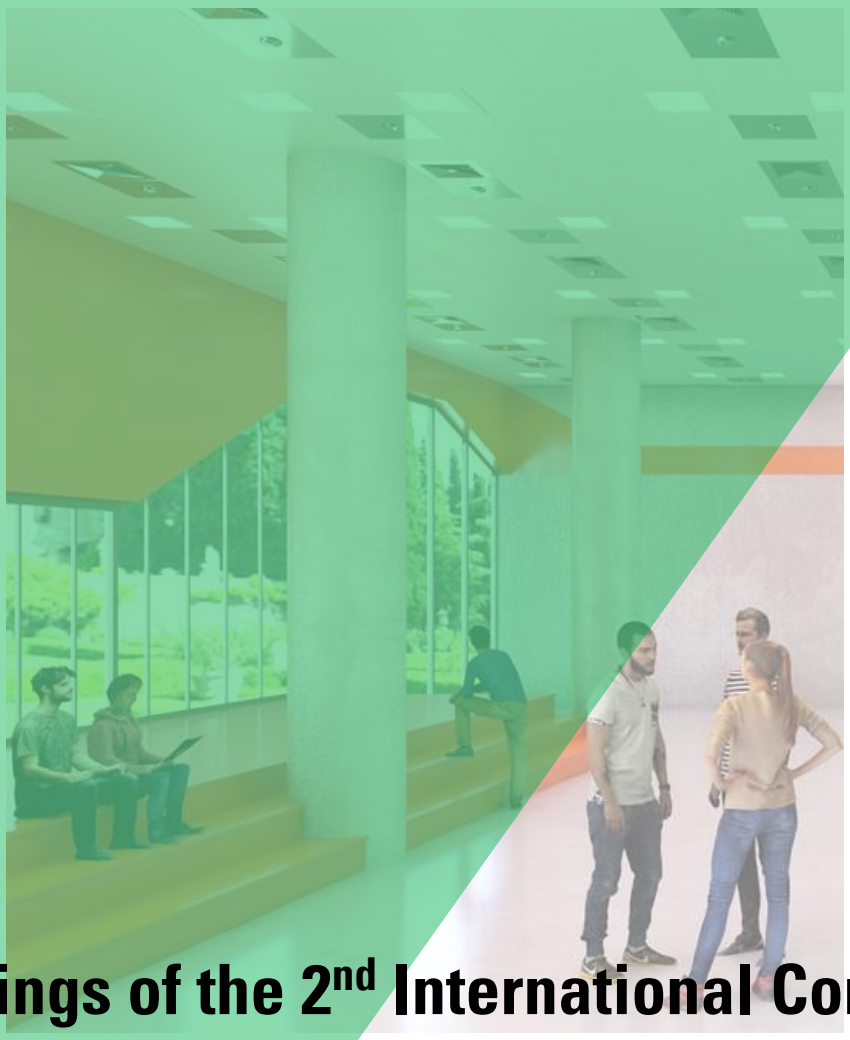

Proceedings of the 2nd International Conference of the Journal Scuola Democratica

REINVENTING EDUCATION

2-5 June 2021

VOLUME I

Citizenship, Work and The Global Age

ASSOCIAZIONE "PER SCUOLA DEMOCRATICA"

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Title **Proceedings of the Second International Conference of the Journal "Scuola Democratica" – Reinventing Education VOLUME I Citizenship, Work and The Global Age**

This volume contains papers presented in the 2nd International Conference of the Journal "Scuola Democratica" which took place online on 2-5 June 2021. The Conference was devoted to the needs and prospects of Reinventing Education.

The challenges posed by the contemporary world have long required a rethinking of educational concepts, policies and practices. The question about education 'for what' as well as 'how' and 'for whom' has become unavoidable and yet it largely remained elusive due to a tenacious attachment to the ideas and routines of the past which are now far off the radical transformations required of educational systems. Scenarios, reflections and practices fostering the possibility of change towards the reinvention of the educational field as a driver of more general and global changes have been centerstage topics at the Conference. Multidisciplinary approach from experts from different disciplinary communities, including sociology, pedagogy, psychology, economics, architecture, political science has brought together researchers, decision makers and educators from all around the world to investigate constraints and opportunities for reinventing education.

