EERA's Agenda for Horizon 2020

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http://www.eera-ecer.de/about/projects-partnerships/eera-and-horizon-2020/
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From Global to Individual and from Individual to Global

Europe 2020 and Horizon 2020 pose the question of how the European community can grasp or even overcome the grand challenges faced by economy and society.

Many societal institutions, industries and sciences are drafting strategies for action. But the challenges described in H2020 are not only challenges for societies at large; they arise at the level of community, family and personal life. It is therefore necessary to empower people through building communities that can engage with challenges and participate in solving them, and it is essential for these communities and citizens to gain the necessary knowledge, skills, values, competencies and opportunities for transforming their own situations.

An important educational agenda permeates all the H2020 challenges. Education can help bridge the gap between these global challenges and the responsibility and competence of citizens of all ages to act locally, but educational research is urgently needed to optimize the acquisition of knowledge and analytical skills that empower citizens to understand and engage with issues such as climate change. Global problems must be reframed so that they are recognizable in local contexts, whilst local problems and knowledge need to be re-contextualized, so that policy makers, systems and institutions can recognize and include individuals and communities in problem solving. Again, educational research can make important contributions to the achievement of these goals and to a more complex understanding which includes the ability to (re-)interpret, critique and evaluate.

Finally, governance is, like education, an important aspect of relations between citizens and society. If citizens are to participate fully in solving challenges, they need to know how to act and how to participate in informed decision-making within structures of democratic governance and leadership. The-

se transformative competences, knowledge and values are most effectively acquired through education, be it in formal or informal settings. Policies, including education policies, must target the basic needs of citizens. Educational and knowledge-creating institutions, which are often closed off from the lifeworld, must provide leadership, research evidence and transformative learning for citizens to engage with challenges.

In the relationship between research and innovation the focus on educating citizens for challenges implies moving away from the traditional idea of the innovation circle – a bottom-up approach involving the 'consumers' of innovation in the innovation process. Against this background, a reorientation of educational research is underway, towards a focus on making institutionalized education more efficient and a simultaneous shift towards learning in new and diverse contexts. This should be enabled by the involvement of educational research in a wider range of spaces and collaborations within and between the various European research communities.

The current and emergent strategy for research and innovation identifies key priorities such as: health and wellbeing; bio-economy; smart and green transport, climate change, energy, respect for the environment, and social inclusion. Overall, these priorities may also be considered as a complex educational agenda for European societies. Initial research is needed on:

o Attitudes to these priorities within current education systems

o Whether these priorities feature in the agendas of European educational institutions.

o How these priorities might contribute to shaping the discourse of the European educational space in these times of crisis.

2 Implementing the kind of changes required for the fulfilment of H2020 aims and objectives here requires educational leadership, continuing professional development and curriculum reform. Our main purpose here is to show how educational research could be harnessed to meet the demands of Horizon 2020 and other forthcoming programmes.

Effective implementation of the H2020 programme, and the *Responsible Research and Innovation* (RRI) agenda will require new participation structures, as well as substantive indicators and impact factors for many of its suggested lines of research. The challenge for educational researchers is to take what we are very good at, including conceptual and critical thinking, reflection, mixed methods studies and widening participation & engagement, and insert these skills into programmes with specific scientific or technical objectives.

The H2020 challenges are not just another example of political rhetoric, they are a call to urgent action for survival. It is essential for people to engage collectively with these challenges, and this requires that people and communities acquire the necessary knowledge, skills and competencies through education. The H2020 challenges focus on things that are already happening; education can help address these and future challenges before they are beyond our control.

The following specific areas are examples of how educational research could contribute to the aims and objectives of specific areas within H2020 (the numbers in bracket refer to the EC Horizon 2020 description):

1. Education for innovation.
2. Participation, assessment and digital literacy
3. Sustainable communities
4. Globalized curriculum
5. Migration and multiculturalism.
6. Shifting boundaries and challenges for professionals in education
7. Education for health and wellbeing
8. Standardization in Education
9. Education and the production and circulation of knowledge
10. Complex transformations of education systems and policies
11. Effects of non-academic learning activities

1. Education for innovation

Across all the H2020 priorities, research is needed to further develop education for innovation, creativity, entrepreneurship and the development of other 'soft skills' required for 21st century life and work. This includes research in the areas of vocational education and lifelong learning. A specific feature of this research is that it must be interdisciplinary, recognizing that expertise in these areas already exists, but is scattered across a range of disciplines. Because innovation essentially requires attitudes developed during the development of young people, we need research in education for innovation, in order to avoid the danger that innovative attitudes will be discouraged by rigid curricula and pedagogies. Conversely we also need research into how rigour and 'hard skills' can be maintained within a changing educational landscape. Finally, we need research, which connects workplace and organizational learning with school education, in order to provide for smoother transitions into work, and the development of more flexible skill sets amongst young people.

