seeds germinate several centimeters long.¹⁵

Throughout history, in all parts of the planet, there have been people who have been connected with the world of angels. Many of the saints tell of their experiences with the angels, and the world’s great religions, including Christianity, Islam, Hinduism, and Judaism, have angels woven into the fabric of their religious beliefs.

Oneness

An Overview of Philosophies of Oneness

When we tug at a single thing in nature, we find it attached to the rest of the world.

John Muir, Naturalist

The point of all spiritual practice is to wake up from the dream of the separate self.

Stephen Mitchell

The enlightened ones of the ages remind us of the interconnectedness of life whether it is atom, cell, mineral, plant, insect, tree, bird, fish, animal, or human. By the very nature of creation, everything and everyone is connected. What happens to one part

of creation impacts the whole of creation. Countless mystics through the millennia have had the experience of the interconnectedness of everything. Christian mystics who had this awareness include St. Francis of Assisi, Teresa of Avila, John of the Cross, Julian of Norwich, and Hildegard of Bingen. Within Islam, we find Mohammad, Rumi, and Attar. Among those of the Jewish tradition are Moses, some of the prophets, and the mystics of the Kabbalah and in Buddhism is found the Buddha and Nargarjuna.

A great commandment was given to Moses that became the central spiritual teaching of Judaism and it is recorded in the book of Deuteronomy 6:4. It states, “The first is, ‘Hear, O Israel: The Lord our God, the Lord is one.’”¹⁶ The idea of oneness is found not only in the Old Testament but also in the New Testament teachings of Jesus and is a common thread found in other world religions. In more recent times, such recognized scientists as David Bohm say that physics shows a universe that is “continuous and indivisible...an undivided and unbroken whole.”¹⁷ Bohm conveys this idea of the wholeness of the universe by way of the hologram. A holographic image may be broken into many pieces and yet each piece will contain the whole. British biologist Rupert Sheldrake writes about what he calls a “morphogenic field” that is an organizing field connecting all organisms and how these organisms influence each other.¹⁸

With all the complexities of living life on the planet at this time, there is a heightened sense of urgency to find ways and means to live in peace not only within ourselves but to live in greater harmony and compassion for and with all life on the planet. There are enlightened people in all fields of endeavor that are sounding a warning signal that we must find new paths of healing the wounds that divide us for our planet to continue to thrive.

Most, if not all, of the challenges facing humanity today are derived from the belief that we are separate from the Divine, separate from one another and, furthermore, are separate from the natural world. The human family has yet to realize the domino effect of action taken in one area of life and how it will ripple to every other area of life. There is some question as to whether this famous quote, attributed to the great Native American Chief Seattle in 1856, is authentic or not. Yet, in any case, the ideas in these words are surely thought provoking and bear repeating, “This we know: all things are connected like the blood which unites one family. All things are connected. Whatever befalls the Earth befalls the sons of the Earth. Man did not weave the web of life. He is merely a strand in it. Whatever he does to the web, he does to himself.” These key ideas are powerful reminders that what one person thinks, says and does impacts the rest of the human family as does the actions of one country impact every other country on the planet.

Jane Goodall lived and worked for nearly forty years in Tanzania studying chimpanzees. During those years, through rain, hot sun, and nights spent sleeping in the wilderness, she discovered that, “Together, the chimpanzees and the baboons and monkeys, the birds and insects, the teeming life of the vibrant forest, the stirrings of the never still waters of the great lake, and the uncountable stars and planets of the solar system formed one whole. All one, all part of the great mystery. And I was part of it, too.”¹⁹

Stanislav Grof, one of the early visionary founders of the transpersonal psychology movement, believes that, “Through our consciousnesses, we can transcend time and space, cross boundaries separating us from various animal species, experience

processes in the botanical kingdom and in the inorganic world, and even explore the mythological and other realities that we previously did not know existed.”²⁰ Grof goes on to write “that becoming aware of this dimension in our lives and cultivating it is an essential and desirable part of our existence; it might even be a critical factor for our survival on this planet.”²¹ He relates that he has had experiences with the consciousness of plants that convince him “...how amazingly authentic they are and how much they offer in terms of helping us unravel the alchemical mysteries of the botanical kingdom.”²²

Co-Creative Science and the Co-Creative Scientist

Michaele Wright, in her book, *Co-Creative Science: A Revolution in Science Providing Real Solutions for Today's Health and Environment*, proposes a new type of science she calls co-creative science. Her premise is that it is time to explore a different way of learning about and working with the natural world. She writes, “Traditional science is man’s study of reality and how it works. Co-creative science is the study of reality and how it works from nature’s perspective and by human and nature working together in a peer, balanced partnership.”²³

Natural Mysticism

Oh God,
Whenever I listen to the voice of
anything you have made.
The rustling of the trees,
The trickling of the water,
The cries of birds,
The flickering of shadow,
The roar of the wind,
The song of the thunder,
I hear it saying: God is one!
Nothing can be compared to God!

Rabi'a, Sufi mystic, Iraq, eighth century

The term “natural mysticism” is found in the writings of Wayne Teasdale. In his book, *The Mystic Heart*, Teasdale writes, “The term *natural mysticism* expresses the perception and awareness of the numinous reality of the source in, surrounding, and emanating from nature and the cosmos.”²⁴ He goes on to say, “Natural mysticism is also the realization and tangible experience of unity. We perceive that we are one with everything on the earth, in the universe, and, with ultimate reality. We are not separate.”²⁵ He describes this form of mysticism as happening in nature when a person has a personal experience with another species such as an animal, or with the wind, or trees, or the sun that produces a sense of wonder and connection.

The great challenge and the great opportunity of modernity is to recognize this inherent oneness, even while acknowledging and honoring the unique diversity of life and human belief, and therefore to deepen an awareness of the vital importance of thinking, acting, and living within this premise of existence. As more individuals, religions, races, tribes, societies, governments, and countries find ways to practice this belief in oneness, the planet and its inhabitants might find a reduction in war, poverty, discrimination, hunger, environmental degradation, and other maladies that ravage the earth. For when the concept of oneness is known not only in the mind but also in the heart, individuals often naturally treat the inner and outer world with respect, compassion, and love.

Music

In the sections to follow, music will be explored from different perspectives. Definitions of music will be followed by viewing music from traditional as well as from non-traditional standpoints. Music will be explored to see what discoveries have been

made as to how it impacts the environment, how it impacts birth, death, plants and animals and how music may be used in times to come.

Definition of Music

The great German composer Richard Wagner (1813-1883) very succinctly and poetically stated that, “Music is the universal language.”²⁶ Webster’s New Collegiate Dictionary gives a more technical definition of the word music, “the science or art of ordering tones or sounds in succession, in combination, and in temporal relationships to produce a composition having unity and continuity.”²⁷ Webster’s second definition states that music is “vocal, instrumental, or mechanical sounds having rhythm, melody, or harmony.”²⁸ “Many definitions of music implicitly hold that music is a communicative activity which conveys to the listener moods, emotions, thoughts, impressions, or philosophical, sexual, or political concepts or positions.”²⁹

Traditional Views of Music and Sound

When in deep meditation, the sound can be almost overwhelming for lack of noise. Modern society is filled with the noise of machinery, vehicles, planes, people chatting, the cacophony of traffic, and the background of 'musac' is frequently heard in grocery stores, doctor’s offices, while waiting on the phone, and in shopping malls. It has been shown that certain levels of vibration can cause higher levels of stress and even result in a loss of hearing. While certain sounds disrupt the body’s natural rhythms, other types of sounds and music lower stress and assist in concentration. A person can be helped by certain types of music to feel more vibrant, sleepy or wakeful, peaceful or

strong. Music has the ability to stir a persons emotions triggering laughter, tears, worshipful devotion, and memories related to the past.

Restaurants and other businesses have discovered the power of music to move people into a faster gear or slow down their activity. This background sound can encourage the one eating to eat quickly and leave the restaurant quickly; therefore, allowing more people to be served in a shorter period. In grocery stores or department stores, background advertisements or televisions playing certain shows, such as a cooking show using certain items in a recipe, encourage the shoppers toward buying particular products.

The effect of sound is clearly shown when certain frequencies are used. A high C can shatter glass or produce geometric designs when used to vibrate sand particles. It is thought the sounds of the goosestep of Hitler's marching men may have had the effect of stirring the soldiers and the onlookers to the activity of war.

Religious Music

Sacred and religious music has been created through the centuries as a means to inspire, uplift, motivate, ground, and at times, to heal the listener. Each religion has their own unique music tailored to specifically to their traditions, for example, gospel music, shamanic drumming, chanting, singing hymns, jazz, classical, or sutra recitation.

Non-Traditional Approaches to Music

Sixth century, B.C. Greek philosopher Pythagoras, best known as the father of geometry, spoke of the Music of the Spheres and taught, "...that the movements of the heavenly bodies traveling through the universe created sounds. Those who had been

consciously trained to hear them could perceive these sounds. The Music of the Spheres could then be sounded in the interval of plucked strings.”³⁰

Andrews declared about recent scientific discoveries in music, “To sum up the nature of this scientific revolution in a single phrase, we are finding that the universe is composed not of matter but of music.”³¹ He indicated that if we could attune our ear properly, we would hear what goes on in an atom and it would sound like the music of a grand organ.

John Diamond, M.D., in his book, *Your Body Doesn't Lie*, has demonstrated, through the process of muscle testing called kinesiology, a person's body can discern between sounds that assist the system in positive ways and those sounds that are negative to the system.³² It is interesting to note that he also discovered, “With the ears blocked, the body still responds to sound. This is because we “hear” not only with our ears, but also with our bodies.”³³ Diamond goes on to write about the positive effects of babbling brooks, waterfalls, bathroom showers, the sounds of birds, and purr of cats. He also used kinesiology to test the effects of listening to rock music (not rock and roll) and found that it frequently had a weakening effect³⁴ and “the entire body is thrown into a state of alarm”³⁵ and that rock music could possibly be addictive.³⁶

Mitchell Gaynor, a well-respected oncologist who practices medicine in the Northeast, observed that a number of cancer patients who crossed his path were finding help using Tibetan chanting, singing bowls, healers and a variety of other healing modalities. Observing sometimes-remarkable changes in these patients, he began his own personal quest to understand and experiment with these modalities himself. What he discovered led him to incorporate into his practice the blending of psychology and

spirituality in an effort to address not only his patient's physical needs but also their mental, emotional, and spiritual needs. The focus of this blending resulted in his initially teaching his patients relaxation techniques, guided imagery, and movement. Later, he added sound techniques he developed through personal experimentation. These techniques proved to work in an amazingly fast manner to change the perspectives of his patients, much faster than using relaxation alone without the component of sound. These techniques included chanting mantra sounds, toning, and the use of singing bowls. Singing bowls are made of quartz crystal, come in different sizes, and are tuned to various musical notes. Depending on the individual, Gaynor would encourage the use of one or more of these modalities. These were practiced in preparation for medical treatments and while undergoing cancer treatments. By incorporating sound, music, and their own voices as a healing source, his patients have found a deepening sense of calm, peace, and life purpose while also strengthening their immune systems.³⁷

A member of the Association of Research and Enlightenment, Richard Martin, has been experimenting to see what happens to the human aura when certain kinds of music are played. "According to a report published in the *Canadian Society of Dowzers*, dowzers measured the size of the human aura of several participants before and after listening to a special CD recording, 'Gateway to Fulfillment.' They found that the size of the participants' aura increased by about 20 feet."³⁸

According to Ken Skidmore's book, *The Best of the Association for Research and Enlightenment (A.R.E.) Journal*, Edgar Cayce said, "For music alone may span that sphere...from the spheres of activity to the realms of the divine." Cayce also noted that, 'whenever there are periods of depression...play music; especially stringed instruments

of every nature. These will enable the entity to span the gulf as between pessimism and optimism.’ According to Cayce, “When illness or the like were to come about, soft music and the lighter shades or tones will quiet where medicine would fail.”³⁹

Indigenous Approaches and Uses to Music, Sound, and Voice

Larry Dossey, M.D., in *Be Careful What You Pray For*, tells a number of stories of people from indigenous cultures using the power of prayers and verbal intonations to remove worms from the wounds of animals, from fish, and from infested plants.⁴⁰ It is thought that the Mayan’s were aware of how to grow their crops “by simply mentally communicating with them in some mysteriously hermetic way, long part of their ethos.”⁴¹

Dhyani Ywahoo, in her book, *Voices of Our Ancestors*, writes that five different qualities/sounds are transmitted from Mother Earth to a human being through an invisible umbilical cord. She states that, “In North America, the musical note "A" feeds the liver, enabling our intentions to take root. The note "C" feeds the heart and small intestine, sending waves of warmth to germinate seeds of good relations. Ideas and transformation are stirred by the note "D" flowing to spleen and stomach, while kidneys receive the note "G," strengthening sacred will to be. The note "E" feeds lungs, and mind cognizes, recognizes, serenity in the flow.”⁴²

Music as an Aid to Learning

Martin F. Gardner, a visiting research fellow at Brown University’s Center for the Study of Human Development, and his colleagues “showed that first grade students who received visual and musical arts training as a regular part of classroom studies showed

improved reading skills and were significantly ahead of math skills compared to control groups in other first-grade classrooms.”⁴³

In recent years, music programs in schools have been reduced along with the number of music teachers. Carlos A. Abril and Brent M. Gault, in an article written for *The Musical Educators Journal*, give a number of reasons for this occurring. They include budgetary and legislative considerations, the "No Child Left Behind" Act, the unawareness of some parents and administrators of the importance of music as part of the curriculum and the perception that music is simply a pleasant diversion. Yet, they encourage music educators to create methods that will advance their musical goals and programs in a more effective manner to school principals, classroom teachers, administrators, legislators and parents. Abril and Gault cite three key points for music educators to emphasize in their communications:

1. The transferability of skills from the music arena to other areas of the student's life
2. The processes of musical outcomes which allow others to experience the processes of the musical development and skill of the music students, and
3. Making certain to highlight, in a variety of ways, the musical achievements of students.⁴⁴

Healing Music and Sounds

Music has been known since ancient times to sooth and calm the troubled mind and heart. Samuel 16:23 relays how the boy, who would later become King David, would play his lyre to calm the trouble mind of King Saul.⁴⁵

French physician Alfred Tomatis, recognized for his research in the area of sound and hearing, was invited to a Benedictine monastery in Southern France in the 1960's. The monks at the monastery were exhausted. They were not able to perform their daily work and it was a mystery as to what was making them ill. As Tomatis talked to the

monks, he discovered that they had recently stopped their six to eight hours of daily singing of traditional Gregorian chants. He concluded that the chanting had served as an energizing field of vibration. Tomatis suggested that they return to their chanting and within a few months, the monks were well and strong and back at work.⁴⁶ Here is a possible demonstration that certain sounds were a type of energy nourishment that fed the monks on mental, emotional, and spiritual levels of being.

