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Storytelling and the 'Educational Mismatch'. Building 21st Century Skills via Experience Learning

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Storytelling and the ‘Educational Mismatch’. Building 21st Century Skills via Experience Learning

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Abstract: This research conducted via the methodology of narrative analysis provides an initial assessment of the impact of Futura Italia, a project promoted by the Italian Ministry of Education, University and Research (MIUR), aiming to bridge the soft-skills ‘educational mismatch’ (EM) to cope with the evolution of the digitized society. EM is intended as the gap in soft-skills digital performance and competitiveness between the national education system and the Eu and Global standards. The teachers and students’ narratives, studied via the theories of storytelling in a constructivism framework evidence how the F. hackathon and modeling approach, founded on the Deweian principles of challenge-based learning activates a process of change behind a strong motivational drive. However, as many challenges have emerged through the research work, the research assessment indicates that a further solid research agenda is required, integrating the qualitative research with a quantitative survey.

Keywords: storytelling, narrative analysis, educational mismatch, soft skills, challenge-based learning

Introduction: the 'educational mismatch'

This study aims to present the results of a research run via a narrative analysis methodology on the Futura Italia case-study, a project launched by the Italian Ministry of University, Education and Research (MIUR), Directorate of Digital Innovation, in 2017. Objective of Futura Italia¹ (F. from now on), whose structure has reached in 2018 the organisational dimensions of 8.000 students and 1.000 teachers, is to contribute to the application of the principles of the National Digital School Plan (NDSP)² by bridging what we may define an 'Educational mismatch', apparently characterising the Italian educational context as other EU countries. To contextualise the research objectives and results presented in this study, an outline of the NDSP and the notion of 'Educational mismatch' is provided as follows.

In 2015 NDSP was launched by the Italian Ministry of University, Education and Research as a response to a global call for a new orientation in education in the digital era, based on a life-long and life-wide learning³ framework, where soft skills play a key role⁴. Indeed, the topic of education in the digital era has not to be confined in the area of technical abilities and competences, but it rather has to be conceived in a larger cultural perspective, stemming from a different conceptualisation of school, envisaged as an innovative *learning open space* and *platform* for students to develop life skills and transversal competences⁵ together with a proactive role in the global society⁶. In this scenario, the results presented by the Digital Economy and Society Index developed by the European Commission⁷ showing EU countries digital performance and competitiveness, ranks Italy at the 25th position out of 29 countries

¹ The F. website is accessible at: www.futuraistruzione.it, date of access March 27, 2019.

² The National Digital School Plan, introduced by the Minister Stefania Giannini in 2015, is a fundamental pillar of the 'La Buona scuola' ('Good School', law 107/2015), an operational vision that reflects the position of the Government with respect to the most important innovation challenges of the public system: innovation is at the center of this vision of the school system and the opportunities of digital education. NDSP accessible at: <https://www.miur.gov.it/scuola-digitale>, date of access: February 20, 2019.

³ Life-long learning refers to a learning process across a lifetime, while life-wide learning concerns all life contexts, both formal and non-formal. This perspective is confirmed by the High Level Conference of the EU Commission of OCSE Centre for Educational Research and Innovation, from the World Economic Forum 'New Vision for Education Report' and from researches as "L'Educazione per il 21mo secolo" of the Ambrosetti think-tank.

⁴ The notion of *soft skills* differs from *hard skills* as the first one refers to intrapersonal and interpersonal skills while hard skills refer to technical competences (Dennis & Powell, 2011). Soft skills development is intended to enable and enhance personal development, involving cognitive, emotional and social dimensions. For an assessment of soft skills in lifelong learning see Gibb, 2014.

⁵ NDSP, page 7, MIUR Ministry of Education, University and Research, 2015. Accessible at: http://www.istruzione.it/scuola_digitale/allegati/Materiali/pnsd-layout-30.10-WEB.pdf

⁶ For an overview of constructivist theories to which these concepts refer, see Juvova A. et al, 2015.

⁷ DESI is accessible at: <https://ec.europa.eu/digital-single-market/en/desi>

(DESI 2019) versus an EU average 14 rank⁸. In this unfavourable performance, although a significant responsibility traces to structural weaknesses in the area of connectivity, human capital, the Italian index component relating to soft skills, ranks a critical 26th position. This result indicates the need for a specific effort in the area of intrapersonal and interpersonal skills to enhance personal development, involving cognitive, emotional and social dimensions⁹. Education plays a strategic role to raise quality in terms of competences and human capital skills¹⁰. Based on these considerations, the notion of 'educational mismatch' appears applicable¹¹. Specifically, for 'Educational mismatch' we mean the gap in terms of effectiveness of the national educational system in generating soft-skills digital performance and competitiveness versus Eu and Global standards.

This gap¹² translates into the above illustrated distance between the current national high school curricula, teaching approaches and teachers' competences and new teaching methodologies able to build those skills required from a new digitalised society. In this perspective, the NDSP is a program aiming to generate digital innovation under a technological, human and cultural perspective within the national school system¹³ in view of building transversal competences and soft skills aligned to the 21st century society. As analysed in the research via a detailed 'check list'¹⁴, this means not only skills in critical thinking, problem solving, teamwork, but also personal attitudes such as being prepared to face innovation and change with positivity and optimism, develop perseverance and determination, motivation, spirit of initiative and entrepreneurship. Behind these requirements, the F. project has been launched to bridge this educational gap, focussing in the high school sector, by introducing innovative teaching patterns able to bridge the above illustrated EM. The

⁸ DESI Italy results are confirmed in other international rankings as the OECD Skills Outlook 2019 accessible at: <https://www.oecd.org/skills/oecd-skills-outlook-2019-df80bc12-en.htm> or the UNESCO 'Building tomorrow's digital skills. What conclusions can we draw from international comparative indicators?' UNESCO Publications, (2018), accessible at: <https://unevoc.unesco.org/go.php?q=Online+library&lang=en&null=&akt=id&st=&qs=6099>

⁹ Dennis & Powell, 2011; Gibb, 2014. As for Human capital data, see: DESI 2018 Italy, p. 8, accessible at <https://ec.europa.eu/digital-single-market/en/scoreboard/italy>

¹⁰ Canton et al., 2018 and 2017.