The Conference has been an opportunity to present and discuss empirical and theoretical works from a variety of disciplines and fields covering education and thus promoting a trans- and inter-disciplinary discussion on urgent topics; to foster debates among experts and professionals; to diffuse research findings all over international scientific networks and practitioners' mainstreams; to launch further strategies and networking alliances on local, national and international scale; to provide a new space for debate and evidences to educational policies. In this framework, more than 800 participants, including academics, educators, university students, had the opportunity to engage in a productive and fruitful dialogue based on research, analyses and critics, most of which have been published in this volume in their full version.

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Digital Educational Poverty: A Survey and Some Questions about the Detection of a New Construct

Stefano Pasta, Michele Marangi and **Pier Cesare Rivoltella**
Catholic University of Milan, stefano.pasta@unicatt.it
Catholic University of Milan, michele.marangi@unicatt.it
Catholic University of Milan, piercesare.rivoltella@unicatt.it

ABSTRACT: *The paper aims to rethink the concept of educational poverty in the digital age by verifying whether digital educational poverty coincides tout court with educational poverty or whether the comparison between these two dimensions requires a further in-depth analysis taking into consideration multiple social, cultural, pedagogical, expressive and psychological factors. In this perspective, digital educational poverty should not only be seen as social deprivation, but also as a cultural and expressive element, leading to reflection on the gap in creativity and 'authorship' that often characterizes a poor or problematic use of social media by young people. The COVID-19 emergency has highlighted the need to rethink the digital divide not only as regards the aspects related to technical access to technological devices and connection networks, but also in consideration of the deficit of conscious, innovative and creative use of digital technology, in a perspective oriented towards a participatory and responsible citizenship. Taking into consideration the four basic areas of educational poverty, this paper aims to investigate if and how digital poverty can be measured. This reflection is based on a survey tool which was conceived in consultation with the authors and already used in a survey carried out by the CREMIT-Catholic University and Save the Children, which in the first months of 2021 involved students at lower secondary schools (12-13 years) in Italy. Survey results will be examined with a view to highlight how different references to European documents and literature may lead to different perspectives in the survey methodology. In the last part, the paper points out a number of additional research perspectives and indications for educational interventions against educational poverty in relation to the concept of Dynamic Digital Literacies.*

KEYWORDS: *Educational Poverty, Digital Divide, Digital Educational Poverty, Digital Competence, Dynamic Digital Literacies*

1. Beyond the Digital Divide

The COVID-19 emergency heralded the all-pervading presence of digital technology and at the same time highlighted the problem of how people without the proper technological equipment and reliable IT connections can access essential services (Pasta, 2020; Marangi, 2020a).

Aside from the difficulties experienced in 2020 and 2021 in the spheres of school, work and social relationships, it seems clear now that inequality of access and the difficulty of using digital technology is not merely a matter of technological data, but extends to a broader sphere of expressive and relational competences, particularly in the case of young people.

This is why the notion of the digital divide needs to be re-examined, particularly with regard to theory of propagation (Flichy, 1995), whereby the massive spread of technology nonetheless produces its effects with a progressive impact. Access to performance technologies and adequate connective infrastructures is of course necessary, but it is no longer enough. Back in 1996, when US Vice President Al Gore spoke of the digital divide, it was already known that non-use of the Internet could give rise to a form of social inequality that was manifest in the gap between the *information haves* and *have nots*, and that specific public policies would be needed to ensure equal access. In sociological terms, the 'normalisation' thesis argues for the progressive elimination of the information gap, which gradually normalizes until it disappears completely as digital competences level out, according to Rogers' diffusion of innovations theory. In contrast, the 'stratification' thesis sees an ever-rising increase in the inequalities created by the Internet; rather than diminish over time, they persist and increasingly discriminate between the digitally included and excluded (Alù, Longo, 2020).

From complete exclusion to the conscious and varied use of digital technologies, Sartori (2006) suggests five dimensions to be adopted for bridging the digital divide: quality of available technological means; digital competence; availability of social networks for stimulation and possible advice; independent use to satisfy personal interests; and variety of aims of use.

With regard to these five dimensions, it appears to be crucially important to consider the digital divide from an educational and cultural perspective, across the different social strata. It is not just a question of gaining access, but of being able to acquire and use the key competences that let the user experience the digital world in an appropriate, responsible, ethical and creative way.