In the mid 1990s, Don Campbell faced a life threatening blood clot in his right carotid artery. Through careful and gentle use of humming a tone and added visualization, he had a spontaneous remission using music.⁴⁷ In his book, *The Mozart Effect*, Campbell gives personal accounts of people who have used music in confronting challenges like Aids, Alzheimer's disease, insomnia, menopause, stroke, tooth problems, and many more ailments.⁴⁸

Jonathan Goldman has been researching, teaching, writing, and presenting seminars worldwide on sound healing and vibrational medicine for many years. He has created a formula that he teaches which is "frequency + intention = healing."⁴⁹ He believes that using the human voice with positive, loving intention will help to create resonant frequency healing and harmony. He also believes "...that depending on where an individual's awareness is placed when he creates a certain sound, the sound will carry information on that state to the person receiving it. If for example, you are angry and you create a sound, even though it may be a pleasant sound, you will be sending anger that is incorporated into this sound. This will be perceived on some subtle level by those receiving the sound."⁵⁰

Harp music was used as an intervention with vascular and thoracic surgical patients and though the study was small (17 patients), the patients had less pain and anxiety when exposed to the harp music.⁵¹ Rahlin and Stefani conducted a study to explore the length of time babies and toddlers cried while being exposed to music. They found the results varied among the children. Six of the nine children did cry less while music was played during therapy.⁵² Premature infants who cried inconsolably were aided in lessening the number of those episodes through a music intervention.⁵³ Brandes et al. conducted a study with 150 participants that showed a reduction of burnout after five weeks using two specific musical programs and, furthermore, the effects of the musical treatment remained for a prolonged period.⁵⁴

An experiment was conducted with patients with mild to moderate Alzheimer's type dementia to see what the effects of a new musical therapy would be on their levels of anxiety and depression. The results confirmed the lessening of anxiety and depression for a number of weeks following the discontinuation of the music therapy.⁵⁵

Don Campbell, who has studied and written about the connection between music and healing, gives some possible therapeutic uses for music in his book, *The Mozart Effect*. He writes that, among other things, music:

1. Masks unpleasant sounds and feelings
2. Can slow down and equalize brain waves
3. Affects respiration, heartbeat, pulse rate, and blood pressure
4. Reduces muscle tension and improves body movement and coordination
5. Affects body temperature
6. Increases endorphin levels and can regulate stress-related hormones
7. Can boost immune function
8. Changes our perception of space and time
9. Can strengthen memory and learning
10. Music can boost productivity
11. Enhances romance and sexuality
12. Stimulates digestion

13. Fosters endurance
14. Enhances unconscious receptivity to symbolism, and
15. Can generate a sense of safety and well-being.⁵⁶

The Kansas City Star newspaper carried an article entitled, *Working in Harmony*, written by Randolph E. Schmid of The Associated Press. Schmid reported that, “Studies have found overlap in the brain’s processing of language and instrumental music, and new research suggests that intensive musical therapy may help improve speech in stroke patients, researchers said Saturday at the annual meeting of the American Association for the Advancement of Science.”⁵⁷

Music in a Hospital Setting

The Exempla Good Samaritan Medical Center in Lafayette, Colorado has incorporated music into many areas of the hospital including waiting rooms, hallways, lobbies, elevators, the chapel, and preparation and recovery rooms for surgery. Each area has specific music for healing coordinated to the activity used in that area.⁵⁸

Music for Birthing

Expectant mothers, in a yoga studio in Manhattan, are learning how to use the power of sound as aid to birthing their babies. When in labor, these women have found that using sounds like “Om” or “Uhhh” or “Ahhh” helpful in the reduction of pain as well as assisting in the dilation process.⁵⁹

Music as a Bridge between Life and Death

Music has been used as a helpful means of aiding those who are in the process of dying from many different and often painful illnesses. Therese Schroeder-Sheker is a respected proponent of music thanatology and founded Music-Sacramental-Midwifery, also called The Chalice of Repose Project, at St. Patrick’s Hospital in Missoula, Montana.

Over the years, she and colleagues have been at the bedside of 1000's of patients as they made their transition. They utilize the mediums of harp, chanting, song, plainsong, and singing. Shroder-Sheker says, "It is the task of the Chalice worker to free the physical body from literal time, burdened time, to be replaced with eternity. The music helps the body and soul unbind (not destroy) the threads that sustain life processes by freeing patients from time."⁶⁰ Schroeder-Sheker and those who use this unique science of music thanatology have made the dying process less painful and more conscious and peaceful for countless numbers of people.

A New Paradigm for Music, Sound, and Voice

Swami Satchidananda, in his book, *The Golden Present: Daily Inspirational Readings*, wrote, "The entire universe vibrates. Every cell vibrates. In fact, the whole universe is nothing but sound vibrations. The basic vibration is a hum, and the sum total of the universal vibration is a hum. In between, there are fragments. All the words, all the languages, all the various sounds that are created by the human beings or animals or even machines are smaller parts of this cosmic hum. Without the hum, there is nothing."⁶¹

"The Drone" CD by Harold Moses

Harold Moses, musical cosmologist, composed a musical CD entitled "The Drone" which is comprised of two notes which are tuned to the musical interval of the tonic and the Perfect Fifth. As Moses writes on the jacket of his CD, "The interval of the Perfect Fifth in The Drone is a "C" and a "G". Musically, the Perfect Fifth is described as an 'open interval' meaning it is neither major nor minor, neither augmented nor

diminished.”⁶² Interestingly, persons who listen to this CD often hear other notes beside the "C" and "G."

Effect of Music on Plants and Animals

A study was conducted on *The Effects of Different Elements of Root Growth and Mitosis in Onion (Allium cepa) Root Apical Meristem (Musical and Biological Study)* by Ekici, Dane, Mamedova, and Huseyinov. Researchers used samples of music from composers Mozart, Wagner, Chopin, Schubert and others and found, according to their abstract, that there was a “correlation between root elongation and Mitotic Index (MI). Both kinds of music have positive effects on root growth and mitotic divisions in onion root tip cells but rhythmic dynamically changing lyrics affected the cells much better.” The conclusion they came to was “...plants grow faster in exposure to positive music. The knowledge can be applied in agriculture to increase the yield. This idea may help to solve problems of starvation and world hunger in the future.”⁶³ A study conducted by McCarthy, Ouimet, and Daun on rats concluded, “short term exposure of rats to noise stress alters some of the biological functions of leukocytes.”⁶⁴

Sound and Music in Times to Come

In his book, *The Healing Power of Sound*, Gaynor describes his vision of a bright future where, in all healing institutions, patients will have the opportunity to learn the life transforming and healing power of singing, music, and chanting. His vision includes the day when mainstream medicine will have, alongside all the latest medical discoveries, the inclusion of the healing activity of singing bowls. Gaynor imagines a time when healthcare practitioners will naturally use music to help patients control pain, to treat disorders of the mind and emotions, and to assist those who are moving through the

process of dying. Gaynor sees practitioners' continuing to investigate scientifically the underlying factors of how music and sound can aid in the healing of the whole person.

Campbell shares his dream of the future when he writes "...further research will provide a firmer foundation for the use of music and voice as a therapeutic tool. New biomedical models will be constructed, modifying and possibly replacing those that have governed health care until now. This knowledge may also influence musical performance, composition, and listening tastes, contributing to the development of individuals and fostering a world community more attuned to the healthful and peaceful rhythms of life."⁶⁵

It is the contention of Ywahoo, that, "We are now in the process of changing from one key to another. The people are awakening to the song of inherent joy, appreciation of life, recognizing that in this moment the song can fully resound. The sound of human thought and the planet's dance is changing. We are moving into the key of D, the only key that is reciprocal of itself, that returns to itself. It is a note attuned to the sacred will, and it ever comes around the sacred circle."⁶⁶

Conclusion

Many people in the world today are experiencing pain and suffering. The revelations that are coming to light about the healing power of music gives hope that creative and simple answers to healing exist which can easily be included in anyone's lifestyle. It is possible that music will ease and possibly will heal physical, mental, or emotional pain and suffering, not only human beings but in nature itself.

Angels

In the following sections, angels will be defined and then explored from the vantage point of various religious traditions.

Definition of Angels

The word angel comes from “Middle English, from Old French *angele*, from Late Latin *angelus*, from Greek *angelos* (translation of Hebrew *Malakh*), messenger.”⁶⁷ *The American Heritage Dictionary of the English Language* defines an angel as “an immortal, spiritual being attendant upon God; a guardian spirit or guiding influence; a kind and lovable person.”⁶⁸ *Webster’s New Collegiate Dictionary* defines an angel as “a spiritual being superior to man in power and intelligence; an attendant spirit or guardian; a white robed winged figure of human form in fine art; a person believed to resemble an angel.”⁶⁹

In the *Maryknoll Catholic Dictionary* it states that, “According to the Baltimore Catechism, angels are created spirits without bodies, having understanding and free will. They are inferior to God and superior to man.”⁷⁰ Gustav Davidson, in his book, *A Dictionary of Angels*, writes that “the word derives from *angiras* (Sanskrit), a divine spirit: from the Greek *angelos*, meaning a messenger. In Arabic the word is *malak* (a Jewish loan word.) In popular usage, an angel generally denotes a supernatural being intermediate between God and man (the Greek “daemon” being a closer approximation to our notion of an angel than *angelo*).”⁷¹ G. Don Gilmore, a minister of the Plymouth Congregational Church in Spokane Washington, defines angels as “those forms, images or expressions through which the essences and energy forces of God can be transmitted. More succinctly, an angel is a form through which a specific essence or energy can be transmitted for a specific purpose.”⁷²

Meister Eckhart called angels an idea of God. Carl Jung thought of angels as a personification of something arising from the deep unconscious. Charles Fillmore, the co-founder of Unity, wrote, “Our angels are our spiritual perceptive faculties which ever dwell in the Presence of the Father” and “The office of the angels is to guard and guide and direct the natural forces of mind and body, which have in them the future of the whole man.”⁷³ Edgar Cayce said, “Angels are as Universal laws and we invite their help only by the command of an attunement to that which is our ideal.” In Christian Science, angels are “God’s thoughts passing to man”⁷⁴ and “a message originating from God in his aspects of Truth and Love.”⁷⁵

Author Greg Braden states that among the Essenes, a group of people living before and during the time of Jesus, “the word *angel* described the elements of our world that today we see as electrical and magnetic forces. Some forces were visible and tangible, while others were etheric, though nonetheless present. For example, ‘the angel of the earth’ may include the angel of the air and the angels of water and light. Forces of emotion and consciousness were also referred to as angels, such as angels of joy, work, or love.”⁷⁶

Other names that are sometimes used for angels are beings of light, spirits, guardian spirit, guiding influence, spiritual beings, devas or Shining Ones in Sanskrit, divine beings, creative energies, lords, and kachinas in Hopi Indian tradition. As celestial beings, religions have diverse beliefs about angels and how they serve our planet. Some religions believe angels serve as helpers, protectors, exactors of punishment, conveyors of heavenly messages, bringers of needed knowledge, and providers of comfort.

According to McLaughlin and Davidson, “Devas work in the formless worlds and are not bound or rigid in form as humans are. They have no form themselves but are dancing whirls of energy, more like a double spiral or vortex, open to the cosmos and forming an energy cape downwards to enfold the life with which they are working.”⁷⁷

Traditional Views of Angels

There has existed for thousands of years, a persistent belief, concept, ideation, and image in regard to non-physical spiritual beings, some of whom would be termed angelic beings. One finds a broad belief in angelic beings occurring in the religious traditions of the world, in the myths and folktales of ancient civilizations, in the art of cave dwellers, and in the art of master painters. Angelic beings are alluded to in the music of indigenous peoples, in modern pieces of music, and in literature from past and present writers. Their depiction, in word and image, ranges from disembodied spirits to white robed, winged figures with human form, to metaphysical representations of inner processes. The who, what, when, where, and why of angels has been debated by theologians for centuries. Painters of ages past and present have attempted to capture on canvas the glory of these beings of light. Musicians have listened to seize the songs of the angelic choirs. Psychologists have studied the workings of mind and emotion to understand the place that angels hold in the human psyche.

The traditions, culture, folklore, and religious views of a particular country affect the way these beings are depicted and experienced. In the East Indian tradition, devas will have the corresponding native dress and color of skin as the native peoples. In the Greek tradition, these beings would be represented by a variety of powerful god’s with

human personalities that take the form of human bodies. In the Western world, angels will often have light skin, wings, halos, and robes.

Among the central activities of angels has traditionally been seen to be one of praising the Divine by way of angelic choirs and musical angels. This theme is carried out in the literature, religious scripture, paintings, and music concerning the angelic hosts. Angels in the Bible are portrayed with different musical instruments including cymbals, drums, harps, and trumpets. When the Renaissance painters depicted these beings, they often showed them carrying or using pipe organs, horns, chimes, flutes, violins, tambourines, along with other instruments. Among ancient cultures, music was one of the gifts of the gods and was used as a means to bridge heaven and earth.

Angels in Religious and Spiritual Traditions

“Every blade of grass has an Angel that bends over it and whispers, ‘Grow, grow.’”
The Talmud

The Old and New Testaments of the Bible are filled with references to the existence of angels. There are approximately 295 references to angels in the Bible. Angels are mentioned in nearly half of the sixty-six books of the Bible including the books of Genesis, Daniel, Isaiah, Psalms, Revelation, and the Acts. In Psalm 103, it is written, “Bless the Lord, ye His Angels that excel in strength, that do His commandments, harkening to the voice of His Word. Bless ye the Lord, all ye His Hosts, ye ministers of His, that do His pleasure.” The nativity story of Jesus includes angelic messages being given to Mother Mary, Joseph, and the shepherds. And, Jesus mentions at the time of His arrest in the Garden of Gethsemane that he could call upon a legion of angels to save Him.

In Christian, Islamic, and Judaic writings, angels oversee various aspects of the natural world, including animals, plants, the earth, wind, rain, storms, and other heavenly bodies beyond this planet. Another main activity and function of these beings is as guardian spirits who watch over, guide, and strengthen an individual from birth to death and even beyond death.

Angels in Judaism

For He hath given His Angels charge over thee to keep thee in all thy ways.
Psalm 91:11

In the Old Testament, we find an Angel of the Lord speaking to Moses from the burning bush.⁷⁸ Shadrack, Mishack, and Obenduego are saved from a fiery furnace by an angel.⁷⁹ Abraham entertains three angels who reveal that his elderly wife Sarah will bear them a son.⁸⁰ Daniel in the lion's den is protected by angels.⁸¹ Jacob dreams of angels going up and down a ladder that joins heaven and earth.⁸² At another time, Jacob wrestles with an angel.⁸³ In Kings 19:4-8, the reader is told that an angel appeared to Elijah, giving him food and drink, therefore, giving him the strength to remain another 40 days in the desert. Tobias journeys with an angel as his companion and advisor.

Other passages in the Old Testament speak of angelic admonitions and administrations. Daniel has a vision of mighty being who prophesies things to come.⁸⁴ In the book of Psalms, the writer describes the angels as being mighty and obedient to the voice of God.⁸⁵

The mystical Jewish Kabala makes frequent mention of these shining ones.

The Essenes were a group of people who banded together and lived in the desert five hundred years before the entrance of Jesus onto the earth. Edmond Szekley edited and translated, *The Essene Gospel of Peace*. He sheds light on why the Essences decided

to go apart from the world, “Always have the children of light lived where rejoice the angels of the earthly mother: near trees, near flowers, near the music of the birds, where sun and rain may embrace the body which is the temple of the spirit.”⁸⁶

Angels in Buddhism

Buddhism began as a way of life where gods were only peripheral to the teachings. Yet, as time went on deities, both wrathful and benevolent, became absorbed into the teachings. The Dharma (the Buddha’s teaching) has its protecting spirits and personal guardians to assist the followers in living a more enlightened life.

