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EU FRAMEWORK OF CAREER DEVELOPMENT IN TEACHER EDUCATION

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Introduction

The book is the first project result of the Neet prevention in Educational systems through positive Future vision Enhancing Learning and teacher Education (NEFELE) Erasmus+ project. The chapters provide a theoretical framework of the project giving methodological landmarks that can be useful to teachers for enhancing adolescents' career development.

In the current scenario, characterized by digitalization, youth unemployment and sustainable challenges, it is even more difficult for adolescents and young people to answer the question "*What do you want to do when you grow up*?".

During schooling, teachers have the critical function of "scaffolding" student career transitions. Nevertheless, teachers are not adequately trained during the Initial Teachers Education (ITE) and Continuing Professional Teacher Development (CPTD) courses. From this idea comes this book. The chapters provide an insight into the existing psychological and pedagogical literature on the key role of teachers in adolescents' career choices and offer insight for teachers interested in helping their students to plan their futures.

Section **1** shows an overview of adolescents' career development challenges and recommends career guidance in educational systems.

Section **2** analyzes the current digital revolution and the present and future of the labor market in light of these changes.

Section **3** and Section **4** present the main career development theories, the teachers' role in adolescents' career development and how teachers can facilitate the career decision-making process in their students and promote a positive vision of the future.

Section **5** allows identifying factors that can contribute to a successful career and improved mental health during the career transitions, i.e. the experience of positive emotions and the enhancement of students' character strengths.

Section **6** reviews the EU frameworks of competences proposing a joint use of Digcomp 2.0 (and also DigCompEdu), LifeComp, EntreComp, and GreenComp as a student competences toolbox.

1 – The Career Development issue: Introduction and overview

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Conceptual location: today's challenges and career development

Making career choices represents one of the most demanding developmental tasks for adolescents and young people. This assumption has important consequences because it allows considering career choices as a development process which in turn contributes to the positive development of an individual.

The career development process must be studied from a relational perspective focusing on the dynamic interaction between a changing individual in a changing context. The career choice and environment are inextricably entwined. Career choices are environmental-related because they are affected by given social and economic conditions; at the same time, the result of career choices influences personal and societal development.

As Ribeiro and Fonçatti (2018) highlighted, career is universal, but its enactment and meaning are highly contextual. Living in today's society as an adolescent and young person means facing challenges never experienced by any other generation during early life (Fusco et al., 2021). Career pathways unfold in an unpredictable environment characterized by three major challenges: technological evolution and digitalization, economic recession and labor market issues, and environmental factors.

In Europe young people from ages 15 to 34 are the most vulnerable people in the labor market with the highest risk of unemployment and underemployment. The latest data from

Eurostat (2021) showed that 17.6 % of the 20-34 year-olds in the EU in 2020 were neither in employment nor in education or training (NEETs), while the vast majority of young people aged 15-19 remained within education or training. The NEET rate is closely linked to economic performance. The data showed that the share of NEETs in the EU jumped after the start of the global financial and economic crisis in 2008 (18.7% in 2009) and reached its peak at 20.5% in 2013. After 2013, the NEETs rate decreased (16.4% in 2019), however with the onset of the COVID-19 pandemic, it increased by 1.2 percentage points, to 17.6%. The NEET-rate increases with increasing age (15.7% for people aged 20–24, 18.6% for those aged 25–29, and 18.2% for those aged 30–34) and is mainly characterized by females (7.7 percentage points more than males). Across the EU-28, Greece and Italy recorded the highest rate of NEET (29.4% and 25.9% respectively), while the lowest rates have been registered in the Netherlands, Sweden and Luxembourg.

Uncertainty about the future job can lead to the feeling of directionless and disengagement from school (Kenny et al., 2019; Masdonati et al., 2022) and makes it more difficult to aspire and imagine a possible future (Guichard, 2018; Hooley et al., 2019). Moreover, according to the latest theory of sustainable careers, the labor market issues make it difficult to construct sustainable careers, find decent work and build a decent life (Blustein et al., 2019).

Strategies to reduce the school-to-work transition difficulties are important. The substantial reduction of the proportion of youth not in employment, education or training was included as target (8.6) in the Agenda 2030. This specific target of Sustainable Development Goals is related to the eighth goal, "Promote inclusive and sustainable economic growth, employment and decent work for all".

The construction of careers, also in a sustainable and decent work angle, requires a preventive perspective in guidance and career intervention promoting a positive vision about the future

for self and others. Moreover, the intervention in a crucial moment of career choices, as well as in the school-to-work transition, is no longer sufficient. It is important to promote lifelong policies (Rossier et al., 2020) in interaction with the specific environment. The idea is to provide opportunities to engage adolescents and young adults transforming an existing environment into a holding one to experience them in a different role and to imagine positive futures. A good environment must provide a space to discover and enhance personal strength and resources for a proactive growth. Such interventions cannot be equal for all but must take into account the environment in which the individual evolves.

For this reason, today, helping adolescents to create a career pathway means providing an environment where adolescents and young people can discover and enhance personal strength and resources, and not guidance to a specific career/work in a matching people-to-job view. The environment should guarantee the possibility to explore possible careers and think, imagine, and draw one's future.

Transforming educational systems as a good environment for career development

An emerging area within vocational psychology is the attention to external influences in the career development process. Several studies showed the central role of the quality of relationships (Schultheiss, 2003) and supportive behavior in career decision-making. According to the literature, adolescents who perceive adults as supportive are more likely to expect success in their chosen careers (Kenny et al., 2003) and in overcoming obstacles in this process (Lent et al., 2002).

In recent years, support for students' career development has become an important focus of attention in educational systems. Children and adolescents spend most of their time in

school. In this holding environment, teachers have the potential to be a key source of support (Metheny et al., 2008). Due to today's challenges, teachers have the critical function of "scaffolding" student career transitions. The educational system will have to prepare students to master career transitions and provide new skills and ways of learning. Individuals might be more active in the creation of their occupations, in the directions of their active lives and in choosing the type of role that they have in their society (Cohen-Scali et al., 2018). The educational system, as a social elevator responsible for the formative and human growth of individuals, may call to be an active promoter of career development. Education should prepare students for both today's society and the future. First of all, education is supposed to deliver the competencies and skills to prepare people for their participation in society and live successfully taking into account that these competencies and skills in demand change over time (Wang, 2012).

Activities that promote career exploration may be integrated into school curricula and teachers play an important role in developing students' career skills and promoting positive resources. Teachers are called upon to provide students with the support for the development of those career skills to cope with the changing context which promotes flexibility, adaptability, and a vision of the future characterized by hope and optimism. Although the key role of teachers in career development is recognized, teachers spend much of their time addressing learning problems rather than helping students make career choices. Moreover, in many cases, teachers are not trained for this task. Also in the educational setting, career interventions must consider the labor market conditions and the specific characteristics of the educational system of the country where adolescents grow up (Masdonati et al., 2022).

Several countries are seeking to tackle the issue through guidance intervention in schooling, with the key role of teachers. In this report, it was considered the specific context of NEFELE Partnership, i.e. Italy, Switzerland, Spain, and Greece.

Example of support measures for adolescent career development in four countries

Italian context

The Italian education and training system includes early childhood education and care, primary, secondary, post-secondary and higher education. Early childhood education and care (ECEC) covers the educational services for children aged less than 3 years and the pre-primary schools for children aged from 3 to 6 years. ECEC is not compulsory. Compulsory education is free and starts at 6 years of age and lasts for 10 years up to 16 years of age and covers the first cycle of education and two years of the second cycle. The First Cycle of education is composed of primary and lower secondary education. Primary education starts at 6 years of age and lasts 5 years. Lower secondary education starts at 11 years of age and lasts 3 years. The Second Cycle of education starts at 14 years of age and offers two different pathways: the upper secondary school education and the regional vocational training system. The upper secondary school education offers both general (liceo) and vocational (technical and vocational) programs and lasts 5 years. The regional vocational training system (IFP) offers three or four-year courses organized by accredited training agencies or by upper secondary schools. Education at Higher Level offers different pathways: Universities, High-level arts, music and dance education institutes, Higher schools for language mediators, and Higher technical institutes. Finally, Adult Education is provided by centers for school education for adults and by upper secondary schools. For more detailed information, see the

structure of the Italian national education system furnished by Eurydice (https://eacea.ec.europa.eu/national-policies/eurydice/content/italy_en).

