

# A whole systems approach to education redesign: A case study on the need for intergenerational perspectives and inclusion

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## Abstract

This study was commissioned by the Global Education Futures forum for presentation at its fourth International Conference in Moscow, Russia, from February 29 to March 2, 2016 (<http://edu2035.org/#program>). The objective was to conduct field research with a special focus on the vision of the future of education held by young people. This report presents some views and perspectives of my generation regarding what they want education to be like in the future. In northern California, my teachers Ms. B and Mr. Wahanik used the framework of questions and activities that my father and I developed to gather this kind of information by running a sort of “focus group” with my 10th Grade class and to find out what their views, perspective, opinions, ideas, hopes, and concerns are regarding this theme. A similar process was run with a group of young people in Buenos Aires, Argentina.

## KEYWORDS

education, futures, idealized systems design, social systems design, youth

## 1 | PURPOSE AND OBJECTIVES OF RESEARCH

At the time of the writing of the report, I was 17 years old (my co-author was 52). By engaging with groups of my peers in both the United States and Argentina, I was able to gather ideas about how the future of education appears to my generation who is currently in grade school and high school. In the United States, the group consisted of mainly 15 and 16 year olds, and there are around 40 students in my class. They had less than 1 hr to run the whole process, but everyone already knew each other really well, so they could go quickly through the process, as described in this report.

A similar process was run with a group of young people in Buenos Aires, Argentina. Here, I had to work with people whom I had never met before and who also did not know each other at all. We had exactly 12 students

from a variety of public and private schools with an age range from 12 to 17 years. However, we had a total of 3 hr with them, so we could do an icebreaker and take our time to move through the whole thing.

In both cases (California and Argentina), the idea was to engage young people in a series of structured creative Future Thinking adventures that helped them “invent” what education (learning and teaching) should be like in the year 2035. The idea behind this is that educators and those involved in the systemic redesign of education systems might want to include this kind of data and these kind of perspectives in the work they are doing. I also presented my findings at the International Society for the Systems Sciences Conference in Boulder, Colorado, also in 2016 to see whether others think more of this kind of work should be done. People seemed interested (many people came to my presentation). The slides from that presentation (at the

International Society for the Systems Sciences) are included as an appendix to this report.

## 2 | STRUCTURE OF RESEARCH

The overall structure of the research process involved two major parts, one consisting in a series of core questions on educational futures and the other on a creative visioning process. The idea was to first start with a realistic/factual frame to help get a sense of what all of the participants think about education now and how it might likely take shape in the future. Then we would jump into a creative/imaginative frame with a process that helped the participants to explore their hopes and concerns about the future of education. In other words, we complemented a probabilistic/extrapolatory systems perspective with a normative/exploratory one. This helps provide perspective.

In the California case, the larger number of students allowed them to split into groups that could handle a series of five core questions. In the case of Argentina, the small group size required that we fold the last two of the core questions into the creative visioning exercise, thereby not losing any opportunity to gather critical data and allowing the group to work well together.

### 2.1 | Part 1: Core questions relating to the future of education (where “the future” refers to the year 2035 or thereabouts)

The first group of questions were about the kinds of things my generation needs to learn about.

- What is important to know so you will be prepared for the future—why?
- What do you want to learn about? (We asked them what causes them the most trouble or annoys them most in their life today, and what does not exist in their life today that they really wish would exist.)

The second group of questions were about how we need to learn the stuff mentioned in the first set of questions.

- How do you learn best? (This question was about learning styles and preferred learning environments.)
- What do you think teachers (if they still exist in the future—and if they do not, then what does?) could do to help you and others learn more and learn it better?

The third group of questions were about the learning system and what it should be like (how it should be structured and run).

- What do you think “school” (or the place of education) will look like in the future?
- Will “schools” still even exist?

The fourth group of questions were about what our “dream education” would be like.

- What would the perfect education look like to you?
- If you were in charge of education, what would you change/do/improve?

The fifth group of questions were about what we think the most likely education in the future is going to be like.

- What is most likely to happen to the future of education—why?

### 2.2 | Part 2: Creative writing exercise

This portion of activities was about aliens and humans. We split the class into two groups. The group that wanted to be the Alien Journalists had to imagine that they came to earth in 2035 and are reporting on what they see and what they think about it (for their fellow aliens back home on their own planet). The other group was humans who were living then, at that time (2035), and they had to describe how life is for them now and what they are doing. Then, after the two groups shared their descriptions, the whole class came back together to talk about the two perspectives and how they related to each other.

