

CODING AND NON-FORMAL EDUCATION



01/10/16

The role of non-formal education in teaching coding



Co-funded by the
Erasmus+ Programme
of the European Union

The European Commission support for the production of this publication does not constitute an endorsement of the contents, which reflects the views only of the authors.

Position paper
Telecentre Europe and Public Libraries 2020

Authors: Gabriela Ruseva and Ariadna Rissola
Editor: Hannah Gent

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THE ROLE OF NON-FORMAL EDUCATION IN TEACHING CODING

This position paper comes at a time when coding is increasingly promoted by EU institutions as a way to catch up with demand for digital skills and ICT professionals'. Telecentre Europe (TE) alongside Public Libraries 2020 (PL2020) recognise the effort to fill the job vacancies in the ICT field through teaching coding, but they also see coding as a tool for empowering all citizens in today's society, one where we are increasingly being surrounded by digital technologies and machines penetrate in every aspect of our lives.

For this reason, **TE and PL2020 strongly believe that coding should have a broader audience and be accessible to everyone**, including disadvantaged groups, and that this objective can better be reached through non-formal training provided by telecentres, libraries and other non-profit organizations. Coding not only improves people's employability in all sectors, but also helps develop valuable life skills as logical thinking, teamwork, problem solving and creativity, and it can be a fun activity as well.

1. The current EU institutional approach on coding

EU institutions are becoming increasingly aware of the need to boost digital skills, including coding and programming skills, in order to fill the existing gap in the ICT sector – which is expected to increase in the next years – and meet the needs of the digital economy and the **Digital Single Market**. Investing more in digital skills training across the whole spectrum of education & training is now seen as a priority. The recognition of digital skills as basic skills in the **New Skills Agenda** for Europe is a leap forward to address this issue¹.

¹ See section 2.1 "Improving the quality and relevance of skills formation" of the EC communication "A New Skills Agenda for Europe": <https://ec.europa.eu/digital-single-market/en/news/digital-skills-core-new-skills-agenda-europe>

Indeed, two main initiatives are proposed in the New Skills Agenda to address digital skills and learning. First, the *Skills Guarantee*, aimed at helping low-skilled adults acquire and validate a minimum level of basic skills should support – beyond literacy and numeracy – digital skills. But mainly the *Digital Skills and Jobs Coalition*, launched by the EC to develop comprehensive national digital skills strategies by 2017, aims to bring together Member States and stakeholders in national digital skills coalitions.

The European Commission's willingness to promote coding and programming in particular is reflected in its support of the *EU Code Week*, a grass-root movement run by volunteers who promote coding in their countries, launched in 2013 and growing every year. It connects schools, NGOs & training centres that carry out events, seminars or workshops in the coding field.

However, EU's approach mainly focuses on fostering coding in early ages (kids and teenagers) through formal education. It could expand further in order to take into consideration the variety of existent initiatives outside the formal education, engage a wider audience (esp. disadvantaged groups) and look at coding as a means for social inclusion.

2. Telecentres' and Libraries' approach on coding 4 all

European telecentres, libraries and other non-profit organizations working in the ICT field are aware of the employability potential of coding skills, but they are taking this a step further. They are becoming pioneers in promoting coding and programming as tools for digital inclusion, applying a social vision to teaching these skills. They offer various activities in the area of coding: coding workshops for unemployed youth, coding and programming training courses for teachers and trainers, social hackathons, as well as free access to the latest technologies such as robotics and 3D printing.

Europe's 200,000 telecentres and 65,000 public libraries play a significant role in promoting coding and programming skills outside specialized industries and formal education. They engage prospective learners and code creators beyond the usual suspects, including kids, youngsters, immigrants and women from disadvantaged backgrounds, early

school leavers, those at risk of exclusion or from rural areas; people who otherwise don't have access to digital devices or at least don't have the means, networks, and tools to develop digital and coding skills. Telecentres and libraries offer an easily accessible, non-formal environment for the training courses and workshops, fostering creativity and fun.

Based in local communities, telecentres and libraries reveal *the social potential of coding by teaching it in a context*. For example, coding to create a game can be used to tackle issues related to the target groups' own lives and neighbourhoods. In this way, disadvantaged groups can make their problems and needs more visible, understand others and create solutions, defeating prejudices and fostering social cohesion and citizenship.

At pan-European level, a first attempt to unite different local organizations in a coordinated initiative was launched in 2015 by Telecentre Europe. The initiative *Code Your Future* brought together trainers from poor and rural areas and trained them in coding, as we identified the need to train the trainers to improve the capacities of community centres and libraries in those areas.

3. Recommendations to the European Commission

In order to make coding accessible to everyone in the EU and to develop its inclusive potential, Telecentre Europe and PL2020 propose the following recommendations:

- **The EC should review the focus of policy initiatives related to promoting coding**

Currently, the institutional approach in initiatives such as the EU Code Week seems to be mainly focused on promoting coding from younger age (6-12 y-o) and introducing coding in the formal school curriculum, including empowering teachers. A step in the right direction is that institutions are starting to recognise that coding must be fun (and school is not always), and the role of certain extracurricular activities such as coding clubs.