¹¹ Starting from the shared interpretation of the concept of mismatch in the job sector, indicating a lack of alignment between job demand and offer, Cainarca and Sgobbi (2005: 57-82) have tackled the concept of Educational Mismatch and the reasons behind, attributed not only to the lack of technical competences but also of soft skills derived from technological change (Acemoglu & Pischke, 1998; Acemoglu, 2002; Green & McIntosh, 2002; Leuven, 2005).

¹² In higher education, business literature observes an increasingly wide 'gap' between the skills and capabilities of graduates and the job requirements and demand in an increasingly mobile and globalised society (King, 2003; Yunus & Li, 2005)

¹³ NDSP: 7.

¹⁴ See paragraph 3 on methodology for a detailed description of the meaning and composition of the skills and attitudes check list.

engagement of the high school, out of all other education sectors, is mostly motivated as it represents a preparatory phase to higher education, introductory to the job market.

After the above brief clarification on the educational mismatch, a synthetic introduction to the theoretical framework of the study and its objectives are provided.

It was 1938 when John Dewey's book 'Experience and Education' was published. Today, the vitality of his thoughts is impressive. In the scenario in which F. is called to operate, the visionary Deweyan theory of progressive learning appears particularly suited. Drawing from the socio-pedagogist theories, the F. project leverages experience learning and the related 'learning by doing', 'challenge-based learning', as described in the case-study to experiment an innovative didactic model which breaks down physical classroom barriers with an event-based methodology stimulating teamwork and spurring students and teachers' motivation, relationship building and networking with the territory: it's the hackathon and modeling¹⁵ challenge based new experience learning methodologies which, by reinforcing students' behavioural, cognitive and moral engagement appear to effectively contribute to the bridging of the 'educational mismatch' gap in terms of competences building.

The research presented illustrates how the F. case study is a story functional to the narration of F. as an organisation and to illustrate the effectiveness of experience learning vs. the above defined educational mismatch. In this perspective, the dimension of narration of the experience is crucial to point out the different emerging variables and the narrative analysis methodology which represents an indispensable tool to study the phenomenon. Narration¹⁶, as Bruner maintains, is the primary interpretative and knowledge tool used by humans, considered as culturally situated subjects, in their life experience (Bruner, 1988, 1990). Stories nurture spontaneously across the complex social life, across various sectors of human life, from society to politics, from health to education. At the same time, they are generated via bottom-up processes, as from the crowdsourced¹⁷ narratives posted on the Futura Italia case study

¹⁵ A Hackathon is a project marathon where groups of students, belonging to different schools and addresses, challenge each other to devise and propose solutions to problems and opportunities of the society. A model is a simulation of a negotiation process that takes place at a national and international level, where all participants can learn and test the rules of policy-making, diplomacy and negotiation. i.e.: YoungG7 is the model of G7 Meeting.

¹⁶ We will use the terms narrative and story interchangeably (Polletta et al., 2011, pp.110-111).

¹⁷ Crowdsourcing (from 'crowd' and 'sourcing') is a process of knowledge building based on the participation of a collectivity to the development of a project. The course is activated by answering to a call or on voluntary base. Crowdsourcing is an evolution of the model of outsourcing, which is the business practice of hiring a party outside a company to perform services and create goods that traditionally were performed in-house by the company's own employees and staff via the use of digital technology, i.e. platforms, allowing the engage-

that are object of this paper. Finally, a point on the reasons for developing this research. In 2018, the Author was invited by F. to field some training sessions to teachers in three hackathon events in Venice, Rome and on an experiential 'sailing ship training' in the sea gulf of Gaeta (south Rome). These experiences allowed to play an exclusive role of observer of the project dynamics, which resulted precious in gaining a deeper perspective on the study. All sources of the research, though, are available on the websites indicated along the paper.

The Futura Italia narration

The project

F. is a community based project, conceived within the General Directorate for Digital Innovation of the Italian Ministry of Education, University and Research. F., launched in April 2017, represents a platform of 'acceleration of change' of the Italian high school education system towards innovation, digital culture and experiential training, contributing to the implementation of the NDSP, which represents its institutional premises. The F. projects are tied to the UN SDGs of the Agenda 2030 for Sustainable Development, covering five thematic areas: 'Education to global citizenship', 'Accelerating transition towards a sustainable development', 'Knowledge and preservation of cultural heritage', 'Orienting young generations to future training and work', 'Education to citizenship via sport'. Internationalization, innovation and territoriality are the main focus of the F. education program aiming to encourage students, teachers and innovators of the Italian school to become conscious citizens and engaged protagonists of the economic, cultural and technological revolution in progress. F. promotes the matching of talent, of technical, technological skills and territorial excellence by developing initiatives at local, national and international level, aiming to stimulate the sense of enterprise of students. In 2018, the project has carried out 64 hackathon and model based 'Future labs', over 80 final challenges of 'Digital School Prize' (hackathon and models) at local and regional level and 12 international projects across 8 countries. Over its foundation, F. has engaged 8.000 students, 1000 teachers and over 50.000 participants in local civic events, including students, teachers and civic participants. The project tackles topics such as environment, water, food consumption and lifestyle, biodiversity, nature, waste recycling. The didactic methodology follows the paradigm of *experience learning* and *challenge based learning*, based on the *learning by doing* paradigmatic principles of John Dewey (1938). For each

ment of a large number of people (crowd). This model is usually adopted by organisations to solve social issues where an autonomous solution appears not viable or sufficiently effective. The phenomenon of crowdsourcing is epistemologically analysed via the sociological paradigms of social innovation (Murray et al., 2010), communities of practise (Wenger et al., 2007), social capital (Coleman, 1990; Putnam, 1997; 2001).

event, the F. process starts with a national public call emanated by the Ministry of Education, to which schools response with a detailed motivated answer. The schools' engagement to the project, measured by the answer to the MIUR calls shows a viral trend: in 2017 the average answer to a call accounted 20/30 schools, while in 2018 the average has raised up to 60/70, with peaks up to 100 schools applying for participation¹⁸. The selected schools take part to the F. national or local challenges where the winning projects proposals presented by students are selected by a jury of experts and academics. Each winning team, supported by a network of experts or national and international organisations, undertake a process of finalisation and acceleration of their idea to transform it into reality, otherwise taking part to other training events at national or international level. This process allows to activate wider processes by creating new connections and originating new projects. International prizes such as participating to the Dubai Design Week (2018) or YoungG7 in Canada (2018), or YoungG20 in New Delhi, India (2017), award the winning teams. Each stage contributes to enrich the heritage of stories, values and diversity, enhancing the growth of the F. community.

