

Walls to be demolished:

Moving from a closed teaching factory towards an open learning place

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1. Introduction

When Gaston Mialaret introduced the concept of isomorphism in the new field of education, in the early years of the so-called sciences of education, it was his idea to express the need, and the convenience, of educating future teachers by using the same kind of methodology they were expected to use with their pupils. Yet, what could seem so evident in Mialaret's idea of isomorphism may not be so obvious when applied to the broader context of the institution as a whole wherein teachers are educated. In fact, even claiming the need of change, and despite the apparent general consensus around this idea, teacher educators seldom acknowledge that there is a contradiction between the aim of educating actually innovative teachers and doing that under the influence of a system founded to meet the needs of a society that no longer exists – the deceased industrial society.

This issue is the really crucial one, which does not mean all teacher educators act as if they were aware of it, even stressing the urgency of a paradigm-shift in schools.

It is indubitable student teachers are educated not only by the direct influence of teacher educators, but also by the school culture they absorb while being educated. Thus, future teachers run the risk of being exposed to ambiguous and contradictory influences: a possible teacher educator's drive towards innovation and the strong power of the centennial school culture embedded in the school walls and routines.

Time has come to demolish those walls. The first step could be the exorcism of the school culture influence from the relationship between future teachers and teacher educators.

2. What do I mean by school culture?

Alvin Toffler once said that man has a limited biological capacity for change, and when this capacity is overwhelmed, the capacity is in future shock. If a man, designed by Nature to adapt himself to a changing environment run the risk of running out of changing capability, what about schools? What about the kind of school we work in? How flexible are its walls, its routines, and its agenda?

The schools we are used to were designed to meet the needs of the industrial society. The “new” industrial order needed a brand new type of man, equipped with skills which neither the family nor the church were able to provide. That “new” order needed children familiar to a repetitive work, capable of staying inside walls for an entire day, and used to a world of smoke, noise, machinery, overcrowded places and collective discipline. In addition, the “new” man should be at ease in a world controlled by the watch and by the factory whistle, instead of being regulated by the sun-moon cycle (Toffler, 1970). The industrial society, once founded on synchronized work, needed individuals with few things in common with a bucolic and rural past, when the natural rhythms prevailed. One should remember that, with the exception of England, three quarters of the European population lived in the countryside during the second decade of the XIX century, and more than a half of the working people were employed in agriculture (Mialaret & Vial, 1981).

At that time, the only single question that lacked an answer, for the men who designed schools, was what model of school could provide what the industrial society was eager to get: low costs, social peace and men adapted to the demands of the new model of production. A school so cheap that no one could blame its costs, even those who were against education for everybody.

According to Toffler (1970), mass teaching was the extraordinary machine created by

the industrial civilization to get the kind of adults it needed. The solution could only be an educational system the structure of which was a simulation of the new world. That system did not appear all of a sudden, and it includes, even now, elements from the pre-industrial society. However, the idea of assembling crowds of students (raw material) to be processed by teachers (workers) in a school (factory) was a demonstration of the industrial genius.

Thus, the development of the administrative hierarchy of education mimed the industrial bureaucracy model, and the most criticized elements of that system (lack of individualisation, rigid norms, and the teacher's authoritarian role) are the ones that happened to be the most effective, given the aims of mass education.

Those are the core elements of the traditional school culture. But they are not alone: some other assumptions and beliefs have joined them along the time this kind of school exists. One of those assumptions is that "schools are supposed to prepare for life" and all the knowledge involved in that preparation is inside the school walls, sliced in subject matters. Another belief is that "learning is a consequence of teaching", despite it is undeniable that knowledge is constructed by the learner and not supplied by the teacher. Students are not empty vases, and teachers are not sources of ready-to-use knowledge, but school's routines seldom acknowledge this fact.

This is, in brief, what I mean by school culture. And this is, of course, the culture that has been embedding, not only in the school walls, but also in the peoples' minds (teachers' minds included) for two centuries. And it is, therefore, this culture that is being absorbed by those who are exposed to the school atmosphere while being trained as a teacher, even if someone particularly innovative and open-minded provides that training.