2. Participation, assessment and digital literacy (H6.2.1. - H6.2.3. - H6.2.4. - H2.1.4.)

Although these appear to be disparate themes, they are in fact closely linked within H2020 discourses.

Widening participation requires digital literacy in a wide sense, since we can no longer expect public participation to involve a minority of activists in face-to-face meetings. Research on digital literacy, which still includes 'traditional' numeracy and literacy, is necessary to investigate the role of new media in social innovation, as opposed to the

previous view of media as products to be consumed.

Meanwhile, assessment and monitoring, in a wide sense, is an essential ingredient of participation, since, if conducted formatively, it empowers those who are assessed, at every stage of the life course. Assessment is especially relevant to the social inclusion agenda, since dialogic communication between teachers and learners is at the centre of improved achievement for all.

Literacy in the 21st century becomes the ability not just to read, but to interpret, critique and evaluate, and digital literacy adds an additional layer of skills involved in participating across a range of platforms and media.

Education can thus be seen as a mix of these three ingredients: participation, assessment and literacy. The 'Slow Food' movement might be a good (metaphorical) example of the new thinking required to address societal challenges. Participation, in these terms, becomes more action-oriented, as in inquiry-based learning ('home cooking'), with the possibility of extending learning beyond the limitations of 'packaged' curricula and 'modules' ('fast food'). Assessment becomes more qualitative and addresses a wider range of potential human growth areas ('tastes'), as in concepts of 'Bildung', where education is regarded as integral to personal growth rather than simply adding a set of competences to an existing individual.

Slow food also has a place-based connection, which fits with EERA's role as an assemblage of those working in local spaces. Just as non-industrial food producers maintain the traditions and use the characteristics of their own areas, educators can shape curriculum, pedagogy and assessment to fit local needs and resources. More widely, schools, universities and other education providers, in partnership with civil society actors and local populations, are well placed to gather and synthesise local knowledge. This knowledge can be used to address aspects of all the societal challenges, when combined with the potential for local action and ownership of change processes. The following sub-themes have been identified:

A. *Participation.* The question of who participates in education, and why, has been radically refigured by digital media and is also central to the public engagement agenda within RRI. Research is required on how educational systems and institutions can build structures for public participation, making use of digital and social media

but also building on the connections already 3 established between formal and informal education. The lifelong learning agenda has contributed to new forms of participation through learning communities, learning cities and other initiatives. Meanwhile, the Science-in Society agenda has begun to change the way in which young people participate in science, and there is a strong movement to increase the access of young people to science courses and to give them the scientific tools to reshape their own lives. This aspect of participation overlaps with and supports the 'education for innovation' theme.

B. *Assessment*: Research and development is required in the field of assessment in order to align it with emerging forms of pedagogy, such as inquiry-based learning, open online courses and learning outside the classroom. Assessment also needs to take account of the need for innovation, creativity and social learning to be recognised.

C. *Digitization of social life*. A notable pressure for change in education comes from the wide digitalization of social life, and the widespread diffusion of e-learning, web-learning, learning through gaming and other technologized forms of learning. Digital, mobile and distributed learning is transforming the space, time and architecture of education. The problem for educators is to keep up with fast moving trends in digital media whilst at the same time enabling learners to acquire the necessary values, principles and skills to function in this fluid environment. Research is needed to understand how this is affecting education practice in formal, informal and non-formal learning, including its influence on professional identities, technical infrastructures, skills and competencies. There is a need to understand the circuits of expertise mobilised in digital learning, and how they are shaping the very conditions of education, including professional identities, technical infrastructures, skills and competencies. In particular, we need to understand whether these circuits are only directed towards technical innovation, or whether they are promoting new forms of innovation, inclusion, and reflexivity.

D. *Mathematics education for the disadvantaged*. Mathematical skills are necessary to fully participate and contribute to society. Nevertheless mathematics tends to be viewed as an irrele-

4 vant and insignificant school subject, especially by some disadvantaged inter-city youth. This is a threat to inclusive societies, reinforced by recent societal developments such as mass unemployment. Unfortunately, most school mathematics teaching practice in urban areas does not seem to take these developments sufficiently into account. Research is urgently needed to engage empirically with this situation and establish theoretical frameworks for mathematics teaching with the potential of including disadvantaged young people.