However, those initiatives target middle class children who are already doing well in school and do not reach early school leavers, or those who are not performing well in school, or children and youngsters from socially and economically disadvantaged backgrounds

(poorer neighbourhoods, long-term unemployed parents, migrant background, rural and remote areas, etc.).

People from disadvantaged or digitally excluded backgrounds go to the local community telecentre or library to play video games or simply surf the Internet, because at home they have only one computer for a household of 5-10 children, for instance. Each year, 4.6 million people access Internet for the first time in a public library in Europe, and 2.3 million take part in a digital literacy course. Local telecentres teach digital skills to more than 2 million people. In this context, telecentres and libraries offer coding courses and activities to youngsters and adults alike with great success, fostering their digital and social inclusion. In addition, they can be a valuable partner to schools. When teachers need help, they can get it from telecentres in two ways: additional coding workshops for students and workshops and further qualification for teachers.

The EC's recent work with Public Libraries 2020 to develop an EU Code Week toolkit especially for librarians is a step in the right direction, but EC policy initiatives should continue to broaden their focus and target these disadvantaged and digitally excluded groups, as well as recognise the role of telecentres, libraries, community centres and other non-profit organizations in teaching coding to them.

- **The EC should designate a consortium for the coordination of initiatives such as the EU code week**

Since a very important factor for the success of all policy initiatives and promotional activities is coordination, the EC should designate and officially endorse a consortium of up to 5 strong organisations in the field (e.g. European SchoolNet, CoderDojo, Public Libraries 2020, Telecentre Europe). These organisations would take a coordination role and lead and incentivise their members to implement activities on the grass root level, distribute financial incentives, coordinate reporting and collect statistics on the impact, etc. Also, this consortium would be responsible for attracting more funding from industry to increase the number of

local activities and their outreach. Without such coordinating body campaigns will remain dispersed.

- **The EC should encourage Member States to make links at national level with at least two EU-wide annual initiatives – Get Online Week and EU Code Week**

Member states should use these annual initiatives as opportunities to give more visibility and importance to coding and showcase the work of national/regional/local organisations. The EU Code Week should be linked to the *Digital Skills and Jobs Coalition* and promoting coding should be one of the objectives for the national coalitions.

- **The EC should provide seed funding to incentivise organisations working with disadvantaged groups**

The EC should provide more than moral support (like a platform and activity map for the EU Code Week) to coding activities for digitally excluded target groups. It should also foresee financial incentives. It should designate funds from EU programmes (Erasmus+, Horizon etc.) so as to subsidize relevant activities and seminars and should emphasize the coding aspect in the guidelines to Member States for the Structural Funds' implementation.

On the other hand, National and Local Coalitions for digital jobs should be encouraged to make coding and related activities more visible on the national level in order to attract more private funding and media interest.

- **Training the trainers**

We can distinguish two types of coding trainers in the non-formal education field. On the one hand, trainers in coding clubs such as CoderDojo are people from ICT industry passionate in coding and willing to share their passion with kids from the same background. On the other hand, trainers in telecentres and libraries are social workers, e-facilitators, community volunteers, not ICT professionals. They often come from remote areas and carry out a broader spectrum of activities aimed at social inclusion, so they do not have a deep knowledge of coding technologies and updates.

In order to extend the impact of coding workshops, seminars and other activities in local communities, rural areas and disadvantaged groups, further capacity building of the latter type of trainers is needed, as it was identified in the Code Your Future initiative. The European institutions should support or provide tools (also in national languages) for this purpose.

About Telecentre Europe

Telecentre Europe is a European non-for-profit organisation (NGO) and a member based association with a central office in Brussels, Belgium.

We represent publicly funded telecentres/telecentre networks, ICT learning centres, adult education centres and libraries across Europe where children and adults can access the Internet and digital technologies, learn the latest digital skills and keep up to date with technology and community developments.

We coordinate a number of projects, programmes and campaigns that empower people through ICT by finding new paths to employment, community life, relevant information and staying in touch with friends and family. All our members and partners believe that Information and Communication technology has an enormous potential to combat social exclusion and poverty.

Contact: contact@telecentre-europe.org | Rue du Méridien, 30 - 1210 Brussels Belgium | +32 (0)2 35 00 627

About Public Libraries2020

The goal of the Public Libraries 2020 programme (PL2020) is to raise awareness about the importance of public libraries as modern learning hubs close to citizens and (potential) learners.

Public libraries have been expanding their role in local communities enormously over the last decades - many of them now help people develop their digital skills, advance or acquire other skills (such as literacy) through various lifelong learning opportunities and offer a neutral and trusted space for people to create, learn, and connect.

PL2020 brings together library organisations and advocates from across the EU to raise awareness of the value of public libraries as partners for social and economic development under the Europe 2020 strategy. PL2020 promotes how libraries are contributing to European policy objectives in three main areas: social inclusion, digital inclusion, and lifelong learning.

Contact: publiclibraries@readingandwriting.eu | 40 Avenue de Broqueville, 1200 Woluwe Saint Lambert, Brussels