

# Nonformal Mathematics Adult Education: Can a Community of Learners Provide a Space for Transformation?

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# Setting - workshops (1)

- “Tertulias Matemáticas” (mathematics workshops for parents)
  - Mathematics focus: Introduction, individual or small group hands-on tasks, group discussion (elementary or middle schools level math)
  - Discussion focus: perceptions on teaching/ learning mathematics, experiences with school system, experiences as learners, etc.

# Setting - workshops (2)

- “Tertulias Matemáticas” (mathematics workshops for parents)
  - Two or three modules per academic year
  - Seven (or more) sessions per module
  - 1.5 – 2 hr long sessions

# Wrenches and fractions

- Task: Is  $\frac{3}{4}$  greater than, equal, or smaller than  $\frac{6}{8}$ ?
- Isidoro's solution: He used rectangle of the same length, divided one in fourths and the other one in eighths, shaded equivalent lengths.
- Marcos' objection: That is not the case with wrenches (there is no  $\frac{6}{8}$ " wrench).
- The following session...

# Wrenches and fractions

Wrenches and Fractions

# Wrenches and fractions

- Parents' funds of knowledge is incorporated as we consider work and life experience to make sense of the problem
- Parents are positioned as experts and able to pose problems

# Background (1)

- Adults learning mathematics
  - Approach and setting
    - lecture vs. collaboration
    - curriculum and curriculum ownership
    - authority and power
  - Motivation - purpose
    - for job / for promotion training
    - for networking (community or church based)
    - government mandated/suggested (correctional institutions)
    - to be more involved in their children's schooling

(FitzSimons, G. E., 2007, September; Safford-Ramus, 2008)



# Background (2)

- Transformative learning fosters
  - critically reflective thought
  - dialogue, participation and interaction
- Transformative learning requires that new information be incorporated by the learner into an existing frame of reference involving thoughts, feelings, and dispositions
- Transformation implies understanding of and effecting change in the world around us

Mezirow, J. (1997); Freire, P. (1970)



# Background (3)

- Nonformal education of adults
  - In the context of lifelong education (Schlöglimann, 2007)
  - In the spectrum from formal to informal education (Coben, 2006): semi formal, non-formal,... (EtlIng, 1993; Kalantzis, n.d.)
- Our understanding of ‘nonformal education’  
*It is the type of education that is*
  - *systematic,*
  - *not for accreditation or promotion,*
  - *adapted to the unique situation of the participants,*
  - *of voluntary attendance, and*
  - *relatively flexible structure.*

# Systematic

- **CHARACTERISTICS**

- Time structured: One module takes several sessions meeting regularly.
- Thematic unity: A topic is developed throughout several sessions.

- **IMPLICATIONS**

Extended period of time allowing for

- increasing understanding and retention by more exposure to the topic
- developing a sense of community
  - >sense of belonging–>ownership

# Not for accreditation or promotion

- **CHARACTERISTICS**

- Participants receive no monetary retribution
- There are no grades or certification (degree)
- Their jobs are not in jeopardy if no progress is made

- **IMPLICATIONS**

- Motivation is intrinsic
- Anxiety to fail (no consequences) is reduced
- Engagement increases

# Adapted to the needs of participants

- **CHARACTERISTICS**

- Content: children's school curriculum and parents' interests
- Time: early in the morning (after dropping off the kids) or evening (after work)
- Medium: Spanish or bilingual

- **IMPLICATIONS**

- Material becomes relevant → motivation
- Participation increases (as barriers decrease)
- Identities are respected and validated (which has more important consequences...)

# Voluntary attendance

- **CHARACTERISTICS**
  - Participants can attend as few or as many models or sessions as they want or can
  - Sessions should be relatively self contained
  - Sessions should have multiple entry points
- **IMPLICATIONS**
  - Participants feel welcome (not lost)
  - There is a sense of accomplishment by learning small units of knowledge
  - Increase of self esteem

# Relatively flexible structure

- **CHARACTERISTICS**

- Accommodate participants requests

- Time changed from early morning to evenings
    - Shift the content from following students' curriculum to parents' interests
    - Children were allowed to participate in the workshops

- **IMPLICATIONS**

- More interactions between parents and children
  - Learning occurs from children and each other
  - Parents became self-directed
  - Parents developed a sense of ownership

# Conclusions

- Yes, these communities of learners can become spaces for transformation,
  - in the forms of participation and agency via increasing knowledge, making decisions, using their language and cultural references
  - in the perceptions of what and how children are being taught
  - in increasing and improving relationships among and within families

There may be conflicts trying to be faithful to the characteristics of nonformal adult education as competing interests may arise, e.g., voluntary attendance vs. thematic unity.

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# Discussion

Thank you!  
Questions?