Bauman (2007) argues that the concept of poverty in contemporary society hinges not only on the possession of material resources, but also on the ability to use them and their levels of consumption. Nussbaum (2012) also reinterprets poverty and disadvantage, viewing it not so much as a scarcity of goods or income, but as a lack of opportunity and a failure of ability. He also emphasizes the importance of pedagogical strategies and educational activities that can help prevent and counteract this gap, which is no longer only material, but also educational.

The social and cultural aspects of the digital divide today need to be viewed more from a qualitative than a quantitative perspective. As Gui

(2015) suggests, increased digital use does not automatically translate into a greater social inclusion. The pervasiveness of the smartphone does not necessarily lead to greater access to information and resources on the web or to the user's ability to effectively and strategically adapt their online activities in order to design their way of relating or to achieve their communication goals. Conversely, it can be an indicator of certain aspects of cultural poverty, which sometimes evolves into a decreased access to other opportunities for developing relationships or for learning offline.

The ability to make the best use of the potential of digital tools and to avoid falling into a pattern of mere consumption or mechanically repeating a few operations suggested or pre-set by the device fits in the concept of literacy. Livingstone (2009) contends that the full development of media literacy must include four different dimensions of digital use: access, analysis, evaluation and production. But the actual process of knowledge acquisition can only be activated if one is able to turn individual competences into social practices and use them to build a real interpretative and productive framework in which knowledge of the different interfaces is always linked to the creative ability to design and adapt one's expressive and communicative actions to the various arising needs.

The structured competences that Livingstone sees as identifying media literacy in line with the complexity of digital media imply the existence of a new educational attitude, rather than didactic or scholastic, and, perhaps, the definition of new paradigms of interpretation of what has been happening in these years.

2. Measuring digital educational poverty

In view of this scenario, the NGO Save the Children asked the Research Centre on Media Education, Innovation and Technology (CREMIT) of the Catholic University of Milan to contribute to the development of a tool to survey «digital educational poverty»; the first outcome of this work was the report *Let's rewrite the future. A survey on educational digital poverty* (2021). In the following paragraphs we will go over the survey execution methodology and look at the different theoretical frameworks used, assess its measurability, and finally discuss how we might define the construct itself, which is new in the literature. This discussion should bear in mind that, in view of the advocacy and summoning powers of stakeholders and political decision makers, Save the Children succeeded in introducing the concept of «Educational Poverty» and the related Educational Poverty Index (EPI) into the public debate, from coining the definition in 2014: these references are the basis for scientific reflection, social planning actions and national tenders.

In a context where absolute and relative poverty continue to be measured in economic terms by the National Institute of Statistics

(ISTAT), the EPI indicator has become established because it offers different perspectives, in the sense that it includes complex information on deprivation of opportunities and rights (education, health, culture, participation, social relations and physical development) (Caruso, Cerbara, 2020). Hypothetically, then, digital educational poverty should be measured in a similar way to EP. The EPI was made by using the AMPI method (Mazziotta *et al.,* 2010; Mazziotta, Pareto, 2013), based on a correction of the arithmetic mean with a measurement of horizontal variability that depends on the coefficient of variation of the indicators normalized for the reference territory. It generally varies between 70 and 130 and is calculated for each region as the arithmetic mean of the scores for each of the selected indicators, standardized against the reference value for Italy, which is set at 100.

The twelve factors that make up the IPE include, for example, the percentages of children between 0 and 2 years old without access to early childhood public education services, primary school classes without full-time attendance, pupils who do not use school canteens, children between 6 and 17 years old who have not been to the theatre, children between 6 and 17 years old who do not play sports regularly, or who do not read books, or who do not use the Internet.

As the research currently stands, it was not possible to create an IPE-like digital index; in the following paragraphs we will explain how the *AbCD – Autovalutazione di base delle Competenze Digitali* (Basic Self-Assessment of Digital Competences) tool was created, and then discuss the measurability of digital poverty.

Digital educational poverty does not just mean deprivation of access to devices, to the Internet, to distance learning and to integrated digital education – indeed, these issues have been mapped by other research projects carried out during the health emergency (Pasta, 2021a). The perspective adopted here refers to the lack of acquisition of digital competences, the 'new alphabets' that are needed in order to experience citizenship in the post-media society (Rivoltella, 2020). Quoting the definition proposed by Save the Children (2021, 15), «digital educational poverty thus refers to deprivation of opportunities to learn, but also to experiment, develop and allow skills, talents and aspirations to flourish freely, through the responsible, critical and creative use of digital tools».

