

To the attention of Madam Minister of National Education,
Higher Education and Research

TOWARD A LEARNING SOCIETY



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Preface

It may seem bold to call for educational progress on research without being able to produce sufficient evidence to validate this hypothesis. The argument that follows is the result of broad consultation, in-line and face-to-face, and a wide scientific or expert bibliography consultation. They have risen to numerous concordant evidences to address this complexity in a systemic way. These evidences allow us to take the risk to deliver this contribution to the debate, with the usual precautions. Any public policy deserves to be evaluated with requirement, and particularly the possible implementation of our recommendations, in order to continue the effort if the original objectives are met. And, otherwise, to attempt something else if the results prove disappointing.

All learning levels, from early childhood to continuing education have been taken into account, in accordance with the terms of the mission letter. But, having only a few months to explore all these environments, understanding efforts have been focused on what was played in the school and university environment. Our belief is that the perspective proposed here may inspire trends at these different levels and this for two reasons. The first is based on the similarities that exist between all the processes of learning at all ages and the needs of professional development relying on the research of all the actors. The second is the fact that our investigations, even if limited, revealed widely shared hopes and concerns.

We finally wanted to identify principles and courses of action. Sometimes, the first ones call for radical cultural changes. The second ones are often effective in the details of their implementation. In other words, we started with the easiest task: make thoughtful, coherent proposals between them, and that seem to be the best to lead to improvements. The most sensitive is still ahead of us: driving change in real life, the bubbling of the world, the protagonists, concerns and misunderstandings... but we hope that the involvement of the actors will overcome these predictable challenges to move forward collectively.

Of course, we can expect criticism for all proposals put on debate, hoping they will be constructive and will improve the ideas suggested here. We are betting on trust, collective intelligence and shared goodwill so that initiated virtuous mechanisms must be analyzed by us. It is this spirit that presided over the conduct of this mission and which brings us to share what we have learned during its course. We would like to express our gratitude to all those who have enriched our documentation and stimulated our thinking. And our encouragement, to those that these topics are of interest and to whom this report will perhaps be useful, so they in turn offer suggestions and concrete actions, to work, experiment and to build a learning society.

Introduction

THE OBJECTIVES

The Minister's referral letter set the objective of the mission to outline the perspectives for **real research and development (R & D) for life long education**, that is, research and development to improve the quality and efficiency of the educational system and to *"make France a truly learning society. A society where all individuals and collective potentials come true through quality training from early childhood and throughout life"*. Without analyzing in detail the aims of the educational system and its functioning as a whole, to which, in many instances, of the National Assembly to the National Council for the Evaluation of the School System (CNESCO), are already working, the reflection is therefore focused on the levers and the environments that can promote **personal and professional development at all ages**.

In a learning society, every individual must build and share his knowledge and his discoveries with others, documenting his learning, resources, locations and accompaniments required to progress, but also to allow others to be inspired and to improve their practices. *"By promoting within the educational system a logic of trust conducive to the development of educational innovations relying on research; stimulating research to expand our knowledge; developing the dissemination of knowledge for initial and continuing training, **research and development for education** must become a central vector to evolution of the educational system, to prepare our youth and, beyond that, our fellow citizens, for the world of tomorrow"*.

A BROAD CONSENSUS

The mission was able to rely on many works which call for changes of this nature, in particular the report of the National Strategy of Higher Education (StraNES) which already led to *"build a learning society able to evolve constantly, from which each has learned how to learn to improve throughout his professional and citizen life"*.

*"**Innovate higher education of the 21st century** is supposed to move to an active education, integrating the contributions of digital and supported by research, which could benefit from a **major program of research on the learning society**. The transformation of the relationship to knowledge in the digital era means important improvements in the way of teaching: the use of digital must be systematized in the training and evaluation of students. It is also a strengthening of the collaborative activities, promoting work as a team, and contributory, that is offered. All this assumes that the system becomes more agile, and in particular adopts a "yes culture", to encourage experimentation and innovation."*

The mission was also inspired by practices in a number of countries that achieve excellent results in international assessments and are introducing new ways of learning, teaching, and doing research to promote the individual and collective development.

In a world where change is accelerating, it seems essential, everywhere for individuals, organizations and States, to be able to adapt and evolve at all ages. A recent report from *France Stratégie* showed that a significant number of young French suffer from an insufficient mastery of the “generic” skills and are struggling to mobilize from uncertain changes in employment. While most wanted profiles today are for jobs that did not exist a few years ago, and that we are anticipating major new changes of labor, **it is primordial to think of the conditions and transversal skills that will allow organizations and individuals to prepare for these changes, either via initial training or during their career.** The mission noticed a broad consensus on this point, in France and abroad. The United Nations have even made this one of their 17 priorities for sustainable development.

A SYSTEMIC APPROACH

We offer systemic levers to promote **the development of the ability of questioning and reflexivity among all citizens** and all organizations. **Learn to teach**, to question and interpret, rather than naively consume available information, is probably the **major challenge in today's education**. In this perspective, the duty of the teacher, the trainer or educator, goes from ex *cathedra* teacher who transmits content, more or less frozen of knowledge, to that of a guide or a **mentor who guides and accompanies**, with care, kindness and thoroughness, the course of the learner and helps him to improve.

All levels of organization are involved: individuals and collectives, agencies and territories, associations, companies and institutions. The organizations, companies, or even the planet can become learners, develop places and time dedicated to research and improvement of knowledge. All ages are also affected. At each stage, the challenges and principles that underlie the training have similarities: attention, motivation, active participation of the learner, the need of going back on his mistakes, automation... are systematically solicited for a sustainable appropriation of knowledge and development of skills. The same is true of the reflexive feedback, essential to operate recursively on the entire process. It is important to cross experiences, attempts and successes, so they enrich and consolidate each other. The progress of technology and the development of social networks must contribute and amplify this movement.

In addition, these levers will make sense if they are operated in a coordinated manner. The institutional landscape is dense enough to make us give up any idea of creating a new structure in addition to all the others. Encourage dialogue and cooperation between key stakeholders appears the most promising and effective, even if it requires significant changes that are not spontaneous. Despite the urgency, but it will take time to drive change. And this cannot be done without a cultural improvement, already partly at work.

A CULTURE OF TRUST, FREEDOM AND BENEVOLENT MENTORING

To accompany these changes requires to build a culture of trust, freedom in responsibility, benevolent mentoring and cooperation in school. **Therefore, the challenge is more cultural than material and structural**, even if it involves to implement securing and facilitating

technical, ethical and legal frameworks. It is a major change which is to lead. It will overturn a number of habits, and in particular the daily hierarchical organization in the administration, as well as in many companies.

Here, we can go back to the etymology of authority: from the Latin *auctoritas*, “ability to grow”. We then move from a hierarchy that, even if it is enlightened, can be perceived as rigid and imposing constraints on the actors in the field, to a shared vision and an adhesion through the professional development, change accompaniment and the belief by the exchange. The administrative or scientific authority is not more connected to the age or the grade but the ability to convince by proven argumentation. Instead of vertical relationships in a pyramid of decision-makers, we go to networks of actors, some having the opportunity not to be “superiors” but nodal points. These “hubs” interact with many other actors in the knowledge society and can contribute to share ideas and practices, responsibility for the choice and implementation should be those of actors in the academic freedom that characterizes and allows them to adapt the main principles to local characteristics.

This ability to grow is particularly embodied in the figure of Mentor, the wise tutor of Telemachus, which Athena borrowed the features. This culture of trust and freedom is the one of Lights. We put our hopes in consistency with those of Humboldt, who reinvented the university by promoting the freedom to teach, learn and research.

THE DIGITAL, CATALYST FOR DEVELOPMENTS

Digital tools offer new opportunities to intensify the process of co-construction, sharing and dissemination of knowledge, promoting the participation of each - on the condition to understand the logic and the underlying challenges. They can give access to many services and resources to learn, without constraints of time or place. They allow customization and autonomy in learning, facilitate interactions and reflexivity, constructive feedback and the positive and formative methods of assessment.

Furthermore, facing the abundance of data and traces produced by learners, as soon as the activities are recorded, **artificial intelligence opens new opportunities** for collection, observation and analysis that can be put at the service of the improvement of knowledge, quality and monitoring of the learning path. Learners, as their trainers, must be able to have the results of exploiting these digital traces from models that must be built accurately, to monitor their improvement, analyze and understand their mistakes and successes, taking advantage to build answers to their needs, but also **to feed research and development works in education**. However, this availability of educational data poses **many ethical and legal issues** that the mission has opened to the debate, in particular with the CNIL (*National Commission on Informatics and Liberty*), and various partners that were met.

The digital is also potentially promising to new ways of learning that we see emerging and spreading out in classes: both more customized, interactive, fun and more inductive. They are in addition to other methods that have long been proven to be learning from another, or to learn by questioning, experimenting, imitating or doing... How can we know, without research support, what is the best way to combine these different strategies to learn and to teach knowledge in constant improvement? Trial and error, manipulation, the experimental

approach in particular - which makes reflection on error a vector of improvement-, the confrontation of ideas, negotiation and collective problem solving are facilitated by these new environments that teachers and students are increasingly integrating to their practices. These methods give a meaning to learning by making them more concrete and more challenging.

A RESEARCH THAT IS BASED ON DISCIPLINES AND ALL ACTORS

Beyond the possibilities offered by digital technology, it is necessary to develop the research on what means learning and teaching in this changing world, and where there is exponential improvement in technology. This research must be able **to rely on all the disciplines**, not only those which have long been interested in these subjects such as the didactic, psychology, sociology and educational sciences, but also those emerging in information sciences and their applications, “learning analytics”, “e-learning” or “machine learning”. Or even the cognitive sciences and biology, enlightening in particular the influence of the biological rhythms of the nutritional balance, physical activity on learning throughout life.

This research should also incorporate changes in society and in particular the relationship of individuals to knowledge and information, communication and exchange modes.

The approach of personal and professional development continues well beyond the model of magisterial training inherited from the nineteenth century. It is based in particular on more horizontal, collaborative and self-regulating modes of exchange, on benevolent and positive assessment methods. This professional development relying on the research cannot be done without the participation and trust of all actors.

We can cite **the example of participatory research** who in recent years have been able to mobilize more and more actors in many fields. In particular, projects have been developed for children-researchers, research-parents, or expert patients and teachers who question themselves, experience, gain knowledge and methodologies involved in the improvement of the research in collaboration with researchers from the academic world. A participatory science charter has been signed by the research operators and large associations. It presents a framework that can only benefit research on lifelong learning.

The example of health is interesting: the relationship between biomedical research, staff training and public policy contributes to achieve one of the biggest longevity by mobilizing disciplines and all actors, including patients and their families. Medical research is organized over the decades, to be able to deal in a manner responsive to health crises such as Ebola or develop integrated plans against cancer or neurodegenerative diseases.

Here, we notice how, by combining training, research (fundamental and translational) and policy public, and by adopting appropriate budgets, the world of health has placed itself in a dynamic of continuous improvement, evolving according to the needs, ensuring a continued increase in life expectancy for decades. Due to the mobilization of these resources, our health care system, which however could still be improved, is considered by the OMS as one of the best in the world.

MOBILIZE MATERIAL AND HUMAN MEANS TO ADDRESS THE EDUCATIONAL CHALLENGES

While France is concerned about its education, and in particular the difficulty of making its school more inclusive and fairer to social inequalities and disabilities, international comparisons show how other countries have been able to define a sustainable strategy of improvement, mobilize financial and human resources, and organize the collective intelligence of all actors to improve their educational system. Radical changes may occur in less than a decade if we know how to mobilize the actors. They must access research results as freely as possible and be able to question and to invent by themselves individual and collective answers, to the challenges they face.

The refoundation process of the School has renewed the expression of a strategic ambition. Additional means and jobs have been invested in. Moreover, many teachers are trying, at their level, to invent solutions.

Therefore, it is a question of continuing and increasing investments, not only for emergencies, but to drive change, make time to promote exchanges between peers and collective work and facilitate dialogue with researchers or external stakeholders to have a reflexive feedback on the work carried out.

Main proposals

The following is a list of **10 proposals** described in a synthetic way. They do not summarize all of the measures necessary for the expected change of culture, but they represent decisive levers, selected on the following criteria:

Ambition and contribution to the implementation of a learning society

Technical and financial feasibility

Acceptability and appropriation by the different actors

Measures that can individually have a positive impact through leverage as important as possible

Complementarities of measures which, when combined, can contribute to the necessary systemic change.

1. Better rely on research the initial and continuing education of all actors

From the learning society (from their training and after entering the profession), including teachers, senior education advisers, managers, academics and early childhood personnel and vocational training, and encourage the validation of acquired experience. This would encourage them to document their practices, to train continuously and to cooperate in a research approach, by providing for a graduation and certification of this skill having a positive impact on the careers. The implementation of the personal account of activity (CPA) offers a remarkable opportunity to facilitate this process of professional development.

2. Promote the commitment of teams in experiments and their networking

The institution level is often the more structuring, to take the initiative by relying on the collective and evolving the professional cultures. Regulatory authorities should focus on setting out broad objectives and driving change (but not on the details of implementation), on advice and support (but not on the standardization of good practice), on assistance to the emergence and development of networks, and finally on the *ex-post* assessment (by mobilizing research where appropriate). The commitment of an experiment relying on research may authorize to derogate from the regulation, or even to benefit from *ad hoc* support to prototype, document and evaluate new tools.

3. Increase research on education

due to the creation of international chairs associated with masters and doctoral training, or even with university research colleges. The creation, thus the funding of a limited number of reference centers would be a powerful stimulus to change the scale. It will also foster the relationship between researchers of different disciplines and practitioners, fundamental and applied approaches.

