

# Chapter 7

## Entrepreneurship and Innovation in a Revolutionary Educational Model: École, 42

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**Abstract** We live in a maelstrom of linear thoughts, believing that all the current standards or what has been previously established is how it should work. École 42 (School 42 in English), with hanging towels in banisters, hundreds of computers, big rooms with luggage, and air mattresses on the floor everywhere would undoubtedly surprise and remove prejudice to more than one person. As of today, Millennials aren't strictly aligned to the pre-established academic rules anymore, they are now developing their own academic methodology, marking history by working together with their classmates, which in a couple of years ahead, will not only be right with their innovative education model, but also will benchmark on how education could work in the twenty-first century.

**Keywords** École 42 • Entrepreneurial education • Innovation • Educational model

### 7.1 Introduction

In this chapter, we address the École 42 Institution in France, without including its extension to the Silicon Valley or to other sites. We were especially interested in highlighting the intellectual and moral approach, the spirit and philosophy of the founders, whose top executive is Xavier Niel, and describe the essential aspects of his pedagogic practice in which the professors are exempt from the traditional teaching tasks, and they channel the learning of the students by means of extensive

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projects. An exemplary and free institution, based on equality, nondiscrimination and requirement in the learning, which are evaluated by means of revision and internal criticism processes among the students themselves and through the general consideration of the results in the framework of the established projects.

First, we describe the teaching approach of *École 42*, and we enrich this description with the opinions of different relevant characters, related to the new technologies sector and with varied information from the mass media. Secondly, we then proceed to synthesize the basic ideas which drive the project and explain the origin of the symbol 42 and why it forms a part of the School's name. The *École 42* is an institution to create a different future for society, in a triple dimension which is related to the learning and teaching methods, with new levels of knowledge and technical efficiency as well as new and more advanced forms of equality in society.

## 7.2 The Teaching Approach of *École 42*

Xavier Niel, founder of the telecommunications company, Illiad and with a major self-financing capacity, founded *École 42* in July 2013 and began the students' selection process on that date, fully commencing the training activities of the students with a duration ranging from 3 to 5 years in November 2013. Several major partners who accompany Niel in this revolutionary computer and programming training way include Nicolas Sadirac, former director of Epitech School (France), and Kwame Yamgnane and Florian Bucher, former executives of Epitech. And on the other hand, Niel's innovative initiative has achieved backing from outstanding professionals from Silicon Valley such as Evan Spiegel (CEO of Snapchat), Keyvon Beykpour (CEO of Periscope), and David Marcus, a vice-president of Facebook, among others.

In reference to the student selection phase, the students, who are interested in a revolutionary computer training, free of charge, open to all type of innovation in the programming and telecommunications field, should be between the ages of 18 and 30, and the selection process begins with the online presentation of a small report and logic test which is supposed to permit the evaluation of the students' potential skills to learn computer programming. This selection phase is completed with the so-called swimming pool, which consists of intensive programming sessions in the C programming language during several weeks. In this way, it aims to ensure that each of the selected students is especially well equipped, intuitively and intellectually—with their implicit and explicit intelligence—in order to carry out an interactive peer to peer learning process with the other students. This interaction and self-emulation, within the learning tasks or general plans established by the professors, is the key to this innovative learning system in a school in which there are no professors in the traditional meaning of this term. The professors only establish the direction of the tasks or the learning process as a whole, which must be followed (project-based learning) on a collective and individual basis.

In this teaching method in which there are no classes or practice sessions supervised by the professors, the students carry out the projects proposed by the pedagogic team, where they are free to organize their own time schedule; and

within the interaction with the colleagues, in a continually happening process, the students help each other in the execution of their projects and at the same time, they are the final parties responsible for their correction and evaluation. The book by Niel and Roux (2012) helps to understand several aspects, concerning the selection process and the learning method.

Finally although no less important, it is a free school, completely funded by its founder, which does not have preliminary requirements of other certified degrees in order to be admitted into it, beyond the tests which we have described. This inaugurates possibilities to incorporate talent, when it genuinely exists, wherever it may be.

