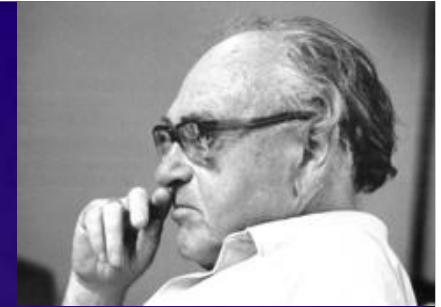


Integrating Values-Education in the Daily Disciplinary Teaching

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Yael Edri and Nitsa Movshovitz-Hadar
Technion - Israel Institute of
Technology, Haifa, ISRAEL

Nathan Rotenstreich 1914-1993

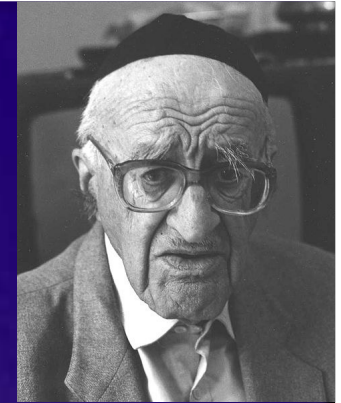


An Israeli philosopher

Definition: What Is a Value?

- Many philosophers addressed this issue. Various encyclopedias include the entry “values” with various definitions. For this study we chose Rotenstreich’s definition:
- “Values are principles or norms of behavior. Value is a type of content that brings us to prefer one action over another.” (1962)

Yeshayahu Leibowitz 1903-1994



An Israeli philosopher and scientist

The importance of a value

- "...is defined as an answer to the following question: What is the price that a person is willing to pay in order to stick to that value?; that is, in order to behave according to the value?" (1988)

About Values-Education in the literature

Professor Shelomo Kaniel ,School of Education,
University of Bar-Illan, Israel, 2008:

“It is true that more emphasis on thinking skills within more school subjects will lead to an independent learner, **however not to a more moral one.**”

Professor Hayyim Adler, School of Education,
Hebrew University, Israel, 2008:

“Disciplinary subjects can nourish moral education, at least by **illuminating their connections** to educational values.”

About Values-Education in the literature

Professor Nimrod Allony, Kibbutz College of Education, Israel, 2008

"There is a fear, that the narrow view of math education as a task without any human value, will bring-up a generation of narrow-minded pupils... Such a generation will know, possibly, how to keep the trains running on time, but may not check if that train is going to Auschwitz..."

Values-Education and the Law

The law of education, which establishes the goals of the educational system in many countries, usually puts values education in the forefront of the national goals for educating the young generation towards literate citizenship.

Values-Education and the Law

For example in my country - Israel, the law states:

“To educate the individual to be a loving person, to love her/his people and country, to be a loyal citizen to the country of Israel, and to be a person who respects her/his parents, family, heritage, cultural identity and language...”

In practice, however,

- the study of subject-matter, particularly in the high school level, usually takes over. Teachers become goal-oriented towards school-leaving exams (matriculations, or other kinds) and values-education subsides to an isolated corner.

In practice, however,

- The majority of the professional teachers in various high-school disciplines, devote their class-time to the subject-matter, and see themselves responsible for "transmission of knowledge" rather than for educating young human-beings towards their functioning as moral citizens in the "global village".

In practice, however,

- Some teachers may even argue that this combination is in contradiction to the "objective" nature of their discipline - e.g. mathematics, sciences, technology.

The goal of the study

- The basic drive for this study stems from the a-priori assumption that, in **any** discipline, **if** there is a possibility to intertwine values education in its instruction, it **must** be exhausted.
- The goal of the study I am presenting today was to **examine the possibility** of integrating values-education in the daily teaching of topics in junior high-school **mathematics**.
- Is mathematics a good choice as a **case study** for other disciplines???