Angels in Islam

*“Allah sends forth the angels as his messengers,
with two, three, or four pairs of wings.”*
The Koran

In his book, *Angels Unveiled: A Sufi Perspective*, Shaykh Muhammad Hisham Kabbani describes some of the characteristics and duties of angels when he writes, “...that God created the angels to carry out His orders and transmit the messages that pertain to human beings. Angels are honored, subtle beings created from light who serve their Lord. They exemplify the qualities of perfection, obedience, and dedication. They carry unlimited miraculous powers through which they can reach anyone in the blink of an eye to help and to heal, to serve and to console, to love and to be loved.”⁸⁷ He also states that, “Angels can come as birds, as human beings, or as a form of light like a rainbow adorning the sky. They have a mind and a heart, but no will and no desire other than to serve and obey God. They are never too proud to obey Him.”⁸⁸

According to Kabbani, there are four archangels who play major roles in Islam. They are Gabriel, Michael, Asrail, and Israfil. They and their assistants serve God and

humans in unique ways. Gabriel appeared to the Prophet Muhammad and told him to recite what he heard Gabriel speak and, over time, was inspired in the writing of the Koran.⁸⁹ It was Gabriel who appeared to Mary saying, “I am the Messenger from your Lord to announce to you the gift of a pure son.”⁹⁰ Michael is “...in charge of nature, rain, snow, clouds, thunder, lightning, wind, and clouds.”⁹¹ Azrail is “...the angel of death and is in charge of seizing souls of those who die.”⁹² Israfil is “...in charge of the Hour of Judgment Day.”⁹³

Angels in Christianity

“Every visible thing is put in charge of angel.”
St. Augustine

The account of the life of Jesus Christ, as put forth in the New Testament, begins with angels and ends with angels. Angel Gabriel prophesied the conception of Jesus by his mother Mary.⁹⁴ When Mary was found to be pregnant, Joseph, to whom she was engaged, thought to quietly break the engagement until, in a dream, an angel instructed him to go ahead and marry her.⁹⁵ The night Jesus was born, angels sang of the good news.⁹⁶ In another dream, Joseph was guided by an angel to take Mary and the baby and go to Egypt to protect their lives.⁹⁷ Again, in a dream, Joseph was told when it was safe to bring the family back from Egypt to Nazareth.⁹⁸ Before Jesus began his ministry, he went to the desert to prepare himself for the work ahead and “...angels came and waited on him.”⁹⁹ In talking about honoring children, Jesus added that their angels were ever in the Presence of God.¹⁰⁰ In the Garden of Gethsemane, as Jesus was about to be arrested, a disciple pulled out a sword and cut off the ear of one of those present. Jesus declared that if he wanted to, he could call on legions of angels to save him.¹⁰¹ On resurrection morning, the reader is told that Mary Magdalene saw two angels in the empty tomb.¹⁰²

In the book of Hebrews, it is written that, “You have made them for a little lower than the angels.”¹⁰³ Again, in Hebrews, the reader is reminded, “Let mutual love continue. Do not neglect to show hospitality to strangers, for by doing that some have entertained angels without knowing it.”¹⁰⁴ At one point, Jesus’ Apostles were arrested and put in prison. “During the night, an angel of the Lord opened the prison doors, brought them out and said, ‘Go, stand in the temple and tell the people the whole message about this life. When they heard this, they entered the temple at daybreak and went on with their teaching.’”¹⁰⁵ The disciple Peter was arrested, put in prison, and chained. One night “...an angel of the Lord appeared and a light shone in the cell.”¹⁰⁶ The chains were broken and he followed the angel passed the guards and through the gates to freedom.

The writer of the book of Revelation in the New Testament has numerous visions in which angels play a key role. One such vision is of an interaction with an angel who admonishes John not to worship him, but only God. John describes the interchange by writing, “I fell at his feet to worship him but he said to me ‘You must not do that!’ I am a fellow servant with you and your comrades who hold the testimony of Jesus. Worship God!”¹⁰⁷ John describes angel singers¹⁰⁸ and angel musicians.

Angels in the Native American Tradition

The Native American holy man, Black Elk, described to his friend and author John G. Neihardt various visions he had experienced throughout his life. One of these visions occurred when he was a nine-year-old boy and deathly ill. He described part of the experience this way, “Then as I stood there, two men were coming from the east, head first like arrows flying, and between them rose the daybreak star.”¹⁰⁹ In later years,

Black Elk made a painting of these two beings as having Native American dress with wings and spears.

Black Elk recalled another experience for Neihardt that he declared did not happen in a dream state but actually occurred. When he was five years old, his grandfather made him a bow and arrows with which he went hunting one day. When he was about to shoot a kingbird, it spoke to him and said, “The clouds all over are one-side.” He remembered that the bird also said, “Listen! A voice is calling you!” His vision continued with this description, “Then I looked up at the clouds, and two men were coming there, headfirst like arrows slanting down; and as they came, they sang a sacred song and the thunder was like drumming. I will sing it for you. The song and the drumming were like this: ‘Behold, a sacred voice is calling you; All over the sky a sacred voice is calling you.’”¹¹⁰ The beings had come from the north and when they got close to him, they turned toward the west and turned into geese.

Angels in the Arts

The arts are filled with the words, images, and sounds of the angelic world as will be seen in the following sections. Angels will be looked at through the works of great literary writers, through the eyes of painters, through the lens of the visual media.

Angels in Literature

Angels have been written about by St Augustine, Gregory, Plato, Socrates, Thomas Moore, Shakespeare, and more recently by such notables as Flower Newhouse, Geddes MacGregor, Joan Wester Anderson, and Morris B. Margolis. Flower Newhouse wrote from the vantage point of one who had communed with angels since childhood.

Morris B. Margolis, a rabbi and professor of Jewish History at the University of Kansas, writes with an understanding of Jewish life and its literature. Joan Wester Anderson incorporates numerous stories of angelic encounters in her books. Geddes MacGregor, Emeritus Distinguished Professor of Philosophy at the University of Southern California, writes from the perspective of a theologian exploring how angels fit into a theological framework.

Angels in Paintings

The angels portrayed by Fra Angelico are considered some of the most exquisite depictions of angels ever painted. Michelangelo, Raphael, Leonardo da Vinci, Rubens, Rembrandt, Van Gogh, and the artist/poet William Blake have created masterpieces of beauty and inspiration for the eye and heart with their renditions of heavenly beings. Other master painters who portrayed angels in their art are Durer, Dore, Giotto, and Crivelli. MacGregor reminds us that, “Generally speaking, however, in Western art the portrayal of angels has been left almost entirely to those artists and sculptors who can make full use of the freedom that Christian custom affords them.”¹¹¹ There are only a few angelic images in Jewish art as Judaism has a prohibition on any graven image.

A miniature painting by the artist Nizami Khamsa entitled *The Ascension Day of the Prophet* shows a faceless Muhammad riding Buraq, who is depicted as part eagle and part horse with the face of a woman. Buraq, according to Islamic tradition, carried Muhammad on his wondrous night journey from Mecca to Jerusalem and on to heaven. In the painting, the Archangel Gabriel is shown as leading Muhammad who is surrounded by other angel beings in magnificent robes and outstretched wings.

Angels in Music

The great Hallelujah Chorus by Handel is said to have been inspired by the angels. During the holiday season, Christmas hymns and carols, which are filled with angel images, are sung in both religious and secular settings. Many popular songs include references to angels in such hits as “Earth Angel,” “Angel Eyes,” “Johnny Angel,” “You are My Special Angel,” and “I Believe in Angels.” Composers like Maehler, Massenet, Litz, Verdi, and others created musical works with an angelic focus woven through them.

Angels in Movies, Television, and Magazines

The Christmas movie classic, “The Bishop’s Wife,” has Cary Grant playing the main character of an angel. Other well-known movies with angelic components include “It’s a Wonderful Life,” “Angel on My Shoulder,” and “Wings of Desire.” The actor Michael Landon played an angel in the popular television show “Highway to Heaven” and the actress Della Reese of the television show “Touched by an Angel” played the part of an angel. “Angels on Earth” is a bi-monthly Guideposts publication that relates true-life stories of those who have been touched, guided, and assisted by these beings of light. The magazine celebrated its fifteenth year in print as of its January/February 2010 issue.¹¹²

Non-Traditional Approaches to Angels

The concept, idea, and experience of beings who participate in the life of the planet and in the life of its inhabitants are intimately known by the indigenous peoples of the planet. In the following sections, non-traditional approaches to the topic of angels are explored from the standpoint of ancient and modern day visionaries.

Indigenous Peoples

For ages, indigenous peoples around the world have believed in and worked with invisible beings that go by various names such as spirits, nature spirits, or angels.

Ywahoo, in *Voices of Our Ancestors*, writes that there are “crystal beings singing” in the Seventh Heaven and “Their songs give order to chaos. Adawees, or Wise Protectors, are their names. *Hi la hi yu* – ‘long time ago’ – heavenly beings chose to aid those on Earth who had not yet the spark of wisdom fire. They sing for all who would hear, of worlds in harmony.”¹¹³

Angels of Nature

Through the ages, especially among indigenous peoples of the earth, people have worked with angels and nature spirits in a co-creative fashion. In more modern times, individuals such as Michael Wright, Peter and Eileen Caddy, the founders of the Findhorn Community, Penny Kelly, Michael Roads, and others have been experimenting and discovering ways to work with angels in their gardens and daily lives.

Findhorn Community

The Findhorn Community founded in 1962 by Peter and Eileen Caddy, along with Dorothy Maclean, began in Northern Scotland. On this barren patch of sand, where the wind blows continuously from the sea, these three individuals experimented with the creation of a vegetable garden, flower garden, and orchard. Peter Caddy was the one who researched gardening techniques and did the labor for the garden, putting in loving vibrations with each turn of the spade. Eileen Caddy received inspirational guidance in meditation concerning the garden that Peter followed to the letter. Maclean attuned to angels and nature spirits, gaining important council and direction from these beings about

how to work with them. She was interested in how these beings might raise the vibrations of the gardens and, as a result, aid in bringing forth nutritious foods for a healthful lifestyle for the family. With the combined work, inspiration, and intentions of these individuals, a most remarkable garden was created that astounded the agricultural experts. Eventually, this original, small group grew into a large community, attracting people from all over the world who continue to work with some of the same principles that the founders used.¹¹⁴

Paralandra

In the 1970s, Michaela Wright began a co-creative partnership with devas and nature spirits in bringing forth a remarkable and beautiful vegetable and flower garden in the woods of the Virginia countryside which she called Perelandra. She found that she could communicate with devas who guided her in each step she was to take to create and sustain this thriving garden. To Wright, the nature spirits were intelligent moving spheres of light energy.

Flower Newhouse

Flower Newhouse, a Christian mystic and clairvoyant, was attuned to the angelic world since childhood and wrote a number of books highlighting her experience, understanding, and insight concerning angels and their expansive activities. She was clairaudient and clairvoyant and shared her insights not only in writing but also through countless lectures given at Questhaven Retreat, a chapel and training center in Escondido, California. She makes reference to the angelic choruses that sing the praises of their Creator. Newhouse writes that “Angelic activities, in the main, are accompanied by flashing color ‘showers,’ rhythmical chants, and noticeably heightened frequencies.”¹¹⁵

Newhouse describes how angels commune with humans. She writes, “Angels can convey energy and Light to us in several ways, especially through nature, music, and a spiritual consciousness. All they desire from man is reverence for God, love which is inclusive, and an earnest questioning which contains sufficient courage to venture into boundaries beyond dogma and intellectual pharisaism into the clear light of awareness and realization.”¹¹⁶

Michael Roads

In his books, Michael Roads details his journey of communicating with many forms of nature including dolphins, blackberries, crystals, water, dogs, kangaroos, and other aspects of the natural world. He found that he could work in simple co-operation with nature. When he found that his cabbage heads, brussel sprouts, and broccoli had been partly eaten by the bower birds, he asked them if they would come to an agreement with him. He suggested to the birds that he would leave the sweet leafed chickweed for them and that they could eat the large outer leaves of the cabbage, brussel sprouts and broccoli leaves but he asked the birds to leave the inner parts of the plants for his family. When the next growing season arrived, the birds lived up to their part of the agreement and he found the hearts of the plants untouched.¹¹⁷ Yet, what is most intriguing is that Roads’ experiences go beyond communication to the actual experience of becoming one with them.

Angels of Healing, Prayer and Devotion

Newhouse describes, in detail, her experience and vision of the angels who serve the Lord Christ, whom she names Angels of Adoration. She says that at any worship service where the people are sincere and reverent, these angels joyfully minister and lift

up the consciousness of the individuals present in the congregation. There are other angels, according to Newhouse, who help the Angels of Adoration during a devotional service and among these are the Angels of Song, the Angels of Prayer, and the Angels of Healing.¹¹⁸

Eileen Elias Freeman, in her book *Angelic Healing: Working with Your Angels to Heal Your Life*, writes that "...the more we work with our angels for healing, the more we will realize that healing comes not so much *from* the angels, but from God *through* the angels."¹¹⁹

Connecting with Angels

Corrine McLaughlin and Gordon Davidson in *Spiritual Politics* address what the experience of interacting with angels might be like. They write that, "Guidance from the Higher Self, or from the Angelic realms, will always be inspirational, concise, and loving. It will honor the good of the whole. It will never create fear or separation, demand obedience, or claim ultimate authority for itself."¹²⁰

Co- Creating with Angels

Some of the examples in the previous sections indicate the co-creative process that has occurred and is occurring between humans and the angelic realm. As the possibility of this viable relationship between realms is explored and accepted by more people, it may mean that a whole new world of possibilities opens for humans, angels, nature, the environment, and for science. McLaughlin and Davidson remind the reader that, "The communication from the devas at Findhorn even holds out the promise that someday humanity could create new species of plants and animals, such as inexpensive sources of protein or drought resistant grain. Simply by humans holding in mind the

desired qualities, and asking for cooperation, the devas could create the form desired, as long as it is aligned with the Divine Will and for the highest good of all.”¹²¹

Seed Germination

In the sections to come, a wide variety of processes are looked at to see how various peoples and cultures have interacted with the natural world to aid in the germination of seeds and in the growing of plants. Plus, some ethical considerations are addressed in the use of seeds for research purposes.

Traditional Methods of Seed Germination

The traditional method of seed germination is simply to plant a seed in some growth medium to aid it to sprout.

Non-Traditional Methods of Seed Germination and Plant Growth

*But ask the animals and they will teach you;
And the birds of the air and they will tell you;
Ask the plants of the earth and they will teach you;
And the fish of the sea will declare to you.*

Job 12: 7 & 8

Sound has been used by the Hopi Native Americans for generations to help grow and healthfully sustain their corn crops. David Monongye, an elder in the Hopi tribe, tells of a man named Titus who still practices the ancient ways of keeping plants alive even in the arid land of New Mexico. He says of Titus, “He knows by heart the right airs to chant on his corn children, for whom he offers prayers at planting time. Most important, he knows that he should never worry, like most farmers, about his crop,

because anxious thought is as damaging as extended drought. Instead of worrying, he goes to his children in the high heat of noon to impart courage to them with his generations-old songs.”¹²²

John Kimmey, the founder of New Mexico’s Innovative Community School, was given very old dark blue corn seeds who’s parent plants had at one time been sung to by the Native American farmers. Kimmey planted these seeds using his own songs and the corn stalks amazingly grew into plants nine feet tall.¹²³

An interesting event occurred when Dan Carlson and his daughter decided to see if morning glory seeds they were collecting for successive plantings would respond to their desire to have certain colors of morning glory specifically bloom for them. Dan favored purple colored flowers while his daughter favored pink flowers. Even though the seeds came from a wide spectrum of colors, the flowers that bloomed nearest Dan’s bedroom window were purple ones only and those around his daughter’s bedroom window were only pink ones. They believe that their mental/emotional desires were communicated to the seeds and the seeds responded accordingly.¹²⁴

A man born of slave parents in Diamond, Missouri became an instructor at Tuskegee Institute in Alabama and along the way learned how to connect with plants by loving them, asking them questions, and then listening for their responses. George Washington Carver was a scientist with a bachelors and master degree. When asked how he did the amazing things he did with plants he responded by saying, “All flowers talk to me and so do hundreds of living things in the wood. I learn what I know by watching and loving everything.” At another time, when asked how he got the plants to give up their secrets, Carver said, “You have to love it enough. Anything will give up its secrets if you

love it enough. Not only have I found that when I talk to the little flower or the little peanut they will give up their secrets, but I have found that when I silently commune with people they give up their secrets also – if you love them enough.”¹²⁵

Vivian Wiley, a friend of Researcher Marcel Vogel, did some research with two leaves she removed from a saxifrage tree in her backyard. She placed one leaf by her bedside and each day willed it to continue living. The other leaf, placed in the living room, was ignored by Wiley. When Vogel visited Wiley a month later, he was greatly surprised to discover that the leaf that had had the daily attention was fresh and green while the leaf that had no attention paid it was brown and beginning to decompose. Vogel then decided to conduct his own experiment with three elm leaves he removed from a tree found outside his laboratory. These three leaves were placed on a glass plate and each morning he would encourage the outer leaves on the plate to live while ignoring the leaf in the center. When a week had gone by with this treatment, the center leaf was withered and brown while the outer two leaves that had had Vogel’s encouragement to live were vibrant and green.¹²⁶

Ethical Considerations in Using Seeds for Experiments

Within the concept of the Oneness of All Life, there must come into play the need for ethical clarity concerning the use of seeds in an experimental format. It seems to the author that there needs to be some sort of informed consent along with an attitude of thoughtful loving kindness for another aspect of the natural world. The Native Americans would ask the spirit of an animal if they had permission to kill it for food. If the response were in the affirmative, they would go ahead and take its life. If the response were in the negative, they would move on. They included a prayer of gratitude for the

food the animal provided. The Aborigines of Australia would send their thoughts ahead of them on their travels, asking that an animal would be available for them for food at a particular time and place.