4. Develop physical third-places

in all types of training and research institutions or nearby, and in third-periods promoting meetings, exchanges and cooperation between practitioners, carriers and researchers, at different levels, modest or ambitious.

5. Deploy digital third-places

to co-build online questionings, issues, teaching methods, content, publications, digital tools or participatory research in a spirit of sharing and collective production of “common” (under free license, creative commons type).

6. Promote a booklet of learning throughout life

in the form of open portfolios to document and support learning and orientation to all ages, their analysis, sharing and recognition.

7. Promote standards, mechanisms and trust frameworks

facilitating the secure management of educational data, to benefit primarily each individual, but by allowing their circulation and their analysis under conditions, in order to improve the understanding of the learning process.

8. Develop and promote ethical rules

to guide the conduct of educational experimentation, use, and analysis of digital traces.

9. Establish on a voluntary basis educational communities expanded in “territorial alliance”

facilitating cooperation to seek paths for improvement and build **learning territories**.

10. Create a “research alliance” of the learning society

aiming to federate and ensure consistency analysis and contributions from administrations, operators, researchers, practitioners and actors involved.

Intensify the research to improve education

Make education a priority research topic

Biomedical research always played a decisive role in health improvement, from Claude Bernard to Louis Pasteur. It has always enjoyed creating multiple institutions and significant investments, which still make consensus. Other fields, such as energy or environmental, have a similar development model.

Conversely, educational research remains poorly funded and structured in France. Recent works of the Athena Alliance for the social sciences and the Directorate-General for Higher Education helped to identify about one thousand five hundred scientists working in the field of education. A little more than 100 theses would be supported by year. This effort appears twenty to thirty times lower than that granted for the health.

There is no body of research for which learning would be a field of strategic investment, or structure of central administration in charge of driving this type of research works on a scale comparable to other fields. This theme does not appear in the organization chart of the Directorate-General for Research and Innovation (DGRI) or the French National Research Agency (ANR). This is a very paradoxical situation considering that the Ministry of National Education, Higher Education and Research represents the first State budget, that its very object is knowledge, construction and dissemination, and it is in close contact with research laboratories.

A multi-year effort of increase is needed to catch up with the more developed countries

The catch-up compared to other major fields of research, but also compared to the more developed countries in this field, could go through the equivalent of what cancer plans accounted for the challenge of the disease: a multi-year effort of increase. The broad support for the idea that our nation, whose R&D expenditures represent 2.24% of gross domestic product must aim at the rate of 3%, supports this ambition.

It is a needed condition to improve education throughout life and establish the public debate and the political decision on rigorous and documented analyses rather than on subjective opinions.

It is a prerequisite for improving lifelong learning and for public debate and political decision-making on rigorous and documented analyzes rather than on subjective opinions.

Involve several scientific disciplines in the research for education

Education and training challenges are complex and multidimensional, and require to be analyzed from different sights. They are part of a tangle of social relations whose levels go beyond the scope of the classroom (national culture, family and social origin, technological contexts, disciplinary cultures, curriculum logic, school forms, etc.) as far as they are updated in the classroom (relationships between teacher and students, between students themselves, the effects of teaching practices, school organization, instrumented mechanisms, properties of cognitive activities and didactic game systems, etc.). The unique

relationship of the student to the knowledge and academic tasks should also be added. To account for this wholeness is a demanding undertaking that we cannot ask to each research project, but whose systemic perspective must always be present as a structuring tension.

The 70th section of the National Council of Universities devoted to the “educational sciences” is multidisciplinary by construction, already mobilizing human and social sciences and philosophy, but remains too reductive.

Topicality invites to further extend the spectrum, especially towards life sciences, through neuroscience, to applied mathematics and information sciences, through the processing and analysis of the data...

Many works illustrate what the research can bring to education. Nobel Prize in Economics James Heckman has thus established that educational investment was even more effective that it turned out to be early, as soon as early childhood.

Research in cognitive science of Alison Gopnik showed that we are all born researchers, the younger children being able to observe, experiment and review their assumptions based on the results of their experiments, innate abilities that must of course be worked to be developed. Similarly, language learning or reading and the environments or social practices that encourage are today well documented.

While we still produce more digital traces and educational data, their analysis can offer a unique understanding of learning processes at all levels, individual or massive. In particular, improvements of artificial intelligence enunciate the availability of very powerful tools for customization of the teachings.

Similarly, attention to children having disabilities and inventive enlightenment through research of better ways adapted to promote learning often provide the opportunity to progress benefiting as many as possible.

DIVERSIFY THE SEARCH FORMATS AND FUND LARGE-SCALE SURVEYS

The multitude of subjects and approaches calls for a diversification of the formats of research and complementary analyses. Individual and primarily qualitative research, field observation, notebook in hand, retaining their relevance, but are far from covering the entire field of possibilities.

Change of scale means to mobilize much larger budgets and access to methods and instruments today little known to most of the specialists of educational issues. Large-scale surveys, cohort follow-up, massive data analysis, using brain imaging, are all levers that educational research starts to use. They are still too few and rarely funded, lacking in particular adapted national incentive programs.

Involve practitioners widely in educational research programs.

The recurring opposition between fundamental and applied research has been questioned since twenty years by new reflections on the nature of research in contemporary societies, particularly from the work of Michael Gibbons and Helga Nowotny.

SET UP MECHANISMS ENCOURAGING PRACTITIONERS TO GET INVOLVED

Here, we are supporting that scientific knowledges are especially useful to education, that they are thought from the perspective of a practical implementation. The rapprochement is to do with translational health research. We can certainly recreate the intelligibility of a process of learning without intervention on the ground. But a study on phonemes decoding, for example, is really useful if it allows to teach an educational project.

More broadly, **a search is more likely to produce interesting results when it originates a problem or challenge that comes from the field actors**, to who, of course, the time to this commitment must be given. In this type of situation, practitioners - teachers, pedagogical or educational teams with their students, schools or institutions with their staff - not only become involved in research, helping to define and formalize the challenges, but are also involved in its realization through context and experiments.

Students and their families, partners' associations or communities, body of coaching can also be combined in a spirit of participatory science as they are already widely practiced successfully and on a large scale in the field of health or biodiversity.

Producing knowledge in education thus requires a multidisciplinary, contextualized and partnership approach, closely involving all actors of the educational system. This is the reason why, in countries where educational research is most productive, laboratories are relying on places where teachers are trained or where schools, monitored places and educational policies are conducted. If the comparison between medicine and education can have a meaning, it is in **this fundamental relationship between theory, training and practice** for which the Teaching Hospitals (CHU), University Hospital Institutes (IHU) and clinical research centers are, in the medical field, an institutional response.

USING THE TOOL OF CALLS FOR PROJECTS AT ALL TERRITORIAL SCALES AND FOR ALL AGES OF THE LEARNING SOCIETY

Therefore, the hybrid mechanisms should be implemented for encouraging practitioners to be involved in research activities following strict protocols. Among other mechanisms, some calls for project could help build bridges, such as the Carnot Institutes for Education and investment programs for the future e-FRAN and pro-FAN, or still some initiatives of excellence in innovative training (IDEFI)

The Carnot Institutes for Education

The first Carnot Institute for Education was the subject of an experiment in 2016 at the level of the Auvergne-Rhône-Alpes region. It is a structure for exchange, dialogue and the construction of joint projects between the academic world and the world of research, at the service of the students, around teaching practices, and as a result of the inquiries of the teams within institutions. It aims to focus on two aspects: on the one hand, the importance for teachers of a more direct link with the research, and, on the other hand, the need for a larger listening from researchers towards difficulties and questionings encountered in educational practices. A team of “carriers” promotes relations between teachers and researchers.

More than 200 expressions of interest were received from actors of the educational system in the region (around 120), the research laboratories (close to 80) and different structures already organizing links between researchers and teachers.

The Ministry of National Education now encourages the creation of new Carnot institutes in other regions. Since practices will probably differ from one territory to another, or even from one year to the next, sharing experiences and assessments will undoubtedly be necessary to optimize the relationships between the needs on the ground and the specifics of the research, initial training and professional development.

E-Fran and pro-Fan programs

It is the same will to bring together and involve partners in the field around shared projects that inspired calls to e-FRAN project (areas of training, research and digital animation). The initial ambition that can be inspiring was to federate the territorial actors around innovative projects; create (and structure) the territories of experimentation (with monitoring and scientific assessment of the results); think about the conditions of transfer to other institutions to encourage the spread of the uses and good practices; enable field workers to work with teams research laboratories and in order to secure and enhance the initiatives and actions; increase the potential of existing teams and ensure the commitment of new initiatives in an field where the contributions of research are essential; to make available to innovators of the School research results already available; promote experiments to identify and qualify content and innovative methods of teaching and learning.

The pro-FAN program, involving 80 vocational high schools across three branches and deployed in ten academies, benefits from significant investments in the general framework of the “Digital Innovation for Educational Excellence” action. Its ambition, in a context of very-fast changing professions, is to promote and qualify the effects of new contexts of learning and teaching in order to provide the students with new skills to meet the demands of tomorrow’s society. Pro-FAN associates in a common protocol, researchers and field actors affected (teachers, inspectors, heads of institutions, business partners of institutions). A research group, bringing together a dozen French and foreign researchers, is developing and directing the experimental mechanism and is processing the results. Agreements concluded with vocational high schools define the commitments made to ensure the success of the experiment.

It will undoubtedly be necessary to ensure that this approach does not take over time a “descending” form, to better take into account the needs and expectations expressed by the teams on the field.

Provide interfaces between the universe of research and education

Begging the question raises practical issues that cannot be underestimated. Temporalities and priorities of each and other differ. The vocabulary can also be a source of misunderstandings. The alliance of skills requires a translation and an understanding that are not spontaneous.

Although the field wants to benefit from the research, and research needs fields, it is insufficient to match researchers and practitioners to organize the transformation of practices through research, and research is fed by practitioners.

The researchers intend to produce new knowledge. For a university student, it's the original and unique character that makes the value of research, while it may prove marginal for practitioners.

For their part, **practitioners are awaiting answers to their questions** or immediate applications (in the form of training, conferences, teaching tracks or keys to act, guides or tool kits, etc.) which do not necessarily involve the production of new knowledge, but rather their translation or their outreach, which can be seen as a waste of time by researchers.

FACILITATE THE EMERGENCE OF NETWORKS

To remedy this distance, experience of the **Associated Educational Places (LEA) implemented by the French Institute of Education (IFE)** is a particularly inspiring example of synergy of teams of researchers and teachers, despite a lack of resources that limits its impact. Teachers, researchers, inspectors, trainers develop together a network of living labs, where concerns on the field and research questionings get together. These questionings concern both educational policies and recognized research topics, and the emerging educational issues.

This logic can inspire the learning society, supporting the animation of networks, and their departmenting, in particular through publications.

ENCOURAGE THE TRAINING-ACTIONS

Similarly, **certain training, academic or national seminars, summer or fall universities** are key moments, which teachers are fond of, during which practitioners and researchers confront their ideas and invent possible futures; these meetings **can lead to research partnerships**. It is in the upstream preparation of workshops or panel discussions (where teams take contact and rely on networks, beyond the school institution) and in downstream production (production of resources, training course, summary synthesis documents, published on exchanged platforms, etc.) that the main interest of these courses must be seen. These meetings are increasingly more often shaped as “training-actions”, which “challenged” teachers to collectively produce solutions in a limited time (type Hackathon), and create interesting dynamics.

They lead to communities who continue to exchange and share their good practices beyond the time of the event and can give rise to research activities. Provision of tools and spaces for exchange and remote work is a vital lever to develop and improve these trainings. These spaces must be open to external partners (which is rarely the case currently), including industrialists (subject to agreeing on the sharing and exploitation methods and defining a framework of trust).

CREATING COLLABORATIVE SPACES AND "THIRD-PLACES"

An offset from the usual professional places favors the overcoming of misunderstandings and social distances. Schedule an appointment in a classroom or laboratory can stiffen the positions of the teacher or researcher. It is better to frequent "crossroads" that are neither to the one nor the other, but indeed a shared space, at least temporarily.

Practical sense requires thinking about several scales. In or near a school institution, in a micro-territory, can be installed a modest space, in its size and its equipment. We will discuss this further in the fourth section of this report. On a large campus can be deployed a more important and unifying ambition, as a reference center with a broader reach.

PROMOTE MEETINGS VIA DIGITAL PLATFORMS

The idea the third-places can be extended in line, by strengthening the links between learning communities, bringing together teams of remote collaborators, including researchers, and by better integrating institutions. Wikipedia for example illustrates this approach: the open encyclopedia is massively frequented by internet users of all profiles; it is powered by various contributors; it also benefits from the assistance of experts who publish their articles to the highest scientific level. The online encyclopedia contributes in particular to the accessibility and value of research results, but also to the idea of a participatory practice, two ideas developed below.

TRAIN "CARRIERS" TO CREATE MORE LINKS

Facilitate dialogue between researchers and practitioners, networking or even animating physical and digital third-places, requires skills still too little developed as they are a very favorable factor for successful collaborations between research and education. The aim is to bring closer the culture and vocabulary of the two professions, to understand the reciprocal expectations, to help the design and then the implementation of projects that are useful to each stakeholder. Overhanging research from practice could run idle. The expert analysis of a situation without scientific ambition will disappoint the researcher. These carriers can be teachers, inspectors, training engineers, or even researchers, duly trained, from their PhD, to this responsibility.