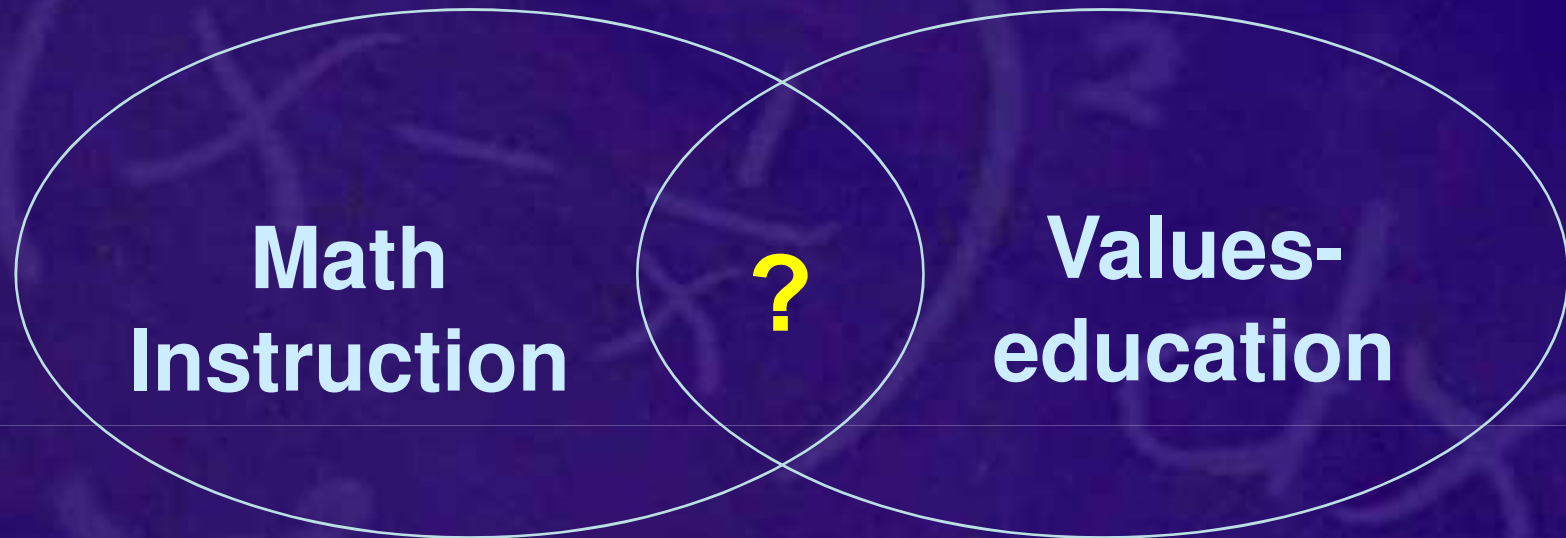
After all, Mathematics is **commonly perceived** as

- “Value-free” discipline
- Objective
- Rationale
- Everything in it is either true or false. No dilemma
- Relative to other school disciplines, it is farthest from values education

So, mathematics seems to be **“the worst case”**

So, Why Mathematics?

- Because this is a true challenge



- Because **if** it is possible in math, it is likely to be possible in other “softer” disciplines;
- and - - because both researchers’ background is in math.

The Study

In this study we attempted at answering the following questions:

1. What potential opportunities for values education can be pinpointed in the syllabus of Junior high school mathematics? (The outcome was named: “The annotated curriculum”)
2. To what extent can experienced math teachers use the annotated curriculum as an inspiration and tool for integrating values into their teaching? and in what ways do they do it?
3. What is the impact of the above on teachers’ self esteem and professional perception?

The methodology (quest. 1)

Typical concepts and notions were connected to their social meaning (e.g. equation and social equity).

Typical word-problems in 8th grade text books (e.g. “two trains go from A to B...”, “The price for 3 kg of ... is..., what is the sale price if the reduction is 15%?) were adapted to values-education context. An example follows -

Example

A typical problem “from the book”

Three ingredients are needed to prepare a salad dressing: Orange vinegar, Olive oil and Soya sauce in ratio of 1:2:3



- What is the ratio between the vinegar and the soya (answer – 1:3)
- What is the ratio between the oil and the soya? (answer – 2:3)
- What quantity of each ingredient is required to prepare 240 grams of dressing? (answer – 40 grams, 80 grams, 120 grams)

Example

Adaptation to Values-Education context

Three friends - David, Sara and Jacob, decided to jointly save money in order to do good deeds. They each put-in ten percent of their weekly allowances. It turned out that they donated at a ratio of 1:2:3.