The narration

The F. narratives written by teachers and posted on the F. digital platform allow to share knowledge, spur action, tackle what may happen in the future, communicate individual inclinations and values, bridge gaps in competences and incorporate tacit knowledge, as indicated below in the 'Results' (paragraph 4). These features assign to the Futura Italia digital platform, which enables teachers and students to post their own stories, a strategic role in reinforcing the organisation (Boje, 1991; Denning, 2005). The rich corpora of narratives embodying the F. collectivity reveal stories in fragments, each one adding a different contribution stemming from ones' own experience. This process builds a choral and collective narration, composed by stories which talk to each other, exchanging information and emotions, indeed, deploying the organisation over a narrative thread along the definition of 'organisational Storytelling' (Salmon, 2008, p.13). As illustrated in 'Results' (paragraph 4), each story is characterised by a sequence of events following the same order in which they occurred (Labov & Waletzky, 1967). Storytellers narrate about students and teachers playing the role of characters (Chatman, 1978; Jacobs, 2002), able to elicit emotions, and arise a sense of empathy in its audiences (Sarbin, 1995). Indeed, the F. storytelling steers emotional flows, with the intent of sharing these emotions. As Salmon maintains (2008), the F. story allows to gather narratives of experts (teachers and experienced students), to high-

¹⁸ Data gathered from MIUR, Directorate of Digital Innovation, 2018.

light key moments across events and identify those actors playing a role in the development of the project. In this perspective, the training function of the F. storytelling clearly emerges, also by transmitting competencies, activating energies and making change accepted (Boje, 1991): narrative works simultaneously as an innovation and a change factor, a learning and communication tool.

In the F. storytelling, plot plays a relevant role. Drawing on Polkinghorne's theory (1988), in the F. storytelling, relevant events characterise the narrative and are linked between them by a causal nexus which is based on plot rather than on rational premises or probability, logic and proof. Narrative is structured by plot, transforming mere occurrences into motivated moments linked one to the other, following various morphologies as confirmed by the works of Propp, Barthes, Ricoeur (Brooks, 1984).

Under the normative view, as we will see in the examples shown in Results (Paragraph 4), stories communicate normative values (MacIntyre, 1981; Ochs & Capps, 2001). In this light, F. narrative takes distances from an explanation or from a report, that, although explaining events, lacks of the emotional component to make a normative point (Robinson, 1981; Polanyi 1985; Trinch & Berk-Seligson, 2002). In line with Poggio's approach on cultural perspective (2004), the F. storytelling, via stories repertoires, allows to read through the F. cultural transmission operated by F., essential to the construction of a network that can propagate and self-develop the project in the future. In the same perspective, the F. identity, stemming along the stories posted by students and teachers is an identity socially and culturally situated, that is, related to the F. cultural context and values promoted by the NDSP. In this way, F. becomes a tool for legitimizing and transmitting the values and cultural norms based on the normative function of teachers and students' stories, through which it is possible for other teachers and students to learn the pattern to be followed in order to promote a change in the high school education system. The whole F. platform, with its different sections describing all pragmatic rules besides the stories section, allows the transmission of its social knowledge. In particular, stories, through narrative processes, create belonging and produce a sense of community.

Materials and Method

Objectives

As mentioned at Introduction, the National Digital School Plan (NDSP)¹⁹, promoted by the Italian Ministry of University, Research and Education (MIUR), within a framework of initiatives of various nature, aims to intro-

¹⁹ See note n. 2.

duce innovative didactic methodologies able to build the 21st century skills in the Italian society, bridging the current cultural and skills gap between Italy and EU countries standards²⁰. The objective of this research is to provide an initial investigation about the impact of the F. project promoted by the MIUR, Directorate on Digital Innovation, on the promotion of digital culture and soft skills in the Italian high school system. The specific research question calls for an assessment on the ability of the F. project to bridge the soft skills 'educational mismatch' generated by the gap between traditional high school learning system and the NDSP innovative approach and methodologies. According to the 21st century skills' check lists, this question would translate into an investigation on *a.* the transformative impact of F. on students and teachers and *b.* the dimensions of soft skills built, both entailed by the project experience.

Methodology and sample

The research adopts a storytelling approach, which, through the tool of narrative analysis aims to investigate the dimension of change in attitudes and soft skills²¹ building in the experiential frame of the F. events, namely, hackathons and modeling. Two groups of students and teachers of 40 high schools were invited to write about their experiences and to post their stories on two platforms: Futura.it²² for the teachers group; and Wayouth.it²³ for the students group. As an outcome, 40 stories posted by the teachers group on the F. digital platform and 50 stories posted by the students group on the Wayouth platform have been analysed. Stories relating to 28 hackathons and modeling performed in 18 different locations were posted from November to December 2018. The narrative repertoire generated by both groups portrays a rich picture of experiences, emotions, reflections suitable for a methodologically appropriate narrative analysis and to provide an initial investigation of the impact of the F. project on the promotion of change within the Italian high school system.

To analyse the impact of the F. experience in terms of the 21st century digital students' skills building, a preliminary research on most accredited national and international sources has been made to reach a reasoned comprehensive check list:

²⁰ See 'educational mismatch' at the Introduction paragraph.

²¹ See in Introduction notes n. 4,5,9,11 about the definition of soft skills and their implications in lifelong learning.

²² The Futura platform is accessible at: www.futuraistruzione.it and stories are accessible at: <https://www.futuraistruzione.it/community/teachers-matter.html>.

²³ The Wayouth platform is accessible at <https://www.wayouth.it/> and Stories posted are accessible at: <https://www.wayouth.it/wayouthink/page/9/>.