## 3 | PRESENTATION OF RESULTS

Core questions	California group	Argentina group
What are the kinds of things our generation needs to learn about?	Financial literacy. Academic counselling—related to college.	Learn different languages. Exposure to different cultures.
1) What is important to know for the future—why?	English—how to write. Practical life skills in classrooms.	Life skills. How do deal with emergencies.
2) What do you want to learn about?	Exposure to other cultures. Public speaking skills. Note taking/study tactics. Acceptance of other peers.	Cooking. How to be independent. Basic medical studies. Technology classes. Practical skills. Learning how others learn.

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Core questions	California group	Argentina group
	Empathy training through studying other belief systems, perspectives (religions, politics, cultures, and languages). Learn about long-term effects of actions. Climate change. Current politics/public policy—how it works. Current affairs.	
How do we need to learn it?	Alone/small groups. Quiet.	Hands-on activities. Visuals.
1) How do you learn best?	Not cramped. Pressure-free.	More interesting lectures.
2) What do you think teachers (if teachers still exist—and if not, what does?) could do to help you and others learn more and learn it better?	Doodling and such is okay. Music while working. Class discussions. Yes, teachers probably exist in the future. Do not teach to common core. The <i>no child left behind</i> act should stop. Do not teach from textbooks. Do not teach to test. Individualizations for students. Teach things that really matter—serious world issues such as war, climate change, economy, etc. Less homework. Electives—more variety and choice in what you study. Anti-bullying in school.	Learning through computerized models and graphics. But not to the exclusion of books. Learning with attention to whether the student really understands. Teachers could explain things in a distinct way so that the students could understand the material better.
What is the learning system?	Either structured (like prisons) or with more opportunities/options.	Schools will be a lot more technology based.
1) What do you think “school” will look like in the future?		Virtual schools will be a thing.

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Core questions	California group	Argentina group
2) Will “schools” still exist?	Decline of Catholic schools. More crowded. Not anymore technologically advanced than they are today. More Waldorf Schools.	Students will have universal access to schools.  Schools will still exist in the future (all agreed).
What is your dream education?	Access to all types of technology.	<i>[This question was folded into the next section of activities on creative writing from the perspective of the Future Human journalist group]</i>
1) What would the perfect education look like to you?	Variety of teaching styles. Contained working environment. Good connections with teachers. Four-day school week (3-day weekend). School should start later. Good food selection and financial aid for food. Equal opportunity for good schooling. Reduced homework load. Longer lunch. Learn about being adults—life skills classes. More field trips/interactive learning. All holidays for all religions get a break. Music/art/extracurricular activities are encouraged. Low student-to-teacher ratio. Greater choice of classes. Emphasis on critical thinking. Mental health education. Teachers have no favourite students. More involvement in real-world problems.	
2) If you were in charge of education, what would you change/do/improve?		

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Core questions	California group	Argentina group
	Classes combining different fields (like science and history) with built-in conflict, contradiction, and controversy.	
What is the most likely education?	Greater use of technology	<i>[This question was folded into the next section of activities on creative writing from the perspective of the Visiting Alien journalist group]</i>
1) What is most likely to happen to the future of education—why?	because books cannot be updated and websites can. More students going to online schools. More funding, younger generation wants more education. Backpacks will still be a thing. Start teaching more technology classes.	

## 4 | CREATIVE WRITING EXERCISE

### 4.1 | Visiting Alien Journalist group

The group that wants to be the Alien Journalists needs to imagine that they came to earth in 2035 and they are reporting on what they see and what they think about it (for their fellow aliens back home on their own planet).

The California group came up with the following observations about the probable state of education in 2035:

- Information is stored digitally
- Specialized education based on what they want to do
- World is going downhill and education is diminished
- America is destroyed (from one student)
- Teachers more specialized and creative and more hands on
- Some schools have good education and some bad
- Polarized education, no middle
- High level will be
  - creative
  - differentiated to student needs and abilities
  - no cost
  - small classes (eight to 10 people)
- Low level will be
  - standardized (less personal)
  - taught by computers or highly computerized
  - large class sizes

- Hands-on technology
- Computer science is a high priority
- Arts are optional classes or held as clubs
- Teachers called by surnames (Mr. \_\_\_\_, Miss \_\_\_\_, Ms. \_\_\_\_, etc.)

The Argentina group came up with the following observations about the probable state of education in 2035:

- Virtual reality is a thing
- Most humans prefer advanced computer systems, some still use books
- Humans have evolved to include technology in their learning process
- They are still not using technology to its fullest potential

### 4.2 | Future Human Journalist group

The other group is humans who are living then, at that time (2035), and they describe how life is for them now and what they are doing, also in the role of journalists reporting on how things are.