In order to retrace the method for the development of the AbCD tool, it is therefore necessary to remind ourselves of the 'digital competence' reference frameworks. We can identify two main approaches.

One is based on a rights perspective, in line with the founding values of Save the Children, and is guided by the European Union's *Digital Competencies 2.1* framework (2017), associated with «a critical, conscious and responsible use of digital technology for learning, working and participating in society». It also complements the new *EU Strategy on the Rights of the Child* (2021) and the *General Comment to the UN Convention on the Rights of the Child concerning the rights of*

children in the digital environment (2021), with particular reference to the right to learning, access to correct information, privacy, freedom of expression and opinion, protection and non-discrimination. This perspective can be found in the idea of 'Digital Competence' of *Europe's Digital Decade 2030* (2021) and in previous European digital competence surveys, such as ICILS (2018) and DESI (2019).

The five areas of Dig.Comp 2.1 – Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Security and Problem Solving – constitute a valid point of reference, but it is also necessary to avoid oversimplification, an error which is already visible, for example in the editorial policies supporting teacher training under Italian Law No. 92/2019, which tend to steer digital civic education (or digital citizenship) back to the Dig.Comp 2.1 framework alone (Carretero Gomez *et al.*, 2017; Martinelli, 2021).

A different perspective that gives more focus to the dynamism and transdisciplinary nature of competences is what Rivoltella (2020) calls New Literacy, stressing how a segmented approach betrays the 'citizenship vocation' of digital competence (Buckingham, 2019). From a theoretical standpoint, he reinterprets digital competence on the basis of three dimensions: criticism (semantics, meanings, social and cultural sense), ethics (values, responsibilities, citizenship), aesthetics (codes, languages, narratives), while also relying on the concept of Dynamic Literacies (Potter, McDougall, 2017). In Italy, we can detect this vocation in the five areas that constitute the *Digital Civic Education Curriculum* of the Ministry of Education (2018). They are: the Internet and Ongoing Changes; Media Education; Information Education; Quantification and Computation: Data and Artificial Intelligence; Digital Culture and Creativity. The vocation is evident also in the attempt to integrate the discussion into the three areas of Constitution, Sustainable Development and Digital Citizenship – of Italian Law No. 92/2019, so that civic education cannot be disjointed and treated separately, thus compromising the ability to critically assess the ongoing transformation processes. Finally, in the international and research arena, we find this approach in the work of the Stanford History Education Group (SHEG) of Stanford University, in *Students' Civic Online Reasoning* (2019) and *Evaluating Information: The Cornerstone of Civic Online Reasoning* (2016).

3. The 'AbCD – Basic Self-Assessment of Digital Competences' tool

We created the 'AbCD - Basic Self-Assessment of Digital Competences' attempting to combine the two different interpretative paradigms mentioned earlier; the tool therefore includes self-assessment elements, socio-cultural data and certification questions (right or wrong answers), with the aim of identifying media equipment and consumption, self-

assessment of competences, 'measurement' awareness and ethical, aesthetic and critical attitudes.

The questionnaire's 34 closed-ended questions (taking about 20 minutes to cover) hinged on:

- personal data, family background and possession and use of digital tools at home and at school, as well as the perception of one's skills and the advantages and disadvantages of using them;
- students were asked to self-assess their digital skills and answer a series of questions on their 'positioning' towards new technologies, or what they appreciate most about their use, and also the aspects that cause particular concern;
- questions for each of the four dimensions of digital educational poverty – more about this shortly;
- perceptions on the future use of digital tools at school and in life, and what institutions can do to promote educational opportunities for the use of digital tools.

By way of example, two certification items responding to the different approaches to digital competence and its possible deprivation are given, respectively, Rights and Media Literacy Education.

Question 23 shows a screenshot of a Microsoft Word file and provides a list of options for answering the question: «How do you insert an interactive link into a text file». In this case, there is only one right answer, thus allowing technical competence to be evaluated. This type of question, which combines an iconic and a verbal mediator, takes into account the possible theoretical abstraction difficulties pertinent to the sample age group, i.e., thirteen-year-old students, and aims to mediate between purely abstract and mnemonic reasoning and iconic recognition of a concrete operational situation, which allows the respondent to also retrieve the data of the actual use experience in front of a digital screen, at school or in the home. In this way it appears possible to detect not only the presence or absence of abstract competences in technological knowledge, but also to outline a perspective on the familiarity or lack thereof, deriving from a more widespread or habitual use of a digital tool, a dimension that pertains not only to the cognitive sphere, but also to socio-cultural aspects.