Support the research experiments

On the scale of the only National Education, the National Library *Expérithèque* lists more than 5,000 innovative projects. Around 50 of them have even won awards, but those are not sufficiently documented, via audiovisual and continuing education for example, to be made available to other teachers who might be inspired to meet their needs. We know that the injunction to innovate has become common today, even if it is experienced by teams as paradoxical, or even to blame in some cases. Studies, such as the recent one from the General Inspectorate or the National Innovation Council for Educational Success (CNIRE) showed how this term can be a trap in many ways: the “innovations” are not always very original, they are often carried out by isolated individuals rather than teams, they are insufficiently documented and are rarely the subject of rigorous assessments which therefore limits the possibility of appropriation by other actors and the scope of the courses that we can learn from. This is why the term of experimentation appears much better to us. To experiment is to invent solutions for concrete problems faced by teachers in their classrooms on a daily basis.

GOING FROM AN ISOLATED EXPERIMENTATION TO A SHARED CULTURE OF INNOVATION

The networking of experiences is to further intensify. *Expérithèque* is limited in terms of features, but also by its scope, limited by construction to primary and secondary teachers. We will support its evolution or its reinvention to a more open model, more horizontal, the ergonomics better thought to promote both the re-appropriation of well documented experiences and networking of all the actors of the learning society.

Moreover, relying on the experiments with research should allow them access to a whole new dimension. Their development and operation must be based on rigorous, reliable and reproducible research protocols, through including the definition of objectives and choice of methodology, implementation of relevant collections of information (records, digital traces, logbook, questionnaires, interviews, various achievements, etc.), and the identification of biases or to prevent deadlocks.

As for the assessment, it must meet rigorous criteria: initially asked questions, observed findings and possible deviations with regard to the initial objectives, sources used, possible limits, unexpected effects, conditions of transferability, etc. To embrace experimentation in research, is to try to transform a culture of innovation, that is isolated, punctual or strictly empirical, always costly in time and effort, a vehicle for sustainable improvement that anyone can benefit from.

Create research contracts between institutions and laboratories

The scale of an institution is particularly fruitful for the experiments. It broadens the margins and impacts, promotes the quality of the documentation on the project and the possibility of a more radiant and more durable action.

Some places of learning are designed as laboratories, inspired by *Laboratory Schools*, the first of which was created by John Dewey in Chicago. We could promote experimental logic of the same type, in an environment allowing to test a number of assumptions and to conduct more specific observations with teachers, to encourage the development of their

own reflexive practices, preventing the risk to experiment within a vacuum by focusing on the dynamics of spin-off.

At the school level, tripartite contracts could also be considered between an institution, its academy and a laboratory, whose funding could be supported by the National Education, after consultation with a Scientific Council. These contracts might involve public or private institutions if experimentation has a dimension proven to be of general interest, and allows it to emerge transferable conditions of improvement of the system. This approach can apply similarly to kindergartens, in their relationship with the municipalities and family allocation funds, to universities in their educational innovations or vocational training who wish to rely on the research.

The aim of the relationship is intended to be simpler and more natural for higher education, but it is imperative to intensify the research effort to meet the needs of institutions involved in educational transformation, in order to document and analyze experiments undertaken.

Develop a participatory science to education

Participatory science refers to the contribution of non-professional researchers to the production of knowledge validated according to the standards of evidence used in scientific communities. If the approach is not new, **digital technology has allowed unprecedented growth and many methods of implementation are observed**: the volunteers can contribute to the data collection, participate in their analysis or even define with the scientists the objects and research protocols.

Many examples illustrate the importance of these efforts, like the serious game *Foldit* appreciated by 250,000 internet users who had fun exploring the protein folding, platform *ebird*, which produced 90 scientific articles, or even *Galaxy zoo* programs, which enabled the classification of 900,000 objects in record time, etc.

Cooperation between researchers and stakeholders has been particularly intense and productive in the field of health. The intervention of expert patients who have been trained in these approaches has not only enabled collection of valuable data, but also the identification of new crucial questions and the implementation of new experiences.

The education field appears particularly conducive to such approaches, combining both trainers and learners. The multiplication of the comments providing some data to analyze as well as the rise of reflexive approaches at all levels can provide some valuable insights on the learning process.

Agree on an ethics of experiments

The research raises important ethical issues. In the system of Aristotle, knowledge takes three forms: *Techné*, *Epistémè* and *Phronésis*. If the first two have given science and technology, the third, ethical action, is not necessarily associated with the first two, due to a lack of education and reflection on the subject in the training. If science and technology are

progressing rapidly, this cannot be done without simultaneously development of an ethical reflection.

CREATE A FORUM FOR DISCUSSION TO DEVELOP AND PROMOTE AN ETHIC OF EXPERIMENTATION

Today, debates are still driven on the tension between academic freedom and the responsibility of the researcher, improvement in knowledge and respect of the participants who are at the basis of this progress, etc. Concern is at its highest as experimentation concerns children, whether in health or at school where they develop their personality and their future. In France, several researches have been struck by the reluctance of families, either because they fear the stigma, or they refuse risk-taking of a new teaching practice, or, on the contrary, they ask to see the immediate benefit, prior to the assessment of its impact.

The parallel with health can again be established. Through consultation and trial and error, a *modus vivendi* could be developed. The shared willingness to advance quality of care has allowed researchers, physicians, patients, families to develop ethics and rules designed as valuable and imperative benchmarks to guide the way forward science by establishing together therapeutic protocols.

The new focus on educational challenges and expressed by the National Consultative Ethics Committee for Health and Life Sciences can provide a useful bridge between the two worlds, so that R&D for education benefits from the rich experience of biomedical research.

In particular, the National Commission on Informatics and Liberty (CNIL), noted the urgent need to define an ethics for the use of educational digital traces and consults in this sense. The Ministry of National Education has in turn defined with industrialists in the sector of digital education the first charter to highlight and respond to these challenges. On the one hand, these data are an exceptional resource for the learner to analyze and to accompany, to an individual scale, collective or massive, the learning process, to identify behaviors and the more common difficulties, most informative approaches, etc. On the other hand, their collection, their capture and their use by a third party can cause one to fear manipulations of all kinds, or the loss of freedom and sovereignty.

A simple principle can be formulated as a first approach: each one should be able to control the digital traces of his activity on a long-term basis. The retrospective analysis that they allow must **always be to the benefit of the learner**, who can decide whether or not to share with others his personal data, in particular in a perspective of research, or general interest.

PARTICIPATE IN THE DEFINITION OF STANDARDS AND NORMS FOR DIGITAL INTEROPERABILITY

As digital educational data accumulates, norms are developed which allow them to be handled and exchanged. France must actively contribute in an international framework, and in particular European, to work to define standards and guidelines for digital interoperability, at the risk of imposing, if there are no such templates and formats likely to slow the sharing and flow of resources.

It should be pointed out that this attention also concerns the models of certification of skills that are currently undergoing a radical change, without always having our citizens to take the place to which they could aspire in the international bodies and networks that have seized this strategic topic.

EXPERIMENT FOR THE COMMON GOOD

Finally, the purpose of the experiments is a subject to discuss. If the community invests in an experiment, it is in the idea that it must ultimately benefit the greatest number. The challenge of the experiments, even if they have more means, is to inspire other experiences and practices, under normal conditions. R&D requires additional means, because trial and error is legitimate and rigorously conducting an assessment has a cost. One can also invest in the design of a prototype (as it is done to test different ways of learning with teachers, parents and students motivated by innovations like for example in New York in the case of *Quest to Learn* to develop educational games), since the idea is to then inspire a wider community of users. On the other hand, public authority may not prioritize investment in experiments that are not potentially appropriable on a large scale. As in medicine, where we conduct clinical trials in several phases, we can consider that after the prototyping phase, a second phase involving more beneficiaries allow for an assessment on a broader basis before being available to the greatest number.

Providing the means for a high ambition

The Organization for Economic Cooperation and Development (OECD) asked several countries on the importance of their investment in research and development for education, which has made possible the publication of monographs devoted to Denmark or Mexico. But no French data is currently built. When the indicator is lacking, it is often that the effort is insufficient.

At the scale of institutions, the same gap already mentioned in research can be observed, but it can be extended to training. The creation of Higher School of Teaching and Education (ESPE) within universities is a very positive decision on the principle, which the full success still requires time and probably a few inflections. They include the intensification of commitment of the universities themselves, such as Columbia or Stanford, Toronto, Québec City or Singapore, who proudly support their faculty of education sciences.

INSTALL, LABEL AND FUND REFERENCE CENTERS

The fundamental or applied research on education is not only too weak, but also too scattered, to favorably influence a systemic change. **The institution with five to ten centers particularly radiant would be a powerful lever for this purpose.** It would be a matter of bringing together multidisciplinary consistent forces, going beyond the human and social sciences, stimulating them by international chairs at the best level, masters and doctorates,

for example in academic research schools preparing succession, demanding training renewing the know-how of practitioners and acculturating them to research...

In order to achieve their full potential, these centers should be crossroads that are widely open to all stakeholders, in the spirit of the third-places already mentioned. They could network childcare centers, schools, institutions, institutes to promote the conduct of experiments relying on research and cooperation, in particular in the spirit of participatory science. Their involvement at different levels of learning would allow us to review the similarities and differences, as well as to explore the challenge of transitions, from early childhood to primary school, from high school to university, or even academic school learning to extracurricular activities, thus the study benefits to be renewed and deepened.

The future investment program represents the best incubator of this perspective, in that it invites to the expressions of interest, avoiding the trap of the downstream control; it involves an international jury to select projects on the basis of criteria that are as objective as possible; it provides foreseeable, contractual and relatively sustainable funding, which provides time for deployment and assessment.

SUPPORT EACH UNIVERSITY SITE TO FIND METHODS AND INTENSITY SUITED TO ITS STRATEGY AND ITS ENVIRONMENT

The multi-scale and systemic reasoning of this report naturally leads to want a commitment more distributed and adapted in each territory. International chairs funding appears the first of the vectors to be recommended, in order to give recognition and renewed impetus to research on education, by simultaneously thinking about the relationship of these chairs with doctoral training, which will be reminded that they are willingly interface matrices with the world of practitioners. Networking and, why not, installation of labschools or the signature of “research contracts” are other attractive arrangements, as well as support for the extension of the Carnot Institutes for Education, which will benefit from being associated with innovative training.

SUPPORT PLATFORMS TO SUPPORT RESEARCH AND ITS APPLICATIONS

We can probably remedy the scattering of research for education through development of structuring mechanisms, around which intelligences will find their way. The report develops some proposals in this regard in its third part. Here, we draw attention to the interest to support initiatives of scientific watch and dissemination of research results.

As shown in the experience of the French Institute for Education, a major contribution to scientific watch, in a multidisciplinary and scattered field such as education, is to highlight the work in an open environment where practitioners are quickly lost, and where a majority of researchers only knows the works that are in “his” paradigm. This activity is all the more useful as it assumes an international dimension, allowing to twist educational systems and to identify in conditions close to the “world as laboratory” which makes changes and continuities between countries. Finally, a watch work wins to rely on an international network of educational professionals associated likely to be one-time contributors (critical re-reading of research or productions, reading notes, etc.).

Professional development at the core of a culture change

Be inspired by the scholarship of teaching and learning (SOTL)

More than ever, in a society of information and knowledge, the ability of each individual to learn and adapt throughout life is a necessity. To improve continuously, organizations must give their members the opportunity to progress individually and collectively. To this end, they must in particular ensure to:

The initial training of professionals;

Accompanying their entrance into the profession;

The implementation of reflexive practices favorable to an improvement and a recognized, ongoing, formal and informal, individual and collective professional development;

The association of the research for this training, including experiments, documentation and assessments, to gain all its benefits.

In this perspective, the approach of the scholarship of teaching and learning, developed since twenty years in university teaching in many countries, deserves to be thought at all levels of the learning society. It invites us to consider the dissemination of knowledge as a major challenge of democracy in the 21st century. The aim is to reflect on the conditions under which learning and teaching become the basis for decision-making on the common ground.

INSPIRE REFLEXIVITY AND RESEARCH TO TEACHERS AND LEARNERS FROM THE YOUNGEST AGE

The SOTL aims to improve the practice of learning and teaching through the reflective questioning, experimentation, assessment or confrontation to the research results. It advocates the application of the scientific approach to educational process at all levels, from early childhood to continuing education. It involves both the teacher and the learner. One as the other are encouraged to mobilize their critical thinking to better analyze their experiences but also their imagination and curiosity to improve their contributions to the learning process.

With this in mind, in order to expand education through research to the youngest, **the Savanturiers project offers research educational projects to students from kindergarten through high school** (general or professional) in the human and exact sciences. Since 2013, more than 15,000 students were introduced to the mechanisms and methods of research that govern the modalities of creation, validation and circulation of knowledge. More than 8,000 teachers have in parallel accompanied in their appropriation of these modalities of education through research.

ENCOURAGE TEACHERS TO BE RESEARCHERS IN THEIR TEACHING

This ambition must be reflected in the career development. Without going into detail here, it is important to anticipate its declination in various regulatory or conventional contexts. The general idea is to encourage, through tangible incentives, a system of trust and cooperation rather than the addition of binding rules. One suggestion, for example, is that periodic professional reviews should highlight personal contributions to the documentation of professional practices, in this spirit of investigation, collaboration and improvement research. The regular holding of personal portfolios would help everyone to develop his reflexivity and prepare to present all of the useful information that could affect the career advancement. The implementation of the agreement on career path, careers and compensation (PPCR) should be able to facilitate these developments.

Extend the reshaping of the initial training of teachers

In agreement with the recommendations recently made by the Rector Daniel Filâtre, but also with training paths observed in several countries known for the quality of their educational system, such as Finland, the perspectives outlined with the creation of the ESPE (*Graduate School of Teaching and Education*) are to be extended, with the double concern of the acquisition of a high level of knowledge and learning of a demanding job.