How would a researcher gain the consent of an animal, plant, seed, fungi, or other living creature? The consent (or non-consent) would be gained by an attunement to the energy of the creature intended for the experiment. There are present day “horse whisperers” and other animal communicators who have honed their abilities to hear and sense the responses of creatures. Larry Dossey has even suggested that there be formed “a Non-human Permissions Committee (NONPERC)” similar to the review boards that oversee using humans in scientific experiments.

The Christian healer, Olga Worrall, was once asked to do experiments in which she would retard or actually kill some bacteria. She refused, indicating that she would use her abilities only for good and not for hurting them. The experiments were changed and she was able to use her gifts in a constructive manner.¹²⁷

Effects of Sound and Music on Seed Germination and Plant Growth

Creath and Schwartz conducted a study in 2002 seeking “to measure biologic effects of music, noise, and healing energy without human preferences or placebo effects using seed germination as an objective marker.”¹²⁸ The study found that both the healing energy and musical sound had significant effect on the germination of the okra and zucchini seeds they used as compared to the untreated seeds in the control group.

In the late 1960s and early 1970s, some well-known experiments were conducted by Retallack on the effects of music on plants. She tested various types of music from

acid rock and semi popular music to jazz, East Indian, and classical music. The most favorable reaction pattern came when the plants were exposed to the music of Ravi Shankar or Bach.

Studies Using the Laying on of Hands in Seed Germination

Researcher Bernard Grad from the University of Montreal undertook the investigation of whether a person with mental depression, holding a sealed bottle of water in their hands, would have an effect on barley seeds, which were watered from their container. The experiment was constructed using three people: one person known to have a green thumb and two people from a psychiatric hospital. For thirty minutes, each person held in their hands a bottle of water that was later used to water barley seeds. Seeds grew most quickly from the man with the green thumb in comparison to the control group and the other two individuals. One of the persons experiencing depression became interested in the experiment and held the bottled water in a caring manner and her seeds grew more quickly than the control group. The other person with depression was despondent as he held the bottle of water and his seeds grew the slowest as compared to the controls. This study could suggest that emotions of a negative nature might effect the growth of plants as well as positive emotions might also effect the growth of plants.¹²⁹ Grad studied the effects of barley seeds watered with a 1% saline solution as compared with a 1% saline solution that was treated by a healer. He found that more seeds germinated from the solution that had been held by a healer.¹³⁰

Honoring Diversity in the Natural World

It is heartening to know that, on various fronts of thought and action, there is the desire and intention to work toward the expansion of consciousness when it comes to

honoring, protecting, and respecting the wondrous diversity of the natural world. For example, The United Nations Commission on Environment and Development approved in March of 2000 what is called the Earth Charter. A part of the preamble states that, “To move forward we must recognize that in the midst of a magnificent diversity of culture and life forms we are one human family and one Earth community with a common destiny. We must join together to bring forth a sustainable global society founded on respect for nature, universal human rights, economic justice, and a culture of peace. Towards this end, it is imperative that we, the people of the Earth, declare our responsibility to one another, to the greater community of life, and to future generations.”¹³¹

In 2004, in Caracas, Venezuela, a Universal Declaration of Plant Rights was approved by a variety of conservationist groups.¹³² The Universal Declaration of Plant Rights has 22 stated articles with the first article setting the framework for those that follow. It states, “We declare by principle that plants have a right to live, just as animals do, free of excessive human exploitation, be it the name of science or sport, exhibition or service, nutrition or fashion. The goal ultimately is to avoid the risk of extinction of any species. A healthy vegetation in Nature benefits humans and animals alike.” (See Appendix C)

Talking, Meditating, and Communing with Nature

I love to think of nature as an unlimited broadcasting system, through which God speaks to us every hour, if we will only tune in.

George Washington Carver

Prayer

“We succeed in prayer and in love when we lose ourselves in both, and are no longer aware of how we are praying or in what manner we are loving.”

Karl Rahner, 20th century Theologian

Overview of Prayer

At this very moment, all over the world people are praying in their native language and in their own way to their God or gods. An Orthodox Jew stands at the Wailing Wall in Jerusalem moving his body in gentle rhythm while reading his prayer book. A Muslim in Africa faces Mecca and prostrates himself on his prayer rug, one of five times he will do so today. A Catholic nun in a cloistered convent rises in the middle of the night to pray in the chapel for the world. A Pentecostal Christian family raises their arms in praise to God on a Sunday morning in church. A Buddhist high in the Himalayan Mountains brushes the prayer wheels with her hand sending her prayers into the heavens. A Hindu in Calcutta burns incense before a statue of Krishna. A Native American walks in silence across the plains communing with the Great Spirit. A Sufi twirls in prayerful adoration. These are but a few of the many and varied forms of prayer that the human family has created to express their connection with the Divine.

What is Prayer?

Moving into this important subject matter, it becomes vital to understand what we mean by the word prayer. What is prayer? There is a rich diversity of understanding as to what it is and here are some samples which illustrate various understanding as to the nature and purpose of prayer.

- Webster’s New Collegiate Dictionary defines prayer as “an address (as in a prayer) to God or a god in word or thought; an earnest request.”¹³³

- The American Heritage Dictionary of the American Language defines prayer as “any act of communion with God, such as confession, praise, or thanksgiving.”¹³⁴
- Marcus J. Borg, a distinguished professor of Religion and Culture at Oregon State University, has written that, “Seeing God as “the one in whom we live and move and have our being” means that prayer is not addressing a distant being that may or may not be there and who may or may not answer. Rather, within the framework of seeing God as “right here” and “all around us,” as one with whom we are already in relationship whether we know it or not, prayer (verbal and nonverbal) becomes the primary individual means of consciously entering into and nurturing a relationship with God. Prayer is attending to our relationship with God.”¹³⁵
- Iyanla Vanzant, television talk show host and award winning author, wrote that, “I’m not sure where I heard it or why I believed it, but when I was in my mid-twenties a few words changed my approach to and experience of prayer. The words were these: “Every thought you think is a prayer. Every word you speak is a prayer, because the Spirit of God lives in you.”¹³⁶
- James Fadiman and Robert Frager, both students and widely respected authors on Sufism, describe the essence of prayer for the Sufis in this way, “They then open their hearts so that they can feel that they are truly in the presence of God, with nothing separating them from God. This is the essence of prayer, a constantly held goal.”¹³⁷
- Phyllis Hobe, a compiler and author for Guideposts, depicts prayer as “a deeply personal, two way communication with God. It goes beyond speaking and being heard, asking and being answered. Prayer is a relationship with a very dear Friend, a relationship that needs careful, loving nurturing in order to develop and ripen.”¹³⁸
- Gregg Braden, a former senior computer systems designer for Martin Marieta Aerospace, computer geologist and technical operations officer, and explorer of the spiritual journey says that, “Regarded by many to be the root of all technology, prayer, which is the union of thought, feeling, and emotion, represents our opportunity to speak the language of change in our world as well as in our bodies.”¹³⁹ Braden also describes the Essence understanding of prayer when he writes, “The Essenes viewed prayer as the language through which to honor nature and the creative intelligence of the cosmos; they made no distinction between the two.”¹⁴⁰

- Meredith Ann Puryear, writer and teacher for the Association of Research and Enlightenment (A.R.E.) shares yet another view when she writes, “Prayer, then, is an attitude of mind, a seeking to bring all physical consciousness into relationship with the *creative* forces of the universe. It becomes a conscious weighing of our thoughts against our ideal, a way of keeping ourselves in real attunement with the spiritual forces that manifest in a material world.”¹⁴¹
- H.P. Blavatsky, founder of the Theosophical Society and author on mysticism, states that “we believe in “communion” and simultaneous action in unison with our “Father in secret.”¹⁴²
- Walter Starke, retreat leader and practical mystic, characterizes this activity as being “communication with the Divine. It’s our attempt to open a divine discourse between our particle self and our wave self.”¹⁴³
- Marianne Williamson, lecturer on metaphysics and spirituality and best selling author, shares that “Prayer aligns our internal energies with truth in a way that mere action cannot. Events ultimately unfold according to subconscious rather than conscious programming, and prayer is a way of healing and releasing the subconscious mind. When we pray that God take a situation into His hands, we are praying for two things: one, that events unfold at the highest vibration of love for all human beings touched in any way by a situation, now and forever: and two, that our minds are aligned with truth.”¹⁴⁴
- Larry Dossey, physician, editor, and author writes, “In its simplest form, prayer is an attitude of the heart – a matter of being, not doing. Prayer is the desire to connect with the Absolute, however it may be conceived. When we experience the need to enact this connection, we are praying.”¹⁴⁵
- William James, teacher of psychology and philosophy, quotes a liberal French philosopher as saying, “This is prayer, by which term I understand no vain exercise of words, no mere repetition of certain sacred formulae, but the very movement of the soul, putting itself in a personal relation of contact with the mysterious power of which it feels the presence, it may be even before it has a name by which to call it.”¹⁴⁶
- Charles Fillmore, co-founder of Unity, writes, “Prayer is the most highly accelerated mind action known. It steps up mental action until man’s consciousness synchronizes with the Christ Mind.”¹⁴⁷

The main thoughts in these definitions, therefore, denote prayer as:

- An earnest request

- Any act of communion with God
- Attending to our relationship with God
- Every thought, every word spoken
- When nothing separates a person from God
- A deeply personal two way communication with God
- The union of thought, feeling, and emotion
- A language through which to honor nature and the creative intelligence of the cosmos
- An attitude of mind
- Divine discourse between our particle self and our wave self
- The movement of the soul
- The most highly accelerated mind action known
- An attitude of the heart – a matter of being not doing
- Aligns our energies with truth

These descriptions of prayer provoke much thought and deep contemplation for they are clearly presenting at least two very divergent perspectives as regards the nature of the Divine by whatever name we give it such as God, Goddess, Allah, Brahman, the Tao, Universe, Ground of Being, Absolute Good, Light, and Love. The view of prayer that one holds will determine how one describes the activity of prayer. If one holds that God is a Being outside of oneself, then one may believe that prayers are made to *someone out there* who may either grant the prayer or not grant it for whatever reasons God has. If one holds, as in Acts 18:27,¹⁴⁸ that in God “we live, and move, and have our being,” and in 1John 4:8 that “God is Love,”¹⁴⁹ then the Divine is everywhere equally present and the activity of prayer is to center oneself in love. This distinction makes all the difference in how we pray, why we pray, and what our expectations are of prayer.

Marcus J. Borg, in his book, *The God We Never Knew*, makes a profound statement. He writes, “Our images of God matter. Just as how we conceptualize God affects what we think the Christian life is about, so do our images of God. Ideas (which include both concepts and images) are like families: they have relationships. How we

image God shapes not only what we think God is like but also what we think the Christian life is about.”¹⁵⁰ He goes on to remind us of the various images of God drawn from the Bible, which include: God as king, lord, warrior, judge, lawgiver, gardener, shepherd, potter, healer, lover, friend, eagle, lion, bear, fortress, and many others.¹⁵¹

In reading the words that describe God, the author realized that with each one there was some sort of mental or emotional response. Imaging God as king or lord made the author think of a masculine human-like deity. Images of God as gardener, lover, or potter brought to mind a more feminine human-like deity. Words like bear, lion, brought feelings of fear and awe. For ages and ages, these images have nourished the lives of not only Christians but other religious followers of the world’s religions that have similar representations/images of the Divine. Even to this day, most likely due to these types of images of God referenced in the Bible as well as in other sacred texts of the world, people continue to have a vision of God as being, most often though not exclusively, a male human-like deity. Of course, this perception continues the ancient belief that God is somehow simply a larger than life human, who dwells up in the heavens and who has very human-like qualities that include anger, vengeance, retribution, and judgment. For example, the mayor of New Orleans recently indicated his view that Hurricane Katrina was a result of God’s being angry with the people.

If one holds to a God who is sometimes judgmental and angry and sometimes loving and forgiving, then one’s prayer life may take on the color of confusion and uncertainty. In this view, depending on many factors, God may or may not answer one’s prayers, may withhold some good as punishment or may inflict illness or death.

Answered Prayer and Unanswered Prayer

In the magazine, *Christianity Today*, Christian Evangelist Luis Palau stated that he had discovered that God most frequently answered prayers in five ways. These five ways were:

1. “No, I love you too much.”
2. “Yes, but you’ll have to wait.”
3. “Yes, but not what you expected.”
4. “Yes and here’s more.”
5. “Yes, I thought you’d never ask.”¹⁵²

Palau believes, according to this article, that though tens of thousands of lives were spared after 9/11, God also said “no” to the prayers of thousands of others. This is certainly a view the author does not agree with as she doesn’t think that God says yes or no.

How to Pray

Prayer takes many forms. There can be inner-directed prayer or outer-directed prayers. There are those that are spoken, sung, danced, chanted, drawn, or painted. Prayers can be quite formal or unstructured. Yet, prayers often convey the depths of love, praise, and gratitude. Margaret Paloma, a sociology professor at the University of Akron in Ohio, identified four modes of prayer.

1. Colloquial Prayer – in this form, we speak to God in a conversational manner sharing our problems, asking for direction, or maybe bargaining with God that if God does a particular thing, we promise to do a particular thing.
2. Petitional Prayer – in this form, a person asks God for things like a particular job or a house either for themselves or another.
3. Ritual Prayer – in this type, a person repeats a prayer that has been memorized and is repeated on particular occasions. Examples of this would be those used before sleep, at meals or at certain times in devotional services.
4. Meditative Prayer – in this type, a person moves beyond speaking to

God to being still, receptive, listening, open to feeling, knowing the Presence of God within.¹⁵³

There are yet other forms of prayer to be contemplated. Another form of prayer is termed Intercessory prayer, also known as IP or distant healing, and is comprised of one or more persons praying for another.

Gregg Braden, in his book, *The Isaiah Effect*, adds to the exploration of how to pray when he writes about “a lost mode of prayer.” He says, “The secret of our lost mode of prayer is to shift our perspective of life by feeling that the ‘miracle’ has already happened and our prayers have been answered. Indigenous peoples of the world share this memory of prayer in their most sacred texts and oldest traditions. Now we have the opportunity to bring this wisdom into our lives as prayers of gratitude for what already exists, rather than asking for our prayers to be answered.”¹⁵⁴ Braden also quotes an abbot he was visiting on a pilgrimage to Tibet. The abbot suggested, “Each time we pray individually, we must *feel* our prayer. When we pray, we feel on behalf of all beings, everywhere. We are all connected. We are all expressions of one life. No matter where we are, our prayers are heard by all. We are all the same one.”¹⁵⁵

The Findhorn Community in Scotland uses a logic/intuitive form of prayer. In their book, *Spiritual Politics*, McLaughlin and Davidson write that “At Findhorn, for example, members first discuss an issue analytically, reviewing all information and facts in a logical, fact-based manner. Then they shift to an intuitive approach, using prayer or meditation to contact an inner source of guidance – the infinite wisdom accessible within each person.”¹⁵⁶ Paul Pearsall, Ph.D. describes the activity of prayer when he writes, “When we pray, we don’t send energy up to a High Power spiritual satellite to be relayed

to or for someone else. Prayer, like love, is merging with the info-energy that we are always a part of whether our brain “knows” it or not.”¹⁵⁷ Here, in another phrasing, is the idea of uniting, merging with the Ground of Being or the All that Is, in which is the info-energy or sacred intelligence.

Agnes Sanford, a well-known healer, writer, and wife of an Episcopal rector, wrote a book entitled *The Healing Light*. In it, she shares what she calls the scientific attitude. She writes, “The scientific attitude is the attitude of perfect meekness. It consists in an unshakable faith in the laws of nature combined with perfect humility toward those laws and a patient determination to learn them at whatever cost. Through this meekness scientists have learned how to conform to the laws of nature, and by so doing have achieved great results. Through the same meekness those who seek God can produce results by learning to conform to His laws of faith and love.”¹⁵⁸ Her concept of a scientist having an attitude of “perfect meekness” is quite thought provoking. It is interesting to wonder if taking an attitude of meekness or humbleness would in some manner open mental and emotional pathways to think about and explore things in more expansive ways, which could open up new possibilities in whatever field the scientist is studying.

