



## Teaching Math Classically with Andrew Elizalde

### Lesson 6: Cultivating a Reflective and Collaborative Faculty

#### Outline:

#### Cultivating a Reflective and Collaborative Faculty

- *Given that the prerequisite to reforming mathematics was to have a culture that receives and participates in that reform, characterized as a reflective and collaborative faculty, how do we perpetuate this?*

#### The Right Perspective

- We must recognize that we are sinners living in community with one another.
- We have been created to be a common family in Christ, with a common desire of glorifying God through character and work.
- The scriptures can inform our perspective and expectations to live in community.
  - We are pursuing holiness and undergoing perpetual sanctification.
  - Encouragement and constructive criticism can be used to edify and challenge one another.
  - Transparency, trust and accountability are key in this new environment.
- This push for an accountable, responsible community is a prerequisite for any lasting school reform.
- What do you want community to look like?

#### The argument for a reflective, collaborative community

- Other countries have put in places some traditions that have significantly improved student performance as measured by standardized testing.
  - In Japan, it is a school tradition for teachers to meet together, so to collectively design lesson plans and encourage and critique one another.
  - In Finland, the Aquarium Project created networks that were not just limited to different schools, but also extended collaboration to parents, businesses, governmental and nongovernmental organizations.
- An active learning community is essential for lasting change.
- When we become invested in a thoughtful and collaborative community and environment, it creates a contagious ethos that students will breathe in.
  - “An assemblage of learned men, zealous for their own sciences, and rivals of each other, are brought, by familiar intercourse and for the sake of intellectual peace, to adjust together the claims and relations of their respective subjects of investigation. They learn to respect, to



consult, and to aid each other. Thus is created a pure and clear atmosphere of thought, which the student also breathes.”

- Establishing this community establishes one that people want to be a part of.

## The Investment of Professional Development

- Research has shown that the most effective professional development is training that is practitioner-driven, job embedded, collegial and highly reflective.
  - The efforts should be conducted “in house”.
  - The training should also take the form of routines and rhythms that happen on campus.
- Research has shown that investment in such professional development practice has been strongly associated with increases in the effectiveness of practice and improvements in student achievement. - San Diego American Education Research Association, 1998.
- Teachers themselves need to be invested in an ongoing process of reforming their own pedagogy and content.
  - There should be an understanding of God’s plan for us – that we are being sanctified in our own vocation and community one with another.
  - This healthy professional development will provide a collegial and reflective environment that will affect our character.
- This kind of investment produces important lasting change.

## Components of Professional Development

- **Peer and self-observation** - Constant refinement of pedagogy through observing the teaching methods of others and self.
- **Critical Friends Tuning Protocols** - Meetings where lesson plans are demonstrated and fine-tuned with the aid of an audience.
- **Collaborative lesson study** - Periods of time where teachers plan lessons together or refine some plans after using them.
- **Cycle of readings and discussions** - Periods where teachers will read and engage in discussions on the readings, extracting new principles to be used in their teaching philosophy.
- **Constant meetings** - As far as possible, business meetings are to be limited to one week, with the rest of the meetings defined by the teachers for brainstorming, discussion or just prayers.
- **Annual traditions** - Occasional events planned to keep the faculty engaged and refreshed.
- **Summer conferences** - Opportunities to absorb new insights gained over the summer to be used in the next teaching period.

## Detailed Breakdowns of the Components

- Peer and self-observation



- A rubric of questions should be discussed and prepared among teachers, covering subjects from teacher-student interaction to pedagogy to the physical environment of the classroom.
- Times should be set aside deliberately for teachers to have the chance to sit in different classes to observe other teachers teach, observing using the rubric.
- Teachers should also be recording themselves teach, so as to catch their own mistakes and notice things that are done well.
- At the end of a semester, teachers should be able to extract some new principles or learn from some mistakes based on their observations, so refining the way they teach.
- Critical friends tuning protocol
  - A meeting is requested by a teacher who seeks help “fine-tuning” a lesson that may have been taught.
  - Order of meeting
    - Facilitator introduces the presenter (5 minutes).
    - A condensed lesson is presented (10 minutes).
    - Clarifying questions asked by other teachers (5 minutes).
    - Warm feedback is given (10 minutes).
    - Cool feedback is given (10 minutes).
    - Presenter shares his reflections based on the feedback (5 minutes).
    - As a whole, the group tries to extract principles and general comments for improvement (5 minutes).
  - This meeting can take place within 50 minutes, and can be very helpful for refining lessons.
- Collaborative lesson study
  - A problem that teachers encounter in presenting a lesson is defined.
  - Teachers then get together to design a lesson plan meant to solve this problem.
  - This new plan will be used by one of the teachers in a class.
  - In the next meeting, the teacher will share their experience teaching this plan, and as a whole the teachers will revise this lesson plan.
  - With this constant discussion and refining, teachers can together reach a deeper level of nuance in their discussions as they find common ground on what makes a good lesson, bolstered by experience.
- Cycle of reading
  - Teachers should be responsible for their own development through reading.
  - Readings of books or extracts are assigned to the faculty each week, with a discussion taking place the next week.
    - Of course, this may mean that the college will have to provide the resources.
  - The readings should be formative or informative for defining personal education philosophies.



- Questions are asked together, as principles are extracted from the books and their applicability questioned.
- The Elevator speech is an optional exercise to get the teachers to spill what they know and define their understandings of any subject matter, so to expose gaps in knowledge or areas that can be improved.
- The Elevator speech is helpful too for showing progress in understanding, as the insights gained from readings will no doubt modify and refine the answers given from the previous meeting.
- Meeting together
  - With the use of e-mails and discipline, business meetings can usually be contained to once a month.
  - The rest of the meetings should be used for reading discussions, workshops, brainstorming or tuning protocols.
  - These meetings should promote accountability, transparency, trust and collegiality – Teachers may be given the freedom to define what they wish to do within the space given to them.
- Annual traditions
  - For the events that should not take place every month
    - E.g. Parties, festivals, outings.
  - Annual traditions can be planned to improve spirits and banish tedium.
  - More than that, these events ideally will encourage collegiality and community
  - Summer conferences
  - Insights gained at different conferences can be retained if teachers are willing to meet together to debrief and plan.
  - The four questions
    - The Resonance Question – What resonated with you?
    - The Question Question – What questions did the talk leave you with?
    - The Ideas Question – What new ideas do you have as a result of this talk?
    - The Future Question – What is something you want to achieve as a result? What do you want to be held accountable to?

## Takeaways

- Time can be recaptured by confining the business meetings to just once a month, with the other weeks used for promoting this collaborative faculty
- This professional development is an investment that will result in a community and environment that sanctifies one another, an environment that students and teachers alike can benefit from.
- As the first step of lasting reform is a community that is able to embrace it and participate in it, finding time to put into place some of these measures will be laying the foundations for much greater things.