- At National level: D.M. N. 139, 22 August 2007, Attachment n. 2, Key citizenship competences to be acquired with the compulsory education, MIUR Ministero dell'Istruzione, dell'Università e della Ricerca, 2014: 5-6, National Guidelines for permanent orientation.
- At International level: European Parliament and Council Recommendation on the eight key competences for lifelong learning (2018)²⁴; OMS Health World Organisation, Ten Life Skills (life competences); World Economic Forum, Top 10 Skills for future jobs according to Employers and 21st Century: New Vision for Education; UNAOC-UNESCO: Media Smarts, Mapping Digital Literacy Policy and Practise.

Synthetically, outcomes may be summarised as follows (see below Table 1 and 2): apart from technical digital competences which are a side focus of the F. mission and are not object of our research, the analysis of the above illustrated sources indicate that the 21st century skills cover the so called 'Soft skills' as Critical Thinking, Problem Solving, Collaboration and Participation; and Personal Attitudes such as Self-esteem, self-confidence, Positivity and optimism, Perseverance/determination, Motivation to study and to achieve results, Sense of belonging towards one's own school/institution, Motivation to establish relationships with peers, openness, Spirit of initiative, Social and civic engagement. Indeed, current high school curricula are skewed on traditional learning objectives, far from soft skills which cover a 'holistic view' of the tools a 21st gen student needs to face a digitalised global society. As indicated by the check-list sources titles these new skills call for a lifelong learning, competences to act as a global citizen, life skills, future jobs skills, digital literacy and digital culture at large.

A synthetic list follows:

Table 1 - 21st century Soft Skills

Skills
Critical thinking
Problem solving
Collaboration and Participation

²⁴ On 22-23 May 2018, the Council of the European Union adopted a new recommendation on key competences for lifelong learning (available at <http://data.consilium.europa.eu/doc/document/ST-8299-2018-INIT/en/pdf>), superseding the Dec. 18, 2006 (2006/962/ce) EU recommendation. This revised version aims to take account of the significant changes, like digitalisation, that have occurred since then, and better prepare citizens for changing labour markets and a diverse and digital society. According to this recommendation, Member States should support the right to *quality and inclusive education, training and lifelong learning* and ensure opportunities for all to develop *key competences* by making full use of the 8 'Key Competences for Lifelong Learning – A European Reference Framework'.

Table 2 - 21st century Personal Attitudes

Personal Attitudes
Self-esteem, self-confidence
Positivity and optimism
Perseverance/determination
Motivation to study and to achieve results
Sense of belonging towards one's own school/institution
Motivation to establish relationships with peers, openness
Spirit of initiative and entrepreneurship- attitude to projects
Social and civic engagement

The storytelling approach

The storytelling approach has been adopted as per its ability to investigate transformations and explore experience, topics positioning at the core of our research. For this reason, a brief outline of the narrative analysis methodology adopted arises. Narrative analysis in the human sciences refers to a family of approaches to diverse kinds of texts, sharing a storied form (Kohler Riessman, 1993: 1). S. allows to understand the sense of the social action in the Weberian theoretical perspective. This implies that a social action may be interpreted correctly only if researchers take into account the meaning attributed by those ones who are involved. In other words, stories allow to investigate the subjective sense of social action. According to the School of Chicago theories, narration analysis allows also to study the construction of meanings in interactions via the theories of symbolic interaction, according to which the richness of symbols provided by stories may become medium of interaction and identity become its output (Poggio, 2004). Also Znaniecki's approach (1996) appears to be particularly interesting in the perspective of plausibility of a story, where stories follow the principle of verosimilitude based on the compliance of the story text to the logic of actions. According

to the Polish sociologist, subjective perceptions, beliefs and convictions, on the basis of which individuals consider particular aspects of the situations which they find real, determine their attitudes and actions. In this view, knowledge is the result of an interpretative process where ideas don't reflect facts but rather transform and produce it. Alongside this perspective, in a constructivist theoretical framework, reality is the outcome of representations and interactions of social actors (Schütz, 1967). Meanings are socially constructed, stemming from interpersonal interactions and conversations, that in our use of language are influenced and, in turn, contribute to keep mainstream beliefs, ideologies or discourses shared among a specific culture.

Under a socio-educational perspective, in this research, stories repertoires are studied under various theoretical approaches, to provide an answer to the research question. Experience learning, inquiry learning, collaborative learning, group dynamics analyses refer to theories from active learning (Dewey, 1997) to interactionism (Goffman, 1959), to constructivism such as Bruner (1961), Schütz (1958), Lewin (1935). While Sociology of emotions investigates the emotional experience and the energy unleashed from the F. events, again, interactionism helps in understanding classroom and group relationships and social constructivism analyses the motivational standpoint (Berger & Luckmann, 1967; Turner, 2007; Giddens 1990; Sztompka 1993).

Results

The following analysis on the students and teachers' narrative repertoire provides indications on the impact of the F. project. Particularly, the dimensions of *change* emerged through the F. experience in both groups have been valuated. In a frame of plausibility, where stories follow the principle of verisimilitude based on the compliance of the story text to the logic of actions (Poggio, 2004), credibility in F. stories emerges by the intrinsic homogeneity of students and teachers' narrations. Narrations appear coherent in terms of witnessing a transformation in attitudes, skills, behaviours, motivations. In fact, a story credibility is provided by two elements: 1. Degree of consistency attributed to fragmented experiences and 2. Degree of consistency of the elements of the story (Poggio, 2004).

