



Course: The Seven Liberal Arts with Christopher Perrin and Andrew Kern

Lesson 7: Teaching the Quadrivium Like We Aren't Materialists

Outline:

“As Christians, we believe in a world that doesn't mean nothing.”

Andrew Kern

The Lessons of the Quadrivium

- Why do we talk about Renaissance people? Have you ever wondered how and why so many Renaissance people can move between different domains of being and it was not weird to them?
 - All of the things they thought about were built on music.
 - **Pythagoras** was always inquiring and he was mystical.
 - Pythagoras determines that there might be a key to the meaning of the universe in this question.
 - Pythagoras discovers that when you play longer the string the deeper the sound, and the shorter the string the higher the sound (this is just like the hammers). He measures the wavelength to find the shorter the wavelength, the higher the sound.
 - **He discovered that as you move along the wavelengths, there is a mathematical relationship between vibrations that sounds good to the senses.**
 - **Music is mathematical.**
 - **Music sounds good to us in the ear if it is mathematically sound, simple.**
 - Pythagoras is thinking about music and he notices arithmetic, simple math. He notices there is a correspondence between math and sound that pleases us.
 - Pythagoras notices that that the same sounds that make music sound good govern the movement of the planets. He knows that from our perspective on Earth, you see things out there that correspond to music that are beautiful.
 - Why is it that music, arithmetic, and astronomy are all corresponding to each other?
 - The movement of the planets are musical and geometrical.
 - There is a correspondence between astronomy, music, geometry, and arithmetic.



- How do we teach in a non-materialistic way? How do we design our instruction in a non-materialistic way?
 - Mathematical materialism manifests itself in thinking of the student fundamentally as a computer.
 - If you are a materialists then you think that learning and applying the pattern is learning math.
 - **If you are not a materialists, you believe that there is some truth being made manifest in that mathematical concept, and there is a moment when the student is being illumined.**
 - *Even a 4 or 5 year old child can begin to understand that we live in a material world that also has an immaterial component that can be perceived.*
- Lessons of the Quadrivium
 - **Measure**
 - Music was the art that made Pythagoras realize that there are four arts that are rooted in the same thing (number, measure).
 - Number and measure are the basic and fundamental of the concepts and lessons that the quadrivium teaches.
 - You use **arithmetic** to do the measuring.
 - **Music** is the measurement of music through time (rhythm, meter).
 - In **geometry** you look at length and breadth and physical dimensions.
 - In **astronomy** you look at movement through space and time, and you are measuring them.
 - Measurement applies to everything you do. Analogically we try to determine relationships between things.
 - **Harmony, How to Harmonize, Taste for Harmony, Confidence that we can Attain Harmony**
 - Pythagoras is asking why the melody sounds good. There are resonances and discords.
 - In math, we are not teaching process in the end, but to resolve discords for the end of growing a habit of resolving discords.
 - **Grammar is the harmony in a thought.**
 - **Logic is the harmony in an argument.**
 - **Rhetoric is the harmony in a community.**
 - **Arithmetic is the harmony in an equation.**
 - **Geometry is the harmony in a shape and the relationships among them.**
 - **Music is harmonia.**
 - **Astronomy is harmony in space and time.**
 - We should exalt harmony in the lessons and the art itself.
 - There is harmony in the soul and among souls. If we can resolve harmonies in our own thinking, then we can do it with other people. If we listen well to our discordant selves, maybe



we can agree with others who do not agree with the words that we used on something.

- We ought to be nourishing and cultivating harmony and dissatisfaction with discord. We need to resolve this discord so you can perceive the truth and beauty that we are learning right now.
- **Modulation**
 - St. Augustine's definition of music (in De Musica):
 - *Musica est scientia bene modulandi*. Music is the knowledge of how to modulate well.
 - This is why music is the foundation art, mother of the quadrivium.
 - Music drove the scientific revolution of modern times.
 - We think of music of instruments today.
 - John Keats poem: "Heard melodies are sweet, unheard melodies are sweeter."
 - Musica mundana: The music of the world, Cosmos, plants (Fibonacci ratio), music of the body
 - Musica humana: Bodily human music and soulful human music (appreciation for proportions that play themselves out in math)
 - There is a harmony designed by somebody. If we are in discord with this harmony we might be acting immorally. The music of human society brings us into harmony with each other.
 - In life we are trying to establish the right measures, but then everything changes and we have to modulate.
- **Transcendence, Issue of Material and Immaterial**
 - Math and number are amphibious except the frog is amphibious because it can go in water and on land. Number is amphibious in that it is material and immaterial.
 - A young child can understand this practically.
 - Teach your child a math fact with material things.
 - What happens when you say, "Three plus two..." regardless of material objectives. This is why your children doing math with incarnations and without objects is so important.
 - Make sure they can get to a place where they can add, subtract, multiply, and divide without manipulatives because this is immaterial.
 - Euclidean geometry is developing the habit of sensitivity toward the realm of existence that is immaterial. It is all based on math that doesn't exist in the physical world. There are no points or lines in the physical world. You cannot get a perfect/real triangle in this world.
 - The quadrivium opens the child up to the Transcendents of Truth, Beauty, and Goodness.



- *If you teach like a child has a soul, your child and you are going to perceive a truth and it is going to feel like magic, a miracle, an illumination. Only God can illumine, but he does give us the pattern by which he wants us to teach.*
- Goodness is the modulation of conduct, it is holding to first principles and transferring them from circumstance and relationship to circumstance and relationship.
- **Analogy, live consciously among analogies**
 - The material is an embodiment of the immaterial.
 - Our Lord uses analogies when he teaches in parables. The kingdom of Heaven is like a mustard seed.
 - Math teaches us to love form in appropriate ways, but to modulate form not impose form.
 - The delight and joy of learning analogy is the joy of discerning meaning, of interpreting signs.
 - In reading children learn to decode symbols. We are signs and images of God. We are signs, living in a world of signs, making signs. One of the great joys of learning is to interpret signs.
 - Because we live in an analogical cosmos, and that requires mediation.
- **Mediation**
 - To have an analogy you need a mediation point.
 - In math we are studying mediation (proportions, music).
 - In astronomy there is mediation between planets. In the middle ages there were orders of angels related to the planets.
 - The importance of incarnation of the material manifestation of the immaterial.
 - There are theological concepts made manifest in the arts of the quadrivium.
 - Mediation enables analogy and art. A painting means something, we want to be able to interpret the meaning of it. The painting is between me and the artist.
 - What is the art of teaching? Teaching is a mediating art from the soul of the teacher to the soul of the student (words, stories). The act of teaching is the act of mediating by incarnating a logos so that the student can perceive it.
 - Mediation drives science. We look at a world that is meant to be in harmony.
 - We look at a world that points us to things that are Transcendent and to Him who transcends all and fills all.
- We need to teach math toward truth perception and the mind itself as an immaterial thing. The mind is not material only. The mind, because it is immaterial is capable of perceiving immaterial things. This needs to be part of the furniture of their minds after a Christian education.



- We need to emphasize the harmony of being.
- We need to teach as though math is material and mediates to the immaterial.
- We are not practical because there is nothing more practical than the truth. Pragmatism is about getting a job, but truth is more important than application. What about beauty? What about the truth? What about Him who is truth?
- We need people who have modulated lives in this fragmented, discordant social milieu rooted in nothing that is located in a meaningless cosmos.
- **As Christians, we believe in a world that doesn't mean nothing. It means something. It makes sense and it sings in one key.**