Regarding the students' career development, school guidance is conceived as a task of Italian schools. The National Guidelines for lifelong guidance (Letter no. 4232/2014) recommend the guidance role of schools as a support, not only for the school-to-work transitions but in the challenging moments of life and as a promoter of employability and social inclusion. Despite the importance of guidance programs from the first cycle of education to the upper secondary level, the most efforts in guidance programs are from the secondary education to university and/or the labor market and these activities are part of the Plan for the educational offer (POF) of each school, as well as of the Annual plan for CPD of teachers. A portal dedicated to guidance towards upper secondary and postsecondary education is available to all students (https://www.orientamentoistruzione.it).

In the educational setting, guidance is often carried out by teachers. According to the National Guidelines for lifelong guidance (2014) guidance is associated with guidance teaching ("didattica orientativa") and taken care of by the teachers adequately trained for this task. The last Guidelines of "*Progetti per le Competenze Trasversali e per l'Orientamento* - Transversal Skills and Orientation Projects" (PCTO) of 2018 argues that the role of the school is to stimulate transversal skills and facilitate the network with companies and the territory toward a "*comunità orientativa educante - educational guidance community*". However, some schools also provide psychological services. Outside the schools, at the disposal of individuals, there are the Territorial employment services that provide information on the opportunities for training and work (see, https://www.istruzione.it/archivio/web/istruzione/dg-studente/orientamento/normativa_orientamento.html and/or https://www.orientamente.info/it-IT/il-progetto-orientamente.aspx).

Although there are national rules governing the importance of guidance practices in schools, the feasibility of these interventions remains problematic. Among the difficulties, it is worth mentioning that teachers who find themselves carrying out new functions, such as guidance, require specific training that goes beyond their initial training.

Swiss context[1]

The Swiss context is strongly characterized by its federalist nature. The Swiss Confederation has in fact for many aspects, economic, social and political, a management partly delegated to the 26 cantons that compose it. In addition to being divided by cantons, another peculiarity of Switzerland is to have three major linguistic macro-regions - French, German, Italian - where each has a different linguistic and cultural tradition. Consequently, these differences are also present with regard to school, school systems and professional orientation.

On a national level, in order to request general information, there is an online platform, www.orientamento.ch, which offers materials and in-depth information on training and professions that can be undertaken in Switzerland. In addition, the *Swiss Conference of Cantonal Ministers of Education* (the EDK), which is responsible for national coordination in education and cultural policy, has established the *Swiss Service Center for Vocational training, vocational, university and career guidance (CSFO),* specialized in the orientation field. In fact, the CSFO is responsible for developing and providing information services as well as ensuring intercantonal collaboration for vocational training and career guidance. In addition to this, the institution also organizes and contributes to the continuing education of career counselors.

[1] This paragraph was edited by Marina Pettignano and Tanja Stevanovic, University of Applied Sciences and Arts of Southern Switzerland.

For more personal (e.g I have just obtained a secondary school certificate, can I benefit of a free of charge consultation?) and specific questions (e.g. Where can I find a guidance service?), however, users are directed to specific cantonal sites. A first division is given by the linguistic region to which they belong: Italian-speaking Switzerland, German-speaking Switzerland, and French-speaking Switzerland. Nevertheless, there are services common to all cantons, which are mentioned on the main site. Guidance offices run information centers where users can find a wide range of documentation on occupations, training and career possibilities and individual career counseling. However, the type of intervention and local management may vary depending on the choices made by individual cantons. Therefore, given the diversity and complexity of the Swiss context and given that the NEFELE project team in Switzerland operates in the canton of Ticino, it was decided to illustrate the example of this canton in the management of career orientation.

In this canton, guidance is managed by specialized professionals (career counselors). These figures are present in middle schools and high schools for two days per week and consultations are free of charge (the federal and/or cantonal government supports this service with public funds). The guidance counselors are available by appointment to discuss and assess the personal situation of the pupils, provide information or in-depth documentation, develop information and decision-making strategies to elaborate a training project. Career counselors work mostly with individual interventions, but they also go into classrooms to present the service and distribute the handbook *"Scuola Media e poi?" (Middle school and then?)* during the second year of secondary school. In addition, in specific moments, from the second to the fourth year of middle school, students have also the opportunity to carry out internships of a few days to discover and observe directly the professions of their interest. A peculiarity of the Swiss school system is the fact that there is an initial selection of students, between those who decide to undertake academic studies and those who decide

to undertake the so-called vocational studies already at the age of 12-13. So from the age of 13 a student already begins to outline his or her professional path.

Young adults attending professional schools, adults and young people in general can also access a guidance service, but for a fee, at special regional services (4 in Ticino). Following the example of the canton of Geneva, Ticino has recently added a new guidance system to the existing services. This is the "*Città dei mestieri* - City of professions[2]". In this service, it is possible to contact a specialist (career counselors, apprenticeship commissioners, adult educators, and personnel consultants) for first-level advice without an appointment and free of charge, or to carry out independent research in the documentation center equipped with multimedia and paper resources, which are freely accessible. In addition, information and dissemination events on the topic of orientation are also organized by the *Città dei mestieri*.

In 2015, the project "*Educazione alle scelte* - Choices education" was implemented concerning orientation in middle schools in Canton Ticino. Specifically, it was intended to integrate within the school curriculum activities aimed at stimulating pupils' reflection on the topic of orientation. The need for this project arises, in addition to increasing socio-economic complexity, as a result of the introduction of the new school curriculum where greater emphasis on the theme of personal choices and plans was placed. The conceptual framework of reference for "Educazione alle scelte" is the ADVP (Activation du Développement Vocationnel et Personnel - *Activation of Vocational and Personal Development*) developed in Quebec at the University of Laval in the early 1970s by Denis Pelletier, Charles Bujold and Gilles Noiseaux. The ADVP is a psycho-pedagogical methodology based on the idea that the construction of a project represents for the individual a symbolic place of personal growth (Cattaneo et al., 2017). This growth requires time and firsthand experience. For this

[2] https://www.cittadeimestieri.ti.ch/

reason, with "Educazione alle scelte" the class teacher, collaborating with the guidance counselor, has the task of accompanying students throughout middle school with the goal of broadening their knowledge of professions - for example, avoiding stereotypes -, emphasizing the value of training and paths, accompanying them in their confrontation with reality and encouraging moments of exchange on the topic of orientation (Beltrami & Vanetta, 2012). Teachers have at their disposal specially designed worksheets and teaching materials examples in order to work with students on this topic. In addition to the teaching material, trainee teachers are also supported by a course that they are required to attend during their teaching qualification at SUPSI (DFA - Dipartimento Formazione e Apprendimento - "Department of Education and Learning") which focuses on "Educazione alle scelte". This course allows future teachers to receive an introduction on ADVP methodology and information on how to operate in the transitional period that students experience during middle school and subsequent educational or professional paths.

Spanish context[3]

The Spanish education system comprises the five following levels: 1) Early childhood education (ages between 0 and 3 in the first cycle and between 3 and 6 in the second cycle); 2) Basic education, which consists of Primary education (ages between 6 and 12) and Compulsory Secondary Education or ESO (ages between 12 and 16); 3) Upper secondary education (ages between 16 and 18), which offers two possibilities: Baccalaureate (general option) and intermediate vocational training (vocational option); 4) Higher education, which comprises university studies and advanced vocational training; and 5) Adult education. Basic education is compulsory and provided free of charge in public institutions.