As pointed out in the methodology section in paragraph 3, the narrative analysis framework points out how these two groups provide two complementary perspectives on the narration of change within the F. experience: students play the role of protagonist, deeply engaged in the hackathon and modeling events. Their perspective on change is narrated in a deep emotional context, and a will to generate emotions to the reader emerges as well. Storytelling nurtures on emotions as in this way stories are able to transmit meanings and cultural norms, generate obedience and consensus, bearing

sense of belonging and memory (Poggio, 2004). Students' emotions tell about changes in attitudes, behaviours, skills, providing initial positive answers in terms of alignment to the digital society skills check lists and to the research question object of our research. Teachers, on their side, appear in the best position to observe changes within the groups of their students, given their institutional position, their role in the occurred events and the possibility to compare the two moments of *pre* and *post* experience in their students. As we will see in some examples below, the interpretative process leads them to stress the narration on the comparison between an ordinary status and a final transformed status (Welzer, 2010). To indicate the activation of a process of change and the results achieved in that context, the majority of the teachers' stories are spontaneously structured as 'case studies' of single students, highlighting the two moments of *pre* and *post*. The limited length of the story leaves not much space to the description of the process, which, given the rich complexity of the events, would require a detailed commentary. The emphasis on the result, though, appears to correspond to a will to impress reader colleagues on the effectiveness of the project, showing an intent to propagate a valuable opportunity of change and training (Poggio, 2004). Indeed, F. is an object of narrative analysis of change but it also operates as a subject of change.

Both through teachers and students' storytelling, the process of change in students emerges throughout the whole set of 21st century skills check list, that is, in skills and personal attitudes: (see paragraph 3 on Methodology) in attitudes towards school at large, in teamwork skills building, in self-esteem, in the ability to networking and build relationships, in engagement towards classmates and the school, in communicational and entrepreneurial skills, in the meaning attributed to the sense of sharing.

The F. impact on teachers' change, instead, appears in the areas of motivation, school management, networking with the territory, teaching approach. Overall, teachers stress the pedagogic value of the experience learning approach (Dewey, 1938) for their students, perceiving F. also as an exceptional and exclusive, deeply motivating experience. Teachers' narrations indicate also that the F. experience effectively works as a training session on innovative approaches to didactics.

Importantly, the F. didactic approach is aligned to the 21st century teaching methods, based on bottom-up didactic aiming to engage students to play an active role in the learning process, stimulating student-teacher dialogue and peer-to-peer discussions, to animate an inquiry learning approach and developing a critical approach to the investigation of information sources and its validation, experience learning and teamworks. (Bruner, 1961; Dewey, 1997; Schwab, 1960; Wilhelm & Wilhelm, 2010; Bell et al., 2010). These new models are mostly far from the conservative teaching approach present

in many other countries. For this reason the F. model may represent a virtuous example within a general framework of change in the national educational approach.

In F., emotion emerges as a key driver of change in personal attitudes and skills. This particular state of mind drives the intentionality of the actor, which is a key element of the story (Poggio, 2004). Overall, F. appears to be a strong emotional experience, for both teachers and students, highlighted via the energy unleashed, the interactional dimension and emotional climate generated (Collins, 2004; Goffman, 1967; Tobin et al., 2013; Turner, 2007). In fact, strong feelings in both teachers and students emerge as a *fil rouge* across all stories, narrating the F. experience as something magic and extraordinary. Chiara, a student tells:

«Wednesday, January 31, New York JFK Airport. New airplane, new rush, new direction, and me, same as always. The engines heat up, the propellers start spinning and we take off. Below me the lights of New York. I find myself looking out the window and admire the changing sky, getting lost in clouds and thoughts [...]. I close my eyes and I find myself in my junior high school class and I see a small me sitting in a corner, alone [...]. The YoungG7 model simulation begins and I let myself be overwhelmed by an energy so powerful as to break down the barriers I had built over many years. For the first time, my opinion counts and is heard. I am no longer the marginalized girl at middle school, but a real delegate who collaborates with colleagues and produces critical thinking. At the end of the five days, I find myself incredulous with a certificate in hand and a ticket to Harvard, Boston, in my pocket, because apparently my crazy rebirth had been appreciated [...].»

F. appears as an unexpected opportunity to change. The new context of the hackathon, of the prize spent in an international context (i.e. Prize DEP Nepal, within the International Conference MoChVo), alters established classroom relationships (Levine, 1998; Turner & Tajfel, 1982; Schutz, 1958; Lewin, 1935; 1947), social and group positions, outsiders-insiders roles, to provide a unique Goffmanian chance to play a new role on a new stage (Goffman, 1959). Such a 're-staging' of the school appears to provide new meaning to a school as a 'school of life', valuing free subjective expression of the self.

Students often describe their experience via an epic story where hope, courage, passion play key roles. At the same time, F. is a discovery, a journey to the unknown, carrying a lot of uncertainty and fear to face the unknown and bringing with it a burden of uncertainty and fears. Indeed, F. appears to be acknowledged by students as a relevant opportunity for their lives under the motivational standpoint (Turner, 1987), while assigning value to their

experience based on their interest in topics and activities in extraordinary educational settings. Brian, a student says:

«It was not easy to interpret this hackathon, whose main theme was the connection of three worlds: videogame, cultural heritage and education. [...]. The activities talked about Change, Connections and the Future because «balancing multiple languages, bridging different worlds and integrating diverse fields of knowledge is a great asset for videogames» [...]. All these stimuli have assumed the function of «ideas fuel» for our hackathoners, engaged in a challenge requiring extraordinary mental and practical energies: imagine and develop an innovative videogame with the aim of promoting the knowledge of our cultural heritage, developing a more virtuous way of making gaming; hackathoners who have been asked to create a process that can lead gamers to relate to their cultural roots, physically bringing them into contact with a reality that video games often alienate [...]. The difficulties were many, especially from the «technical» and «time management» standpoint, but also this time our marathon runners came out in an excellent way».

Emotion and a deep sense of reward and satisfaction is registered on the teachers' side, where the F. successes are perceived as a personal prize for the teacher. Moreover, a great value is acknowledged on the skills building ability of F. Patrizia, a teacher, describes emotions and results achieved via a series of F. experiences:

«Participating to «Futura Catania sea school 4.0» made me feel a strong emotion. I know how precious and fundamental this experience is for our school, for our students. Among them, Tommaso Brogiani, a brilliant student of IV, was rewarded as the winner of the best delegate prize and will fly to Canada for an international Model. Our emotion is beyond words, and now we will organize Global Young G7 for dissemination. Why it is a great opportunity for our school? Because it allows us to refine organizational skills, reiterate the importance of communication in English, encourage public speaking, plan, improve in managing resources. And, also, students learn to elaborate thought and critical sense, overcome their limitations, build relationships, have innovative ideas. The road has been traced, the gratitude of those who have designed and realized this path is profound. You just have to walk.».