The California group came up with the following observations about the desirable state of education in 2035:

(This group was divided into two so you will see two different lists)

- One group:
  - Majority of classes online, maybe a little at school
  - More flexible courses and requirements
- Other group:
  - Everyone will be bilingual
  - Artwork and music more required
  - Practical classes, that is, cooking, driving, and taxes
  - Requirement to live in a foreign country for 3 months before graduation
  - Hands-on experience for all

The Argentina group came up with the following observations about the desirable state of education in 2035:

- Elementary school teachers teach the necessary basics to everyone
- The next grade levels after that expand on basics
- A required universal language is taught
- Regular communication/interaction with people of different cultures—practice for global/universal language

- High school is for focusing on exactly what classes you want to pursue
- Virtual simulation to test mental and psychological progress before graduation
- Strong focus on nutrition and physical education
- Practical learning such as cooking, CPR, financial responsibility

### 4.3 | Large group discussion about connecting the two perspectives (human and alien)

Themes in the California group:

- How not to lose human interaction due to advanced technology
- Students need to know more about what is going on in the world
- Throw creationism out the window
- Learn the alien language
- Make school open to more cultures (including the alien culture)

Themes in the Argentina group:

- If people are still in situations where they need to rob and steal, they will not be able to learn the things we have pointed to
- People need to grow as people, as being really human
- Professors need to empower students not just to memorize but to be able to really express what they are learning themselves
- That they are focused not only on technological realities but also on human values, too
- Not to forget how to work with books and notebooks —not everything should be virtualized

## 5 | DISCUSSION OF RESULTS

Impression from California teachers supervising the activity of how the process went:

*It went OK. Nearly all the results are handwritten. We only had 40 minutes so what we did was split the class into 7 groups (about 5 students in each) and gave them one of the five questions from either the future alien reporter (group 6) or the future human reporters (group 7). Afterwards they read what they came up with to the rest of*

*the class and the rest of the class chimed in to enrich the group answer. We spent 20 minutes brainstorming in groups, 10 minutes discussing answers to the five “Part 1” questions, and 10 minutes discussing aliens vs. humans. There was no strong difference between the aliens and humans, but I recorded the relevant responses to the final question. You will also find that because there were different groups some of the answers may seem to contradict themselves. There are some great answers, too. The limited time was a huge issue.*

The Argentina group went through basically the same process, but there were only 12 participants instead of 40, and they had 3 hr versus 40 min. The first set of three questions was run using an Idea Writing approach where we had three tables of four students at each, and each table had 10 min to answer the question on a flipchart piece of paper. Then the paper was sent clockwise to the next table, and they received the question with the answers generated by the group counterclockwise to them. So the questions moved around the room in a clockwise direction and eventually each group of four students had their chance to add to, comment on, or otherwise enrich the collective answers to the three questions. The Aliens and Humans creative writing exercise was run much the same way it was run in the California group.

## 6 | CONCLUSIONS

A lot of the perspectives everyone came up with about what education could be or should be in the future (by the year 2035) seemed to actually say a lot about what they thought education should be like *right now*. By first grounding ourselves in a sense of what is really happening in schools and with how we learn, and what things get in the way of our learning, and then being free to explore and play around with a game-like exploration of the future of education, we came up with some pretty cool things (viewpoints, perspectives, and insights).

Both groups agreed that practical life skills and exposure to other cultures are important things to have in our schools, regardless of time (now and in the future). Both also agree that in the future, everyone is going to need to know a second language—or that maybe we will develop a “universal” language.

I think we learned a lot about what we think learning and schooling should be about. Here is some of the main things my peers think is important:

- keeping the students up to date on current affairs in the world;
- that schools should focus on encouraging empathy and the ability to both listen and hear oneself and others; and
- also, to teach financial literacy and how to deal with emergencies.

My peers think school environments should be more interactive and more pressure-free:

- music should be allowed;
- class discussions should be encouraged;
- students want to be able to pick what they want to learn about;
- there should be less homework.
- We think schools will be more technology based in the future;
- and yet that books, pens, pencils, and paper will not disappear or be entirely replaced.
- We believe that school should start later in the day;
- and should encourage music, art, and extracurricular classes.
- We think that schools may become more of an online system of learning;
- maybe with virtual reality;
- and that holographic proxies may serve as stand-ins for both students and teachers if they are sick or would otherwise have to miss class.

There are a few additional comments that I would like to make from my own perspective. I believe there are *three key things* to making future education better:

1. It has to be made interesting
2. It has to be made understandable (and teachers need to check on this)
3. It has to be constructive to the life and environment of the student.

Also, we need to place greater emphasis on learning about empathy and how to be empathetic, on appreciating and valuing diversity, and on connecting to and with nature.