[3] This paragraph is edited by Marta Miragall, Marian Serrano-Mendizábal, and Rosa Mª Baños, University of Valencia.

In Spain, educational competences are shared between the General State Administration (Ministry of Education and Vocational Training) and the authorities of the 17 autonomous communities (Departments for Education). The central education administration executes the general guidelines of the Government on education policy and regulates the basic elements or aspects of the system, whereas the regional education authorities develop the State regulations and have executive and administrative competencies for managing the education system in their own territory. Schools have pedagogical, organizational, and managerial autonomy for their resources.

Regarding the students' career development, the regulation that establishes the basic curriculum of Compulsory Secondary Education and Baccalaureate states that "special attention will be paid to the educational and professional guidance of pupils" (Royal Decree 1105/2014). Thus, the functions of teachers include "the educational, academic and vocational guidance of students, in collaboration, where appropriate, with specialized services or departments" (Organic Law 2/2006, of 3rd May, on Education).

With respect to teacher`s training, in order to enter the teaching corps of Compulsory Secondary Education, Baccalaureate and Vocational Training, it is necessary to hold a college degree and a specific 60 ECTS master's degree in Teacher Training. The syllabus of this master's degree programme establishes as one of the competences to be acquired "knowing and applying resources and strategies for information, tutoring and academic and vocational guidance". Therefore, teachers are expected to receive some training on adolescents' career development during the teacher training. However, the professionals who are usually responsible for coordinating the vocational guidance in schools are the counselors, who usually hold a degree in Psychology or Psycho-pedagogy and have taken the speciality of "Educational guidance" in the master's studies in Teacher Training.

In the schools, the counselor (or the orientation department) coordinates the educational and vocational guidance of students, especially regarding choosing between different academic, training, and vocational options. This department is in charge of developing the "Academic and Vocational Guidance Plan", which establishes the contents and organization of the academic and vocational guidance that must direct the efforts of all the teaching staff, as well as the actions to be carried out within the tutorial activities and by the orientation department. Although actions vary between autonomous communities and between schools, some activities are usually common to all Academic and Vocational Guidance Plans, as informing students about educational and career options; providing them with resources or strategies for finding information of interest about study itineraries, educational institutions, professions, etc.; and helping them reflect about their interests, abilities, and preferences. Teachers and counselors count on resources provided by the Ministry and the Regional Governments of each region, which are available on their education websites.

Additionally, the orientation department, together with the teachers, participates in the elaboration of the "Guidance counseling", which includes a proposal on the most suitable academic, training, or vocational itinerary for each student. The Guidance counseling is based on the degree of achievement of the key competences by the student and is provided to the students and their families at the end of the Compulsory Secondary Education. The Guidance counseling should also consider the students' interests, their intellectual level, aptitudes and personality, their work habits as well as their academic performance in the last years.

Finally, it is important to mention that the Spanish Ministry of Education and Vocational Training participates in the European network of National Resource and Information Centres for Guidance (Euroguidance), which is present in 34 countries. In Spain, the

Guidance Service of the Subdirectorate General for Guidance and Lifelong Learning has launched the Euroguidance Spain website as part of the actions of the Plan for Vocational Training, Economic and Social Growth and Employability: https://euroguidance-spain.educacionyfp.gob.es/en/inicio.html The aim of this website is to provide professionals with relevant and updated information on European initiatives, programmes and resources for the practice of Career Guidance.

Greek context[4]

The provision of free education to all citizens and at all levels of the state education system is a constitutional principle of the Greek State. The central administrative body for the education system across all fields, agencies and levels is the Ministry of Education and Religious Affairs.

Compulsory education lasts 11 years and extends from the ages of 4 to 15. The stages of the Greek education are mainly three. Primary education includes pre-primary and primary schools. Pre-primary school in Greece is compulsory for all 4-year-old children. Primary education is the next stage and spans 6 years. It concerns children in the age range of 6-12 years. Secondary education includes two cycles of study:

1. Gymnasio (lower secondary school): It is compulsory, it lasts 3 years, it provides general education, it covers ages 12-15, it is a prerequisite for enrolling at general or vocational upper secondary school (lykeio). Evening gymnasio also operates but attendance starts at the age of 14.
2. Lykeio (general or vocational upper secondary school): It is optional, it lasts 3 years, pupils enroll at the age of 15. There are two different types:

[4] This paragraph is edited by Vicky Maratou, Hellenic Open University.

   a. general lykeio: Includes both common core subjects and optional subjects of specialization. There is also the evening general lykeio.
   b. Vocational lykeio (day or evening): It offers the secondary cycle of studies and the optional post-secondary cycle, the so-called "apprenticeship class".
3. Tertiary education (i.e. higher education) is the last level of the formal education system. Higher education includes Universities, Polytechnics, the School of Fine Arts. Most undergraduate degree programmes take 4 academic years of full-time study. Postgraduate courses last from 1 to 2 years, while doctorates at least 3 years.

Lifelong learning is provided at second chance schools, vocational training institutes, vocational training & apprenticeship schools, lifelong learning centers, colleges.

Secondary education in Greece provides academic, technological and scientific knowledge that will enable students to graduate and take the annual national exams in order for them to enter the university programme of their choice.

The School Career Guidance (SEP) course became known in Greece in the 1950s, which was rather late compared to other European countries. The Greek educational system lacked specialized teaching staff for the course, therefore SEP became inefficient and the vast majority of the students that attended the course noted that SEP did not help them at all in choosing a specialty or profession. During the past twenty years, career guidance courses have been absent in the Greek primary and secondary school curricula. Until last year the subject of career guidance was not taught at schools. Only sparse references on the topic were offered in a subject on Citizenship and Society which was taught to students aged 14-15 years old.

However, during the school year 2021-2022, the Ministry of Education & Religious Affairs established an 1-hour per week course entitled "Skills Labs". This course is based on

experiential and active learning. One of the topics that are introduced in the course is Career Guidance and Counseling. This topic is taught to students aged 14-15 years old by secondary education teachers who are certified as career guidance counselors.

In Greece, the responsibility for administering career guidance services in the field of education lies with the Ministry of Education & Religious Affairs through the activities of the National Organization for the Certification of Qualifications & Vocational Guidance (EOPPEP)[5]. EOPPEP acts as the national coordination body, implementing systematic guidance interventions, ensuring the quality provision and the professionalization of career guidance, the networking among the different career guidance stakeholders and the constant development of information, guidance and counseling tools and material for the career guidance practitioners working in education and employment settings in the public and private sector.

Students and teachers in secondary education can be supported on career guidance issues through the following paths:

The EOPPEP also provides a national portal for lifelong career counseling[6] that is widely used by secondary students, teachers, young people, and career guidance practitioners. It offers open and user friendly tools and materials such as:

- digitized interest, values and decision making tests;
- e-portfolio development tool;

[5] https://www.eoppep.gr/index.php/en/counseling-a-vocational-guidance-en
[6] https://e-stadiodromia.eoppep.gr/

- contact information of the authorized school career guidance counselors in the Greek territory. These counselors are secondary education teachers with specialty in career counseling.
- thematic information catalogs and videos on the world job market and skills;
- access to the *Greek Real Game*[7] for adolescents aged 12-15 and 15-18 years old;
- other relevant useful links and information.

According to a recent Greek law (August 2021), secondary education teachers specialized in career guidance and counseling, will be appointed at the Directorates of Secondary Education, which operate under the respective Regional Directorates of Education, and in Offices of Counseling and Guidance so as to support school units in career guidance issues. Students, with the mediation of their school, can schedule a visit to the aforementioned organizations to get relevant information and guidance from the experts.

The Ministry of Education and Religious Affairs and EOPPEP are responsible for the education and training of the career guidance counselors. EOPPEP has been assigned the responsibility to validate the Continuous VET programmes provided by lifelong learning centers on career guidance and counseling, regarding their content, training curriculum and material, and expected learning outcomes.