Notably, the acknowledgment of such a valuable opportunity of growth leads teachers to promote the scaling of the project to ensure a consolidation of it via telling about this experience to other teachers. Patrizia feels a sense of urgency in activating a viral process ('and now we will organize Global Young G7 for dissemination') via telling a story, which is her and her students' story. Narration, in fact, is a form of social interaction. Narration

always implies an interlocutor (real or virtual): the existence of a receiving subject is indispensable for the construction of the social sense of action. The act of narrating is in itself a relational act, even when a person tells her/his own story. It always places itself within a communication pattern, which involves who narrates and who listens.

Emotions also emerge throughout stories as a driver of commitment and motivation. Monica, a teacher tells:

«[...] it snows and the climate suits the theme: Mountain Hack! It could have not been different in any way. Commitment and involvement are tangible [...] among the different projects, one of the two winning teams has one of my students among them [...], GREAT EXCITEMENT! Preceded by images and oriental music, the announcement of the trip in Nepal as a prize and continuation of the work was presented [...]. It's a dream or, rather, the dream of all those who love the mountains comes true».

Notably, most times, stories don't pay much attention to the dimension of final prizes (usually remarkable international experiences as meeting with the President of the United States or taking part to global events) as a compensation for a positive and motivated teamwork, indicating that the experience itself satisfies the participants.

Students' and teachers', in their stories, give different interpretations to the dimension of change. Students tell the story of change framing the dimension within the conceptual area of 'projects', connecting the project experience to the idea of generating something new and change things. They express this perspective appreciating: a) the innovative approach of F. leading to opportunities and possibilities of personal and systemic development (impact on national school system); b) the creative content of the F. activities, allowing students to liberate subjective expression; c) The innovative challenge-based approach coexistent with a collaborative attitude. This approach is at the base of an innovative co-competitive (competition integrated to collaboration) approach, based on sharing ideas, work, experiences via in a collaboration, competition and social dimension; Emilio, a student, narrates:

«'Wayouthack' has just been this, a message to people: "there are no predestined places or cities, there is only the desire of a community to organize and change [...]. We saw guys finally get involved, we saw so many of these ones doing wrong but keep fighting to finally prove who they were, we saw a lot of curiosity on what Wayouth is and what it does. We have seen who has always told us what and how to do it, asking us what and how to do it. But, most importantly, we have seen many, many smiles».

However, together with the awareness of an opportunity to change, of a new approach to didactics, students experience the fear to face new situa-

tions. A sense of 'risk' emerge, in fact, in their stories, tied to ideas of failure, of a bet with uncontrollable results, to the existence of complex obstacles to overcome.

Teachers' storytelling, instead, tell about a new pedagogical experience founded on new models as challenge-based learning and problem-solving formats, to build innovative ideas, professionalism, knowledge. Monica, a teacher, says:

«From Mountain Hack to Futura Rieti the viral concept of challenge has freed up new energy, taught stress management, implemented public speaking skills and cooperative entrepreneurship (for both teachers and students)».

Here the change is evidenced in the area of motivation and of communication and management skills.

In terms of *relationship building*, community building and network openness, we may say that F. in both teachers and students groups emerge as an experience of relationship building. Students' stories tell us primarily how the F. experience is tied to the concept of community building and to the concept of territory (Putnam, 1993; 2000; Fukuyama, 1995; Bourdieu, 1980; Coleman, 1990). F., by building a new sense of education by opening the school classrooms' borders via exchanges with the territory (i.e.: educational events fielded in the city squares, archeological areas..) is interpreted as an opportunity to build new relationships with peers, teachers, institutional representatives. A story told by another teacher, Monica, tells as follows:

«In the autumn of 2017 at the Convitto Paolo Diacono di Cividale²⁵, the Young G7 event involved a hundred people and created a network of knowledge between students and colleagues never experienced before. The network has been maintained over time, representing a model of reference for further experiences».

The F. story exalts the value of community by building and reinforcing relational networks inside schools and among schools across the territory. Lucia, a teacher narrates:

«Students from Cellini Tornabuoni School in Florence, participating to Futura Bologna and DUBAI Global Education Forum, following the experience, felt the need to share the experience with all the members of the school community and the territory. They published an article on the Cellini school newspaper explaining all the training activities that were carried out».

Narration is a cognitive modality that allows ordering the symbolic reality that surrounds us, specifically, in the complexity of the networks of social

²⁵ This is the name of a High School in the Italian Friuli Region.

relations in which teachers operate (Poggio, 2004). In F., the concept of 'territory' extends its natural borders abroad, across the world, behind a remarkable international orientation of the Young G7 and Young G20 Experiences. These are the first international projects, conceived and promoted by Italy, of the simulation of the G7 and G20 negotiations run by students. These stories confirm how F. helps in building a global awareness mindset (information-education frame), working as an incubator for new relationships with intercultural communities (relationship building frame), as a training field for mediation and confrontation (training frame) and an international collaboration and cooperation project (diplomatic skills frame).

As above illustrated, we have provided an analysis of the impact of the F. experience on the emotional and relationship building dimensions, characterising the process of change within the students and teachers' community. The results of an analysis on the impact of F. on the integrated skills checklist follows.

Skills

The narrative analysis evidences how the topic of skills building is acknowledged by the two groups of students and teachers', providing relevant insights in an area of our research which is key to evaluate the impact of the F. experience on the education system.