Question 31, on the other hand, shows a screenshot of a TikTok video of an ambulance «being driven around empty for hours» in order to create 'a sense of terror' during the COVID-19 pandemic. It is not hard to see that this is Covid-denialist, conspiracy content with an anti-institutional bias aimed at undermining social cohesion. It is therefore part of that category of products that have generated what the World Health Organization (WHO) has labelled 'infodemic'. There are no information elements, time and space references, or references to actual facts, allowing to associate the image (an ambulance driving along a random street) with the writing that accompanies it («Such episodes were reported in Lazio and Campania. Ambulance drives around empty for several hours. This is the strategy of terror»). The questionnaire

says: «You are getting information about the COVID-19 pandemic and you happen to see this video on TikTok»; this is followed by four questions that ask to identify the author, the emotional response elicited, possible time references and what the respondent would do if he/she saw this video online. Other questions take this approach, which is also found in the aforementioned SHEG research (2016, 2019). This type of question usually starts with a reference to the typical socio-cultural framework of the sample age group. In this case, it is not possible to identify a certifiably 'scientific' answer, but rather one that appears to be more desirable in relation to the development of critical skills – the recognition of news items and their source – and of the ethical dimension, aimed at assessing the respondent's ability to grasp the demagogic tone and the exploitative purposes of the video. Here, it is not enough to have access to technology and to be functionally efficient in its use; it is also necessary to demonstrate an understanding of the relevant communicative context and of the social, cultural and ideological aspects underlying some of the communicative dynamics of social media.

Digital educational poverty has been analyzed on the basis of four dimensions, which in turn form the basis of the educational poverty paradigm, referring respectively to learning opportunities for: understanding, being, living together, and living an autonomous and active life in the digital environment and in the post-media society. The first dimension 'Learning to Understand' refers to the deprivation of the cognitive competences needed for living in a world where the use of technology has become crucial; the lack of access to technology is accompanied by a lack of basic digital literacy relating to the knowledge of tools and their features and functionalities, and also to the knowledge of applications (e.g. how to use calculation and/or writing software, browsers, search engines or how to archive material) and problem solving skills.

The second dimension, 'Learning to Be', takes a broader view of the logic behind the tools and refers to the ability to create a digital identity and to measure, for example, in terms of deprivation, the inability to manage privacy settings on a social media channel. The 'Learning to Live Together' dimension refers to appropriate relationships with others in onlife society and encompasses deprivation in the ability to know, understand, accept and respect the diversity of identities, lifestyles and cultures of others in the digital world, a condition that in extreme cases can result in open discrimination, intolerance and cyberbullying.

Finally, the fourth dimension 'Learning for an Autonomous and Active Life', assess opportunities to gain access the vast and all-encompassing knowledge available in the digital world, and to digital activism, which can allow the user to become an agent of change through participation; deprivation thus points to a lack of creativity and critical thinking, two skills which would allow to select sources and to identify manipulation through fake news more efficiently.

In determining the percentage of children in digital educational poverty, we decided that this category should include those respondents who were unable to correctly answer more than half of the certification questions that measure basic competences for each of the four areas: (understanding, being, living together, active and autonomous living). Children who gave incorrect answers to most of the questions for all four areas were considered to be in 'extreme digital educational poverty'.

4. The survey

In spring 2021, Save the Children used the AbCD questionnaire for an initial pilot survey on digital educational poverty in Italy. It was administered to a sample of 772 13-year-olds attending third grade lower secondary school in 11 Italian cities and provinces[1].

The full report (Save the Children, 2021) gives a broad overview of the findings; we highlight some of them here in support of the introduction of the 'digital educational poverty' paradigm and its measurability.

First of all, there is some evidence confirming the link between digital educational poverty and the digital divide.