Teachers in secondary education have the following training options if they want to get certified as career guidance counselors:

- EOPPEP's regular training seminars for career guidance counselors of the public and private sector. EOPPEP sets the criteria, requirements and procedures for

[7] https://e-stadiodromia.eoppep.gr/index.php/real-game

the accreditation of career guidance counselors (Table 1) and establishes a register of accredited professionals in the sector.

- Numerous continuous vocational training programmes (at least 250 hours) on career guidance organized by lifelong learning centers. However they must be certified by EOPPEP.
- In 2020, a university-level qualification on career guidance and counseling became the formal requirement for recruitment in publicly funded career services and programmes. Therefore, specialized training on career guidance and counseling is offered only by postgraduate programmes in some Greek Universities. These programmes range from two to four semesters (60-120 ECTS/EQF 7, 8). There are also a few undergraduate programmes (EQF 6) that include career guidance and counseling lessons in their curricula.

Table 1. The two levels of certification

LEVELS OF CERTIFICATION	REQUIREMENTS	PROFESSIONAL FUNCTIONS
Basic-level professionals	EQF 6 university degree in any subject + written examinations + on-the-spot evaluation of a F2F career guidance session	Plans, organises and prepares career guidance provision
		Provides career guidance services according to the specific needs of his/her clients
		Assesses, reorganises and extends the access to career guidance services
Expert-level professionals	EQF 6-8 university degree in career guidance – No examinations	Supervises and assures quality of guidance provision
		Conducts research and provides education in career guidance
		Promotes the development of career guidance tools

Integrating adolescents' career development in education system: when

As mentioned above, a preventive perspective in guidance is required. It is important to foster career planning at an early age to prevent problems with career transitions before they occur. Career development theories showed that vocational development constitutes a lifelong process from infancy through childhood, adolescence, adulthood and old age (Hartung et al., 2004; Magnuson & Starr, 2000). As suggested by Hartung and colleagues' review (2004), career development begins much earlier in the life span and what children learn about possible career paths and work affect the choice they make as adolescents and young adults.

The construction of the concept of work starts from 8-9 years old when children have already developed an idea of work based on the practical observation of real context, and have understood the means of work as supporting family and helping others (Schultheiss et al., 2005), and are able to associate the positive and negative aspects associated with work, e.g., fatigue (Schultheiss, 2008).

At 9-10 years old starts an important period for future planning. Studies showed that steady progress in career exploration, aspirations, interests and adaptability during this period facilitates the process of career choices and the connectedness to their living environment (Ferrari et al., 2015; Hartung et al., 2005; Magnuson & Starr, 2000; Watson & McMahon, 2008). Reflective activities about careers in this stage assume a more preventive value (Maijers & Lengelle, 2012). Specifically, this period should be conceived as a phase of active precursory engagement in the career to develop career adaptabilities, as concern about the

future, confidence in future career choices, control over life, and conceptions about career decision making.

Future orientation skills develop throughout adolescence starting from 11 to 12 years old, together with an increase in independence, and personal identity. At this stage, future goals become more detailed, and adolescents start focusing on educational and professional goals, relating them to the real world (Arnett, 2000). The emotional and role models given by parents and teachers play a central role in facilitating their career exploration and information gathering (Taviera & Moreno, 2003). Related to information gathering, in the first moment of exploration several studies showed the need to stimulate reflexivity on what the children observe and provide an example of different activities providing educational support and specific stimulation (Ferrari et al., 2015).

During this age, individuals attend the middle school educational level. Therefore, middle schools should be conceived as an important training period for career development, for future planning and, above all, for the emotional view addressed to it. The future must re-brand the aspects of optimism and hope and not be characterized by feelings of fear, distress and anxiety, which instead seem to characterize the vision of the future of our adolescents and young adults in this stage.

Brief conclusion

Shedding light on the current challenges and the key figures involved in the career development process is a starting point to creating a community of practice.

The educational system should provide a safe environment to allow students to build their future. Along with this, such a system should aid adolescents' career exploration and promote hope and optimism about the future. Preventive interventions are required to guide the

students in the career transitions before they occur. In this preventive perspective, several theoretical frameworks are present, i.e. the Positive Youth Development (PYD) that underlines the relevance of enhancing individual resources and strengths as protective factors for coping with society's challenges. The teachers are called to join their students in career development and have the key role of the scaffolder in this process.

As our conceptual location recommends, teachers are not trained to perform the guidance tasks. For this reason, it should be important to identify the specific concept of career development and provide the teachers with the specific instruments to help students to shape their future.

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2 – Professions of today and tomorrow: the future of work in the digital transition

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Introduction

In recent decades, the labor market has been strongly influenced by sudden developments in society. The effects of mega-trends such as the digitization of products, services and processes, the digital transformation of the labor market through for example automation, increased occupational mobility as well as demographic transformations have brought changes in the economic, social and environmental spheres that directly or indirectly affect not only workers and companies, but also training systems (OECD, 2018). In recent times, the COVID-19 pandemic has contributed to accelerating some of these trends triggered by the fourth industrial revolution (Schwab, 2016), while fostering the emergence of new models and ways of working.

One of the main challenges of education and training systems is therefore to be able to train skills that are durable over time and transferable to different workplaces and contexts, in order to ensure a virtuous circle of lifelong learning (UNESCO, 2015) throughout the professional career of individuals, while reducing the gap between the skills offered by the worker (and developed in educational paths) and the skills required by the labor market (Cedefop, 2010; European Commission, 2012; McGowan & Andrews, 2015).

In this contribution, an attempt will be made to unravel these issues, with the aim of describing their future evolution outlined by scholars and governmental and non-governmental institutions.

The advent of Industry 4.0: changes, challenges and opportunities

The economic and social history of the industrialized world is characterized by at least three industrial revolutions that originated less than a century apart. The first industrial revolution originated in England between the second half of the 18th century and the first half of the 19th, changing people's lives through a shift from an agrarian and artisan economy to one dominated by industry and mechanical production through the use of water resources. It produced epoch-making changes such as the birth of the steam engine, which completely revolutionized the world of transport. The second industrial revolution, which began at the end of the 19th century, was characterized by the introduction of electricity in industry and the first mass productions. This phase saw a radical change in the economic system, with the development and domination of the industrial capitalist system. The third came about thanks to some scientific and technical discoveries that opened up prospects for mankind that were unthinkable in the first half of the 20th century. Technological innovation (with the birth of computers, the spread of the Internet and the consequent changes in communication methods) triggered changes that produced economic development and social progress, albeit not equally spread, from the middle of the 20th century. In this context, the tertiary sector (services) became predominant not only in terms of number of workers employed, but also in terms of economic profits and opportunities offered; finally, information technology made it possible to automate production.

According to the founder and executive chairman of the World Economic Forum, Klaus Schwab, who coined the term, the world is now facing the fourth industrial revolution (also known as Industry 4.0). It builds on the third and is characterized by a fusion of technologies that is blurring the boundaries between the physical, digital and biological spheres (Schwab, 2016).

According to Schwab (2016), the fourth industrial revolution is a sum of advances in artificial intelligence (AI), robotics, the Internet of Things (i.e. vehicles, home appliances, etc. connected to the Internet and able to collect and transmit data online), nanotechnology, biotechnology, quantum computing (which enables the study of how to use phenomena in quantum physics to create new ways of computing) and blockchain (which allows digital information to be recorded and distributed, but not edited). These advances affect many products and services that are rapidly becoming indispensable to modern life. Examples include GPS systems that suggest the fastest route to a destination, voice-activated virtual assistants like Apple's Siri, Netflix's personalized recommendations and Facebook's ability to recognize people's faces and tag them in a friend's photo. AI is augmenting processes and skills in every industry; neurotechnology is making huge strides in how we can use and influence the brain as the final frontier of human biology; automation is disrupting age-old paradigms of transportation and manufacturing; and technologies like blockchain and smart materials are redefining and blurring the line between digital and physical worlds. As a result of these technological advances, the fourth industrial revolution is paving the way for changes in the way we live and radically disrupting almost every business sector. And all this is happening at an unprecedentedly fast tempo.