Skills such as *Critical thinking*, *Problem solving*, *Attitude to collaborate and participating* are required by the complex 21st century working environment, where abilities to solve problems critically and attitudes to teamworking are decisive. The narrative analysis of students and teachers' stories indicate the following results:

1. Critical thinking: the interpretation that students provide of the concept of 'critical thinking' slightly differs from the teachers' one. While the first group focuses on the end result leading to the skill development, stressing the concepts of growth and development, teachers interpret the dimension in a more processual way, stressing the dimension of the debate, the induced reflection, the interaction within the team.
2. Problem Solving: Students acknowledge how the F. hackathons and models ask them massive efforts to solve issues perceived as 'bigger than them'. At the same time, students understand how this effort and the context in which it is made helps them building the key problem-solving skill. Students, in fact, are challenged to provide innovative solutions to complex issues in different fields as environment, health, culture, politics, urban planning, earth disasters and many more. Young participants strive to find solutions, mostly by using digital-technical tools, as often required by the project launch brief, coupled with a creative process. Teachers, instead, probably due to their role of supervisors, tend to focus more on

the description of the context in which their students are called to work. Their narrations tell about teams and discussions, the training value of the projects and the competences and abilities generated, the use of the English language and the knowledge generated by the F. approach.

3. Collaboration and participation: Both the F. hackathons and modeling experiences expose students to a new learning approach. The mismatch between the traditional education model which tends to be individualistic and the new collaborative approaches provided by digital platforms, the communities of narration (Poggio, 2004) and of practises (Wenger, 1999) that F. nurtures, the need to teamwork, are perceived by students and teachers as an effective innovative way to recreate a new educational pattern. However, even though the teamwork experience raises relational issues it appears that the F. training provides chances to solve them. Lucia, a teacher tells:

«At a Wayouthack in two working groups there were evident interpersonal problems among the students (mutual dislike, resentments...). After the experience, in one case out of two, the students of the group showed improvements in relationships, also keeping their positive new relationship at school and outside it».

Students give an interpretation to this dimension connecting the challenge and competition side with the friendship and group dimension, indicating a co-petitive culture both inside groups and inter-teams which is a valuable feature of hackathons. In fact, both in real challenges and in virtual environment teams, while maintaining the competitive attitude, they are open to provide competitors with information if needed or other ways of helping out colleagues. Strictly related to the need and will to collaborate and participate is establishing relationships with peers, a key citizenship competence, emerging as a need and a widespread result acknowledged by students. A deep sense of 'belonging to a team' evidences the building of strong group identity (Lewin, 1947; Turner & Tajfel, 1982).

On the teachers' side, participation and teamworking is often expressed under the general conceptual umbrella of 'sharing'. Specifically, these concepts are framed in an area of exchange in the perspective of cooperation, collaboration, and in the area of the role of discussion and debate played to build engagement. Margherita, a teacher, tells:

«There are times when we stop and reflect on the experiences that have gone through our lives and this is one of those. «Futura Macerata», which took place on September, 28-29, was one of those events that change you dramatically, that enrich you, opening up new horizons and new perspectives. The key word that characterized this extraordinary challenge from the beginning is *sharing*».

Personal attitudes

1. Character contents as *self-esteem* and *self-confidence* are relevant 'Life Skills' for the jobs of the future, where new professional profiles have to be originally created. Students appear to polarize their stories into a narration of courage and hope co-existing with a more negative perspective of failure, uncertainty, mistake. Ada, a teacher, narrates of Sara:

«Sara, a student marginal to her classmates, scarcely considered, participates in Art & Music Hackathon in Rome discovering leadership skills and strong ability to work in a group. She wins the participation to Dubai 2018, where she has a chance to work with children of other nationalities, discovering her future international professional orientation».

Experimentat leads to failure, this is a natural condition, but the failure experience is a key step for growth. F. apparently has provided new opportunities to build self-esteem in new educational contexts helping students to experiment themselves in new relational and project challenging situations and this is acknowledged by the young participants. Teachers, in their role of observers and often of student's coach, stress how these experiences help to let young students' potentialities emerge providing high levels of satisfaction both to students and teachers. Also, they help in the emersion of talents and work as solutions to 'difficult cases' as a transversal narration shows. A teacher tells about Silvia's case, proud of her results achieved:

«Silvia (the reticent) is convinced that she has made a wrong choice of school, she studies in a very methodical way without particular enthusiasm. She took part to the Siena hackathon on food only to please her teacher, indeed, complaining about the whole experience, believing that she was wasting time for her «methodical» study. Silvia is now part of the winning group that has given life to the project «Re-Water» now in the acceleration phase and under construction».

Similarly, Nadia tells about a student:

«Giorgio, an extremely brilliant student, participates to the 'Water-Hack' and fails in the relationship building and collaboration with his team. He isolates himself suffering from his failure. Having his second chance in «Arcipelago Italia», he manages to engage properly and he wins, finally acknowledging his skills».

2. F. appears to build *positive and optimistic attitudes* throughout the two groups, injecting high levels of energy and adrenaline during the hectic hackathons. The teacher Caterina says: «It was the first time the school was able to catalyze so much energy for three days!». In the student group this positiveness stems by many elements as the projection to the future driven by this enthusiasm, by the novelty and the opening of new

horizons, new opportunities and possibilities. The teachers' perspective traces again to their role of observers, happy to see smiles on their students' faces, colours, enthusiasm in living a real 'dream' as defined in narrations. At the same time they perceive the relevant opportunity for students. Mario, a teacher, says:

«To the ban the laziness, the disinterested, the petty selfishness and the loneliness: space to altruism, to generosity, willingness and group work. [...], all evidences regarding young participative people, who love what they do and express themselves better, because they are given the opportunity. [...]. I perceived that the School can also give happiness: to our students, first of all, but also to us teachers [...]. Students [...] with their smile, with their friendliness, with their education, with their commitment, they have been the living example of a school in step with the times. A school that helps the most fragile and strengthens the strongest [...] Hostesses, stewards, tutors and mentors, vigilantes, photographers, dancers, singers, actors and storytellers, guides and more: here they are the students of 2018 of #FuturaCampobasso».

3. Indeed, in such a context, *perseverance and determination, motivation* in driving the whole group to a winning solution, in case of an hackathon (as 'Bormiohack: young student meet the Alps'), or an impressive simulation in a modeling (as Global Young G7 in Canada) are two characteristics at the basis of a successful entrepreneurial approach and represent key competences for the future. In both groups this skill which is behind the key feature of 'commitment' is driven both by an irrational wave of passion and a rational use of will as a route to success. Teachers observe that this attitude was unknown before, in class learning.