- The structural delay in the use of technologies in Italian schools is problematic: before COVID-19, 82% of children had never used a tablet at school; 49.8% had never used a smartphone for teaching activities at school and 34.6% had no experience of interactive whiteboards. This data is in line with other surveys (Pasta, 2021a), despite the plans for investment in 'digital schools' in recent years and the various methodological recommendations that the *Digital Civic Education Curriculum* and the Ministerial document *BYOD – Bring Your Own Device* (2018) have laid out for teachers (Rivoltella, 2018).
- Children's concerns about digital skills above all reflect the actual risks: viruses (66.2%), cyberbullying (26.1%) and meeting dangerous people online (35.6%). This is the focus adopted by many school civic education programmes in recent years, and it also characterises the layout of the Dig.Comp.
- Socio-economic variants continue to generate new inequalities: economic status of parents and educational attainment of families, as had previously emerged in relation to digital literacy levels found by the ICILS survey (2018). The clearest differences emerge, however, in the 'learning to understand'' area: for these questions, 30% of the children whose mothers had no educational

[1] The selection of the sample was made in consultation with Monica Pratesi, Full Professor of Statistics at the Department of Economics and Management of the University of Pisa.

qualifications – including primary or middle school diploma – did not reach the minimum level of basic digital literacy competences; for students whose mothers had higher education qualifications, the percentage was 13.9% and 5.5% when the mothers had a university degree. The percentages are almost identical when the father's educational qualifications are examined (26.1% - 14.6% - 5.1%).

- Higher levels of digital educational poverty occurred among those who: a) hardly ever did their homework; b) did not search for news on current events. A 29% segment of children who did not devote any time to homework were in educational poverty in the 'learning to understand' dimension, compared to 18% of children who spent an hour or more a day on homework. A 35.9% group of children who did not devote time any to looking up news failed to demonstrate a minimum level of digital literacy skills, compared to 16.7% of their peers who spent an hour or more a day on this activity.

We now report on the data that most directly points to digital educational poverty.

In the 'learning to understand area', the best results were obtained among the pupils in the pilot survey: only 20.1% got more than half of the questions wrong, which is consistent with the 24% of respondents in the ICILS survey (2018) who did not have minimum levels of digital literacy.

The failure statistics increase significantly for the other dimensions: 'learning to be' (46.3%), 'learning to live together' (56.8%) and 'learning to have an active and autonomous life' (46.1%).

It is important to remember that 28.6% of the children in the sample incorrectly answered more than half the questions in two of the four dimensions of educational poverty. This figure also includes 18% who incorrectly answered more than half the questions in two of the four dimensions and 7.3% who answered incorrectly in all four dimensions. The report considers this last group to be in extreme digital educational poverty.

Social variants mainly occur in the first area: of those children who incorrectly answered more than half of the questions in the 'learning to understand' area, 34.1% did not have a PC at home, while 16.6% had one or more PCs in the house.

It is interesting to analyze the answers to question 31 aforementioned (TikTok conspiracy video). Almost all the respondents answered correctly to the question asking them to state the author ('the author could be anyone'), while half of them (49.2%) failed to recognize the elements of time and space ('We cannot understand when the video was shot' is the correct answer). Among those who answered this last point incorrectly no significant difference was observed between those who are born in a foreign country (53.3%) and those whose parents

have a low educational level (50.2% - 50.4%). Wrong answers increase from 47.8% to 54.1% depending on whether or not fast internet connections are available in the house. Regarding the presence of digital devices at home it was noted that if the family has only one or no smartphone, the percentage of incorrect answers is 58.3%, which drops to 50.2% if there are two or three devices and to 48% if there are more than three. The same percentages are applicable to the PC, i.e. 54.2%, 44.6% and 39.3%.

In order to identify possible areas of noncoincidence between educational poverty and digital educational poverty, it would be interesting as a future iteration of the survey to administer the AbCD questionnaire to other particular target groups of children in educational poverty, such as unaccompanied minors. In fact, other studies (Pasta, 2021b) have shown how failure to capitalize on pre-existing digital skills among young migrants – groups with a high level of educational poverty – has proved to be a missed opportunity for the refugee reception system in Italy.

5. Detecting Dynamic Digital Literacies

As previously mentioned, the Save the Children pilot survey proposed a completely new paradigm of 'digital educational poverty'. We consider this a very worthwhile initiative, since it re-examines the historical and unresolved problem of the digital divide, which has widened due to heightened social inequality during the COVID-19 pandemic (Pasta, 2020; Marangi, 2020b), with a much broader scope and a more complex character. This broader horizon is in fact educational poverty, which in turn broadens the concept of economic poverty.