3. Sustainable communities (H6.1.1. - H6.2.2. - H1.4.2. - H2.1.3. - H5.4.2.)

To achieve more sustainable lifestyles, we need to research education for sustainable daily living, including nutrition, waste handling and other issues. This includes research on how to empower teachers to engage in sustainable lifestyle education, and how to involve students themselves in research on sustainability issues. Three possible sub-themes emerge from these concerns. For each of these sub-themes, educational research can provide quantitative and qualitative evidence to support transformative policies.

A. *The relationship between technological reframings of social engagement and lifestyle choices for young people.* Social engagement is being increasingly facilitated by technology, in the form of e.g. online campaigning, 'citizen science' initiatives and crowdsourcing of innovative activities. Although some of this engagement happens outside formal education, there are massive opportunities for educators to bring engagement into the classroom and to take the classroom into the community,

B. *Patterns of consumption and waste amongst young people.* Issues of food security, waste and sustainable consumption will figure prominently in H2020. Education is the only arena where large scale social change and micro-level research can be combined in effective programmes to change behaviour

C. *Attitudes to civic responsibility, conservation and sustainability on the home- school axis*. In parallel with the above sub-themes, research is needed on how education can bridge the gap between learning about sustainability in school and desirable behaviour at home.

4. Globalized curriculum (H.6.2.2.)

We need research on curricula, teaching and learning activities providing competences for participation in a 'global arena'. At the same time it is necessary to support learners' national, regional and migrant identities. This involves researching how to educate globally conscious 'lifelong learners', who are interested in, and knowledgeable about, the diversity and interdependence of nations, cultures, communities and citizens through, amongst other topics, history, geography, languages, political science and philosophy. Beyond the idea of inclusive societies, research is needed into the processes that define collective identities, and into ideas of the 'indigenous curriculum', where local and global knowledge meet. Here, we mean that the knowledge and life experience of place-based communities is combined with the knowledge and methodology of scientific research to powerfully address locally-relevant problems.

5. Migration and multiculturalism.

Migration should not be considered only as a sub-topic in security policies. Europe societies are becoming increasing multicultural loci. Flows of migration are reshaping the traditional roles of European countries making some of them countries of immigration, whereas they were previously countries of emigration (as in Mediterranean countries for example), making the European space of education more complex. Research is needed to understand the circuits of knowledge, policy, and practice as they relate to European spaces of education, and to understand the risks of the emerging dynamics of marginalization related to migrations to Europe. Research is also needed to understand how the mobilization of knowledge from migration may enrich the innovativeness, inclusivity and reflexivity of our European societies.

6. Shifting boundaries and challenges for professionals in education (H.6.2.2)

Globalization creates more complex educational spaces that impinge on the work of educators and the learning that they enable, globally, nationally and locally. This implies a constant shifting of boundaries in the work of educators – for instance, boundaries between policy and practice, between regulation and autonomy, and between different

professional identities. In particular, research is needed into the implications of cross-sectoral and integrated service delivery, for example at the convergence of health, social care and education.

7. Education for health and wellbeing
(H1.1. - H6.1. - H6.2. - H6.3.)

Any educational response to the challenge of health and wellbeing will be located within the broader frame of medical science, the economics of production, bio-safety, nutritional issues, supply chains and business practices. We recognize that specific educational initiatives will be on the basis of collaboration with colleagues representing policy and academic interests in the broader industrial, commercial, health and wellbeing fields. Central to these initiatives will be the capacities and capabilities of teachers, not only to address these priorities as currently framed, but also to sustain a dynamic relationship to some of the most intractable challenges surrounding health and wellbeing. This suggests that we need research on how teachers can renew their knowledge, understanding, pedagogical skills and social capabilities.

Methodologically, this entails establishing baselines using quantitative approaches, including qualitative elements, and identifying how to proceed. We would engage with epidemiological studies in medicine, socio-psychological studies in technology, economic studies of cost-benefit, studies of social attitudes and the analysis of justifications for particular proposals. These methods should prioritise the explicit development of trajectories for action, across a range of component elements and partners, such as local governments, educational authorities, medical authorities, local food producers and so forth, who will play a leading role in both the creation and implementation of strategic plans for health and education.