We propose a scheme over at least eight years, around the competitive examinations, beginning after the baccalaureate and continuing several years after the tenure. From the first years in higher education, pre-professionalization study units can be proposed, to develop its reflexivity as a learner and to test his vocation as a teacher. In order to learn the profession itself, next comes the training, this it is advisable that it takes place on a clinical model, whether extensive and differentiated. It should be noted that teachers in France feel much better prepared for disciplinary skills (in the average of the OECD Member countries) than for teaching techniques, handling the classroom, to the ability to conduct interdisciplinary projects or to cooperate with other actors of the educational system.

Entering into the profession deserves the best attention and this over several years. The accompaniment by experienced teachers, or at least trained to the reflexive approach, is to intensify, by reviewing and improving the tutoring system which is not fully satisfactory in current conditions of implementation in school institutions inadequately prepared for this. Creating digital tools can contribute to the sharing of the difficulties and successes that punctuate the entrance in any professional activity.

Encourage reflective practices at all levels

The Talis 2013 survey (teaching and learning international survey) coordinated by the OECD showed that the profession of teacher in France is carried out essentially on an individual basis, far more than in the other countries studied. Thus, 78% of teachers never observe the work of their colleagues in class, against 45% on average, according to this survey. This isolation increases the psycho-social risks, as other studies have shown explicitly.

PROMOTE COOPERATION AND COMPANIONSHIP BETWEEN PEERS

Transform practices is a challenge of professional culture. The enrichment of the initial training lays the foundation for: giving this taste of observation, the sharing and analysis of practices and explaining its interest is desirable even before passing the competitive examinations. Several levers are to mobilize, in the spirit of the third-places already mentioned, such as:

Facilitation of exchanges and the development of collective projects within the institution, by planning time slots and appropriate places. In Confucian Asia, many primary and secondary institutions host “research groups on education” gathering few teachers to work together, innovate, create new modules, assess their impact by transversal regards (lesson studies) and, if so, publish in journals.

The availability of digital platforms enabling the capitalization of experiences, going well beyond that, and in a more open, cooperative and horizontal mind, that the tools currently deployed.

Moreover, self-assessment of actors throughout their careers must be encouraged, so that they can shape and keep track of their discoveries, successes and difficulties, and progressively develop a reflective look on their profession. The availability of a digital portfolio (which must be private, anonymous or shared publicly according to the wishes of each) would be a good tool.

DEVELOPING THE ROLE OF THE INSPECTORS TO A BENEVOLENT AND STIMULATING MENTORING

This certainly requires to change the practice of the inspection body, which also requires training and increasing the awareness to new challenges so that they promote these approaches, during career appointments, but especially in their action of support and advice to teachers. With the concern to take literally the primary meaning of their mission which is to “*in-spectare*”, in other words “look into it” to highlight what is happening and help to analyze it. This observation could be complemented by a “re-spectare” (“looking back”, which involves respect), a pro-spectare (“looking ahead” whence the word prospective), or even a “cum-spectare”, “looking together” (for a vision that the Greeks would call “synoptic”) to help think about the different dimensions of an educational situation and suggest improvements that everyone can understand the interest, and which will therefore be more easily sustainable. The inspector’s look allows both the time to enrich his own expert knowledge on the “field”, which is valuable when he brings his expertise to decision-makers, and to animate and encourage networking and exchanges of practices between teachers.

The combination of this mission with other types of actions, assessment, or even career management... could overshadow **the primary meaning of their work, which should contribute to facilitate the reflexivity and the transfer of practices and organize interaction between teachers**. It can still be seen today: it is not natural for a teacher to confess his difficulties or to seek advice from one, who may or may not, accelerate his career.

It is the **spirit of companionship and benevolent mentoring** that must make it possible to move from a logic of control to a logic of trust, from a mode of vertical relationship to a mode of horizontal and networked inspiration, as it has been observed in a number of countries with performing educational systems. In other words, it would be an accompaniment without judgment or punishment, intended as a support for professional development, which aims to encourage, reassure and help to improve. Encourage innovation goes through encouragement of risk taking and reasoned acceptance of the error, rather than by the normative prescription and control of implementing official instructions.

Bet on continuing professional development

Professional development is a logical continuation of the reflexive approaches promoted earlier. The following excerpt, from the 2013 occupational reference illustrates perfectly this topic: *“these skills are acquired and increased during a continuous process beginning in the initial training and continuing throughout their career through the accumulated professional experience and the contribution of continuing education”*.

However, in France, the continuous education of teachers is affected by several shortcomings.

International comparisons first reflect its quantitative insufficiency and its descending character. In France, teachers are less likely to participate in continuing education and for shorter periods. We are far from the hundreds of annual hours observed in Singapore, under very different and less administered modalities than in our country.

The relationship of the levels also raises questions, between the national training plan, academic or departmental plans, or even training of local initiative. Behind this overlap of mechanisms appears a tangle of poorly identified objectives. We tend to confuse support for the implementation of reforms with the professional development itself.

However, without discussing the need to support the achievement of departmental priorities, care should be taken to avoid that it does not substitute for mechanisms of continuous strengthening of the skills of educational staff, whether or not they are teachers.

GIVE THE INITIATIVE TO THE INSTITUTION TEAMS TO BUILD TRAINING THAT BEST MEETS THEIR NEEDS

The current courses are still too often intended to a top-down model, delivering an institutional word, less and less adapted to the needs in training of teachers, and especially in growing gap with new methods which develop due to digital environments.

Imagine conversely to the staff gathered in their high school, middle school or school to reflect on their professional development and develop together their continuing education. Imagine that they discuss together of the most relevant training to overcome a common problem, carry out a project, improve their practice. Imagine that they have a budget to bring a researcher, travel to participate in a conference or academic day or set up an internship.

This inversion is all the more desirable since the change often comes up against the representations of teachers. To evolve, to drive change, the most effective way is probably not the authority discourse or even conviction. Only the action allows to launch dynamics of evolution in a secure setting. Changes initially perceived as disruptive and worrisome appear in a whole new light, when it is the colleagues who carry them, through shared practices, and as soon as this change is supported.

By granting to each institution or school network a budget to set up its own program of continuing education, we can imagine **making professional development a collective challenge** that gives back the initiative to the teams in the institutions, in the prospect of distributed leadership.

To supplement or enrich the one-to-one courses, production and dissemination of online courses, on cooperative formats (C-Mooc), or even opening on open research questions (MOOR for massive online open research) seems particularly relevant.

MAKE FULL USE OF THE IMPLEMENTATION OF THE PERSONAL ACTIVITY ACCOUNT

The opening of the personal activity account for officials is a major opportunity to change the paradigm. The expression of the need for training must be able to return to each. If it is trite to observe that voluntary commitment in a training process is more fruitful than mandatory registration in an activity imposed by the hierarchy, our system does not always know how to draw the consequences for organizing it.

Support the continuing education in research

The participation in a scientific approach represents an exceptional lever for professional development, insofar as it can transform fundamentally the approach of its job. It may be added that it can make the science stakes more accessible and familiar, whether it be the results of research on education or, more generally, of capturing the conditions for the production of knowledge.

Therefore, it is not necessarily to create new ways, but to make possible the mobilization of the means and resources of the continuing education for the benefit of the commitment of teachers in research projects.

EVOLVE PROFESSIONAL CERTIFICATES OF NATIONAL EDUCATION TO ENHANCE COMMITMENT IN RESEARCH

Two professional certificates of master trainers and academic trainers could be reviewed in this sense to explicitly integrate the interest to certify “provisions for research”, for example by presenting a thesis among their works, showing some familiarity with the scientific approach.

In addition, and ideally related, universities could be invited to provide training through research on educational topics, for example through “practices and engineering training” masters (PIF) offered by the ESPE or others, Edtech type, and even on the model of

“technological research diplomas”, created some twenty years ago to certify the commitment of engineers in an applied research project.

Holders of these certificates or diplomas could be a breeding ground for “carriers” promoting reconciliation between the worlds of practitioners and researchers. However, this breeding ground should not be restrictive: all must retain the ability to contribute to these efforts.

Mobilize educational coaching

What applies to the staff in charge of education also applies to their work environment? Coaching and support staff in particular interact with teachers and are naturally associated with this reflective approach. If the objects of reflexivity differ depending on the specific responsibilities of each, the same spirit can prevail at all levels, humble because we can always improve, be ambitious, because one attaches oneself rigorously.

DEVELOP THE STATUS OF THE ESENE SR

Acculturation will proceed firstly by the initial and continuing education. This is what the Higher School of National Education, Higher Education and Research (ESENE SR) is currently pursuing, which gives traditional frontal education and promotes questioning and debate as an educational method adapted to its mission.

However, the institutional status of the ESENE SR seems to be a critical impediment to the realization of its project. Its direct connection to the central administration is contrary to the general orientation of granting more autonomy and responsibilities to the educational and scientific teams. It slows down the negotiation of partnerships with higher education institutions and complicates the commitment of joint projects, including with other public service schools, all of which have legal personality. Its creation as an institution of higher education would offer it valuable leeway.

BETTER TRAIN EDUCATION MANAGERS TO CHANGE MANAGEMENT AND THE CO-CONSTRUCTION WITH TEAMS

With regard to heads of institutions or management staff, promoting an approach by questioning and collaboration turns out particularly promising to consolidate their skills in terms of leading teams, leadership and managing change, and to encourage them to build with the whole educational community, students and parents included. Despite the difficulties, due to the influence of the habits and the strength of resistance related to the complexity of the system, this approach by the conduct of change rather than the injunction appears as the only realistic and promising way of transformation.

Regarding the inspection staff, it will highlight the key role of the staff in charge of the Research and Development Academy for Innovation and Experimentation (Cardie). Usually placed under the responsibility of a regional educational inspector, these cells are intended

to support and stimulate teams and teachers who are experimenting with responses to issues on the ground. Their mission of support for innovations, documentation and spin-offs deserves to be better supported and accompanied by the entire body of inspection, and even inspire their practices, whether they are inspectors of the first or second degree. Moreover, many meetings in the academies during the mission have shown that this development is already underway.

In a report on “The use of experimentation by institutions authorized by article L. 401.1 of the Code of Education” dated from the 2012-2013 school year, the general inspection insisted on the major role that will bear the inspection - and coaching in general - in the process of development and the dissemination of innovation. *“A benevolent approach to managers is essential to allow the transition from personal initiative to a more professional form of experimentation: taking a step back and analyzing achievements, defining conditions for generalization, etc. It should not be intended as an additional constraint, but as a facilitator, an accelerator of change (...). It is therefore necessary to create favorable conditions for germination and fertilization of experiences.”*

GUIDING THE ASSESSMENT ON A SHARED ANALYSIS

The report already noted the importance of a benevolent coaching in the success of many innovative initiatives. Encourage experiments, evaluate them constructively and facilitate the dissemination of the results, are essential factors of success in the innovation process. *“The places where the teams were most appropriate for the innovation-experimentation processes were those where the actors were able to be stakeholder in the assessment, defining their own objectives and criteria and adapting their current project underway. In this regard, the trust of academic authorities in the teams appears as a condition of success.”*

Inspectors then advocated that the assessment should start from the upstream, with a diagnosis made by the team itself and a clarification of the objectives. The validation and continuation of experimental projects should not appear as an arbitrary process but rely on a shared analysis.

Take academic activities seriously

It is customary to say that teachers-researchers take on the one hand a “load” of teaching, on the other hand research activities. The asymmetry of the terms translates a profession where careers are built mainly on the basis of the influence of scientific publications. The intensification of the international competitiveness in the last twenty years seems to have strengthened this imbalance. Research on the university and practices of SoTL which develop - but still far too modestly in France compared to our French-speaking neighbors - nevertheless give some signs of a reversal, as if teaching quality was trying to assert itself as the new decisive challenge of academic reputations, fourteen years after the first ranking published by the University of Jia Tong in Shanghai. We will greet the work led by the Directorate-General for Higher Education (DGESIP) to review the repository of the profession of teachers-researchers, taking into account the diversity of their missions.

- **ACCOMPANYING THE ENTRY INTO THE PROFESSION OF ACADEMICS**

The educational quality of candidates in the lecturer body is not yet a major criterion for their selection. The doctoral degree validates the outcome of a research. Qualification, as it is practiced, can at least take into account the presence or not of teaching experience, but not evaluate the quality. The Selection Committee will more or less accurately assess the candidate's ability to satisfy the need for education mentioned in the job description, but again, more through the analysis of the scientific field of competence than paying attention to the educational commitment.

University students take their position with a minimum academic preparation, in any case rarely assessed. During their first years of career and as they are eager to drive the most ambitious research projects possible, they have to implement teachings without always having the support of their colleagues or from an accompaniment.

Fortunately, the situation is changing in the right direction. Many universities have in recent years planned service reductions, to help with the entry into the profession. This provision has become routine as part of a recent review of the Decree for teachers-researchers. Higher education institutions should be encouraged to implement this orientation.

As mentioned above, teaching and research can be combined both in the spirit of the SoTL and training projects by research or participatory science. Introducing young researchers to these opportunities can contribute to their professional development and their commitment to new teaching and research practices, maximizing the synergies between the two.

CREATE TEACHING DISCOVERY PATHS FROM THE BACHELOR'S DEGREE

Some universities have had the excellent idea to offer courses of teaching discovery from the bachelor's degree. Just as initiation to research can be offered at an early stage, teaching preparedness for all types of audiences can start quickly and intensify as a vocation asserts itself. Like most future trainers, teachers and teachers-researchers are trained by the university, these practices can create virtuous circles, today's students trained on innovative ways, where they are invited to question and to be actors, having a high potential to become a reflective teacher and relying on research.