Among the challenges posed by the fourth industrial revolution, Schwab (2016) notes in particular that of inequality, especially in its potential to disrupt labor markets. In this regard, he states: "As automation replaces labor throughout the economy, the net displacement of workers by machines could exacerbate the gap between returns on capital and returns on labor. On the other hand, it is also possible that the displacement of workers by technology will, in aggregate, lead to a net increase in secure, high-paying jobs" (Schwab, 2016), assuming a future in which the critical factor of production will no longer be capital, but the talent of individuals.

Schwab (2016) sees many opportunities in the fourth industrial revolution, including the opportunity to (1) raise global income levels; (2) improve the quality of life for populations around the world, in particular through access to remotely accessible products and services (such as watching a film, enjoying movies and music, making payments online or buying a product online, etc.); (3) increase efficiency and productivity through technological innovations; and (4) lower the costs of transport, communication and logistics in global supply chains.

Industry and the labor market cannot fail to address issues such as climate change, biodiversity loss, water scarcity, etc., as well as major social and economic challenges. The global financial crisis of 2008-2009 stimulated this debate, and these concerns were translated into the vision of a "green economy" (IEA, 2009). In 2015, countries around the world adopted the 2030 Agenda for Sustainable Development and its 17 goals. These goals recognize the need to implement strategies that build economic growth, but also address a range of various social needs including education, health, social protection and job creation, while addressing environmental pollution and climate change. The Sustainable Development Goals thus establish a real link between the ecological and economic systems and reinforce the need for a transition to a green economy, i.e. to more sustainable ways of production and consumption (Söderholm, 2020).

The ongoing transformations described above, driven by advances in information and communication technologies, artificial intelligence and robotics, are profoundly changing the way people work, interact with each other, communicate and live. According to the OECD (2019) on the one hand, these innovations can reduce some inequalities between individuals: skills can be deployed more flexibly, through e.g. teleworking (which allows for job creation regardless of company location and facilitates employment or continued employment for new mothers); opportunities to access online educational content for self-training are easily

accessible (even at no or very low cost); communication, sharing among family, friends, colleagues, customers and purchasing products and services online has (almost) no borders. On the other hand, however, digital transformation can also lead to certain imbalances (OECD, 2019):

- between workers (between those who are highly skilled and can easily adapt to a digitized workplace environment and those who, on the other hand, have lower skill levels and, consequently, a greater likelihood of having to bear the costs of digital transformation at their own expense);
- between companies (with a small proportion of them gaining a large share of profits);
- between regions (with some able to attract high-tech firms, create high-paying jobs and enjoy a highly skilled population, while others miss out on opportunities or stagnate); and
- between individuals (inter- and intra-generational digital divide).

OECD member countries do not seem to be equally prepared to reap the benefits of digitisation (OECD, 2019). A small group of countries (Belgium, Denmark, Finland, the Netherlands, Sweden, Norway and New Zealand) perform very well on most of the dimensions considered (skills still needed to benefit from digitisation, degree of exposure to digitisation and policies implemented by the country). Their populations are generally well equipped in terms of skills and supported by robust lifelong learning systems. A larger group of countries (Japan and Korea) performs well in some indicators and less well in others. Finally, an equally sizable group of countries (Chile, Greece, Italy, Lithuania, Turkey) have the lowest values both in terms of skills levels and policies.

Jobs at risk and future jobs

According to numerous international governmental and non-governmental organizations (e.g. OECD, European Commission, WEF and ILO), the technological progress brought about by the advent of artificial intelligence, automation and robotics will create new jobs in the short to medium term. Some professions will emerge, others will disappear. In this transition, those who will lose their jobs are likely to be the least ready to seize the new opportunities. Their skills base at the time of the transition will not match the skills required by the new jobs of tomorrow, and the skills acquired during training will therefore soon become obsolete. The green transition of economies will create millions of jobs as industries and economies implement sustainable practices and green technology, i.e. low carbon, resource efficient and socially inclusive. As a result, many jobs will disappear and there will be a downsizing of carbon- and resource-intensive industries that are not green (ILO, 2019). Countries' labor markets and social security systems will also come under pressure from demographic changes: the increase in the youth population in some regions and the aging population in others will put pressure on the economy, social security and personal care systems (ILO, 2020). It is estimated that by 2050 the structural dependency ratio, which measures the percentage ratio of the population of non-working age (0-14 years and 65 years or older) to the working population (15-64 years), will increase significantly in Europe (+24.8 percentage points) and North America (+14.4 percentage points), moderately in Asia (+8.5 points), Latin America and the Caribbean (+7.6 points) and Oceania (+6.8 points); in contrast, in Africa it is estimated to decrease by 18.7 points (United Nations [UNDESA], 2017). Pressure on labour markets will also come from growing migration flows (increasing in Europe due to the recent war between Russia and Ukraine).

Estimates of future labour market transformations differ from region to region. The OECD (2016) estimates 9% of jobs at risk of automation in the 57 European, Central Asian and

North American member states, stating that a significant proportion of jobs (between 50% and 70%) will not be completely replaced, but a large proportion of the tasks in these occupations will be automated, transforming the way they are performed. In the United States, an estimated 47% of jobs are at risk of automation (Frey & Osborne, 2015). Chang & Phu (2016) estimate for ASEAN-5 (Indonesia, Malaysia, the Philippines, Singapore, and Thailand) that 56% of jobs are at risk over the next 20 years. Finally, in developing countries, it is estimated that two-thirds of occupations are exposed to automation (World Bank, 2016). In the "Future of Jobs Survey 2020" conducted by the WEF in 15 industries and 26 economies worldwide, it is estimated that between 2020 and 2025 85 million jobs will be "transferred" from humans to machines, while 97 million new jobs will emerge in which there will be a division of labor and therefore a "collaboration" between humans, machines and algorithms. Among the latter, a strong demand is expected for existing professional figures such as Data Analyst and Scientist, AI and Machine Learning Specialist, Big Data Specialist, Digital Marketing and Strategy Specialist, and other similar figures dealing for instance with security aspects or the design of digital platforms and software, such as the Information Security Analyst or the Software and Applications Developer. On the contrary, there will be a decline in demand for existing jobs such as Data Entry Clerks, Administrative and Executive Secretaries, Mechanics and Machinery Repairers, and Financial Analyst (WEF, 2020).

In the future, the WEF (2020) identifies 99 new occupations that reflect the adoption of new technologies and the growing demand for new products and services, notably in the green economy, the data and AI economy and finally in engineering, cloud computing, and products development (Figure 1).

The labor market has shown a growing demand for employment in non-routine analytical occupations, accompanied by significant automation of routine manual jobs (WEF, 2018).

According to WEF, these changes can be observed at an empirical level in data tracking employment trends in the United States between 2007 and 2018. The analyzed data indicate that almost 2.6 million jobs were at high risk of automation over a decade. These are those occupations that depend on technologies and work processes that are becoming obsolete, such as Computer Operators, Administrative Assistants, Filing Clerks, Data Entry Keyers, Payroll Clerks and other similar roles.

Figure 1: Emerging roles clustered into the jobs of tomorrow

Source: WEF (2020, p.32).