### 7.3 Four Relevant Testimonies About École 42

These testimonies by relevant celebrities, which are a synthesis of their different statements made at different times and in different spoken or written channels of mass media, help to complete, in an unsystematic and yet vivid way, the teaching approach of École 42.

- **Laurent Leconte, co-founder and CEO of Synchronous Technology**, has expressed the idea that he completely agrees with the initiative of École 42. He believes that the vision which guides the school and the principles on which it is founded are good for businesses such as Synchronous Technology, beyond all expectations. The creativity, aperture, and social equality, jointly with the passion which pushes the limits and gives rise to large-scale projects exist in École 42, and Synchronous Technology, states Leconte, will be proud to employ the students from École 42 and participate in this great educational and humanitarian adventure.
- **Jacques-Antoine Granjon, CEO and co-founder of *vente-privee.com***, has expressed the same line of thought as Leconte. He thinks that it is wonderful that a private school exists, which is completely free, with a hyper-competent team which shares the values and philosophy of its founder and which opens its doors to everyone with no requirements other than intelligence and skills.
- This school can alleviate the intense need for qualified personnel which has been limiting the development of different industries. Granjon says that the surprising thing about this school is that it provides an opportunity to everyone: it is free of charge, open to persons who are from other cultures and who think differently. This helps to move things, to change the values in order to develop new ideas and make the name of École 42 shine.
- **Jean-Baptiste Vernier Descroix, president and founder of Rentabiliweb Group**, welcomes the creation of École 42 for France and Europe: “This is playing in the big league,” he states, and he expressed that we have a major need for broader perspectives and high-level preparation, and there are very few centers or persons who are capable of travelling on this path. Our need is great, affirms Vernier, and goes far beyond expectations. The persons with technical skills can add a great ability to imagine, create, innovate, and develop and thus can provide

increasingly more to our businesses. And here insists Vernier, is where he sees École 42.

- **Jean-Michel Planche, President and Co-founder of Witbe**, has stated that it was a surprise to know that in spite common sense, a new adventure is always undertaken with passion, the desire to transmit and create, with the aim to help ourselves overcome our daily difficulties. Solely for this reason, states Planche, École 42 has my respect, best wishes, and hopes.
- I sincerely hope, continues Planche, that they know that the objective is not to train more engineers, regardless of what their “curriculum.” They must be able to train part of the fantastic opportunities of the *digital world*, where it is necessary to invent and develop. A geek or a hacker, affirms Plache, is not a simple introvert or a vandal, but a respectable and curious being. A person with passion who is not content to only be the developer of a product or service designed by others, but someone who will struggle until the end to go beyond the obvious.
- It is necessary to express our thanks, says Planche, to have our feet on the ground and give our young people solid technical training and also several of the keys to decipher our society so that they can avoid failure. To let them know that with hard work, a little talent, inspiration, passion, and good luck, they can go everywhere. Planche thinks that any student from École 42 can be a star, not simply another illusion or a cloud. And Planche emphasizes: “Thank you for creating this project, thanks for helping our young people to find their place.”

Table 7.1 compiles in a very synthetic way, five additional news stories about École 42 in France or in Silicon Valley:

## 7.4 The École 42 Ideology Framework

The entrepreneurial initiative of École 42, its operating method described in the point above and the support to the innovative features of the project by acclaimed celebrities in the new technologies sector, provide a special interest in the examination of the ideas and beliefs which underlie the project, both those which are closely linked to the teaching methodology and those that have a more general nature. With regard to the teaching methodology, there is broad agreement in the sense that active learning achieves a higher level of results and the greater quality of the same (Bos and Vaughn 2002), although the peer to peer learning method, in the framework of projects or extensive orientations which channel them, goes beyond what was conceived until now as an autonomous and interactive method of learning. However what appears to have equal or greater interest, in this case, is the final and most general substratum of the ideas which drive École 42.