3. What do I mean by paradigm-shift?

Two centuries ago, industrial genius invented factory modelled schools, and that model quickly turned into a mass education paradigm. During this long period of time, schools have paid society much more than society has spent to maintain schools. Schools have

delivered what they were meant to deliver: at a deeper level, people socialized in following instructions, in respecting superior's orders, people familiar with punctuality and synchronized work, and, at an explicit level, people able to fulfil the cognitive requirements of any industrial kind of production.

Meanwhile, things started to change more and more in society, particularly since the fifties of the twentieth century. Suddenly, schools were unable to prepare people, as they were able before: society schools were aimed at no longer existed. The number of students inside schools had grown up to unexpected figures. The social status of teachers had started to turn down. Students were not that homogeneous group of youngsters coming from the same neighbourhood anymore. Schools acquired some new but not so noble functions like being storerooms for young people waiting to knock on working market's door. And, to make things even more difficult, schools were no longer wide enough to embrace all the necessary knowledge inside its walls. Not to mention the cultural gap between schools and society growing towards a point of no return.

Time has come, thus, to shift from the old-fashioned school paradigm to a brand new one that hopefully meets the requirements of a different society, which is still emerging from the ashes of the previous one. Perhaps it is too soon to foresee the exact boundaries of the new paradigm, however we all witness the changes time has brought with it, and can easily understand that things like synchronization and concentration, for example, have no longer the meaning and the importance they have had once. On the other hand, the emergent technologies that have invaded our lives continuously draw our attention to the fact that now there are possibilities we would not dare to dream about a few years ago. And there is the crucial point: because of the exponential evolution of science the steadiness of knowledge is under permanent threat of instability. What we know tends to become outdated dramatically fast. Schools no longer can prepare for life. So, what are they good for?

According to Kunn (1962) paradigm is a constellation of concepts, values, perceptions and practices shared by a community, which forms a particular vision of reality that is the basis of the way a community organises itself. It is needless to stress that the society we live in has evolved dramatically compared with the moment people understood the

advantages of giving future workers an opportunity to attend school. It is true that schools have evolved too. The problem is that, some day in the past, schools had no vigour enough to equalize society's speed of change and started to be left behind. Left on their own, schools started to rearrange their constellation of concepts, values, perceptions and practices in a short circuit (or vicious circle), finding their legitimacy more and more inside their walls, and stretching their links with the rest of the world to the point of rupture.

So, when I speak about schools and paradigm-shift I am speaking about starting inventing the whole thing again. I wish I were a post-industrial genius, with wisdom and power to touch schools with my wizard's stick and give future generations a brand new institution of learning, as schools have been brilliant institutions of teaching.

3. What can I do in the mean time?

First of all, let us try to agree on a few topics:

- Schools do not prepare for life any longer
- Each day, schools have fewer things to do with the surrounding world
- Schools became places where students are waiting for somewhat no one exactly knows
- Schools are short in financial resources and updated technologies
- Teachers are supposed to do the maximum with the minimum
- Teachers are supposed to teach no matter the willingness of students to learn
- Learning is not a direct consequence of teaching
- Students leaving the school face a reality where they will presumably have several jobs during their lifetimes, some of those beyond our imagination
- Teachers should not be trained as they were supposed to teach in a school that will last forever.

If we agree with those sentences, perhaps we could agree with the next ones:

- There is no transmission of knowledge: with luck, the teacher is able to provide information, and it is up to the students the use of that information to construct knowledge
- If the student is the one who constructs knowledge, then all the school activity should be focussed on that
- Students should be given real opportunities of constructing knowledge interacting with others than the teacher (peers, other adults, etc.)
- Teachers should not consider themselves anymore as sages on stage, but as guides on the side
- The knowledge is one: if we slice it in pieces for pedagogical purposes, students should be given the opportunity of putting it all together again
- Schools do not provide authentic learning environments, so students should be given opportunities of situated learning
- Curriculum is a constraint, not a pathway to knowledge and innovation
- Students must be trained to survive in a world of fallen walls (including schools' ones) as autonomous lifelong learners
- Critical thinking is the key for success.