Sanford assists the reader in learning how to produce results by giving these four steps in the prayer process: (1) relaxation, (2) meditation upon the reality of God, (3) asking for the indwelling of God’s life, and (4) giving thanks for the increase of power within.¹⁵⁹

Fillmore writes “Do not supplicate or beg God to give you what you need, but get still and think about the inexhaustible resources of infinite Mind, its presence in all its

fullness, and its constant readiness to manifest itself for you when its laws are complied with.”¹⁶⁰ When Fillmore writes about “laws” in this last sentence, he is referring to the “faculty of the mind that holds thought and act strictly to the Truth of Being, regardless of circumstances or environment. Law is a mathematical faculty. Laws of mind are just as exact and undeviating as the laws of mathematics. God is Mind: man, the offspring of God, is mind. To know the law of God, man must adjust his mind to God-Mind.”¹⁶¹

Fillmore listed the seven necessary conditions for what he called true prayer. They are:

1. God should be recognized as Father.
2. Oneness with God should be acknowledged.
3. Prayer must be made within, in “the secret place” (Psalms 91).
4. The door must be closed on all thoughts and interest of the outer world.
5. The one who prays must believe that he has received.
6. The kingdom of God must be desired above all things, and sought after.
7. The mind must let go of every unforgiving thought.¹⁶²

It is important to note that Fillmore believed that when Jesus used the term “Father” (as in the first step in prayer above) in referencing God that Jesus was attempting to expand his listener’s view of God. The God of the Jewish Old Testament was a wrathful, judgmental God. Jesus was taking his listener’s to a new concept of God as a loving, providing, caring Father. Jesus was/is, in the author’s opinion, the embodiment and expression of the next evolutionary leap in human consciousness for humanity. Fillmore could not, at that time, have proposed the idea of God in words such as “Father/Mother God,” or “Ground of Being,” or “Sweet Spirit,” or “The All That Is,” or any other variety of names that might be more common among those in later versions of New Thought or those in more liberal religious/spiritual thinking. As human beings continue to evolve

spiritually, language may very well also continue to evolve to describe and enlarge those expanded understandings.

Fillmore's use of the word Father is not used in the traditional Christian way. He describes his thought this way when he writes that the Father-Principle is, "The exact and immutable principle of Being, lying back of all existence as cause, and approachable only along lines of perfect law. It is omnipresent and is not subject to change."¹⁶³

Why Do People Pray?

Why do people pray? There may be as many answers to that question as there are people who would be praying. Some of the reasons would surely include a sense of duty or obligation, or it is simply what one is expected to do to be an observant Christian, Jew, Muslim, Buddhist or adherent to a particular religious persuasion. For some, there may be a level of fear that if one does not pray, God will become angry and something bad may happen to them or those they love. For others, prayer is a way to release their anguish, suffering, and pain and seek a sense of peace and assurance. Some people pray because it has become a habit. Others pray for help in times of trial and suffering to gain the strength needed to carry on. Some pray for courage when the going gets rough. Some pray for direction when the way seems hidden or muddy. Prayer is also a powerful form of expressing one's deep thankfulness either for answered prayer or because there is no other soulful way to articulate or give forth one's gratitude for life. William James, the wise American philosopher, once said that the reason we pray is simply that we cannot help praying. Maybe that is the best explanation of why we pray!

Effects of Prayer on Seedlings

Ambrose (1899-1972) and Olga Worrall (1906-1985) were well known and respected healers in America. They were asked to participate in a fascinating experiment in 1967 by Robert N. Miller who was an industrial research scientist. “Using an extremely accurate method of measuring plant growth rates developed by H. H. Kleuter of the United States Department of Agriculture, with accuracies up to one thousandth of an inch per hour, Miller, working in Atlanta, Georgia, asked the Worrall’s to direct their thoughts at rye seedlings from Baltimore, some 600 miles away. Whereas the growth rate of a new blade of rye grass had been observed by Miller to stabilize at 0.00625 inch per hour, after he asked the Worrall’s to think of the seedling at exactly 9 P.M., the trace on a graph indicating growth rate began immediately to deviate upward and by 8:00 A.M. the following morning the grass was growing at a rate 84 percent faster. Instead of growing the expected 1/16 inch in the interval, the seedling had sprouted more than ½ inch.”¹⁶⁴

Another experiment in which Olga Worrall participated is reported in this way. “On one occasion she accepted the invitation of physicist Elizabeth A. Raucher and biophysicist Beverly A. Rubik to participate in a laboratory experiment involving bacteria. The study originally called for Worrall to inhibit bacterial activity in a particular phase of the experiment. When she objected to using prayer to harm God’s creatures, the study was re-designed to allow her to help, not hurt, the microorganisms by protecting them from the killing effects of antibiotics. The results showed that she was able to do so.”¹⁶⁵ In the mid 1960’s, the author and her husband had the joy of meeting the Worrall’s and the author could easily see that Olga Worrall would have taken issue with

harming anything. And, even though the study had to be altered to accommodate Olga Worrall, still the results proved to be interesting in the annals of science.

Larry Dossey, M.D., in his book, *Healing Words*, writes concerning the work that Spindrift did in laboratory experiments demonstrating that prayer does work. He writes, “One of their most important contributions is the distinction between *directed* and *non-directed* prayer. Practitioners of directed prayer have a specific goal, image, or outcome in mind. They are “directing” the system, attempting to steer it in a precise direction. They may be praying for the cancer to be cured, the heart attack to resolve itself, or the pain to go away. Non-directed prayer, in contrast, is an open-ended approach in which no specific outcome is held in the mind. In non-directed prayer, the practitioner does not attempt to “tell the universe what to do.”¹⁶⁶ The Spindrift tests found that both directed and non-directed prayer were both effective yet, the non-directed prayer technique proved to be quantitatively more effective.

The Spindrift experiments utilized a mold that grows on the rice agar. The mold had an alcohol rinse washed over it which challenged its growth but did not destroy it. A string provided the demarcation line for dividing the mold into one area marked A, which was the control side, and the other side marked B, that was the prayer side. The difference in directed and non-directed prayer on side B became apparent. When side B had directed prayer focused on it to spur growth, it remained inactive. Yet, when side B had non-directed prayer focused on it, meaning the healer held no specific outcome in mind, side B began to grow and increase. The results of these non-directed prayer techniques would often yield results two times greater than the directed prayer

technique.¹⁶⁷ Dossey reports that, “As a result of numerous tests on a variety of biological systems, the Spindrift researchers suggest that healers will be most effective if they strive to be completely free of visualizations, associations, or specific goals. Physical, emotional, and personality characteristics should be excluded from thought, they say, and replaced by a ‘pure and holy qualitative consciousness of whoever or whatever the patient may be.’”¹⁶⁸ These experiments would seem to guide us when we simply do not know how to pray or what to pray for in the healing of mind, body, or life concerns. He says that these findings “suggest that it isn’t always necessary to know how the body ought to behave for healing to occur. One need only pray for “what is best” – the “Thy will be done” approach.”¹⁶⁹

Research conducted by Leonard Laskow discovered that various ways of mental focusing produced different responses in cancer cells involved in this research study. It was found that, “The most effective intention was ‘return to the natural order and harmony of the normal cell line’ (39 percent inhibition). Asking for God’s will to manifest was half as effective (21 percent inhibition). Adopting unconditional love for the cancer cells was neutral neither stimulating nor inhibiting cell growth.”¹⁷⁰

The Spindrift studies discovered that a “Thy will be done” non-directed approach was a more effective approach than a specific directed prayer approach. Laskow’s research was different in that it showed the most effective approach was to have an intention of “return to the natural order and harmony of the normal cell line” which certainly seems to have an essence of the directed approach to it. Therefore, it would seem that one could use the “return to the natural order and harmony” as a form of prayer

for oneself or another with potential results that may be more effective than the “Thy will be done” prayer approach.

In recent years, Marasu Emoto of Japan has carried out many experiments with water. Emoto exposed water to different words or musical styles and then the water crystals that formed were photographed. What resulted were visual representations of the vibrations transmitted by the words or music. Emoto writes in his book, *The Hidden Messages in Water*, “All the classical music that we exposed the water to resulted in well-formed crystals with distinct characteristics. In contrast, the water exposed to violent heavy-metal music resulted in fragmented and malformed crystals at best. But our experimenting didn’t stop there. We next thought about what would happen if we wrote words or phrases like “Thank you” or “Fool” on pieces of paper and wrapped the paper around the bottles of water with the words facing in.”¹⁷¹ What Emoto and his colleagues discovered, with the words facing in, was that the water that had been exposed to the words “Thank you” formed lovely hexagonal crystals while the word “Fool” produced malformed and disjointed crystals. One of the loveliest photos in Emoto’s book is the one that shows a crystal formed after a priest prayed a healing prayer while facing a lake. The photograph of crystals made from this lake water after the prayer was offered is on the cover of his book, *Hidden Messages in Water*, and the author believes it has a sacred feeling to it. The author does not recall whether any experiments were conducted to see what would happen if the words were put on paper around the bottles of water with the words facing out. It would be interesting to know if a difference would result in that change.

Visual images of what happens to molecules of water when exposed to music, words, thoughts, and feelings are a powerful way to demonstrate the creative aspect of vibration. Emoto states, “Water – so sensitive to the unique frequencies being emitted by the world - essentially and efficiently mirrors the outside world.” These water crystal photographs in a unique manner confirm what many believe: that our thoughts are not simply something private that we entertain in our brains but that they are creative and go forth with a vibration, with energy to manifest according to their nature. Harmonious crystals formed with such words as *gratitude* and *love* and inharmonious ones formed with such a critical word like *fool*. When we realize all the words, thoughts, and feelings which are produced every second, of every day, of every variety, by each person on the planet, is it any wonder that our earth is facing such challenges. Each person, therefore, adds to the vibrational soup that surrounds and permeates the earth.

Health Benefits of Prayer

Herbert Benson, in his book, “The Relaxation Response,” discusses his findings on the Relaxation Response technique and its effects on physiological functions. He discovered that by eliciting the Relaxation Response, there was a significant statistical lowering of high blood pressure. Benson writes, “During the pre-meditation control period, the systolic blood pressure (the highest component of blood pressure) of these thirty-six subjects averaged 146 millimeters of mercury. After several weeks of regularly practicing the Relaxation Response, the average systolic blood pressure decreased to 137. The 137 millimeters of mercury level represents a drop of about ten millimeters of mercury, lowering the blood pressure from the borderline high blood pressure range to the “normal” range.”¹⁷²

Benson suggests the use of the Relaxation Response for maximum benefit for ten to twenty minutes a day for ongoing well-being. He also suggests its use as an aid to handling anxiety, stress, and as a way to help off set the harmful effects of the fight-or-flight responses. He describes the Relaxation Response technique as incorporating these four essential elements: “(1) a quiet environment; (2) a mental device such as a word or a phrase which should be repeated in a specific fashion over and over again; (3) the adoption of a passive attitude, which is perhaps the most important of the elements; and (4) a comfortable position.”¹⁷³

Prayer Research Findings

Robert A. Barth, Director of the Office of Prayer Research for Unity, has said, “After analyzing more than 300 studies on the efficacy of prayer, the Office of Prayer Research has identified 14 foundational studies. These studies collectively address the impact of prayer on health, the different types of prayer, philosophical and scientific challenges of prayer studies, and in some cases, a possible negative impact of prayer.”¹⁷⁴ In a paper Barth prepared for a program presented by the Metanexus Institute¹⁷⁵ in June of 2005, Barth wrote, “The studies have been termed foundational studies because collectively they address the following:

- The impact of prayer on health
- The different types of prayer
- The philosophical and scientific challenges of prayer studies
- An analysis of the negative impact of religion
- Some of the preferred research methodology needed to measure a subject that is intangible, such as prayer.”

It is challenging to conduct prayer research as there are many methodological limitations involved including:

- The beliefs of the person being prayed for
- The possibility of other persons praying for the person who are not involved in the study
- The amount of personal prayer that the person being prayed for incorporates in their own life
- The religious/spiritual beliefs of the person doing the intercessory prayer, and
- Others.

Of course, the biggest issue faced by those in prayer research is that prayer is such an abstract idea. A question that researchers come up against is whether science can prove or disprove something that seems to be transcendent.

Can Prayer Harm?

One of the important considerations in this overview of prayer is the exploration of whether prayer can, in any way, harm the prayer or the one being prayed for. This area of exploration in prayer seems to be unaddressed. Prayer research tends to focus on all the positive results of the activity of prayer yet, it seems that there has been little analysis of the possible negative repercussions of prayer. For example, whenever individuals pray for someone who has an infection like a cold, or the flu, or any illness that has organisms that are causing sickness, they are, in actuality, asking for the eradication of those organisms. However, the author believes that most people would be agreeable with the seemingly negative consequences of such prayer if the results were the restoration of health for the person being prayed for.

As human beings evolve in consciousness, they are learning that their thoughts and beliefs have power for good or ill. Prayers are often filled with words and thoughts that carry a powerful energy for good or ill. How important it is for individuals to become aware of their thoughts as they go about their day as well as when they are in prayer mode. In going a step further and contemplating what some of the writers quoted

in the beginning of this research study put forth, some suggest that every thought is a prayer. In thinking, speaking, and praying, individuals have powerful tools at their disposal and pray for all kinds of outcomes. For example, some individuals pray for a particular sports team to win a game, which of course means they are, in essence, praying for the other team to lose. Some individuals pray for troops of one country to win over the troops of another country. Often, people pray for someone to specifically do this or be that, or they pray this or that occur in the life of the person they are praying for. A couple of questions may be worth posing here. Can individuals know what the right and correct outworking of some situation is for someone else's life? Does an individual trespass in the life of another in an inappropriate way when they pray for a specific outcome? The answer is no one knows what is best for another because no one truly knows the soul's life plan for another person. Personally, the author feels individuals trespass when they think they know what is best for another soul and pray in that manner. In prayer, it seems essential to be mindful not to let our prayers for someone interfere with their soul's purpose.

Praying for Another

As a new minister some thirty years ago, the author searched and searched for a technique of praying for others that resonated with her beliefs. Glenn Clark, in his book, *I Will Lift Up Mine Eyes*, provides a process for praying for another.¹⁷⁶ The process is modified here to include these steps:

- pray with a feeling of deep concern/unselfish love for the person
- in this depth of love is known oneness with God and the one prayed for
- think not of the need of the person but see the person as a perfect child of God
- release the person being prayed for and sink into the Presence of the Divine
- stay in Presence till a sense of deep peace arises
- the peace is a sign that the prayer work is done

Beyond Prayer

In the late 1980's, the author spent 10 days on a retreat with Richard Moss, M.D. in the high mountains of Northern California along with about 25 others. One of the spiritual exercises was to come to the place where "the song sang us." We divided up into groups of three and we were to make the commitment to the others that we would stay with them as long as it took for each person to have the experience of "the song singing us." We usually think of singing a song but there is something deeper, something more profound, something beyond singing the song, and that is the experience of being taken over by the song so that we are not singing it, but it is singing us. Many, many hours later, each person in the author's group had broken through whatever inner barriers were present and had that wondrous, mystical, life-transforming event. The author went away from that experience truly changed in a profound way.