«When back to school after a Hackathon, two demotivated students who used to perform badly showed improvement in maturity and commitment, acquisition of professionalism, rigor and consistency in undertaken commitments», says Franco name. Also Monica tells: «Some students that used to appear demotivated, by playing key roles in the event, revealed significant communication and management skills».

When perseverance and determination, driven by passion and willingness, is associated with a prize and the pride to become the winner, motivation to work and willingness to achieve results, which is another key competence of the 21st century skills appears from stories to be granted. While teachers describe their students as 'really fatigued', young participants show not even to consider this side, concentrated as they are in their job.

4. In addition, F. storytelling evidences its ability to reinforce and stimulate a deep *sense of belonging towards one's own school*, described as a 'school

in a territory', as a 'school made of teachers', perspective which is focused on the teachers' side more on 'roles, colleagues, context'. Maria Antonia tells: «Students, after the successful experience of the 'Mountain Hack', for the first time, spontaneously asked to organize the orientation for primary schools of the territory, with positive effects on the number of school enrollments».

5. Narrations tell also about *social and civic engagement* (Putnam, 1993; 2000). This is a valuable dimension, in line with a citizenship competence, built through the F. projects aiming to establish an engagement with the territory at local, national and international level and launching projects precisely in the field of sustainability. So it appears to be interpreted both by students and teachers, telling stories of community and citizenship, social and sustainability (i.e. Gran Paradiso hack, hackathon on sport, national parks and mountain development).

These competences may be summarised in the citizenship skills reflected into a need of references models, a responsible use of the web and representing bases for a lifelong, lifewide learning, as declared by UN, UNESCO, EU Council recommendations (see Methodology, section 3).

This frame of values appears to indicate a new role for school focused on knowledge but also on values, able to instill in its students the sense and meaningfulness of social capital, of civiness (Putnam, 1993; 2002) and capability (Sen, 2001).

Conclusive remarks

The above illustrated research on the F. case-study, conducted via a storytelling approach, had the intent to provide an initial evaluation on the effectiveness of the project in bridging the soft-skills 'educational mismatch' (EM). This notion contributes to the general objectives of the National Digital School Plan launched by the Ministry of Education, University and Research. As explained in the introduction, for EM we mean the gap in terms of effectiveness of the national educational system in generating digital performance and competitiveness versus Eu and Global standards, specifically, in the area of Human Capital where soft skills play a key role.

The methodology of narrative analysis has appeared effective in providing a qualitative answer to the research question. As Bruner argues (1961, 1986), the whole F. narration, via the cognitive and linguistic processes based on specific cultural patterns plays a valuable role in building the perceptive experience, in organising memory and constructing life oriented to a specific purpose. In line with the symbolic interactionism theoretical mainframe applied in our research, this process is conducted by attributing meaning to the disordered and formless mass of perceptions that accompanies one or more

F. hackathon or modeling experience. In this context, storytelling allows to relate actions and events, contextualising them within stories retrospectively reconstructing an overall sense. Narration represents, thus, the privileged place of sense-making, that is the construction of meaning, performing a relational and normative function in both groups (Poggio, 2004). Overall, research findings evidence how the F. approach, founded on the Deweyan principles of experience learning and challenge-based learning activates a process of change as indicated by both students and teachers. Specifically, both groups' narratives confirm the process of change happening throughout the whole set of 21st century skills expressed in the integrated check-list indicated in the methodology section of this study (see section 3 on Methodology). This feature emerges, particularly in the student group, in skills such as Critical Thinking, Problem Solving, Collaboration and Participation but also Personal Attitudes. The F. impact on teachers' change, on the other side, though seemingly covering all items of the skills check list, emerge more significantly in the areas of motivation, school management, networking with the territory, teaching approach. In general, teachers stress the pedagogic value of the experience learning approach for their students, perceiving F. also as an exceptional and exclusive, deeply motivating experience.

Based on these points, on the theoretical frame of constructivism in education, and on the study results, we may say that the F. project showed positive effects in bridging the soft-skills EM, in the direction indicated by the check list. However, these early particularly positive results need further investigation to reach a thorough and solid project assessment as many challenges have emerged through the research work. For instance, the above research was not in the position to determine whether these changes will be kept and consolidate in the future. In this view, a research agenda should be designed integrating the qualitative research with a quantitative survey to be fielded in different moments: before the first F. students and teachers' experience and after, in different moments (i.e. right after the experience, at the 'back to school' moment; one month after; six months after). The study should also be applied comparatively to three separate samples of students and teachers who: 1. have experienced F. once; 2. have experienced it more times and 3. haven't experienced it at all.

Besides this key aspect, a more robust and critical review of this assessment should be made to allow a validation of F. as a 'new educational model': economics, for example, should be attently examined by indicators measuring and balancing effects vs. costs; interclass and school dynamics have to be attently examined; the scaling of the project, based on the capability building effectiveness of F.. In fact, the F. project recruits schools on a MIUR call basis which defines each time the number of schools engaged, thus not covering the totality of Italian high school students, nor teachers, promoting, at each

call, a different theme and engagement. It is important, thus, to understand the induced effect of F. students and Wayouters on groups of students who didn't have the chance to experience it, notwithstanding the high rotation of students' engagement at each F. call. In this complex dynamic, it has to be considered that it is the teachers who select students to be involved in F. and, therefore, it should also be understood the recruitment strategies adopted (a prize for merit?). This means investigating, in the groups of 'excluded' students, the perception and behavioural dynamics of the 'outsiders' and how both dynamics affect their will to learn from their peers, who were 'lucky' to be selected. Here, the attitudes of the F. students with excluded peers appears to be decisive. As for teachers, it is them who promptly and outside working hours decide to send the application, in coordination with the school dean, in response to a call. In this case, the reactions of the not participants colleagues may be tied to more complex reasons related to personal competences, motivation, relationship with school leaders or other colleagues. The issue of scaling, in fact, is a central theme for the development of the project which F. appears to be oriented to address via a bottom-up, capacity-building strategy aiming to build competences in teachers who will develop the F. project on an autonomous base, fund raising the budgets required and adapting it internally to the school and in relation to the territory network. Some schools have already started this route.

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