RECOGNIZE EDUCATIONAL EXCELLENCE IN THE CAREER DEVELOPMENT

Several ways of progress are possible, in the idea that a University Professor must be able to conduct research, as he must prove his teaching skills. The more modest option would enrich the current "empowerment to supervise research" a demanding component on training. This would naturally agree with the "career development", which profitably leads researchers to take stock of their professional activities. The aim is to ensure that standard grids are equivalent in terms of research and teaching, and also promote a qualitative and

reflexive description, when the ease would be to stick with an administrative summary describing dryly the guaranteed teachings.

We must welcome the same recent revision of the statutory Decree for teachers-researchers already mentioned, which provides open access for lecturers at an exceptional level, as a matter of priority, for investment in their teaching mission. It should be noted that sometimes, even in the most prestigious universities, that a teacher becomes “full professor” on the basis of his commitment in education.

Career advancements are not the only challenge. Just as there is with the University Institute of France and hosting delegations in research organizations, arrangements to free up time to invest more in research, would be desirable to encourage curiosity and educational deepening. One can imagine some semesters in national or international mobility, which would even be less expensive - and therefore more realistic - that exchanges could be organized.

GENERALIZING ACADEMIC SUPPORT SERVICES

As indicated in the Bertrand report of 2014, tutoring activities, methodological support, production of digital resources or remote intervention, essential for an educational alternative to the “transmissive model”, are not sufficiently recognized in the calculation of the workload of teachers-researchers, despite the national repository of hourly equivalence defined in the Decree of July 31, 2009.

Notwithstanding certain measures have emerged to promote educational support. Several centers or support missions to education have been created within French universities in recent years, not to mention initiatives, sometimes bold and challenging of many graduate schools. These mechanisms often offer both training and services that help to improve teaching. It is hardly possible to imagine the isolation of teachers, regardless of their status, who deliver a course with limited means, without natural possibility of taking advantage of their peers to improve their practices, or easy access to the remarkable resources, in particular digital resources that allow an important renewal of the ways of learning.

Mobilize the same levers for the benefit of early childhood professionals

Mutatis mutandis, the same ambitions and same levers can be applied at other levels of learning, that our mission has allowed us to start approaching.

The professions responsible for early childhood are in our country insufficiently considered. While school teachers held both the University and the Republic, caregivers, almost all female, were considered to be surrogate mothers, without special expertise. To this day, school teachers are being asked a master to pass the competitive examination, while it is requested a certificate of vocational aptitude (CAP) to those of male gender and especially to those of female gender who choose as a profession to take care of newborn children.

Research has yet shown what was played, in the long term, during the first three years: training the brain, solid foundation to master the language, the interest for reading, etc. Significant inequalities arise quickly, according to the social and cultural origin and practical ways of learning. Other countries know better how to support families to make them understand the importance of these crucial years.

The same challenges of professional development supported by research appear to be conducive to advancing early childhood caregivers, enabling them to contribute to the production and sharing new experiences and knowledge, especially with parents. Coupled with the intensification of research and experimentation process, these levers can promote continuous improvement of reception facilities whose quality is already recognized and whose decisive importance must be recognized.

Extend this ambition to continuing education

Many of our recommendations on the learning society also apply to public and private organizations, associations and companies, which are also updating their knowledge and review their behavior to adapt to a fast changing world. The changes they face are faster and more disorganized than in the past for their employees. The issue of sustainable employability of employees in particular, becomes a matter of major concern for the Human Resources department, on par with their ability to mobilize talent immediately operational. The main challenge for the employee is to understand the interest to continue learning by himself, or in co-construction with his employer, throughout his professional life, and for the organization, to value these new skills through career opportunities that it must create within itself.

Anything that promotes immediate and simple access to a quality training should be encouraged and valued, and skills acquired regularly and easily “penalized” by *a posteriori* recognition. It may also be suggested, for example, that the content offered by solicited training organizations should be assessed in a transparent way by both the employees who have completed the training and the employers who proposed to their collaborators, in the same way as *TripAdvisor*. Created in early 2017 and still emerging, the personal account of activity for each citizen represents a major step forward.

An increasing number of employers want to set up learning and agile organizations based on teaching methods promoting the learning by doing (learning-by-doing and “training in the workplace”). They want this learning to happen, in due course, through certifications for their employees. These attitudes are to be encouraged.

The Law of March 5, 2014 emphasized the requirement of quality to which the continuing education actors should undertake. We advocate an additional step to develop, within the world of work, the concept of continuous improvement through reflexivity and research.

A digital ecosystem to learn, grow and share

Learning to teach, in full awareness, in a changing world

BE AWARE OF THE CHALLENGES, POTENTIALITIES AND RISKS OF THE DIGITAL

Digital is defined both as a changing societal and cultural environment, whereby everyone must be able to adapt in order to progress, **and as a set of potentially facilitating tools for professional and personal development at all ages** - as long as we master the logic, mechanisms and challenges. It gives access to ever more services and resources, without constraints of time or place. It is also the carrier of new ways of learning that we see gradually spreading in classes: both more interactive, fun and more inductive. It promotes customization and autonomy in learning, facilitates constructive feedback, positive and instructive and assessment methods. Trial and error, the experimental approach in particular - which makes the reflection on error a vector of progress, the confrontation of ideas, negotiation and collective problem solving are facilitated by these environments that teachers and learners integrate more and more to their practices.

Moreover, **the new possibilities of collection, processing and data analysis could be placed at the service of learners** and teachers so that they have a clear vision of their progress, analyze and understand their mistakes and successes, taking advantage to construct answers to their needs, but also to feed research and development in education.

However, this processing of educational data poses **many legal and ethical issues**: Who may benefit from it? What are useful and relevant data for education and research? How to make them available in the interest of learners while protecting them from any form of commercial predation or stigmatizing? In other words, how to combine an approach of open data and a secure process? All these questions could themselves give rise to research works.

BUILD A CULTURE OF TRUST AND RESPONSIBILITY

Accompany these changes requires, at all levels, to build a culture of trust and responsibility. Know how to document, read, appropriate and criticize the information; know how to manage its digital identity and profile, protect and expose its data and organize its work spaces; know how to respect a certain number of rules for sharing and exchanging, to work, and especially to publish online, collaborate with his peers, etc. are all approaches and behaviors that are learned from the school and require to be clarified and accompanied. The challenge is both cultural and material, even if it involves that technical and legal frameworks both comforting and facilitating are also implemented.

Therefore, the digital is not a spontaneous tool of emancipation and progress for individuals. It can keep its promises only if learning basis, which we just talked about - and especially that of the reflexivity - are acquired, and if the culture, codes and the social environment allowing them to be developed are present, in order to avoid the risks of manipulation and emphasis of the social divide. It is a **crucial educational challenge and training in digital citizenship**. We were not born to be comfortable with the digital nor to conduct professional scientific approaches; this can be learned, but we are naturally gifted to learn.

Build courses of learning throughout life

CREATE A UNIQUE IDENTIFIER FROM EARLY CHILDHOOD TO CONTINUING EDUCATION

Each of us has a tax identification, another one to manage its social security account, but there is not yet the equivalent for learning, which would materialize the idea of lifelong learning.

The base could be the national identifier of students which is being extended from school to higher education. It would ensure the uniqueness of each personal file, facilitating the safe creation of a portfolio of experiences, knowledge and skills throughout its life and potential “portability” from one platform to another. We will promote France connect approach, which is of complementary utility and which, thanks to the commitment of the Ministry in charge of Higher Education, could be soon linked to the Post-Baccalaureate Admission process (APB).

DEVELOP INTEROPERABILITY BETWEEN PLATFORMS TO ENSURE THE CONTINUITY OF LEARNING PATHS

Several mechanisms were already in place in school or higher education, and then in the professional life. While the digital school report focuses solely on assessments of academic skills, Onisep has for example developed the *Folios* application, which should allow each student to record and value his experiences and productions in a logical way, to integrate his extracurricular learning and, ideally, informal, and potentially to have them assessed or recognized. This type of portfolio can be enriched over time and opens up endless possibilities of sharing and reflective feed-backs as stretched-out mirrors on his own improvement. Many universities have resorted to other software, often free, such as Karuta, which can be tailored to the needs.

Private services such as Linkedin or Degreed also offer other means of recording information about the background and skills.

For their part, training and personal activity accounts are gradually implemented from the social registration, unconnected with the school system, which creates unresolved breaking effect not yet resolved.

Implementation of a unique identifier throughout life would facilitate the continuous compilation and appropriation of useful information to be retained, with the possibility to pass from one platform to another at any time during the school then professional career, and beyond the borders. It will thus go from a logic centered on institutions (the school, work) to a **distributed logic, but for the benefit of the learner, taking into account the interest for each person to master on a sustainable basis his own digital traces and to choose himself what he shares, in which framework to use, and with whom.**

This also implies encouraging the development of interoperable platforms, or in any case linking data providers with service providers whose learner would be the conductor (deciding himself which data he wants to publish). The topic of rules and standards has already been mentioned. It goes together with the question of how these relationships can be foreseen between digital services, which are inevitably plural and heterogeneous, in order to facilitate the individual mastery of his portfolio, and allow everyone to use any particular mechanism, whether public and institutional, or private and commercial.

THINK IN TERMS OF CERTIFICATION OF SKILLS

These developments raise the question of the recognition and certification of alleged skills acquired and recorded in its portfolio. In practice, the school system and instituted professional training have rigorous assessment procedures. But the question arises very quickly to know, on the one hand, who can be the guarantor of the validity of what each will want to claim as experiences and knowledge; on the other hand, how to certify the level of skills acquired in an informal way? Technical or social solutions are still lacking, but it should be noted the increasing share of the validation by the peers, as shown, for example, the attention paid by recruiters of large IT companies with reputations built on collaborative programming platforms, sometimes making it a more decisive criterion than the degree obtained at the end of initial training.

It should be noted also the interest of the PIX project, proposed by the MENESR, for the assessment and certification of digital skills, and which fits since its launch in an agile and dynamic way, given that the time of validity of said skills is limited and that it will be necessary to update them regularly.

Promote the collaborative production of teaching resources

The hegemony of the textbook, as it was known in the 20th century, seems to come to an end. This beautiful object which accompanied generations for decades, has reached the limits of its support, closed and virtually indifferent to the variety of profiles of learners. The digital offers the opposite of the unlimited possibilities of scalability and adaptation.

The Ministry of National Education has made contract with several consortia of publishers, to provide “digital educational resources” complementary of textbooks used by schools and colleges. At least four difficulties are resolved in relation to this approach: access rights, paid in advance by the Ministry to the benefit of students and teachers; the ad-hoc reuse of well-designed resources as part of a didactic sequence; data protection of students; description and indexing of resources, allowing each user to more easily navigate this complex universe of resources and information.

It is possible to go even further to the collaborative creation of content. These include the example of the Github platform, which is a community-building tool little-known outside the world of geeks. Yet it plays a decisive role in the development of digital services that are heavily used. Thirty-five million of projects are hosted there. No other platform has more lines of code, of which some are registered as private, but many are free of copyright and access. The result is that this shared code serves the global community of programmers, who work together to improve them, make the variants best-suited to an end or a given environment, etc.

The world of education and training is acculturating, very quietly, in this type of approach, but it has yet to develop it on a large scale. Many teachers and trainers already form communities, most of the time disciplinary and isolated, who publish online and pool teaching resources of which they are authors. More and more often students themselves produce digital capsules, or various contents which they exchange on classroom blogs.

ENCOURAGE THE POOLING AND NETWORKING OF PRODUCTION

The issue of storage and dissemination of such content, which contain more and more videos, is one of the major problems facing actors in the field. The need arises for a platform hosting sequences and learning activities offered by teachers in open source. The Directorate for Digital Education (DNE) certainly collects and publishes Edubases, produced by teachers in all the academies, but their presentation remains austere and it is necessary to develop it towards a more user-friendly ergonomics and enrichment opportunities allowing for more sustained, open and stimulating exchanges, or even a networked system of comments and annotations.

CARTOUN: a participatory mapping service

Developed by the Academy of Rennes, CARTOUN aims to promote the sharing of teaching practices, experience feedback and dynamics of proximity to each teacher to make available to the community geo-localized learning activities. It is possible:

- to consult the activities published to spot an interesting activity close to home or elsewhere, and to seek contacts in order to exchange on these practices;
- to integrate an activity into its practice or to be inspired, to enrich it by its own experience and to become a contact in turn;
- to publish the description of a learning activity that we want to share. Then you become a contact for this activity, and we can collaborate with colleagues interested in this experience.

As far as the higher level is concerned, we should mention the existence of eight thematic digital universities, for their production and their accompaniment to the use of teaching resources.

What is valid for the content is as much for the description of steps and teaching strategies: how to start learning a language in a multicultural class; how to help an autistic child in a regular class; how to place learners in a process of philosophical questioning... Faced with these complex problems, teachers are too often isolated and destitute. Each is creating his own recipe, but the teachers' room, intermittent dialogue with the inspector, research for scientific information, etc. do not provide enough support to build confidence and help progress.

The French Institute for Education has launched the *Néop@ss* service for schools - at the stage of prototype - *Néop@ss Sup* for higher education, which is part of the perspective of a response to these concerns.