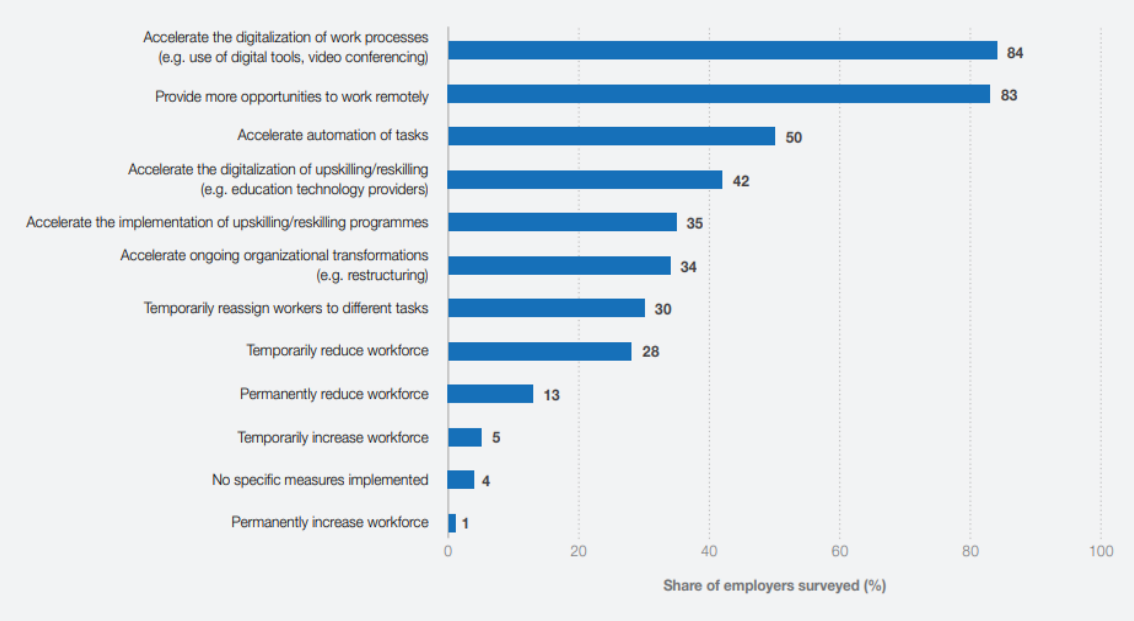
New models and ways of working

The digital acceleration of the labor market and the transition to the green economy has recently led to changes in working models (Amankwah-Amoah et al., 2021). As highlighted in the WEF report (2020), the recent COVID-19 pandemic has helped to accelerate these changes, some of which already exist. The range of measures including local and national closures, social distancing measures, quarantines, etc. have forced many companies to adapt their business models in a short period of time; this has affected how companies manage employees and employer-employee relationships (Sostero et al., 2020). The pandemic has shown that a new hybrid way of working is possible on a larger scale than imagined in previous years; however, business leaders remain uncertain about the productivity outcomes of the shift to remote or hybrid working (WEF, 2020).

Among the business leaders surveyed by the WEF (2020), just over 80% report that they are accelerating the automation of their work processes and expanding their use of remote work (Figure 2). A significant 50% also indicate that they are set to accelerate the automation of jobs in their companies. In addition, more than one-quarter of employers expect to temporarily reduce their workforce.

A study by the Adecco Group in which 14'800 knowledge workers in 25 countries were surveyed to obtain a clear picture of work practices, behaviors and attitudes towards work, shows that three quarters of respondents believe that companies should measure performance by results rather than hours worked and that companies should increase their focus on mental health (Adecco, 2021).

Figure 2: Planned business adaptation in response to COVID-19



Source: WEF (2020, p.14).

According to the world's leading strategy consultancy multinational McKinsey & Company, remote working and virtual meetings are set to continue. In a recent study conducted by this multinational, considering only the remote work that can be done without a loss of productivity, it was found that about 20% to 25% of the workforce in advanced economies could work from home between three and five days a week (McKinsey, 2021). This represents four to five times more remote work than before the pandemic and could induce a major shift in the geography of work, as individuals and companies move from large cities to suburbs and small towns. Although remote work will continue, in some cases there will be a return to face-to-face work, as some jobs that can technically be done remotely are better done in person: Negotiations, critical business decisions, brainstorming sessions, providing sensitive feedback, and onboarding new employees are examples of activities that may lose some effectiveness if done remotely (McKinsey, 2021).

New (or already existing) more flexible working models, such as smart working (teleworking established by agreement between employer and employee and structured by cycles or

objectives, without normally being bound by time or place of work), digital nomadism (working remotely while leading a "nomadic" lifestyle), and job-sharing (a flexible working arrangement that enables two employees to work part-time schedules, albeit sharing the same role and responsibilities that one person would ordinarily undertake in a single full-time job) will be used to enable a better work-life balance and will require greater autonomy and responsibility by workers.

The Skills of the future

Industry 4.0 is disrupting the way companies work and organize themselves. Some of these changes are already visible now in particular in industrial production through robotics, interconnection, augmented reality or 3D printers, and in the transmission of data and information through cloud, big data and analytics. According to Pereira and Romero (2017) Industry 4.0 can have further consequences in six main areas: industry, products and services, business models and market, economy, work environment, and skills development. Regarding skills in particular, Pereira and Romero (2017) state the need to prepare workers for performing new tasks, to train the professionals of the future and aware them about new technological trends and opportunities. According to Petrillo et al. (2018), in the future companies will increase the need for skilled digital work. The need for manual work will decrease. Workers must become able to control and monitor production processes through the analysis of data and information supported by digital devices. Intelligent systems will make it possible to make qualified decisions in a shorter time. Robotics will share a workstation with humans. Intelligent tools and technologies will become more autonomous and automated. The supervision and efficient application of machines by humans will become more important than ever before (Petrillo et al., 2018).

With regard to digital skills specifically, those used in non-routine tasks, problem-solving and the creation of digital outputs are most associated with growing occupations. On the contrary, digital skills used in administration (e.g. use of MS Office) and routine tasks are associated with those occupations that are unlikely to grow in terms of employment. Thus, not all digital skills will be equally important and some occupations that do not currently require intensive digital skills will do so in the next 10-15 years (e.g. catering, bar managers, engineering, primary and nursery education teaching professionals) (Expert Group on Future Skills Needs [EGFSN], 2018).

According to the WEF survey (2020), 50% of workers will need reskilling by 2025, as adoption of technology increases. Critical thinking and problem-solving will be at the top of the list of skills employers will need to have. Self-management such as active learning, resilience, stress tolerance and flexibility will also be a group of skills increasingly required by the labor market. Technology use and development and the ability to work with people will be two other large groups of skills in demand. The demand from companies for skills such as physical abilities, core literacies, management and communication of activities will decrease. The 15 skills most in demand by companies will be the following:

4. Analytical thinking and innovation
5. Active learning and learning strategies
6. Complex problem-solving
7. Critical thinking and analysis
8. Creativity, originality and initiative
9. Leadership and social influence
10. Technology use, monitoring and control
11. Technology design and programming
12. Resilience, stress tolerance and flexibility

13. Reasoning, problem-solving and ideation
14. Emotional intelligence
15. Troubleshooting and user experience
16. Service orientation
17. Systems analysis and evaluation
18. Persuasion and negotiation.

The role of political, educational and training systems

In an increasingly global and interconnected world, these and other changes related to the fourth industrial revolution require systemic responses with a short- to medium-term time horizon. There are various institutional actors around the world who have addressed these issues, either by providing concrete responses or by developing visions and future trajectories in order to anticipate new trends and "design" the future of work.

This includes the European Commission. For several years now, in order to stimulate and at the same time protect member states' companies from the risks of global production and trade, the European Union and its member states have been implementing important national and supranational programmes. Already in 2012, in a communication addressed to the European Parliament, the European Commission stated that "European education and training systems continue to fail to provide adequate skills for employability and do not work adequately with businesses or employers to bring learning closer to the reality of the labor market. This failure to match skills supply and demand is of growing concern for the competitiveness of European industry" (European Commission, 2012, tda). In the same communication, the European Union identified a number of challenges in order to promote strategies in the Member States to develop reforms to support economic growth and employment through the development of quality skills. These challenges are the following:

1. Promoting excellence in vocational education and training (development of dual quality systems);
2. Improving the performance of groups of students at high risk of dropout and with low basic skills;
3. Strengthening the transmission of soft skills that increase employability and of skills such as entrepreneurship, digital skills and foreign languages;
4. Reducing the number of low-skilled adults;
5. Increasing use of Information and Communication Technology (ICT) supported learning;
6. Revision and strengthening of the professional profile of all teaching professions (continuing education for teachers at all levels, school managers and teacher trainers; selection, recruitment and processes to ensure the entrance into the labor market).