At the basis of this reassessment there is, as has been reconstructed, a rethinking of digital competence and its deprivation. Taking an overview of recent decades, we can say that, particularly in schools and educational spaces, the technological path (provision of devices) has been prevalent alongside teacher training (Galliani, 2015). The 2018 *Curriculum* has clearly moved away from a technocratic vision and has instead set its sights on governing change and steering it towards sustainable goals for society (democratic citizenship goals) and promoting a gradual shift in focus from Digital Literacy to Digital Citizenship Education (Martinelli, 2021).

The AbCD tool provides a means for surveying digital educational poverty on a quantitative basis, but so far an index comparable to the IPE of educational poverty is not within reach. It is plausible that future thinking could go in this direction, provided that the understandable desire to measure the huge scale of the change driven by digital technology (Floridi, 2014), does not lead to an oversimplification or segmentation of the idea of digital competence, or to set it aside on technocratic grounds. By acknowledging this complexity we identify the

need to avoid a 'patent-like' certification approach, i.e. the issuance of a static certificate, which may, of course, be renewable annually, but which can only rely on partial or superficial surveys that are not representative of the various possible meanings of digital competence, be they formal or informal, individual or collective, and may display traits that recall the 'decalogue route' or the drafting of 'manifestos' as forms of light media education.

Today, it seems inconsistent to suppose that we can measure e-skills by adopting a purely certification-based approach. While it is important to analyze quantitative data, we must also bear in mind that the development of digital skills must include a pedagogical and socio-cultural perspective that fosters a dialectic relationship between formal and informal levels, between cognitive and theoretical dimensions and between operational and pragmatic dimensions, thereby encouraging the emergence of each person's multiple intelligences (Gardner, 1983).

In this perspective, the three conditions must be kept in mind the three conditions of the Community Technologies construct (Rivoltella, 2017): the communal and anthropologically relational use of technology; social intentionality built into a socio-educational framework; and the goal of establishing and creating the conditions to build and maintain substantial and lasting bonds, in both the digital and the physical reality.

6. A critical assessment and the new research perspectives opened

The research carried out represents an interesting test to verify the reliability of the AbCD questionnaire confirming the hypothesis to create a DEPI (Digital Education Poverty Index). However, a number of factors must be taken into consideration.

First of all, the questionnaire should be submitted to a larger representative sample of subjects, in order to improve the hypotheses on the thresholds that will define the index.

Another consideration concerns the qualitative/quantitative nature of the questionnaire. This is an important factor to be considered because, as previously mentioned, digital educational poverty cannot be measured only by quantitative parameters (family income, presence or absence of an internet connection/digital devices, level of language skills), but it must also take into consideration qualitative factors. From this perspective, the choice to determine the DEPI threshold based on the percentage of incorrect answers to 2 of the 4 dimensions of the questionnaire must be considered as provisional. This issue will be addressed and resolved when the index procedure is defined, which will involve an accurate analysis of the mixed nature of the data on which the index will be built.

Moreover, it will be paramount to overcome one of the limitations of Dig. Comp. framework, namely its static nature. We cannot perform a

certification-based assessment of digital skills by creating a checklist and using the resulting totals to define the attained skill level. Assessment research in the field of Media Literacy Education has long since proved that media literacies are highly specific, which means that they must be measured in real-life contexts: we cannot evaluate digital competency unless we can, to some degree, observe it being applied to a specific issue in a real context. This represents a clear obstacle to any certification-based approach, which normally relies on information collected in non-authentic contexts (classroom) and in non-real-life situations. Furthermore, digital literacies are not static but dynamic (Potter, McDougall, 2017). This means that they emerge through ongoing use and are co-determined by other subjective and context-related variables; moreover, they tend to change continuously over time. Therefore, there is a tangible possibility that a literacy seemingly detectable today might not still be so a few days later.

As we can infer, similar considerations and methodological issues will have to be tackled and resolved, likely by refining once again the questionnaire, while reflecting deeply on how to determine the thresholds from which to derive the index. A working hypothesis that could perhaps be useful in this regard entails standardizing the questionnaire by increasing the total number of questionnaires filled out. If we were to ask professionals involved in digital education in schools and in youth centres to hand out a baseline questionnaire, and if these questionnaires were then used to implement a single large data set, we could assume that the mean and median values would stabilize. As a result, we would then have real thresholds to work with by separating the data in order to obtain a general index and specific indices, defined on the basis of age, geographical location, etc.

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