Similarly, the *Réseau Canopé* undertook an impressive move for updating not only its editorial offer but also its approach to better take into account the needs of users. A persistent obstacle remains the burden of educational organization and representations that it was in fact, discouraging some teachers who prefer to use private services than those offered by the institution. This is how the online social network ViaEduc has not yet met the hoped-for success. But the experience gained and the inflection of its direction could bring *Canopé* to open to all actors of the learning society, more broadly than to school practitioners alone.

We can consider that the reflexive description of a teaching practice is related to the conduct of scientific projects. A thin coordination is expected between the articles of one type and of another. **It would be useful to facilitate the production and consultation of these different types of documents (in French or other languages) from a common, international portal which should also identify links to these publications** as can do Pubmed for medicine.

It is important to foster the emergence of a referencing and curation system of resources pointing to their original ecosystem, which can also be lucrative for resources created by publishers. Several curation tools of this type are emerging: general (like Pearltrees), or specifically for scientific articles. These very promising approaches nevertheless raised the problem of the description modes and annotation of resources, to facilitate their identification and their mobilization. Training in these practices will need to be supported. Myriade information portal, which is being developed by the Ministry of Education and *Réseau Canopé*, designed to present and facilitate the search for digital resources for education, wants to go in that direction.

Develop a platform for question-and-answer for educational practitioners

Community tools of computer scientists bring a source of inspiration. The *Stackoverflow* web platform has emerged as an extraordinarily relevant tool of classification, identification and access to knowledge.

This question-and-answer platform is not a forum. We don't talk on it. We don't go back on already formulated questions. Contributions are devoid of salutations and superfluous comments which make the charm of the conversations. The editorial policy of *Stackoverflow*, led by convinced and committed internet users, is to go directly at the core of the inquiry, and to formulate specific answers. Nothing more.

Such a service could be valuable if we were able to adapt it to the world of learning and translate it into French - while declinations exist for mathematics, physics, philosophy, but usually in English. The advantage of this kind of platform is that the collective can contribute to assess the question, which gives many indications as to what are the real needs for the most shared training and research.

Obviously, there are many resources already online. A platform like the one offered here could facilitate access to those who are best recognized by the educational community, provided that it is based on an editorial charter as demanding as that experienced by

Stackoverflow. An interactive digital device could usefully guide internet users in the arborescence of the significant number of frequently asked questions.

In particular, this platform could **facilitate access to the most robust scientific results and thus access remains difficult today**. It would be not only to edit links to scientific articles, but also to encourage the writing of brief answers, rephrasing the findings from the asked questions, in order to introduce the scientific resources in terms accessible to non-specialists. And if a question is of interest to many practitioners but it is not yet informed by scientific results, then it can be taken as a priority challenge for research, in a collaborative way of defining the objects of study.

The success of such a device would undoubtedly be facilitated by its management by an operator, away from central administration and decentralized services of the State, to foster the community dynamism and to offer it to all actors of the learning society.

Also noteworthy are the limitations of normative devices based on best practices in education, such as “What Works?”, which would be probably badly welcome in France and which, moreover, have not systematically proved their effectiveness in the countries where they were initiated.

Cooperate at all levels to learn better

In the context of the digital conversion of the School, it becomes necessary to rebuild links between institutions, places of knowledge transmission, and places of production where knowledge is produced, namely laboratories, universities, research and development departments, as well as all places of scientific innovation.

A change of era in action

The French model is known for its statutory or corporatist tropism. Our right is positive and explicit. Stakeholders have positions and skills distinct and often hierarchical.

The National Education, at least as much as the other institutions of the learning society, is enacted on this model which, in today's context, can lead to rigidities and slow down the dynamics of cooperation. The description of a centralized administration that foresees and distributes instructions to the education authorities who themselves run their implementation, and to teachers who apply them playing only the enclosed space of the classroom to create space for leeway is not completely grotesque. This image is the reflection of an **over-administered organization** (an essayist recently counted the release of 225 circulars per year on average) **but under-supervised** (4% educational staff against an average rate of 15%).

Similarly, the academic world is very little open to external partners, including families, and territorial actors. Starting from the figure of the black hussars who ensured the establishment of the Republic and the Nation by pulling the children away from the archaism of provincial and clerical cultures, the idea of the school was developed as a secular sanctuary.

BREAKING DOWN THE BARRIERS

Both of these developments have a historical legitimacy. An institutional regulatory framework must be found. The development of mandatory public school has contributed exceptionally to the development of French society. But they need to be updated in the idea of a society of trust and cooperation which is much abler to allow us to meet the challenges of our time.

Finally, the French school form has introduced in our culture a conception of the student that is out of step with the global nature of the child or teenager. To a large extent, school operation and rules aim at an abstract student, defined solely by his cognitive activities, cut off from his social and cultural environment. This abstraction is increasing a number of problems as soon as issues such as citizenship or all forms of education in social life are addressed. The school, which is compartmentalized, seems less and less able to meet challenges such as cultural and social diversity, hospitality and success for all, or the integration of digital technology and the many societal transformations it entails.

PROMOTE INCLUSIVE AND PROJECT-BASED APPROACHES

Building a learning society, is to promote an inclusive approach at all levels, where everyone contributes to its level to facilitate the learning of others. **A society where each with its characteristics can find its place and play its role**, without refusing the complexity and the dissensus, and where new collaboration links are constantly developed that span or drop barriers. The term “partnership” came in the dictionary just thirty years ago. “Governance”, understood as a system of social regulation, including all stakeholders, took its modern meaning even more recently. These semantic innovations signal deep cultural changes, at the core of our subject.

We need to initiate projects in all territories to achieve the desired transformations. Projects are indeed practical frameworks for common work between actors of various profiles. They soften the institutional rigidities to achieve a concrete and circumscribed goal. For a given time, they redefine relationships between the partners, without jeopardizing their singular identity, so that they can best transcend the transitions of a life as a learner.

Within institutions

PROMOTE CONSULTATIONS TO BUILD A COMMON CULTURE

The interest of regular formal or informal exchange seems to be consensus. Staff from a daycare know how to bring a team together. Middle school teachers find an interest to discuss among peers and with third parties, without fearing an infringement to their academic freedom. Scholars have a strong sense of their professional community.

However, these co-operations at the level of an institution are insufficient. At the school level, the addition of institutional meetings consumes available time, while it is limited. For example, within a priority education network (REP and REP +), the same general question will have to be addressed to the Education Council, REP Council, or school/middle school Council or Education Council of Health and Citizenship. Moreover, the provisions of the Decree of August 2014 on the service obligations of secondary school staff are still poorly understood and exploited, while they highlight that their assignment includes teamwork and relationship with parents of students.

How are designed some projects illustrates the unproductive trap in which it is so easy to fall. Well-conceived, it will express a limited number of principles for action, uniting and motivating the actors, who will find each one to be applied in their professional fields. It will be an inspiration to work better together. It will clarify, for the benefit of all, a few rules of common life, and to create a climate of confidence. But in practice, this exercise is too often trapped in an administrative procedure, in a timetable and constrained forms, external to the intentions of the staff of the institution, and unable to allow them to take into account the changing needs and aspirations.

The promotion of a culture of trust, cooperation and experimentation should lead to greater margins for each institution, so that it can define at its level how to organize and promote dialogue. These aspects are the keys which result from international comparisons

indicating that French teachers are working less together than others, while cooperation is often a guarantee of an improvement of the relations within the institution and, in general, an appeasement of the school climate. However, several studies show how much the culture of cooperation helps to stabilize teams and in improving students learning.

The purposes of exchange are varied: follow-up students, disciplinary issues, applications of national reforms, discoveries, co-construction and appropriations of experiments... The key is to meet the needs of the actors, while broadening their horizon, not by injunctions, but by the time release for the exchanges and the facilitation of access to resources, and especially of those from the research.

GIVE MEANING TO THE EDUCATION COUNCIL TO DEVELOP COLLECTIVE PRACTICES

The Education Council of Institutions of secondary education appeared to play a key role, to trigger a virtuous circle to a more collective practice.

We know the concern raised by the mode of appointment of its members by the sole head of the institution. The observations made moderate it. Common sense is often enough to identify respected teachers in consensus in each disciplinary field or field of competence. Despotic or clientelistic derivatives are not the rule even though, surely, they could have occurred here or there.

Well constituted, the education council can become the lung of the improvement of certain processes. It can be confronted with the challenges already mentioned, such as priorities for training staff, experiments to be encouraged (or even to fund), research to be conducted within the institution or with the assistance of laboratories. On this last point, and without modifying the regulations in force, the Ministry could encourage institutions **to include the involvement in research for education in central missions of teaching councils**. In this respect, we can mention the general inspections report referred to above:

*“By their content and their dynamic, innovative or experimental initiatives promote new interactions, approaches and methods of work in the institutions in particular because the themes of these initiatives are cross-cutting and therefore involve approaches where each discipline or each teacher contributes by its own expertise or its means of specific actions. Most often relying on an initial educational diagnosis, the initiatives by making the teams involved have a systemic view of the institution both in its organization and its objectives, which can only be conducive to the adequacy and the effectiveness of their action. In addition, as many initiatives start with a limited “core” to teachers, they require internal communication at the institution: **the education Council appears, since its institution in 2005, as the privileged place of presentation, discussion or even assessment of these initiatives, their genesis, to their end.** These education council discussions facilitate the adherence of other teachers, but also the presentation of the project at a Board of Directors for its inscription in the institution project”.*

DEVELOP EXCHANGE PLACES

Many surveys have highlighted the isolation of French teachers and their difficulty in working as a team. This isolation hinders cooperation, experimentation and the swarming of

the practices. Teachers' rooms and centers of documentation and information (CDI), where it is generally difficult to exchange and where the layout and furniture are not designed for collaborative work. They do not encourage meetings or initiatives in this sense - even though it is necessary to welcome the recent evolution of a number of CDI as "Centers of knowledge and culture", and university libraries inspired by English learning centers or Canadian "hubs of learning". They are intended to "offer a range of extended services to meet in small groups for a specific work or freely exchange, search information by any means, not only digital, think, read, grow and relax..." More and more teams are engaging in reflection on new places and learning environments; There is a whole movement of research on learning-labs. It is also an opportunity for teacher-librarian to train students to the culture of information to put them in postures of research and accountability in relation to knowledge, and to develop their own collaborative and interdisciplinary projects with their colleagues.

If one wishes to encourage cooperation between teachers, and their encounter with outside partners, encourage them to document their practices and conduct projects, **the development of spaces and time dedicated to this type of activity seems more necessary. These places must be welcoming and open to the outside, to parents and partners**, and they must be designed and equipped so as to stimulate creativity and to allow the development of projects.

In fact, there has been since a few years the emergence of these type of places, not only at the university (in Lille, Saint Etienne, Toulouse, Lyon, Paris...), but also in a number of schools, to conduct projects that could not be achieved in a conventional classroom. **These reception and experimentation places** take various forms. **They are based on compartmentalization of spaces and times**, to:

- give learners more autonomy in their course and more opportunities for collaboration,
- and allow the teaching teams to better support them in project approaches by developing practices more active and more adapted to their needs.

Other types of places open to exchange and collaboration, or promoting the conception and the realization of common projects are currently developed currently outside institutions or nearby. The uniqueness of these "third-places" consists to friendly welcome people with various social and professional benchmarks. We know *fablabs* or *makerlabs* which make available a space, tools, and even skills, to make prototypes and small production. There are eighty-five in France. Among them, students, teachers, entrepreneurs, amateurs more or less experienced, exchange and cooperate thanks to the "evolutionary and fruitful freedom framework" which is offered to them. The offset from the usual professional places promotes compartmentalization and relationship horizontality and to eliminate the social distances.

One could easily envisage pursuing this logic and eventually creating a third-place of exchange in each institution. The space doesn't seem to be a factor limiting the creation of third-places of exchange, since at least the CDI can play this role - but also the refectory, the gym, the lobby, the corridors... that can become multipurpose spaces.

Fabulis, "To reverse inclusion" framework: an inspiring third-place

Since the start of the school year 2014, the Henri Nominé high school in Sarreguemines offers a new Unit Localized for Inclusive Education (ULIS pro). The system allows to accommodate high school vocational students with disabilities and special educational needs. The FABULIS, located in two rooms that communicate, converted into modular spaces with specific digital hardware, is at the core of this new section. It allows the ULIS pro students to develop artistic, scientific projects and in relation to technology. But what makes its originality, it is that it is not reserved for these students but is open to all students, teachers, administrative and technical staff, regardless of their level or their specialty (and also to parents and local businesses). All are invited to come and work in the same space as the ULIS Pro students. The latter not only welcome their comrades but also are to train them, for example in the use of digital tools. The organization schedules rely on a form of self-management, encouraged by the head of the institution. Thus, these aren't students with disabilities who are "included", but the other people accommodated who make themselves the effort to integrate into this "to reverse inclusion" system. FABULIS is part of the global network of FabLabs. It is the only FabLab in France managed by a high school, but other projects are underway, because the Sarreguemines team is not missing an opportunity to create relations with the outside to share and spread, being trained and train peers... as part of national and European events.

A crossroads of interesting meetings: the IRC

Before being an "Interdisciplinary Research Center", the IRC was born from the need of teachers and students to have a place to exchange, learn from each other, and develop collaborative projects. Successively hosted in a classroom, a lunchroom, cafeteria (to cite only three avatars), the IRC remained a third-place of exchanges for several years before being equipped with ever-increasing technical platforms based on technological developments and the needs of students and teams of teachers and researchers. It now houses initial training (bachelor, master and doctorate) and continuing activities (for example, college degrees on the educational transition) for learners wishing to explore other ways to learn and teach and to do research. Through the Savanturiers program, its approach has extended from 2013 to school ages.