In, *It's All God*, Walter Starcke describes something similar in one's prayer life when he writes, "Until one has gone beyond prayer, one most likely thinks of prayer as something one does. When we think or say our prayers, we are indulging in an objective process. To go beyond praying is to *"be" prayer*. In order to do that, *you have to transcend conscious thought by merging with the process*. You have to see yourself as "being prayed" rather than as praying." He continues, "In the new paradigm, at which time we go beyond old concepts of prayer, both the act of praying and the experience of spirit fit together in a perhaps a surprising way, a way that takes us beyond prayer. For instance, some people believe that a mystic is someone whose thoughts are constantly on God; however a modern mystic is one who has reconciled life into a oneness where it is all God."¹⁷⁷

Further Considerations of Prayer

In considering the effects of prayer, certain questions arose for the author such as:

- What would happen if the one praying simply held another person in thought with the word “love,” or “peace,” or “grateful”? Could this particular form of non-directed prayer (praying with no specific goal in mind) bring forth any outcome and, if so, what might that be? The author believes this would make an interesting research project.
- Even though there were amazing results from Laskow’s experiment with the thought “return to the natural order and harmony,” the author wonders at the spiritual ethics in using that as a prayer for another. That still feels like we are attempting to direct something in someone else’s body, mind, or emotions.

Though prayer has existed in every spiritual tradition and been practiced in a wide variety of ways, for an equally wide variety of reasons, it is still, in many ways, an unknown and uncharted territory. Ever expanding and ongoing in-depth scientific study is surely needed on a subject that often seems a very confusing topic. It is the author’s hope that these prayer studies progress, even when researchers face discouragement and ridicule at the hand of their colleagues, and even from those in the religious community who scoff and see these studies as some sort of “test of God.” If new light could be shed on why prayer works and how to pray more effectively, what an expansion in thought could occur, not only for those who now practice prayer based on faith, but also for those who need scientific evidence of its efficacy.

Summary

*The most beautiful thing we can experience is the mysterious.
It is the source of all true art and science.*

Albert Einstein

Through the ancient wise ones who knew and taught that we are one with all life, to those in our present day who are exploring this concept from the scientific perspective, we are learning that it is possible to commune with forms of life other than our own. Stanislav Grof, a psychiatrist and founding president of the International Transpersonal Association, has detailed in his writings the experiences of people who have connected with various life forms and been profoundly changed in their personal as well as world view. Grof writes, “Our potential for voyaging into the consciousness of other species does not stop with animals. No matter how fantastic and absurd it might seem to traditional researchers, and no matter how it may stretch the limits of common sense, it is not possible to completely dismiss reports of people who claim to have experienced the *consciousness of plants and botanical processes*.”¹⁷⁸ He makes the comment that he also has personally had such experiences and knows their reality.

Chapter two has provided a Review of the Literature showing the scientific research into how music and prayer affects living beings. Also, this chapter highlights the experiences of those who have delved into the mystical aspects of music, prayer and the world of angels. The next chapter explores the Research Methods used by the author.

CHAPTER 3: RESEARCH METHODS

This chapter includes the goals of the study, data sources, data collection procedures, pilot study, ethical considerations and researcher's role.

This study was conducted with two goals in mind:

- To determine if zucchini seeds exposed to “The Drone” CD germinated at a greater rate than the control group.
- To determine if zucchini seeds exposed to the invitation of angels to assist in their germination germinated at greater rate than the control group.

The Principal Investigator (PI) or author conducted the experiments from Wednesday morning September 9, 2009 through Monday morning September 21, 2009.

Gloves

Whenever the PI was touching anything having to do with the experiments, whether seeds, containers, water, Petri dishes, or felt pen, the PI was wearing a pair of latex disposable gloves. Gloves were thrown away after using one time.

Seeds

“Black Beauty” squash zucchini seeds were purchased from Bountiful Gardens, a seed company with their offices in Willits, California. Twenty- seven seed packets were purchased with 25 seeds in each packet. Bountiful Gardens Seed Company was chosen because they have pledged to not knowingly buy or sell genetically engineered seeds or plants. Their catalog states that all their seeds are open-pollinated, untreated and are

never a genetically modified organism. Plus, Bountiful Gardens is a project of Ecology Action, which is a non-profit organization that includes a research mini-farm where workshops on the bio-intensive gardening process is taught to interns from around the world.

Zucchini seeds sprout quickly and are large enough to easily see when a sprout breaks through the covering, therefore, they were chosen as the seeds to be used in these experiments. Seeds packets were opened with seeds being placed in a large Pyrex Corning Ware dish. The seeds were gently mixed together. The PI then prayerfully/intuitively shared with the seeds in the dish that they would be used in experiments with either the intervention of “The Drone” CD, the invitation of angels to assist in their intervention, or in a control group. The PI then prayerfully/intuitively asked the seeds if they were willing to be used in those experiments. The response was felt by the PI as a positive yes.

The seeds were visually looked at and any seeds that were dried out, broken, or in any way damaged were removed and not used. The remaining seeds were randomly placed in brand new 32 oz. Zip-lock containers. A lid was placed on each container with either an A or B or C printed on a sheet of paper that was attached to the lid. An independent individual was asked to randomly assign which of the containers was to be the control group, which was to be the intervention of the “The Drone” CD and which was to be the intervention with the invitation of angels.

The seeds from the control group were the first to be used. To those seeds was added one cup of bottled spring water. The seeds rested in the water for a period of 30 minutes and then the water was drained off. Those seeds were placed on a paper plate

and, randomly, 40 seeds were pulled away from the group. Those 40 seeds had a number placed on them from 1 to 40 with a fine Sharpie pen. This process was done four more times.

A group of 40 seeds was placed in a disposable, sterile 150mm x 15mm Petri dish. The Petri dish had a round, black piece of felt cut to size lining the bottom of the dish. This piece of felt had been dipped in a container of bottled spring water and the felt was then held above the water until only one drop of water dripped off the material during a one-minute period. The 40 seeds were then placed on top of the felt in evenly spaced rows with the seeds going in order from 1 to 40. The top row had numbers 1-5, the next row had numbers 6-12, the next row had numbers 13-20, the next row numbers were 21-29, the next row contained numbers 30-36, and the bottom row had numbers 37-40. Another piece of round, black felt cut to size was then dipped in water and held above the water until only one drop of water dripped off the material during a one minute period. This piece of felt was then placed on top of the seeds and then the lid to the Petri dish was added. This was process was done 4 more times till there were five Petri dishes with each containing 40 seeds for a total of 200 seeds. Each of the five Petri dishes was randomly labeled with either number 1, 2, 3, 4, or 5. The five Petri dishes were placed on the second shelf from the top of the greenhouse with three of the dishes toward the back of the shelf and two of the dishes toward the front of the shelf. There was a distance of 3 inches between the dishes.

Data Collection

Every twelve hours, at 6:00 A.M. and 6:00 P.M., the Petri dishes were removed from the greenhouse and the lids were removed along with the top piece of felt. The seeds were then visually inspected and a seed was counted as having germinated when the radical (seed shoot) had broken through the testa (seed coat). Information as to the germination of seeds along with temperature and humidity were recorded at that time. A photograph of each of the Petri dishes was taken once a day at 6:00 A.M. (See photographs of some of the Petri dishes in Appendix B) The photographs were taken with a 34mm Kodak Perfect Touch. During the 6:00 P.M. checking of the seeds, the top layer of felt was removed and dipped in spring water until only one drop of water was observed dropping from the felt in a one-minute time frame. Then, the felt was replaced on top of the seeds and the Petri lid was secured. This procedure kept some moisture available to the seeds.

Each of the experiments lasted for 72 hours and there was a one-day break between the experiments.

First Experiment (Control Group)

The first experiment was the control group using 200 seeds divided into five Petri dishes with 40 seeds in each dish. Each of the dishes was removed from the greenhouse at 6:00 A.M. and 6:00 P.M. and the seeds checked for germination. If a seed had germinated, that information was then recorded.

Second Experiment (Invitation of Angels)

The second experiment used the intervention of inviting angels to assist in the germination of the seeds. This experiment used 200 seeds divided into five Petri dishes

with 40 seeds in each dish. Each of the dishes was removed from the greenhouse at 6:00 A.M. and 6:00 P.M. and seeds were checked for germination. If a seed had germinated, that information was recorded.

Following the recording of information each morning and each evening, the five Petri dishes were stacked on top of each other with number 1 on top and number 5 on the bottom. This stack of dishes was placed about 12 inches from the PI who was sitting in chair. The PI would take some deep breathes, relax, calm the mind, and recognize the presence of angels. The presence of angels has an energy or feeling of peace and joy to the PI. The PI, to the best of her ability, remained in a state of heartfelt gratitude for a period of 30 minutes. During this time of gratitude, the PI would think these words, “Thank you, angels, for assisting in the germination of these seeds in the highest interest of all.” At the conclusion of the 30 minutes, the dishes were returned to their assigned positions in the greenhouse.

Third Experiment (“The Drone” CD)

The third experiment used 200 seeds divided into five Petri dishes with 40 seeds in each dish and used the intervention of “The Drone” CD. Each morning and each evening at 6:00 A.M. and 6:00 P.M., the PI would turn on a CD player, which was positioned on the third shelf from the top in the greenhouse. The sound of the music, therefore, came from below the seed dishes. “The Drone” CD was played through from beginning to end in the morning and in the evening each of the days of the experiment. The volume was placed at the maximum volume possible.

Research Location

The study was conducted in the lower level of the PI's home in Southwest Missouri. The temperature of this room remains consistent with temperatures ranging from 68 to 72 degrees with humidity ranging from 80 to 84%. The room in which the experiments were conducted measured 22 feet x 47 feet. All windows in the room were covered with black plastic to remove any outside light from penetrating the room. The greenhouse used was purchased from The Greenhouse Catalog and measured 5'3 x 2'3 x 19' deep. (See photograph of greenhouse in Appendix B) It was constructed of a powder coated green steel frame with four shelves and covered with a zippered clear slip on cover. A wireless, battery operated Weather Station manufactured by La Crosse Technology was used to record the temperature and humidity inside the greenhouse and this instrument was placed on the top shelf of the greenhouse. The greenhouse was placed on the north end of the room and the back of the greenhouse was two feet from the wall. All walls in the room were made of concrete blocks.

The Researcher's Role

The Principal Investigator's role was to:

- Stay consciously present and aware during the experiments
- Determine the location where the experiments would be held
- Determine the time of year and time frame in which the experiments would be held
- Purchase all supplies and equipment necessary for the experiments
- Prepare the room for the experiments
- Connect with the seeds to determine their willingness to participate in the study

- Prayerfully/intentionally connect with angels to determine their willingness to participate in the experiments
- Conduct the experiments
- Record data both mornings and evenings during the experiments

Data Sources

The data sources used by the PI included research previously conducted by recognized scientists who have experimented with using seeds or plants as their subject matter. Some of these experiments included the effects of using music or sound on seed germination or on plant growth. Peer reviewed articles in scholarly journals were accessed in the areas of music, sound, prayer, intention, holistic medicine, and consciousness studies along with wide variety of books exploring these same topics. In addition, literature that focused on the interconnection and oneness of all life was utilized.

Ethical Considerations

Since the experiments were conducted using seeds rather than human subjects, the ethical considerations were different than might normally be expected. Consent forms were not needed, as the participants were seeds. The author felt that it was only appropriate to have some form of consent or agreement provided from the seeds and angels to participate in the experiments. This may seem a bit out of the ordinary, yet part of the author's belief includes the perception that all things are connected and all things have some level of consciousness. Therefore, it is important to create some process to acknowledge that perception. The author realizes that what follows in the next paragraph

is subjective. To perform the experiments, with no thought of the rights of the participants, as if they were simply things to be used, seemed unethical to the author.

Following the intention of the author to attune to the seeds, all the zucchini seeds, which were in one large container, were prayerfully/intuitively told about the why and how of the experimental process and were asked to consider their willingness to participate in the experiments. The author received their positive agreement. The same was done with angels who were told the why and how of the experimental process and then asked to consider their willingness to participate in the experiments. The author received their positive agreement. The experiments proceeded following these agreements.

Pilot Study Results

A pilot study was conducted in a stand-alone greenhouse on the author's property which, measures 8' wide by 16' long. The experiments were conducted from July 7 through July 10, 2010, from July 12 through July 15, 2010, and from July 17 through July 20, 2010. There was a one-day lapse between the three experiments. The pilot study had 108 zucchini seeds which were divided into three Petri dishes each holding 36 seeds.

During these experiments, the outside temperature varied greatly which also affected the temperature range in the greenhouse. The variance in the greenhouse was from below 60 degrees to above 100 degrees.

It was determined that a greater number of seeds needed to be included in the research project and another place needed to be used for the experiments which would have less variance in daily temperature.

Chapter three has provided the Research Methods used by the author and these included the goals of the study, the data resources, data collection procedures, pilot study, ethical considerations and the role of the researcher. The next chapter will detail the findings of the research.

CHAPTER 4: RESEARCH FINDINGS

Chapter 4 presents the Data Analysis and ascertaining whether or not the results are statistically significant. Finally, the chapter presents the acceptance or rejection of the hypotheses. (See Appendix A for complete data set)

Data Analysis

The study used a pre-test post-test analysis.

The hypotheses of the experiments were:

1. “The Drone” CD has a positive effect on zucchini seeds resulting in an increase in the number of seeds germinating.
2. Inviting the angels to participate has a positive effect on zucchini seeds resulting in an increase in the number of seeds.

The null hypotheses of the experiments were:

1. “The Drone” CD has no effect on zucchini seeds resulting in no increase in the number of seeds germinating.
2. Inviting angels to participate has no effect on zucchini seeds resulting in no increase in the number of seeds germinating.

No seeds germinated during the first four 12-hour periods (T₁, T₂, T₃, and T₄). Between the 4th and 5th twelve hour period, seeds began to germinate and continued through the ninth so the analysis was confined to T₄ through T₉. (See Table 1 and Figure

1) T₄ to T₉ periods show a slight difference in the percentage of seeds that germinated between each of the three groups. By T₉ the percentage of seeds germinating in each of

	Mean T ₅	Mean T ₆	Mean T ₇	Mean T ₈	Mean T ₉
Control	.1809	.3668	.4673	.5628	.6482
Angel Invitation	.1050	.3750	.5100	.6000	.6500
Drone CD	.1156	.3317	.4372	.5427	.6432

Table 1. Germination Rates for T₅ through T₉.

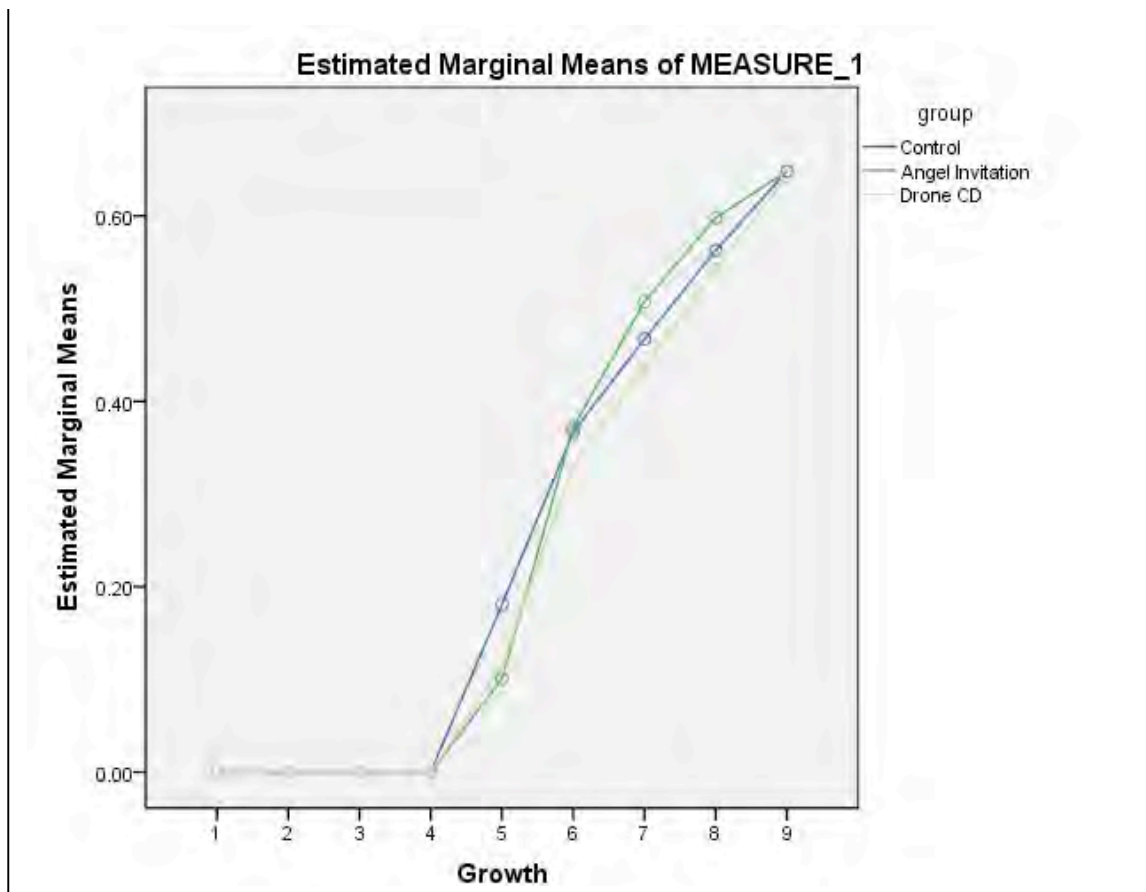


Figure 1. Estimated Marginal Means.

the three groups converged to about the same. Thus the analysis was confined to T₄ through T₉.