Xavier Niel has a vision of the future which borders on fiction; which is virtual reality or approaches science fiction; however at the same time, he has greater views

**Table 7.1** Relevant extracts

Source	Heading	Relevant extracts	League
El Financiero, 18-May-16	Millionaire opens school in Silicon Valley	<p>“Studies in the U.S. are very expensive, which hinders the path of many people to receive an education, find a well-paid job and live the American dream”</p> <p>“The U.S. technology companies have complained for a long time that there are not enough qualified U.S. employees to cover the job positions of the sector. Companies such as Alphabet Inc., Facebook, Inc. and Uber Technologies Inc. are struggling to hire software engineers with the proper combination of personality, culture and coding skills”</p> <p>“The Ametix Consulting firm announced that it wished to hire all the future graduates of the French Campus. Software companies such as Dassault Systemes have also expressed interest, according to school representatives”</p>	<p><a href="http://www.elfinanciero.com.mx/tech/millonario-abre-escuela-silicon-valley-es-gratuita.html">www.elfinanciero.com.mx/tech/millonario-abre-escuela-silicon-valley-es-gratuita.html</a></p>
Youngmarketing, 14-Jun-14	École 42, the school for tomorrow's programmers	<p>“École 42 is one of the most ambitious educational experiments which have been implemented to train the next generation of developers, programmers, web designers, software architects, network administrators, among others, promoting essential aspects such as openness to knowledge, passion for the performed tasks and the ambition to achieve great things”</p> <p>“The French school is a revolutionary proposal which not only opens the doors to new teaching methodologies, but is also an investment in the future, where education is high quality and accessible to everyone. Although École 42 is still in the growth and consolidation stage, it will not take long for (...)”</p>	<p><a href="http://www.youngmarketing.co/conozca-la-escuela-mas-innovadora-de-programacion-web-en-el-mundo/">www.youngmarketing.co/conozca-la-escuela-mas-innovadora-de-programacion-web-en-el-mundo/</a></p>
BBC Noticias, 10-Jun-16	What is 42 like, the French technology university which does not have professors	<p>Rafael Reif, the Venezuelan man who directs MIT, the world's most famous technological university</p> <p>Kwame Yamgnane, one of the four founders of 42, explained to BBC Mundo that instead of hiring professors, they apply “peer to peer learning,” which means, learning among colleagues</p> <p>“Several years or decades ago, it was not very easy to access knowledge, professors were needed to convey it to the population,” states Yamgnane</p> <p>“On the other hand, in today's computer science, the knowledge is in internet. It is available for almost nothing,” he comments</p> <p>“A professor would tell you: this is not the case, in a certain way. They are A or B. In 42, there is no one who teaches you the path. One creates his/her own path and innovates,” he explains</p>	<p><a href="http://www.bbc.com/mundo/noticias-36474360">www.bbc.com/mundo/noticias-36474360</a></p>
Forbes, 23-May-16	French Billionaire Opens Free Coding University '42' In Silicon Valley	<p>“The U.S. Bureau of Labor Statistics projects that by 2020, there will be 1.4 million new computer science jobs available, but only 400,000 computer science graduates will have the skills to apply for those jobs”</p>	<p><a href="http://www.forbes.com/sites/jeanbaptiste/2016/05/23/french-billionaire-opens-free-coding-university-42-in-silicon-valley-#6d1aae4648ae">www.forbes.com/sites/jeanbaptiste/2016/05/23/french-billionaire-opens-free-coding-university-42-in-silicon-valley-#6d1aae4648ae</a></p>
Fortune, 17-May-16	Silicon Valley's Newest Campus is a French Non-Profit Coding School	<p>“Gaining entrance into 42 is a bit like 'Hunger Games.' After submitting an application, prospective students, who must be between 18 and 30 years old, are thrown into the piscine (the French word for 'swimming pool') to see if they sink or swim through coding and logic assignments. Only the best of each group of 1,000 will make it into the program, which will begin in November”</p>	<p><a href="http://Fortune.com/2016/08/11/congress-briefed-dnc-hack/">Fortune.com/2016/08/11/congress-briefed-dnc-hack/</a></p>

of reality than reality itself. It is a future world, which will be built and function, to a large degree, from the virtual reality of Internet; hence, the backing for this project from other innovators and high-level executives in the new technologies sector such as Sadirac, Yamgnane, and Bucher, who are primarily the co-founders of École 42, or from the Silicon Valley, the support from Evan Spiegel or David Marcus. Niel's thought has a relation with science fiction; however, it is fitting to remember that the science fiction written a century ago has been surpassed by reality.