ASSOCIATE THE ENTIRE EDUCATIONAL COMMUNITY

Within and around institutions, it is important again to raise the contribution of students and their parents. For the former, the challenge is even more crucial that collaborative practice is more natural when it is acquired early. It seems that the councils of middle school and high school life struggle to really radiate in institutions. Perhaps it is necessary to encourage the multiplication of modalities, but also to value more procedures of collective projects,

especially when they have been co-created with the young people themselves and whose impact on school results and life has been positively observed.

The exchange with parents is also important. Their lack of association and involvement can tighten relations, block promising experiments, contradict the ambition of a desirable compartmentalization. On the other hand, finding to build with them a sense of educational action, share an appropriation of the results of research, can make them committed and active allies.

Links and inter-generational projects are also an interesting trail that inspired several initiatives in France, such as the association “Read and get to read”, that connects older people with children; or again the initiative of Monique Argoualc'h, a teacher in the relay class, who organizes unlikely meetings between elderly people and students. To restore confidence in her students, giving them a taste of the school, she makes them work with engineering students to prototype robots adapted to retirees and intervene with them as trainers in the digital world.

At the level of the territory

A circular of March 20, 2013 sets the Territorial Education Project (PEDT) as allowing voluntary local authorities to offer to each child a coherent and quality educational path before, during and after school, thus organizing, within the skills of each, the complementarity of educational time. They are a tool for local collaboration that can bring together, at the initiative of the local authority, all of the actors involved in the field of education: The State administrations concerned, the other local authorities potentially involved, as well as youth associations and popular education, as well as other associations and institutions with a sport, cultural, artistic or scientific nature, and representatives of parents of students.

Despite the interest of this approach, the implementation is often very administrative in reality. Many PEDT are centered on challenges of organization and agendas. Their assessment, although recommended and encouraged is modest, if not absent: the assessment relates only on the operation of the system and not on its effects on the children benefiting from it.

The National Education is familiar with other partnerships with the actors of the territory. The law on the new territorial organization of the Republic (NOTRe) still encouraged the idea of a co-construction, that recent ministerial policy has resolutely supported. Discussions on vocational training with the regional councils, the creation of campuses for the professions, the signing of “rural” agreements in several departments, discussions on the adjustment of the school maps around issues of social diversity... all these processes illustrate the ambition of properly registering the schools in their environment.

How to successfully pass a milestone for the school and more generally for apprenticeships and training?

PROMOTE THE APPROACH OF LEARNING CITIES

The idea of the “learning cities” set around UNESCO deserves our attention. A learning city would thus be a city that effectively mobilizes its resources in all sectors for the purpose of:

promoting inclusive learning, from basic education to higher education;

reviving learning within families and communities;

facilitating learning for employment and in the workplace;

expanding the use of modern learning techniques;

improving the quality and excellence in the field of learning;

promoting a culture of lifelong learning.

The goal is to pursue consistency and network resources, from early childhood to the continuing education, starting from the individual and encouraging collective approaches. It is a question of ensuring the harmonious development of each learner by thinking about the relationship and complementarity of players and systems, ensuring that all of transitions, throughout life, are designed for well-being and success. We could for example rethink the links between the daycare and family, daycare and school, schooling and family or community life, the school year and holidays where gaps can widen, school and middle school, middle school and high school, school and higher education, studies and professional life, the face-to-face and digital, work and retirement, not to mention the different professional interruptions for reasons that are not always chosen. Many transitions that are not always easy and can lead to difficulties, particularly for the most vulnerable. A good partnership around the third-places open to all would identify problems and solutions on a learner territory to facilitate these transitions.

It also involves translating the theoretical political discourse into concrete strategies and approaches and learn to measure the effects of implementation. The objective is to ensure an intelligibility of mechanisms, in order to consolidate the democratic base and to associate all stakeholders with their monitoring, in order to successfully mobilize a variety of resources.

The city of Clermont-Ferrand has just obtained - a first in France - the UNESCO label of learning city. But many other territories have long been involved in similar processes. Their impetus, deepening, or even generalization, is a political issue, that each has its role to play, in a personal and professional capacity.

STRENGTHEN AND EXPAND PARTNERSHIPS OF THE ESPE

A major anchor, but today very theoretical, could be found in the Higher School of Teaching and Education (ESPE), which are at the core of multiple territorial partners, joining the academy, university, and often many other stakeholders, including local authorities and the main associations of popular education. As has been said, much remains to be done to ensure that the ESPE achieve the objectives they have been assigned. It should be added that they will find it difficult to succeed alone and that the best way would be to increase the network of skills and research to which they are called to participate and to redistribute the roles more efficiently.

CIRCULATE INFORMATION RATHER THAN DISSEMINATE INJUNCTIONS

Because the prescriptive and top-down approach shows its limitations on a daily basis, it is first and foremost necessary to invent mechanisms for assessing and spreading more relevant systems of local cooperation.

The presumption to build successful experiences into new standards is not the most appropriate. Internationally, it is recognized that the pure transposition of “best practices”, regardless of the context, is not a good procedure. If an innovation can be inspiring, it should not be seen as an injunction. Innovations should rather be able to generate a diversity of answers, adaptable to multiple local realities, and not to be presented as a new standard that one would want to impose from the top. The top-down method is always awkward to drive changes. The actors are never as committed and competent when they were involved in the conception of projects and can control the conditions of their implementation.

It is therefore a matter of promoting access to properly documented resources. The experiences deemed successful, based on a refutable analysis, should be made available to them with the necessary information on the contexts and conditions of implementation. Simplifying the flow of information and facilitating developments through the self-adjusting user manual reinforces the capacities of stakeholders at all scales, but also encourages and influences their autonomous development.

Create an alliance for educational research

The alliance mechanism for research can here inspire us, provided they adapt it with deep adjustments to our challenges. Established some ten years ago, they are informal, but strategically influential groupings helping to coordinate the efforts of agencies and universities in each of scientific theme deemed a priority.

There are for health, energy, environment, digital... but not for education and learning. Despite the legitimacy, the setup of a “human science alliance” titled Athena is not sufficient to fill such a lack.

The main reason is the modesty of the scientific forces assigned to our theme, topic which has been developed in another part of the report. But these thematic alliances do not have the R&D in their priorities, that is important to us. An offset is worth thinking about, to involve practitioners at the core of the process.

Another source of inspiration is the Urban Planning, Construction and Architecture Plan, created in 1971 as an inter-ministerial service for research and experimentation in the fields of urban planning, architecture and construction, and which is organized around three bodies:

- a college of directors, representing the relevant central administrations,

- a Committee of stakeholders, either public or private practitioners, setting the priorities of the research and experimentation and debate the results,

a Scientific Council, that validates the programs of research and experimentation and their assessment.

The academic world itself is rich in itself in many existing research bodies. The Directorate-General for School Education (DGESCO) has set up a Scientific Council with it. The law of rebuilding the School has created the CNESCO, which provides an independent assessment of the public service of the national education. The French Institute for Education brings together researchers from schools and publishes useful records to make practitioners more aware of the results of research in education. The Carnot Institutes of Education complete the system by involving field teams and researchers. The National Research Agency is launching sporadically tenders on this field. INRIA gradually intensifies its activities at the crossroads of digital technology and learning. Inserm (*French National Institute of Health and Medical Research*) is always more interested in the links between diseases and learning. The CNRS and universities have researchers from many disciplines who are interested in this broad field.

This landscape is already complex, but the aim of an alliance for educational research is broader. It is not only a question of interest in the school world, but also in the processes of lifelong learning, including early childhood and continuing education. Which aims to add many other stakeholders.

In order to avoid overlapping structures and to add a new actor to an already dense landscape, we recommend avoiding French evil and adding a new supernumerary actor to a tight institutional landscape. Therefore, it is recommended to initiate a process of clarification and systemic arrangement. In broad outline, the aim would be as follows:

To work together with the relevant central administrations and operators of the main research and development arrangements for lifelong learning, for a coordination of efforts and priorities.

Intensify interest in the experiences in other countries, which are sources of inspiration, and discuss possible synergies with the efforts of our partners and international institutions (EU, OECD, UNESCO and Francophonie, etc.).

Ensure the quality of the assessment and research process with the assistance of external scientists to operations.

Invest in sharing information at all levels, to encourage a public debate on education based on research works rather than opinions.

Deal with ethical challenges, which are renewed and become more acute with the digital transition.

In six or nine months, a foreshadowing of a future alliance for a learning society could have set up a balanced round table discussion, limited in size and ensuring the complementarity of the stakeholders. It could also define priority commitment, led by the equivalent of the multi-agency thematic institutes (ITMO) set up by the Alliance for Life and Health Sciences (AVIESAN) linking to the right level specialists and practitioners from different fields.

Adjust the distribution of roles within central administration to support and assist these efforts in a coordinated manner

The change of culture described and promoted by this report insists on trust, encouragement to collective and cooperative work and relying to research. The change in the organization chart therefore appears to be a very modest lever of transformation.

However, adjustments may be suggested. Cooperation between the different administrations are still very inadequate to facilitate the desired mindset. The Research, Development, Innovation and Experimentation Department (DRDIE) placed within the DGESCO could evolve to better inform the whole school policy. Its cooperation intensified with the Numeri'lab of the DNE, or with the Mission for Educational Innovation and the Digital (Mipnes) of the DGESIP, or even with the DGRH, to facilitate the development of certain statutory systems related to experiments. Bridges built with the authorities in charge of early childhood, vocational training, agricultural, cultural, military, or industrial teaching...

STRENGTHEN DEPP RESEARCH SUPPORT COMMITMENT

The Decree establishing the central organization of the ministries in charge of education and higher education gives the Directorate of Assessments, Foresight and Performance of contributing “to guide educational research policy and training, and contributes to the development of its work and the development of its results”. In fact, its current work of collection and statistical analysis contributes to the research, but its intervention means and support for laboratories are very modest. Additionally, its foresight mission is a foundation that could be extended to developments in practices and technologies. In other words, adding a dimension of micro studies to its expertise in macro statistical studies.

Noteworthy in other ministerial departments are administrations more ostensibly committed in research: The Leading Branch of Research, Studies and Statistics at the Ministry supported work, Directorate of Research, Studies, Evaluation and Statistics at the Ministry of Social Affairs and health, Directorate-General of Education and Research at the Ministry of Agriculture, etc.

The addition of R of research in the title of the DEPP would be a relevant signal to show a new ambition, which could be a support, in the sense of leading, for the future Alliance, without attacking their agility of its stakeholders.

Pathways for the actors of the learning society

Preamble for all learners

“All researchers”: Since cognitive science research shows that we are all born researchers, that the youngest authors of scientific publications are eight years old and since researchers are excellent learners, we can all develop our learning in searching, questioning ourselves, experimenting, supporting ourselves on improvements in technology and knowledge, about what others have done before us as well as a network of peers and mentors. In this perspective, we all have the ability to develop a reflective practice to think on our learning, learn from our mistakes and our questioning. We are all moving faster when we can find benevolent mentors, “climb the shoulders of giants”, help others to move forward by becoming in turn a mentor, document and share our explorations and experiences. To achieve this, the logic of competition and mistrust should be avoided as far as possible in order to promote a dynamic of trust and cooperation around us.

“Know yourself”: The most essential research is perhaps the meaning, of what makes sense for every human being. When learners dare to be themselves, to be creative and take initiatives, to convert the test and find what Ken Robinson calls “their element”, they need to get involved, look for an enabling environment, peers and benevolent mentors.

Build learning organizations

In a learning organization, all members can learn from each other, the experiments and learning of each facilitating those of others. Individuals, as the collective are invited to learn to teach and to develop reflexive approaches to facilitate learning dynamics. These cross-cutting exchanges allow the emergence of transformations, based on collective intelligence and permanent adaptation to changes in the environment, ensuring the sustainable development of the organization. All organizations can become learners, who are dedicated to learning, teaching and research being ideally placed to lead the example.

Accompany learning: suggestions for parents

Become a learning family, create an environment in which your children can, just like you, learn to teach, to seek and develop their own potential. Help them to find and to appropriate places where they can thrive and prepare for the future.

Create a learning classroom: proposals for teachers

Create learning ecosystems in your classroom, favorable to the success, the commitment and the pleasure of learning, to ensure that each learning promote those of others, for example by inviting cooperation between peers and by encouraging learning progress of other students. Imagine environments in which students can develop their own projects. Create networks with other classrooms, all disciplines, levels and categories, and co-build projects. Document and share your questions and your experiments.

Become a learning institution: proposals for institutions

Encourage creativity of all staff and learners, and give them the means, in terms of administrative support, of time and space (for example, creating third-places and equal periods), to develop creative programs in which they can work on individual and collective projects. Stimulate the professional development of all staff and invite them to develop projects relying on the research and to enhance them.

Towards learning universities: proposals for universities

Ask about the future of the university and its role in the learning society. Invite all the actors of the university to contribute to invent responses. Document in open source the learning of students and educational initiatives of teachers and researchers. Work to the practical implementation and deepening of the principles proposed by Humboldt: freedom to learn, teach, and do research, and ability to find benevolent mentors to support the projects of the students. Encourage participatory research projects, interdisciplinary approaches, the development of creativity and the sense of commitment... Create evolving freedom frameworks dedicated to the development of projects and innovations of students and teachers in confidence to facilitate the success of each.