T₅ gave the first set of data indicating a difference among the three groups. The Control had the highest germination rate (18.09 %), followed by the Drone (11.56 % or 7% less) and the Angelic (10.5 % or 8% less).

By T₆, the Angelic group took a commanding lead which it held for the balance of the study. It reached 37.50%, almost 1% greater than the germination rate for the Control Group (36.68%). The Drone Group increased to 33.17%, as it went from 7% less than Control in T₅ to 3.5% less in T₆.

By T₇ the Angelic group held its lead in germination rate (51.00%) and increased it to more than 4% greater than Control (46.73%). The drone gained slight ground as it went from 3.5% less than Control in T₆ to 3% less in T₇.

By T₈ the Angelic Group was the first to reach 60% germination but it fell to just less than 4% above Control instead of just greater than 4% above Control in T₇. The Drone gained even more ground as it went from 3% less than Control in T₇ to 2% less in T₈.

By T₉ all three converge more than ever. The Angelic Group led with 65.00%, but that was only .18% greater than Control. Likewise, the Drone's germination rate (64.32%) was only half of a percent below Control, the closest it got since germination began.

An analysis of the germination rates of the three groups from T₅ through T₉ produces some interesting patterns. The three the author found most interesting are:

1. the dominance of the Control Group in T₅;
2. the dominance of the Angelic Group throughout T₆ through T₉; and
3. the lagging of the Drone Group throughout T₆ through T₉.

The dominance of the Control Group in T₅ was quite a surprise. For the Control Group to have the highest germination rate in the early stages suggests that both the Angelic and Drone interventions (or possibly any intervention that takes time and special attention) distracts from the natural germination process. We have long known that it is not possible to observe a phenomenon without disturbing it. The behavior of the Control Group certainly gives some credence to that proposition.

The dominance of the Angelic Group throughout T₆ through T₉ presents a persistent suggestion that the Angelic presence is increasing the germination rate of the Zucchini seeds. The Angelic seeds held the lead in all but the initial germination time

period, even at the end when all three groups were converging. That gives strong encouragement for further research.

On the other hand, the behavior of the Drone Group is most perplexing. Could it be that the sadness that surrounded the local environment during the grieving process soaked up all the Drone Energy and didn't leave enough to assist the seeds? Or the reaction of some people to the Drone is to just "vege out" and suspend all normal processes; could it be that the seeds did the same thing and suspended some of the germination energy?

Statistical Significance

A General linear model was used to determine whether or not the results achieved could have arisen by chance. The general analysis that was run indicated that, at the $p < .05$ level of significance, the results could have arisen by chance. See Table 2. Tests of Within-Subjects Effects.

Tests of Within-Subjects Effects					
Measure: MEASURE_1					
Source		Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
growth * group	Sphericity Assumed	.234	.004	12.828	.674
	Greenhouse-Geisser	.259	.004	8.122	.526
	Huynh-Feldt	.259	.004	8.198	.529
	Lower-bound	.278	.004	2.566	.279

a. Computed using alpha = .05

Table 2 Tests of Within-Subjects Effects

A second set of analyses use additional multivariate tests. See Table 3.

Multivariate Tests including Roy's Largest Root. On this multivariate tests table the significance level would be .068 so it is not quite to the standard .05 level, but still seems to be worth noting. It demonstrates a marginally significant interaction effect according to this multivariate test known as Roy's Largest Root.

Multivariate Tests ^d									
Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^b
growth	Pillai's Trace	0.647	216.797 ^a	5	591	0	0.647	1083.984	1
	Wilks' Lambda	0.353	216.797 ^a	5	591	0	0.647	1083.984	1
	Hotelling's Trace	1.834	216.797 ^a	5	591	0	0.647	1083.984	1
	Roy's Largest Root	1.834	216.797 ^a	5	591	0	0.647	1083.984	1
growth *	Pillai's Trace	0.022	1.318	10	1184	0.215	0.011	13.182	0.687
group	Wilks' Lambda	0.978	1.318 ^a	10	1182	0.215	0.011	13.182	0.687
	Hotelling's Trace	0.022	1.318	10	1180	0.215	0.011	13.183	0.687
	Roy's Largest Root	0.017	2.062 ^c	5	592	0.068	0.017	10.311	0.688

Table 3 Multivariate Tests including Roy's Largest Root.

- a. Exact statistic
- b. Computed using alpha = .05
- c. The statistic is an upper bound on F that yields a lower bound on the significance level.
- d. Design: Intercept + group Within Subjects Design: growth

Hypotheses

Given the failure to establish strict statistical significance:

1. the hypothesis “The Drone” CD has a positive effect on zucchini seeds resulting in an increase in the number of seeds germinating is rejected;
2. the hypothesis Inviting the angels to participate has a positive effect on zucchini seeds resulting in an increase in the number of seeds is rejected;
3. the null hypothesis “The Drone” CD has no effect on zucchini seeds resulting in no increase in the number of seeds germinating is accepted; and
4. the null hypothesis Inviting angels to participate has no effect on zucchini seeds resulting in no increase in the number of seeds germinating is accepted.

CHAPTER 5: CONCLUSIONS, DISCUSSION, AND SUGGESTIONS

Summary

This study was undertaken to continue to add to the body of knowledge concerning the effect music has on living organisms using seed germination as a measure. Furthermore, this study was undertaken to discover what effect inviting the participation of the angels would have on seed germination. This chapter includes a summary and discussion of the findings which came from the study along with suggestions for future research. The chapter finishes with some conclusions.

Research results drawn from the study did not support strictly or unambiguously either of the two hypotheses that:

1. “The Drone” CD would increase the number of seeds germinating.
2. Inviting the participation of angels would increase the number of seeds germinating.

Discussion

When exploring some possible reasons for the lack of statistical significance in the scores, several considerations can be proposed. The first consideration is that the experiments were undertaken during the early stages of the author’s intense grief after her husband died. The energy of sadness and pain surrounding the author and the environment may have been a confounding variable in the ability of the seeds to germinate.

A second consideration is that the seeds were germinated in the fall of the year rather than in the spring when seeds would normally be germinating. The fall energies were present rather than the springtime energies which may have been a factor in the germination rate of the seeds.

A third consideration is that because of the author's state of mind and heart in the intensity of the grieving process during the experiments, the author was not able to sufficiently attune in prayer to the angels. This lack of focus may have been a factor in the results.

A fourth consideration is that the number of seeds in the Petri dishes crowded the seeds inhibiting the ease with which the seeds could germinate which could have lessened the number of seeds germinating.

Suggestions for Future Research

Future research would include these suggestions:

- Increase the number of seeds used in the experiments
- Hire a Research Assistant to handle the seeds, conduct the experiments, photograph the seeds, and record the data
- Have fewer seeds in each Petri dish
- Increase the number of days the seeds are allowed to germinate
- Conduct the experiments in the Spring of the year
- Play "The Drone" CD for longer periods of time each day

- Have the sound of “The Drone” played in a fashion where it surrounds the seeds
- Photograph the germinating seeds every six hours rather than every 12
- Purchase a camera that took closer, clearer photos of the germinating seeds

Conclusions

“But ask now the beasts, and they shall teach thee, and the fowls of the air, and they shall tell thee. Or speak to the earth, and it shall teach thee: And the fishes of the sea shall declare unto thee.”

Job 12: 7-8

The above quote from the Book of Job in the Bible implies that humans have the ability to communicate with the natural world and that the natural world has the capacity to respond in such a way as to convey information. In the Review of Literature in Chapter 2, numerous scientific studies, along with mystical experiences, were cited to highlight the interconnection between different species.

As the reported studies indicate greater knowledge is presently being added to the annals of research concerning how music and sound affects not only the health or disease of humans but also how it may affect seeds, plants, insects, and animals.

Studies are ongoing investigating if and how prayer may affect the one praying and the one prayed for, and also what kinds of prayer appear to be most beneficial.

Those who have been thought to be enlightened through the ages have taught about the interrelatedness of all life. They have shared from their own life experiences, and often from the experiences of their tribes and communities, that there is a oneness

which exists between all things in the universe. They tell about what it is like to commune with the Divine, with angels and nature spirits, with the trees of the forest, and with the animals. This sense of oneness was intricately woven into the daily life of many native and indigenous peoples. In this present modern age, though, there appears to be less belief or emphasis in this area.

Therefore, an area that is ripe for exploration is the area of potential interaction between humans and angels. This study, which included the invitation of angels in the process of germinating seeds, was undertaken in part to explore the possible interaction between humans and angels. There is much fascinating and potentially valuable information that could arise from the ongoing scientific exploration of this topic. The possible benefits to the health of the planet as well as to the various forms of life on the planet, certainly calls for continued study and investigation in this area.

May the voices of those who have gone before us be heard in our hearts to help guide the way to a world filled with greater peace and love.

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APPENDIX A

Complete Data Set and Analysis

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GLM Day1SixAM Day1SixPM Day2SixAM Day2SixPM Day3SixAM Day3SixPM
Day4SixAM Day4SixPM Day5SixAM BY group
/WSFACTOR=Growth 9 Polynomial
/METHOD=SSTYPE(3)
/POSTHOC=group(LSD)
/PLOT=PROFILE(Growth*group)
/EMMEANS=TABLES(group) COMPARE ADJ(LSD)
/EMMEANS=TABLES(Growth) COMPARE ADJ(LSD)
/EMMEANS=TABLES(group*Growth)
/PRINT=DESCRIPTIVE ETASQ OPOWER
/CRITERIA=ALPHA(.05)
/WSDESIGN=Growth
/DESIGN=group.

```

General Linear Model

Notes

Output Created		24-Jun-2010 08:57:59
Comments		
Input	Data	C:\Users\pthomli\Desktop\HUGS 2010\Edie Skalitzky Dissertation Research Data 12 hour periods.sav
	Active Dataset	DataSet0
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data	600
	File	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the model.

Syntax	<pre> GLM Day1SixAM Day1SixPM Day2SixAM Day2SixPM Day3SixAM Day3SixPM Day4SixAM Day4SixPM Day5SixAM BY group /WSFACTOR=Growth 9 Polynomial /METHOD=SSTYPE(3) /POSTHOC=group(LSD) /PLOT=PROFILE(Growth*group) /EMMEANS=TABLES(group) COMPARE ADJ(LSD) /EMMEANS=TABLES(Growth) COMPARE ADJ(LSD) /EMMEANS=TABLES(group*Growth) /PRINT=DESCRIPTIVE ETASQ OPOWER /CRITERIA=ALPHA(.05) /WSDESIGN=Growth /DESIGN=group. </pre>				
Resources	<table border="0"> <tr> <td data-bbox="589 1014 906 1056">Processor Time</td> <td data-bbox="914 1014 1338 1056">00:00:00.686</td> </tr> <tr> <td data-bbox="589 1056 906 1077">Elapsed Time</td> <td data-bbox="914 1056 1338 1077">00:00:01.138</td> </tr> </table>	Processor Time	00:00:00.686	Elapsed Time	00:00:01.138
Processor Time	00:00:00.686				
Elapsed Time	00:00:01.138				

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Within-Subjects Factors

Measure: MEASURE_1

Growth	Dependent Variable
1	Day1SixAM
2	Day1SixPM
3	Day2SixAM
4	Day2SixPM
5	Day3SixAM
6	Day3SixPM
7	Day4SixAM
8	Day4SixPM
9	Day5SixAM

Between-Subjects Factors

		Value Label	N
group	1.00	Control	199
	2.00	Angel Invitation	199
	3.00	Drone CD	199

Descriptive Statistics

group		Mean	Std. Deviation	N
Day1SixAM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day1SixPM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day2SixAM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day2SixPM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day3SixAM	Control	.1809	.38591	199
	Angel Invitation	.1005	.30143	199
	Drone CD	.1156	.32052	199
	Total	.1323	.33913	597
Day3SixPM	Control	.3668	.48316	199
	Angel Invitation	.3719	.48452	199
	Drone CD	.3317	.47200	199
	Total	.3568	.47945	597
Day4SixAM	Control	.4673	.50019	199
	Angel Invitation	.5075	.50120	199
	Drone CD	.4372	.49729	199
	Total	.4707	.49956	597
Day4SixPM	Control	.5628	.49729	199
	Angel Invitation	.5980	.49154	199
	Drone CD	.5427	.49943	199
	Total	.5678	.49579	597
Day5SixAM	Control	.6482	.47872	199
	Angel Invitation	.6482	.47872	199
	Drone CD	.6432	.48026	199

Descriptive Statistics

group		Mean	Std. Deviation	N
Day1SixAM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day1SixPM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day2SixAM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day2SixPM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	199
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	597
Day3SixAM	Control	.1809	.38591	199
	Angel Invitation	.1005	.30143	199
	Drone CD	.1156	.32052	199
	Total	.1323	.33913	597
Day3SixPM	Control	.3668	.48316	199
	Angel Invitation	.3719	.48452	199
	Drone CD	.3317	.47200	199
	Total	.3568	.47945	597
Day4SixAM	Control	.4673	.50019	199
	Angel Invitation	.5075	.50120	199
	Drone CD	.4372	.49729	199
	Total	.4707	.49956	597
Day4SixPM	Control	.5628	.49729	199
	Angel Invitation	.5980	.49154	199
	Drone CD	.5427	.49943	199
	Total	.5678	.49579	597
	Control	.6482	.47872	199
	Angel Invitation	.6482	.47872	199
	Drone CD	.6432	.48026	199
	Total	.6466	.47844	597

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F
Growth	Sphericity Assumed	347.215	8	43.402	525.137
	Greenhouse-Geisser	347.215	2.471	140.523	525.137
	Huynh-Feldt	347.215	2.490	139.425	525.137
	Lower-bound	347.215	1.000	347.215	525.137
Growth * group	Sphericity Assumed	1.371	16	.086	1.037
	Greenhouse-Geisser	1.371	4.942	.277	1.037
	Huynh-Feldt	1.371	4.981	.275	1.037
	Lower-bound	1.371	2.000	.685	1.037
Error(Growth)	Sphericity Assumed	392.747	4752	.083	
	Greenhouse-Geisser	392.747	1467.700	.268	
	Huynh-Feldt	392.747	1479.266	.266	
	Lower-bound	392.747	594.000	.661	

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
Growth	Sphericity Assumed	.000	.469	4201.094	1.000
	Greenhouse-Geisser	.000	.469	1297.547	1.000
	Huynh-Feldt	.000	.469	1307.772	1.000
	Lower-bound	.000	.469	525.137	1.000
Growth * group	Sphericity Assumed	.413	.003	16.587	.718
	Greenhouse-Geisser	.394	.003	5.123	.372
	Huynh-Feldt	.394	.003	5.164	.373
	Lower-bound	.355	.003	2.073	.232

a. Computed using alpha = .05

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	313.569	1	313.569	767.321	.000	.564
group	.358	2	.179	.438	.646	.001
Error	242.740	594	.409			

Tests of Between-Subjects Effects

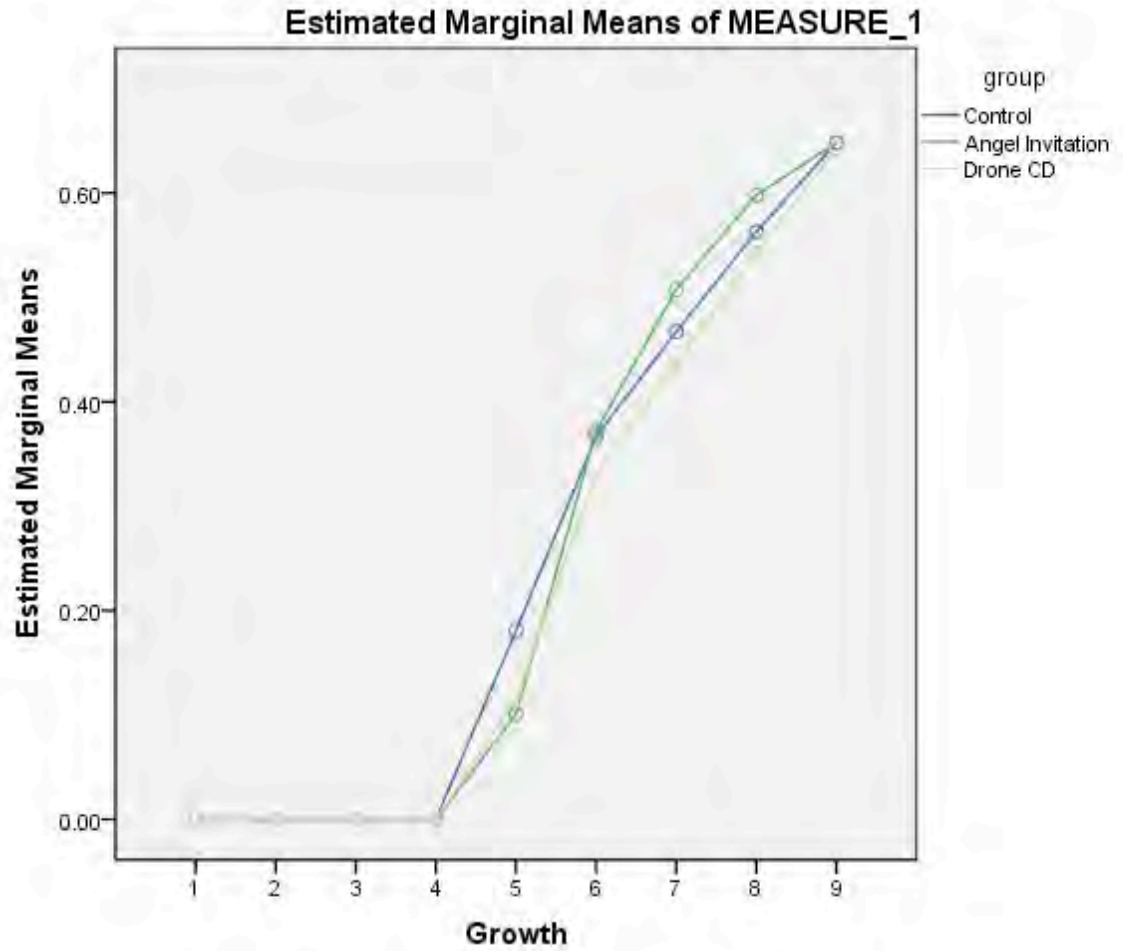
Measure: MEASURE_1

Transformed Variable: Average

Source	Noncent. Parameter	Observed Power ^a
Intercept	767.321	1.000
group	.875	.121

a. Computed using alpha = .05

Profile Plots



GLM Day2SixPM Day3SixAM Day3SixPM Day4SixAM Day4SixPM Day5SixAM BY
group