At École 42, the practice and construction of knowledge through experience are closely linked to thought, in its most general or theoretical dimension, where we have the security (or more security than in any other previous experience) that at the same time, this educates conduct as a whole; which means it simultaneously trains the attitude towards life and the moral substratum of behavior.

The experience and practice in École 42 are not only a learning method but also a way of life inside the Institution 42, in which the major freedom in the work and learning methods are combined with a broader framework of discipline which encompasses the lifestyle of the students, if they desire to be in this institution. When we observe the physical spaces of École 42, its cleanliness and tidiness are clearly visible and this cleanliness and tidiness is also reflected in the personnel hygiene of the students and in their way of acting in the School. Annexes 1, 2, and 3 display the external appearance of the School, a large work classroom with their respective computers and a recreational area called the Jacuzzi. It shines with the dignity of complete cleanliness, in service of the dedication and concentration in the workplace. A complete philosophy: the mastery of the subject and the order inserted inside it—in this case by means of cleanliness—creating the ideal conditions for thought and learning, or for relaxation.

Annex 4, Regulation 42, explicitly explains the rules of conduct which govern the students' lives in the Institution, among them, no smoking, no drinking, no drugs, the required personal hygiene, the proper use of time, and love for work. It is not a monastery requirement; however; all the freedom which they have or the major part of it must be focused on concentrating their efforts on behalf of learning and training. Annexes 5 and 6, which may appear to have a certain disorder, are explained by the students selection stage called the swimming pool, in which the students have permission to sleep overnight in the School, until, if they are admitted, they can search for another type of accommodation. This explains the room with mattresses in Annex 6 and the towels which fill the stair rail in Annex 5. In principle, students may lodge in the School, during the admission tests, with the aim so that those who have fewer resources do not have to pay for any accommodation. Finally, Annex 7 shows the variety, the different levels and complexity of the projects executed in the School.

The number 42 de École 42 is inspired by *The Hitchhiker's Guide to the Galaxy*. In this book, there is an allegory of the future arising between science fiction and the literature of the absurd, in which the author (Adams 1979) narrates how the super-computer Deep Thought, specifically built for this purpose, attempts to reply to the

ultimate question of life, the universe, and everything, and after seven and a half million years, it states that the answer is 42, adding that the question was poorly formulated, however, it may help to design a more powerful computer, the Earth, which can formulate the correct question.

Consequently, the symbol 42 is the expression of the artificial intelligence sustained by the computer's capacity, and carried to its maximum expression when it attempts to explain the meaning of life and the world. This impossible idea, and with only a metaphorical meaning however, is full of force when it is combined with the persons who manage the computers. United to people as a prolongation of their intelligence and their concerns, computers can effectively raise proper questions and obtain the answers, and more specifically in the new technologies society, they are crucial for technical and social progress. This is the dream of Niel, Sadirac, Yamgnane, and Bucher, the progress of the future world which will benefit and operate from the virtual reality of Internet. Computers in service of technical progress but also and above all, in service to the private and public management of the different human activities, and finally, in the last instance, in service of mankind.

## 7.5 Conclusions

As we have mentioned in the introduction, in this exceptional corporate case, we have aimed to describe and convey to the reader, above all, the spirit—the thought and ambitions—of the founders of École 42, and how this spirit has effectively materialized in the Institution 42. This is a noble, admirable, non-profit, and loyal purpose with the society which it wishes to benefit; and its most outstanding feature, from the social perspective, is the School's determination to accommodate persons from any origin and condition, where this only depends on the admission tests which aim to evaluate their intelligence and commitment. From the technical point of view, the exceptional and unique aspect of this School is its peer-to-peer learning method, in the framework of general projects which guide the technical and intellectual progress of the students and permit them to evaluate their progress.