Despite the pressure of the school culture, tending to standardize both education and teacher education, and the way common people (in this particular almost everybody is common people) figure out schools, something can be done to anticipate future. There is no doubt that a new one, in which the main thing is no longer industrial goods but information, is replacing industrial society. It is also evident that the production of information does not need the same industrial structure and organization that shaped schools two hundred years ago. Perhaps it is still too soon to anticipate the shape of the future educational institutions, assuming those institutions will be inspired by the new post-industrial paradigm, but we already know the trends: de-synchronization, de-concentration, de-location, instantaneous access to the sources of information, and accountability for one's survival in a jungle of gigabytes. On the other hand, it is amazing to realize how a likely future school's design is already inside the theories we have been dealing with for decades. Let us consider the constructivists, for example. They have been talking to us about the way people construct knowledge, and their theories fit with what we expect future will demand: self-lifelong learners. Let us

remember Vygotsky's emphasis on mediation and social interaction, and the importance he gave to any others acting as tutors and helping learners to apply knowledge at the up most of their zones of proximal development by providing scaffolding¹.

Let us also have a look at what people like Lave and Wenger have been writing about situated learning, the way real practitioners do learn and the difference between a *learning* curriculum and *teaching* curriculum. According to them, learning should be a natural consequence of being alive in the world, and not a process separate from the rest by (school) walls. So, what learners do need is not mere institutionalized instruction but being in touch with the real world (Lave & Wenger, 1991).

Let us pay attention to what Seymour Papert has been preaching about the role and the use of ICT in education, especially the use of technology to enhance learners' opportunities by letting them go beyond the curricular constraints by themselves. But, let us also think about the importance he gives to manipulating concrete things and constructing shareable artefacts:

Constructionism also has the connotation of "construction set", starting with sets in the literal sense, such as Lego, and extending to include programming languages considered as "sets" from which programs can be made, and kitchens as "sets" from which not only cakes but recipes and forms of mathematics-in-use are constructed. One of my central mathetic tenets is that the construction that takes place "in the head" often happens especially felicitously when it is supported by construction of a more public sort "in the world" -- a sand castle or a cake, a Lego house or a corporation, a computer program, a poem, or a theory of the universe (Papert, 1993, p. 142).

We could also reflect on his opinion about the educators' preference for abstract thinking to the point of pushing children to think like adults:

Most of his [Piaget's] followers in education set out to hasten (or at least consolidate) the passage of the child beyond concrete operations. My strategy is to strengthen and perpetuate the typical concrete process even at my age. Rather than pushing children to think like adults, we might do better to remember that they are great learners and to try harder to be more like them. (Papert, 1993, p. 155).

¹ The zone of proximal development (ZDP) is the range of skill that can be developed with adult guidance or peer collaboration. This leads to an idea of teaching as a scaffolding process, aiming at the next stage of the child's development rather than aiming at the current one. According to this idea, the teacher must provide educational materials and content, which go beyond the child's current capabilities.

All these authors have in common not to support the traditional assumptions that founded industrial school and some others schools have acquired later. They all have developed researches that contradict essential implicit beliefs (like “one learn what he or she is being taught”) and deny deeply rooted practices (like the behaviourist S/R, for example) of the industrial school. All of them have in common giving us inspiration for imagining new roles for both students (learners) and teachers (facilitators).

So, while industrial school agonizes, and before its walls fall apart, teacher educators can now use these authors’ contributions as tools against the pressure of the established school culture, helping their tutees to contrast the reality of schools with some brilliant and challenging theories about learning in a changing world. There is no guarantee that, only by being exposed to these theories, future teachers become really innovative educators. Perhaps the strength of tradition will prevail at the end. But only a reflexive teacher, capable of critical thinking, and well theoretically equipped can challenge the main stream with a teaching practice in which students are protagonists. And that is the shift that could lead to a new paradigm of educational institution (I would not dare call it “school”): teachers leaving the stage to let the limelight show the learners.

4. Conclusion

Returning back to Mialaret’s isomorphism, it is time to close the circle. A teacher educator, acquainted with the theories and the authors we have been talking about, can only assist their apprentices as they are expected to assist future pupils in the real teacher-as-facilitator practice. A teacher educator has to be, him or herself, also a learning facilitator, that is to say, an agent of change.

There is no guarantee that, by going that way, teacher educators can shake school’s foundations to the point of collapse. But physical walls, as we well know, are not the real problem. Especially today, with all the gadgets technology development has brought to us, it is easy to ignore every kind of walls, except those we allow inside our minds.

So, it is inside the minds school's walls should be demolished. Then we all could help the materialization of something really new.

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