Five sub-themes emerge from these concerns:

1. *The re-framing of health and lifestyle choices for young people,* from a treatment model to a model of self-management and prevention;
2. *The involvement and education of young* people in large-scale health data collection and monitoring;
3. *The promotion of intergenerational* equity through involvement of young people in caring for, and learning from, an ageing population;
4. *Learning through sport, physical activity, music and art.* These are sites where we can interro-

gate and inform the design of youth-oriented learning processes to support positive civic and social engagement and European identity;
5. *Reconnecting young people with food and nutrition.*

All these themes reflect the need to address issues of ageing and demographics by working with young people in order to prevent problems from developing, as well as through direct action with older people themselves.

8. Standardization in Education (H6.3.)

Education is under increasing pressure towards standardization, arising not only from the need to increase its efficiency, and to control its increasing costs in 'hard times' for public spending, but also to improve its capacity to achieve outcomes relevant to a globalised education system. Large-scale surveys (e.g. PISA) at the international and national level have acted as laboratories for this educational experiment that has affected educational policies in Europe and worldwide. The trend towards standardization across all elements of education is part of a historical drive to enhance the predictability, transferability and professionalization of educational practice.

Historically, Europe's socio-economic landscape has been characterized by the European Social Model (ESM), which lies midway between a market-dominated orientation (as in the US) and a state-led economy. The quality and equality of education plays a key role in the ESM, which has been partly shaped by the establishment of comprehensive schooling, a model that is strongly challenged by current policy trends. Research is needed to develop an understanding of the creation of the common [comprehensive] school (in particular, the circuits of knowledge contributing to this development), and of its limits in terms of quality and equality. This involves mapping the emergent landscapes and architectures of education, and comprehending to what extent the post-comprehensive scenario in which we are living might contribute to the consolidation of the European Social Model, or whether future strategies will radically change the ESM.

Research should provide a more complex understanding of standardization processes in education, and whether standardization is related exclusively to measurability and accountability. Further investigations are needed to understand to

6 what extent standardization helps or hinders innovation in education; and how standardization may help in the creation of inclusive and reflective societies.

This also has relevance for concepts of teaching (or teacher) quality. Attempts to impose national, or even pan-European teaching standards are futile unless the underpinning concepts are coherently linked to reflection, professional development & mentoring, curriculum reform and improved assessment systems. On the other hand, the emerging European discourse on teaching quality, to which EERA has made a major contribution, enables the strengths and weaknesses of local systems to emerge in a comparative perspective. Research is therefore needed to compare, evaluate and synthesise the best evidence and practices from national systems and to feed this knowledge back into those systems.

9. Education and the production and circulation of knowledge (RRI).

Research is needed into the relationship between schools and other educational institutions and complex transformations in the production and circulation of knowledge e.g. open access. These changes are partly related to changes in state-market relations and the massive effects of new technologies of information and communication, and partly to the increasing reflexivity of modern social life of our societies. Dialogue between science and the rest of society is under-developed and need to be researched in the context of responsible research and innovation.

Knowledge production involves multiple knowledge producers (academics, think-tanks, lobbies, consultancy firms, international agencies, etc.) mobilising different types of knowledge, and diverse professional and social identities,

Contemporary societies in Europe and all over the world are experiencing complex transfor-

mations in the production and in the circulation of knowledge. These changes are partly related to the massive effects of the new technologies of information and communication, and partly to the increasing reflexivity of modern social life of our societies. Research is needed to understand the role of universities, and of higher education in general, in this changing landscape. In particular, it is important to study emerging forms of university-level education, and how higher education policies and practices should be transformed to respond to the challenges of the production and circulation of knowledge in a digital world.

10. Complex transformations of education systems and policies (H6.1)

There is a need to research how education policies may support the development of innovative, inclusive and reflexive societies. In particular, it is necessary to understand what circuits of knowledge and policy could best support the development of the European space of education, and ensure that the increasing emphasis on competitiveness and the economic value of education will not increase the democratic deficit and the resulting social inequalities. Research is needed into the educational governance and leadership relations at all levels of education in order to secure participation and transparency. Research is also needed into research-informed decision-making in schools and policy.

11. Effects of non-academic learning activities (H1.1. - H6.1. - H6.2. - H6.3.)

We need research into learning through e.g. (a) sport and physical activity (b) music (c) art (d) gaming. These are sites where we can interrogate and inform the design of youth-oriented learning processes to support positive civic and social engagement and European identity

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