Create learning territories: proposal for local authorities

(UNESCO adapted proposal from criteria “learning city”)

Promote inclusive learning of the basic education to higher education

Revitalize learning within families and communities

Facilitate effective learning for professional life and in the workplace

Extend the use of modern learning technologies

Promote the quality and excellence in learning

Encourage a culture of learning throughout life

Create third-places, freedom and trust frameworks open to all, facilitating the development of new ways to learn, teach, do research and mobilize collective intelligence in your territory
Share with other learning territories the most inspiring experiences

Recommendations to the creative communities of knowledge builders

Develop platforms, tools and open portfolios and places dedicated to fostering the emergence of ideas, participatory research and creative knowledge, by the exchange, the questioning, collaboration between peers. To maximize the impact, these tools should be available to all and be part of open educational resources to facilitate meetings of these communities, face-to-face and remotely, and in dedicated freedom and confidence frameworks.

Invest in learning initiatives: proposal for funders

Invest in projects exploring new ways to learn, teach, and do research on the learning society. Fund collective learners, structuring projects and sharing the successes and lessons that can be learned from failures. Invent financing terms allowing large-scale appropriation of innovations that contribute to an inclusive learning society. In this respect, the potential of “social impact contracts” (social impact bonds) appears particularly inspiring.

Support the development of a learning society: address the Governments

International comparisons show that countries who were able to make progress have been able, in the long term, to rely on research and to invest heavily in the professional development of practitioners. These developments have been accompanied by the transition from a control strategy to a strategy of trust, from hierarchical relationships inherited from the past to a more cooperative leadership.

Create a “research alliance for the learning society” involving all the actors and ensuring their complementarity. Provide a multi-year R&D funding for the learning society and the establishment of scalable freedom frameworks for the emergence of innovative projects, their assessment and sharing (in open source). Create a “public service of the learning society” including secure and customizable platforms with “Socratic” technologies enabling everyone to have their “learning book” throughout life, to know their potential and to orient themselves, and make the choices based on the developments of the society and its needs. Expand the capabilities of human beings and machines, individuals and groups to learn to teach and work together in an ethical and respectful framework, making sure to keep the human being at the center of all these provisions.

Contribution to the development of learning societies: role of international organizations

Compare the national development policies of the learning society and of R&D on lifelong learning. Initiate an international debate on the best ways to encourage these dimensions and favor the emergence of international collaborations on these topics to maximize the evolution of each and the synergies between learning societies.

ANNEXE 1 : LETTRE DE MISSION



*Ministère de l'éducation nationale,
de l'enseignement supérieur et de la recherche*

La ministre

Paris, le

26 SEP. 2016

Monsieur le Directeur,

La refondation de l'École de la République s'est déployée, des rentrées 2013 à 2016, sur le terrain, à l'école primaire, au collège et au lycée. Conçue après une large concertation, elle vise une amélioration du système éducatif, globale et attentive à la réussite de tous les élèves. Elle est un processus dont tous les leviers, pédagogiques, organisationnels et budgétaires, sont désormais opérationnels et dont la mise en œuvre doit pouvoir s'enrichir en permanence, avec l'appui des équipes pédagogiques et de chercheurs, de l'analyse des changements de pratiques, des difficultés rencontrées et des meilleures solutions relevées sur le terrain et qui pourraient être largement diffusées.

Cette ambition s'inscrit en cohérence avec les orientations posées par la stratégie nationale d'enseignement supérieur et le renouvellement de la formation continue dessiné par la loi du 5 mars 2014, qui invitent à des démarches interactives pour profiter de retours d'expérience, tester de nouvelles pratiques et objectiver de nouvelles connaissances.

Depuis 2012, la France s'est engagée pour un renouveau éducatif avec une claire conscience de la dimension internationale des enjeux, explicités par les objectifs du développement durable identifiés par les Nations-Unies, qui considèrent comme prioritaire un accès à un apprentissage tout au long de la vie de qualité. Ces évolutions sont illustrées par les réformes conduites par certains de nos partenaires, aussi bien que les innovations proposées par plusieurs acteurs non gouvernementaux. La France s'est résolument engagée dans la transition numérique, notamment, dans le domaine de l'éducation, avec le plan numérique pour l'école et les initiatives adjacentes e-Fran et pro-Fran. Cette transition numérique ouvre un large champ de possibles adossé aux progrès des technologies de l'information et leurs convergences avec la robotique, l'intelligence artificielle et les sciences cognitives, laissant présager d'autres évolutions radicales.

.../...

Monsieur François TADDEI
Directeur du Centre de Recherches Interdisciplinaire (CRI)
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Le débat public est souvent vif dès qu'il est question d'instruction, d'éducation ou d'apprentissage. Et, malheureusement, malgré les apports de la didactique, des sciences de l'éducation et des sciences cognitives, ce débat n'est pas toujours fondé sur des analyses suffisamment précises et approfondies par un regard interdisciplinaire. Dans un monde en évolution rapide, les travaux de recherche restent trop peu nombreux. Il nous faut renforcer des approches systémiques, interdisciplinaires et riches pour permettre de former tous les acteurs de notre système éducatif à la complexité des enjeux.

Cette situation est singulière par comparaison avec d'autres domaines de l'action publique pour lesquels il existe de nombreuses structures de coopération entre chercheurs académiques et praticiens, à l'image de l'économie ou de la médecine. Alors que les poids sociaux et économiques de l'éducation et de la santé sont approximativement similaires dans les pays développés, l'OCDE a montré que la recherche biomédicale réunit des moyens quinze fois plus importants que la recherche éducative.

En outre et pour sa part, le système éducatif français ne dispose pas encore de l'agilité suffisante pour alimenter, soutenir et populariser les meilleures pratiques enseignantes.

Plusieurs initiatives ont certes été impulsées pour mettre fin à cette singularité parmi lesquelles on peut citer la mise en place des Ecoles supérieures du professorat et de l'éducation, la création du Conseil national de l'innovation pour la réussite éducative, la promotion des espaces pour la recherche en éducation tels les lieux d'éducation associés (Léa) portés par l'Institut français d'éducation/ENS de Lyon ou encore l'expérimentation du concept d'Institut Carnot de l'éducation, en Région Auvergne Rhône Alpes, pour laquelle le professeur Roger Fougères m'a remis un rapport et que je souhaite développer.

De même, dans le cadre du 3^{ème} programme des investissements d'avenir (PIA3), le choix a été fait de soutenir les progrès de l'enseignement et de la formation, en se fondant sur les initiatives de terrain, en expérimentant et en contribuant à la diffusion des innovations pédagogiques dans l'école, afin d'améliorer la réussite des élèves et de les préparer à un monde en profonde mutation.

Mon objectif est que la France devienne une société réellement apprenante. Une société où tous les potentiels individuels et collectifs se réalisent grâce à une formation de qualité dès la petite enfance et tout au long de la vie. Je suis résolue à profiter de la convergence des réflexions et de la mobilisation possible de nouveaux moyens pour qu'un cap soit franchi à l'échelle de la nation et sur chacun de ses territoires :

- en promouvant au sein du système éducatif une logique de confiance propice au développement des innovations pédagogiques adossées à la recherche ;
- en stimulant la recherche pour étoffer nos savoirs ;
- en développant la diffusion des connaissances en faveur des formations initiale et continue.

La « recherche et développement pour l'éducation » doit ainsi devenir un vecteur central d'évolution du système éducatif dans son ensemble, pour préparer notre jeunesse et, au-delà nos concitoyens, au monde de demain. Cette démarche exigera le respect des règles et de la rigueur scientifique aussi bien que la promotion de la coopération entre les chercheurs et l'ensemble de la communauté éducative dont les enseignants bien sûr mais aussi les parents, les élèves eux-mêmes et les acteurs locaux, associatifs, publics et privés.

.../...

Votre parcours scientifique, votre engagement dans des programmes innovants à l'échelle internationale et les réussites du centre de recherches interdisciplinaires (CRI) sont autant d'expériences et d'atouts pour concevoir un plan stratégique susceptible d'engager un changement d'ère et d'échelle pour la recherche et développement pour l'éducation.

Vous vous attacherez à proposer non seulement de nouveaux modes d'organisation et de coordination, mais aussi des actions concrètes prioritaires, puis des perspectives à moyen terme. C'est ainsi que je vous invite à dessiner une phase de préfiguration du nouveau département de recherche et développement du MENESR dans le domaine pédagogique et éducatif.

Vous me ferez également des propositions pour la mise en œuvre des appels à projets dits « innovation pédagogique » du PIA3, en cohérence avec ses orientations et dans le respect de son caractère spécifique.

Pour élaborer vos propositions, vous prendrez soin d'associer l'Institut français d'éducation/ENS de Lyon, le professeur Roger Fougères, le président du Conseil national de l'innovation pour la réussite éducative, Jean-Marc Monteil, missionné par le Premier ministre. Vous travaillerez aussi avec l'Agence nationale de la recherche, l'INRIA, l'INSERM, les acteurs majeurs de la formation continue et de l'orientation, ainsi que les structures d'accueil de la petite enfance. Je souhaite également que la société civile, les associations, le secteur privé ainsi que les acteurs de l'innovation engagés dans le champ éducatif participent étroitement à vos travaux.

Vous consulterez utilement le réseau des conseillers académiques en Recherche-développement, innovation et expérimentation (CARDIE) sur le territoire national, ainsi que les structures organisatrices des principaux événements dans le domaine de l'innovation éducative.

Au-delà de la contribution active des administrations centrales (DGESCO, DGESIP, DGRI, DREIC, DNE, DAJ), je mobiliserai en soutien de votre mission les deux inspections générales du ministère qui vous apporteront chacune le concours d'un inspecteur général.

Je souhaite que vous puissiez me remettre un rapport intermédiaire avant la fin de l'année 2016. Il sera une contribution importante aux grands choix qui doivent guider le cahier des charges des futurs appels à projet du PIA. Il devra également permettre de lancer immédiatement une étape de préfiguration d'un nouveau dispositif d'organisation et de pilotage des politiques de recherche et d'innovation dans notre système éducatif. Le rapport consolidé sera attendu en mars 2017.

Je vous remercie vivement de votre engagement et vous prie de croire, Monsieur le Directeur, en l'assurance de ma considération distinguée.



Najat VALLAUD-BELKACEM

ANNEXE 2 : Un mot de méthodes et beaucoup remerciements

Ce rapport est une œuvre collective. Il résulte d'une mission qui s'est continûment efforcée d'associer le plus largement possible à sa réflexion.

Des outils numériques ont bien évidemment été mobilisés à cette fin. Mise à disposition par la société Franco-Canadienne Blue Nove, la plate-forme de consultation www.apprendredemain.fr s'est affirmée comme le lieu d'un très riche débat. Plus de 10 000 internautes y ont fait de longues visites de 6mn en moyenne. Ils y ont déposé plus de 1000 contributions attestant une grande expertise et un esprit remarquablement constructif, sur tous les thèmes abordés. Les meilleures idées ont été « attrapées » par l'équipe animant la plate-forme, soulignées et approfondies, pour stimuler l'ensemble des travaux. Une synthèse de la consultation en ligne est publiée sur le site du CRI.

De façon plus classique, plusieurs centaines d'entrevues ont été programmées durant les six mois de la mission. La liste en est jointe ci-après, avec toutes nos excuses adressées par avance pour les imprécisions voire les oublis. Nous tenons à remercier pareillement tous ceux qui ont bien voulu donner de leur temps, en faisant preuve d'une franchise très heureuse. L'esprit d'ouverture et le sens critique de nos contacts, dans leurs diversités, est à saluer. Français ou internationaux, de Copenhague à Singapour, de New-York à Shenzhen, soient enseignants ou apprenants, personnels administratifs ou chercheurs, acteurs de terrain ou expert en pilotage... nous avons beaucoup appris auprès d'eux.

Au moment où le rapport s'écrivait, nous avons souhaité tenir un moment de large échange collectif, que l'institut Pasteur a bien voulu accueillir. Cette journée du 28 mars a été bien courte pour échafauder à tous les niveaux l'esquisse de plans d'action, de schéma de coopération... Mais les participants y tiennent, avec nous : ces travaux sont une étape et nous garderons le contact.

Nous souhaitons aussi remercier les services du ministère en charge de l'Education nationale, de l'enseignement supérieur et de la recherche, non seulement pour les notes variées qui ont été vite et bien rédigées en réponse à nos sollicitations au fil de l'eau, mais surtout pour la qualité des discussions qui, à peu près mensuellement et sur l'initiative du cabinet ministériel, ont permis, au meilleur niveau, de trier parmi nos intuitions, de consolider nos informations, sans jamais restreindre notre d'imagination.

L'installation d'un comité d'orientation réunissant Roger Fougère, inspirateur des instituts Carnot pour l'éducation, Michel Lussault, directeur de l'Institut français pour l'éducation, Françoise Thibault, déléguée générale de l'alliance Athéna et Philippe Watrelot, président du Conseil national de l'innovation pour la réussite éducative a permis d'asseoir mieux la mission.

Last but not least, les travaux opérationnels ont bénéficié de l'enthousiasme et des grandes compétences de membres et d'amis du Centre de recherche interdisciplinaire. Merci en particulier à Elodie Diachara et Marlyne Nogbou qui ont programmé les rendez-vous et les réunions. A German Fernandez-Vavrik qui a organisé notre documentation et animé la consultation en ligne, avec aussi Anne-Laure Conté qui en assurait la promotion. A Ange Ansour, Eric Chérel, Matthieu Cisel, Corentin Costard, Hubert Javaux, Amélia Legarve, Gaëlle Mainguy, Jean-Philippe Maître, Olivier Rey qui ont mobilisé leur expertise au bénéfice de la

mission. A Bénédicte Tilloy, qui a particulièrement alimenté les travaux sur la formation continue. A Gaell Mainguy, qui s'est montré précieux à tous les instants de la mission, en pilotant notamment le lancement de la plate-forme puis en organisant le colloque du 28 mars. Chacun à sa façon, a apporté une pierre utile à nos travaux collectifs.

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