- a. What is the ratio between the David's and Jacob's donations? (answer – 1:3)
- b. What is the ratio between Sara's and Jacob's donations? (answer – 2:3)
- c. How much will each donate till they save 240 NIS? (answer – 40 NIS, 80 NIS, 120 NIS)

Extending the example

At one point they decided to donate 50 NIS to children suffering from autism.

To their surprise, the Association for Autistic Children sent them a gift card to buy books in the amount of 240 NIS.

Extending the example



- You need to suggest two different ways to fairly divide up the winnings (240 NIS) between the three partners.
Which way seems to be the best option, and why?
- If the partners had won a prize of 240,000 NIS, would you change your mind about the division of the winnings?
- Share your opinion with another pupil and then discuss the different approaches you took.

Example - Student's answers

240 NIS

- **For dividing the winnings equally**
- They did not donate equally; however, this arrangement seems fair because each person donated according to what he/she was able to.
- The arrangement between the students is not a financial arrangement, but rather a social one and, therefore, it seems to me fair to divide the winnings evenly.

Example - Student's answers

- The arrangement seems fair because they reached it by a joint agreement.
- In a good society, there are always cases where one friend contributes more than another friend. Nonetheless, next time it could be different. In my opinion, this is how life is: you may be the one giving to your friend this time, but in the future when you need him/her, he/she will be there for you.

Example - Student's answers

- **For dividing the winnings in proportion to donation**
- The three friends did not contribute to the pot equally therefore the division of the prize should not be equal.
- The friends will divide the prize fairly. Each one will receive the percent of the prize according to the donation they made to the pot: 40 NIS, 80 NIS and 120 NIS.

Example - Student's answers

240,000 NIS

- **For dividing the winnings equally**
- Because there is a large amount of money involved, I would change my mind in this case and divide the money up evenly.
- **For dividing the winnings in proportion to donation**
- I would not change my mind. They should get 120,000 NIS, 80,000 NIS and 40,000 NIS according to their original donation.

Example - Student's answers

- **For a revised division**
- In the case of winning a very large amount of money, I would divide the money up according to financial status of each family: A family that needs more will receive a higher percentage.

The arguments explained above were written by 8th graders at Hof Hacarmel School, Israel, 2008-2009.

Empirical study (quest. 2)

12 Math teachers from 7 high-schools participated, in reward to 2 weekly hours.

Each of them prepared and taught 6 lessons during the school year, in each of which Values-Education was entwined.

During the year the researcher met them for 5 workshops in which they learned to integrate Values-Education with Math-Education using the annotated curriculum.

During the experiment they wrote personal journals and shared there experiences within a forum – a

designated site on the Web.

Results of the Empirical study

12 math-teachers gave 71 “special lessons” in the 8th class, in which they integrated values education with math education.

In 53% of the lessons they planned and implemented educating to personal values that are inherent to math education: logical thinking, accuracy, criticism

In 47% of the lessons they planned and implemented educating to social values that are less inherent to math education: tolerance, helping to each other, respecting others, forbearance of violence.

The impact on teachers (quest. 3)

Teachers changed their perceptions about their profession as math teachers:

1. They became aware to their responsibility to educate during their instruction.
2. They reported on change in planning their lessons and in their possibility to cope with difficulties in the class.

Concluding Remarks

- We found it possible to integrate Values-Education with Math-Education in the 8th class.
- We found a wishful change on math teachers that joined the experiment.
- We claim that it is possible to integrate Values-Education with Math-Education in other age groups.
- As math is “the worst case” from the subject matter point of view, we can assume that it is possible to be done in other subjects in school.

Thank you