In the following years, the European Union developed a programme called "Europe 2020", which was part of the Community Strategic Framework and set five ambitious targets on employment, innovation, climate/energy, education, and social inclusion to be reached by 2020. The targets set in this programme for education and training were (European Commission, 2010):

- at least 82% of graduates must have found an employment within three years after graduation;
- at least 95% of children between the age of four and school starting age must have participated in an early childhood education programme;
- the percentage of 15-year-olds with insufficient skills in reading, mathematics and science must be less than 15%;
- at least 15% of adults aged 25-64 must have participated in a lifelong learning programme.

Also noteworthy are the efforts in the field of digital transformation carried out by the European Union. For the period 2016-2020, the European Commission had promoted a plan in favor of the digital revolution, aimed at the creation of a digital single market (European Commission, 2016). In March 2021, the Commission published a Communication entitled "2030 Digital Compass: the European way for the Digital Decade" (European Commission, 2021), in which it sets out vision and goals for a digital transformation by 2030. Among the non-binding policy objectives proposed to Member States, four main trajectories emerge that will inevitably impact not only the labor market, but also society as a whole:

1. a digitally literate population and highly skilled "digital professionals" (at least 80% of the adult population should have basic digital skills and the number of ICT specialists in the EU should rise to 20 million, compared to 7.8 million in 2019);
2. sustainable, secure and high-performance digital infrastructures (all European households should have a gigabit connection (up from 59% in 2020) and all populated areas should be covered by 5G (up from 14% in 2021). It will be necessary to strengthen climate-neutral cloud infrastructure and investment in quantum computing to ensure that Europe has its first quantum-accelerated computer by 2025);
3. digital transformation of businesses (three out of four companies in Europe are expected to use cloud computing, big data and artificial intelligence services; more than 90% of European SMEs are expected to reach at least a basic level of "digital intensity" (up from 61% in 2019));
4. digitisation of public services (all key public services should be reachable/available online and all citizens should have access to their health records electronically. 80% of European citizens should use a digital identity passport).

Another central player in the debate on the future of work is the International Labor Organization. In October 2017, the World Commission on the Future of Work was established, and its work was completed in November 2018. The Commission, made up of people from all over the world and from different professional sectors, developed a plan for the future of work centered on the person. The plan rests on three pillars that should together generate growth, equity and sustainability for present and future generations, while putting people and their work at the heart of companies' economic and social policies (ILO, 2018). The three pillars call for increased investment in (1) people's skills, (2) labor institutions and (3) decent and sustainable work. The plan therefore touches on topics such as:

- the extension of the universal right to lifelong learning;
- the possibility of acquiring skills, reskilling and upskilling through the creation of an adequately funded effective lifelong learning ecosystem, which covers all training actors, in particular governments and employers;
- support for young people in the school-to-work transition; support for older workers who wish to remain professionally active;
- transformation of labor policies with a view to gender equality: parental leave, investment in public care and personal assistance services, promoting the sharing of unpaid domestic care and assistance work, transparency and fairness in wage policies, gender equality in technology-centered jobs of the future;
- universal social protection from birth to old age;
- the remuneration of all workers through wages that guarantee "decent living conditions";
- improved management of working time: greater autonomy of workers over their own working time; better work-life balance; flexibility of working time;

- improved social dialogue between trade unions and employers;
- management of technology that enables decent work, where machines are "under the control" of humans and not vice versa.

Brief conclusion

The changes caused by Industry 4.0 and accelerated by the Covid 19 pandemic do not make it easy to imagine the future of the world of work. Many challenges lie ahead, although we also see several possibilities for positive change (Schwab, 2016). It is clear, however, that people in need today will increasingly need to be supported (ILO, 2019; WEF, 2020). In general, everyone, from compulsory schooling until the end of his or her professional career, should be given the opportunity to develop the skills necessary to adapt to the changes described (Pereira & Romero, 2017; WEF, 2020).

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3 – What is it useful for teachers to know about adolescents' career development?

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A bit of history on career development theories

The concept of career development has a long historical path and is closely linked to the global historical and economic moments. In fact, as Guichard (2005) points out, the intention of theories of career development is to build links between the aims of individuals and the economic activity of the country. However, economic activity changes over time and also career development theories have to change and readjust to it. In the next few chapters, we will discuss the economic macro-changes that have occurred from the early 20th century to the present and especially how theories of career development have evolved with them.

The industrialization era (1900-1960) and the birth of "vocational guidance"

Already at the end of the 19th century, Richards (1881) indicated the need for a new profession linked to career counseling. Since that time, even at the school level, the first counseling interventions were implemented in various high schools in the United States (Savickas, 2009). Therefore, the modern conception of career counseling appeared in the early 20th century in both the European context (Savickas, 2009) and in the United States during the first arrivals of emigrants from Europe, fleeing because of the outbreak of World War I (Nota et al., 2020). Particularly in the U.S. context, European emigrants were often illiterate and thus had difficulty in making a complex analysis of their employment status. There was a realization of the need to support occupational choices. The first idea of career counseling dates back to Frank Parsons who spoke for the first time of "vocational guidance"

in 1908 (Savickas, 2009) and, as early as 1909, introduced tools to identify people's work "inclinations" (Nota et al., 2020). Parsons is also the first to propose targeted interventions to help immigrants (but also local adolescents and adults) to choose a profession (Herr, 2013). Although it is true that vocational guidance is best documented in the U.S., the country to which it is attributed, the concept of modern vocational guidance also appeared in Europe in 1908. For example, in Germany, parallel to Parsons, Dr. Wolff gave birth to the department for vocational counseling (Savickas, 2009).

In these early stages, passions play a central role, so special attention is paid to interests and abilities, elements that are assimilated to passion and are thus the core of narratives in vocational guidance (Nota et al., 2020). Indeed, at that time, the economic context from a purely agricultural economy was going towards an industrial economy, in parallel with the process of industrialization (Savickas & Pouyaud, 2016). Hence, new professions were emerging. In this regard, the visionary Parsons not only spoke for the first time about the concept of vocational guidance but also developed an early model based on the individual-environment paradigm. His choice process had three steps: 1. An understanding of oneself, one's aptitudes and interests; 2. An understanding of the demands and conditions, advantages and disadvantages of different occupations; and 3. Reasoning about the relationship between these two components (Parsons, 1909, cited in Herr, 2013).

The first professionals involved with vocational guidance were from different social branches, such as social workers, lawyers, economists, psychologists, and educators (Savickas, 2009). We are faced with an initial idea of counseling and therefore there was not yet a precise designated professional figure for this purpose. It's only after a while that the profession of vocational guidance is established and the counseling field sees the light (Savickas, 2009).

Between the 1930s and 1940s there was a further change in the vocational guidance process. The development of psychometrics in psychology brought an interest on the individual affective and cognitive components of career choice. Personal interests began to take an even stronger position in choices. This new interest in person-job matching allowed, on the one hand, to find people suitable for a particular job and, on the other hand, to make people express their preferences (Nota et al., 2020). Even though the individual-environment paradigm remains at the base, a greater consideration of the individual is beginning to take hold. Already during the 1940s some theories shifted more to the individual. This is the case of Rogers and Wallen's theory (Covner, 1947) which indicates how a difficulty in vocational choice can be part of broader difficulties of the individual. Thus, there is a tendency for more individual-centered counseling (Crites, 1974) in parallel with an increasing interest in affective and cognitive components of working performances (Nota et al., 2020).