An example of intelligence, commitment, and moral conduct by its primary developer, Xavier Niel.

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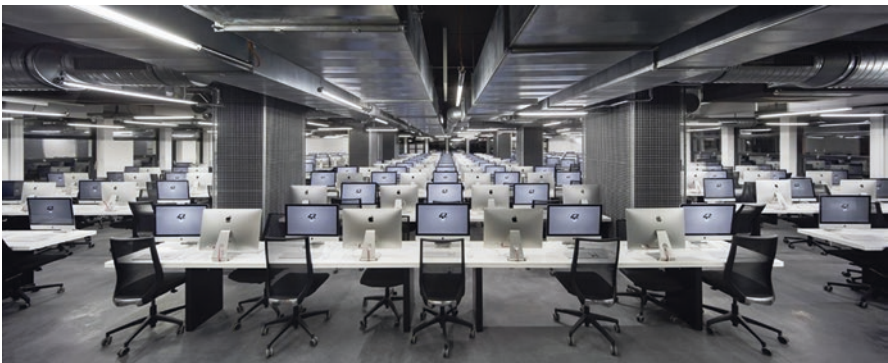
## 7.6 Annexes

### 7.6.1 Annex 1: Ecole 42 Building



Source: Photography by: Michel Denancé. Recovered from: <http://mx.archello.com/en/project/ecole-42>

### 7.6.2 Annex 2: The Classrooms



Source: Photography by: Michel Denancé. Recovered from: <http://mx.archello.com/en/project/ecole-42>



### 7.6.3 Annex 3: Recreational Area/Jacuzzi



Source: Photography by: Michel Denancé. Recovered from: <http://mx.archello.com/en/project/ecole-42>

### 7.6.4 Annex 4: Regulation 42



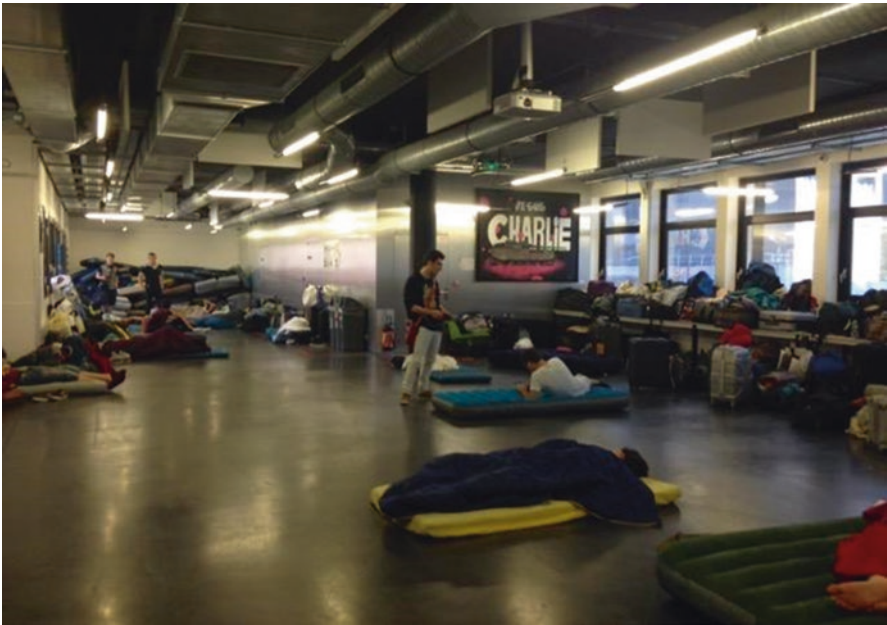
Source: Photography by: Juan Jose Alonso LLera

### 7.6.5 Annex 5: Towels on the Rail



Source: Photography by: Juan Jose Alonso LLera

**7.6.6 Annex 6: Students of the Access Tests, in the Spaces to Relax and Sleep**



*Source: Photography by: Mónica Guzmán Pont*

**7.6.7 Annex 7: Project Tree**



*Source: Photography by: Monica Guzman Pont*

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