```

/WSFACTOR=growth 6 Polynomial
/METHOD=SSTYPE(3)
/POSTHOC=group(LSD)
/PLOT=PROFILE(growth*group)
/PRINT=DESCRIPTIVE ETASQ OPOWER
/CRITERIA=ALPHA(.05)
/WSDSIGN=growth
/DESIGN=group.

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General Linear Model

Notes

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	Cases Used	Statistics are based on all cases with valid data for all variables in the model.
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Data 12 hour periods.sav

Within-Subjects Factors

Measure: MEASURE_1

growth	Dependent Variable
1	Day2SixPM
2	Day3SixAM
3	Day3SixPM
4	Day4SixAM
5	Day4SixPM
6	Day5SixAM

Between-Subjects Factors

		Value Label	N
group	1.00	Control	199
	2.00	Angel Invitation	200
	3.00	Drone CD	199

Descriptive Statistics

group		Mean	Std. Deviation	N
Day2SixPM	Control	.0000	.00000	199
	Angel Invitation	.0000	.00000	200
	Drone CD	.0000	.00000	199
	Total	.0000	.00000	598
Day3SixAM	Control	.1809	.38591	199
	Angel Invitation	.1050	.30732	200
	Drone CD	.1156	.32052	199
	Total	.1338	.34070	598
Day3SixPM	Control	.3668	.48316	199
	Angel Invitation	.3750	.48534	200
	Drone CD	.3317	.47200	199
	Total	.3579	.47977	598
Day4SixAM	Control	.4673	.50019	199
	Angel Invitation	.5100	.50115	200
	Drone CD	.4372	.49729	199
	Total	.4716	.49961	598
Day4SixPM	Control	.5628	.49729	199
	Angel Invitation	.6000	.49113	200
	Drone CD	.5427	.49943	199
	Total	.5686	.49569	598
Day5SixAM	Control	.6482	.47872	199
	Angel Invitation	.6500	.47817	200
	Drone CD	.6432	.48026	199
	Total	.6472	.47825	598

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Type III Sum of Squares	df	Mean Square	F
growth	Sphericity Assumed	190.801	5	38.160	417.647
	Greenhouse-Geisser	190.801	3.166	60.267	417.647
	Huynh-Feldt	190.801	3.196	59.709	417.647
	Lower-bound	190.801	1.000	190.801	417.647
growth * group	Sphericity Assumed	1.172	10	.117	1.283
	Greenhouse-Geisser	1.172	6.332	.185	1.283
	Huynh-Feldt	1.172	6.391	.183	1.283
	Lower-bound	1.172	2.000	.586	1.283
Error(growth)	Sphericity Assumed	271.824	2975	.091	
	Greenhouse-Geisser	271.824	1883.722	.144	
	Huynh-Feldt	271.824	1901.337	.143	
	Lower-bound	271.824	595.000	.457	

Tests of Within-Subjects Effects

Measure: MEASURE_1

Source		Sig.	Partial Eta Squared	Noncent. Parameter	Observed Power ^a
growth	Sphericity Assumed	.000	.412	2088.234	1.000
	Greenhouse-Geisser	.000	.412	1322.236	1.000
	Huynh-Feldt	.000	.412	1334.600	1.000
	Lower-bound	.000	.412	417.647	1.000
growth * group	Sphericity Assumed	.234	.004	12.828	.674
	Greenhouse-Geisser	.259	.004	8.122	.526
	Huynh-Feldt	.259	.004	8.198	.529
	Lower-bound	.278	.004	2.566	.279

a. Computed using alpha = .05

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Intercept	473.144	1	473.144	770.473	.000	.564
group	.589	2	.295	.480	.619	.002
Error	365.387	595	.614			

Tests of Between-Subjects Effects

Measure: MEASURE_1

Transformed Variable: Average

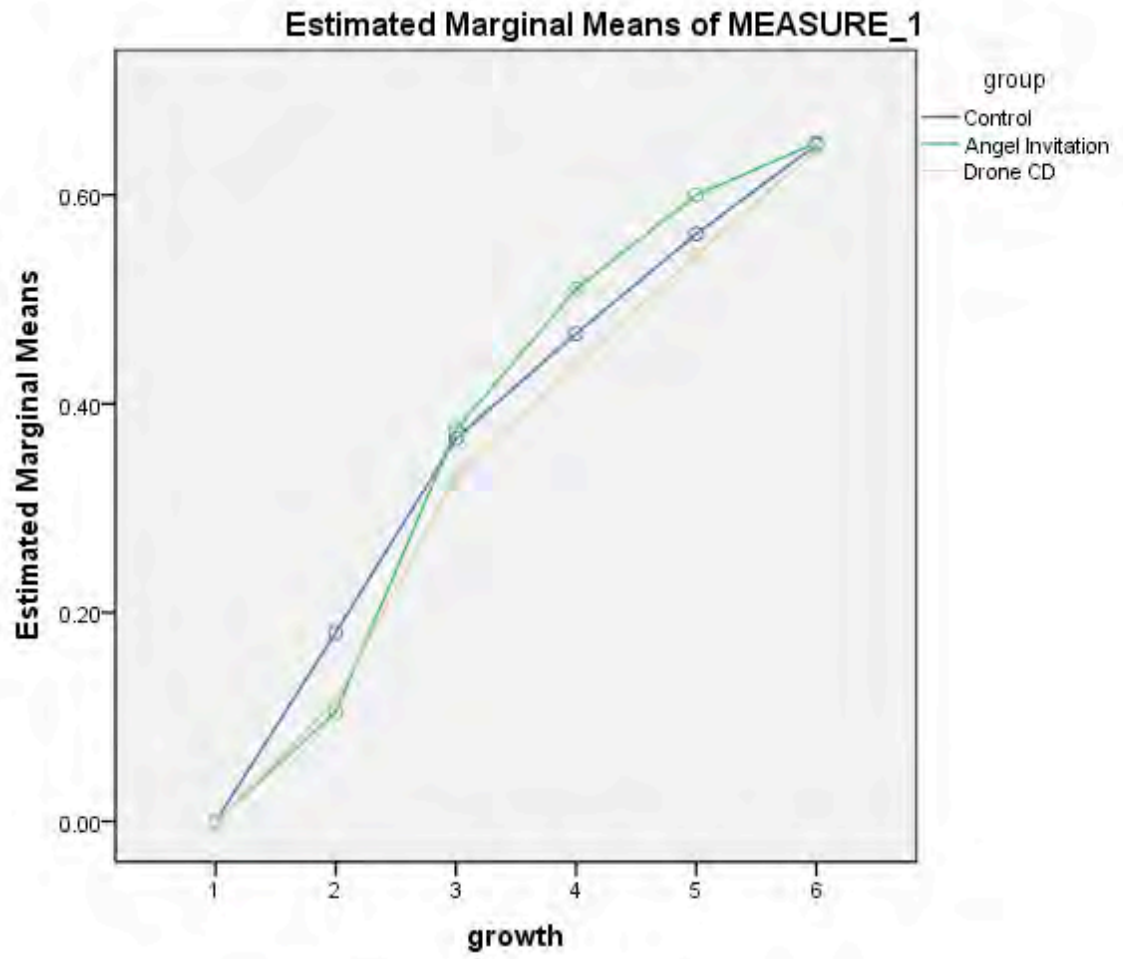
Source	Noncent. Parameter	Observed Power ^a
Intercept	770.473	1.000
group	.959	.129

a. Computed using alpha = .05

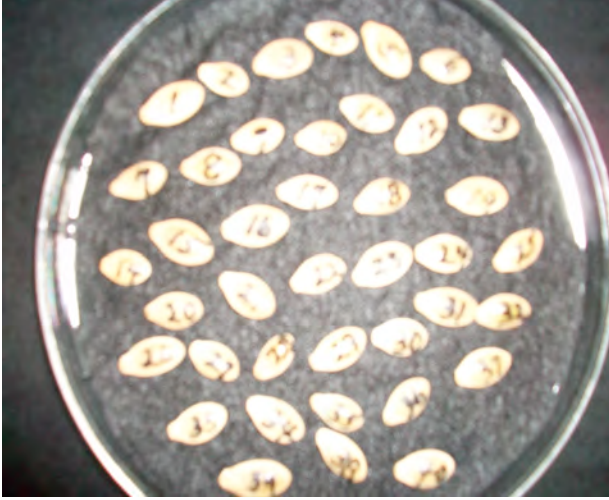
Post Hoc Tests

group

Profile Plots



APPENDIX B
Photographs of Germination



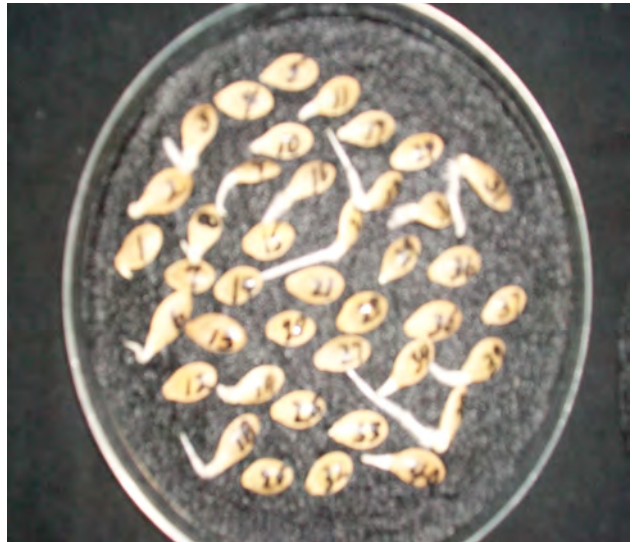
A control group Petri dish first day of experiment.



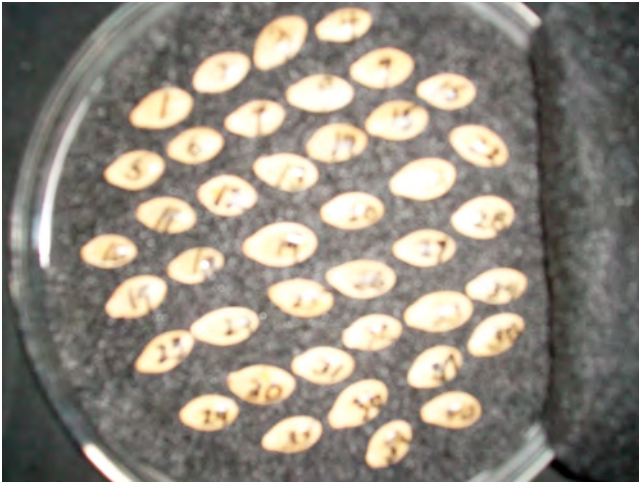
A control group Petri dish last of experiment.



An invitation of the angels Petri dish first day of experiment.



An invitation of the angels Petri dish last day of experiment.



A Drone CD Petri dish on first day of experiment.



A Drone CD Petri dish on last day of experiment



Greenhouse used for experiments with
ucchini seeds.

APPENDIX C

Universal Declaration of Plant Rights

Preamble:

Whereas: Due to the immense and alarming disappearance of vegetation in the world, especially in the tropics, where there is a marked abundance of life, we humans, having mental capacity and ability to reason, have to speak up in the defence of all living beings on earth, particularly on behalf of plants, which is at the same time in our own interest.

Whereas: It has been shown that - as the world population grows - the economic development of humans occurs at the expense of Nature. For that reason it is important to take immediate action to reduce the damage caused to Nature.

Whereas: Plants absorb carbon dioxide and emit oxygen, that is vital for life on earth. Tropical forests are particularly important because they are large oxygen producers in the world.

Whereas: Plants are also involved in the water cycle. At higher altitudes in the tropics there are cloud forests, that give rise to a large number of rivers, consequently the vegetation there is vital.

Whereas: The agricultural practice of "slash and burn" causes damage and reduces soil quality and nutrients levels, reducing its productivity.

Whereas: The uncontrolled exploitation of timber for firewood and over-grazing of animals contributes to the desertification of the land.

Whereas: Indiscriminate mining and the excessive use of chemical fertilizers may contaminate rivers, lakes and seas causing great changes in the balance of the marine biodiversity as has occurred with the catastrophic flowering of micro algae (e.g. in the North Atlantic) and the excessive propagation of aquatic plants.

Whereas: Individuals of the animal kingdom, including humans, live mostly on plants, even if they are not 100% vegetarians.

Whereas: Plants are beings that respond to a variety of stimulus, are capable of perceiving light, and have developed their wonderful harmonious workings in close connection with their environment. These extraordinary beings share the world with us and even share almost one fifth of their genes with us.