The development following World War II and the gradual improvement in career and educational opportunities bring subsequent change in career development theories. Societies are increasingly oriented towards a capitalist model moving from the industrial era to the modern era (Savickas & Pouyaud, 2016). We see the birth of the so-called middle class. People are more educated, rights are more contemplated, and the individual is increasingly at the center of choices. The concept of a career becomes increasingly present when it comes to work life. Choice is now considered as something increasingly complex and that contemplates more and more elements. Interests are therefore seen in a new light: they are no longer considered just simple preferences of the individual, but as traits of his personality (Nota et al, 2020). In this moment of transition that sees the passage from an era of industrialization towards a modern era we find Holland's theory (1959). This theory led to

the development of tools that measure the interests of individuals so that they can be divided into six types: Realistic, investigative, artistic, social, enterprising, and conventional.

The modern era (1960-2000) and career education: early theories of career construction

Since the '50, attention and sensitivity to the career field is broadening and greater attention is given to the individual and his characteristics. For example, career construction theories began to also consider people with disabilities and the Division on Career Development and Transition (DCDT) in which the focus are the students with disabilities is created (Wehmeyer et al., 2019).

Historically, the society is situated in a changing context and prepares for the so-called modernity era. In this timeframe Super (1953) was the most influential career development theorist. He considered career development as an "orderly, continuous, and predictable process" (Brolin, 1976, p.19). A peculiarity of Super's theory is his life-span view, which will then be an inspiration for career development theories of our days. In fact, differently from previous career development theorists, Super sees career development as a process. It should be pointed out that Super's idea of process still remains rather static when compared to the more recent theories. Super is in fact limited to consider the evolution of an individual in terms of age stages (Brolin, 1976). In particular, in his theory Super proposes five major life stages in the career development (Wehmeyer et al., 2019, pp.180-181):

1. Growth (birth to 14 years of age). Primary activities during this stage involve the development of self-concept and a rudimentary understanding of the world of work.
2. Exploration (ages 15 to 24). Primary activities involve skill development, development of preferences, and tentative career choices.

3. Establishment (ages 25 to 44). Primary activities involve entry-level skills development, stabilizing work experiences.
4. Maintenance (ages 45 to 64). Primary activities involve adjustment to changes in the workplace, improving one's position in relation to one's career.
5. Decline (ages 65 and beyond). Activities involve preparation for retirement, reduction of output (Leung, 2008).

For Super (1957) a career is a succession of positions occupied over the course of a lifetime, and each transition has its own developmental tasks to face. A few years later, David Tiedeman's (1961) proposed his theory of career decision-making. It is one of the first theories of career development recognized as "constructivist". Tiedeman proposes seven stages of development that are sequential, tied to age-based norms, and largely unchanging, such as Super (1953). This theory is critical to consider as it designed the basis of Savickas' (2008) career construction theory. For this reason, Tiedeman is also referred to as the prime engineer of career construction (Savickas, 2008). According to Savickas (2008), career construction is essentially based on three major truths: "career emerges from self-organization, purposeful action bridges discontinuity, and decisions evolve through differentiation and integration" (p. 217). Tiedeman's breakthrough also lies in the desire to move beyond the partitioning of elements influencing the career development (e.g. personality, needs, interests). Until then, in fact, Super's (1953) and Holland's (1959) theories and also Roe's theory (1956) of needs took into account only individual's vocational and personality aspects, e.g., interests, but did not consider a more dynamic view of the individual: the individual becomes an actor in knowing and constructing his or her own self (Savickas, 2008).

As mentioned, self-organization is a central element in Tiedeman's career construction theory (1961). In order for a person to cultivate self-organization there must be two elements: self-construction and a system of self-organization (Savickas, 2008). In short, Tiedeman believes that aspects such as interests, skills, needs, and values are the initial elements in building the organization of self. However, contrary to Holland (1959), Tiedeman (1961) states that these evolve and change in interaction with the environment. Adaptation is thus, according to Tiedeman, a compromise, a state of equilibrium, between the self-organization and the environment (Savickas, 2008). With Super (1953) the self was seen rather as an object, with Tiedeman the self is now seen as a subject. In short, Super's self is made from an "I" composed of attitudes and evaluations. With Tiedeman, on the other hand, the self-concept considers the self as active, as the protagonist (Savickas, 2008).

From the '70 onwards, the theories no longer focus on vocation but rather on career. Hall (1976) creates the term "protean career" to indicate careers that develop between several organizations, in a way that is neither predetermined nor easily controlled. From this conception arose the branch of study of "boundaryless careers". Indeed, the boundaryless careers model seems to be the most suitable to capture changes in career paths. The concept of career focuses on the pathway of the person and on interactions with the external world, in particular with the labor market (Barbieri, 2003). The protean career path is both self-directed and values driven and the success in career is psychological: the ultimate goal is a sense of self-esteem and accomplishment.

In keeping with Tiedeman, the theory of protean career acknowledges the self in a more subjective way, focusing on the ever-changing nature of the individual. In addition, the individuals are in control of and responsible for their own personal development. Boundaryless career focuses on the fact that the diversification of experiences and the

multiplication of learning opportunities increase the "career capital" of the person (Arthur et al., 1999) and, as a consequence, amplify his or her occupational potential.

The postmodern era and the current scenario (2000 - today): the career construction theories

The beginning of the 21st century was characterized by important progressions in technology but also by the enforcement of financial capitalism which implies a special interest in quick profits and led to greater precariousness and instability of the labor market (Guichard, 2018). This introduces us into the postmodern era. If in the previous era, called modern, a certain solidity and linearity was present, with a stable organization and a greater possibility of finding a secure and stable job, in the postmodern era the scenario changes (Kalleberg et al., 2000). A traditional career in the modern era was characterized by a high degree of linearity and low professional mobility and the professional choice was made in adolescence with little change afterwards. Linear, continuous and regular careers were the norm and their management was the responsibility of organizations (social contract). On the other hand, career today is characterized by major mobility, continuous change and evolution, and has become a sequence of work experiences of an individual in continuous evolution (Stalder, 2017).

Bauman (2000) describes today's societies as "liquid". In this kind of society transformations are so rapid that values and beliefs are also volatile. In order to describe the complexity of these "liquid societies", the acronym *VUCA* was developed (Malaval, 2018). Briefly, VUCA summarizes the concepts of Volatility, Uncertainty, Complexity and Ambiguity. Canzittu (2020) resumes definitions of these concepts from Robbins (2018) and Bennett and Lemoine (2014) as follows (p. 1) : Volatility refers to a relatively unstable change [...]; Uncertainty refers to the lack of knowledge about the consequences or implications of an event [...]; Complexity

is the result of numerous information and practice networks. Each part of these networks is interconnected with the others and can be multiform, complex, or even chaotic [...]; and Ambiguity concerns the lack of knowledge of the basic rules of the situation: causes and effects are not identifiable [...].

For Canzittu (2020) living in this uncertainty removes benchmarks for people to set up their lives. It is important for people to mobilize new skills in order to cope with this complexity, for example to be able to make choices and to reflect on their work (Dell'Era et al., 2020). Moreover, this situation specifically increases career decision-making pressure in learners and workers (Maree, 2020a). Career decision-making is already a difficult issue itself, due to different personal and contextual characteristics (Career indecision, n.d.; Gati & Asher, 2001; Kelly & Lee, 2002), i.e. (i) lack of and need for career choice information; ii) identity diffusion (an inadequate sense of self); iii) trait indecision (inability to make career-choice decisions); iv) choice anxiety (anxiety regarding career choices); and v) disagreement with others (observing objectively and/or subjectively that significant others disagree with or disapprove their career choices).

A further revision of career development theories is therefore necessary due to an increased recognition of the complexity of human life and of the challenges related to transitions. In 2009, Savickas and colleagues claimed that career development theories were facing a crisis. No matter how stable the characteristics of individuals are, the system changes and constantly requires adaptability (Savickas et al., 2009). In this context, theories implying linear stages of career, typical of 20th century, are no longer adapted. Career development is now more complex and exposed to different influences, external and internal (Nota et al., 2020). On the other side, this mutability offers the possibility for people to become more active in constructing their own future (Nota et al., 2020).

The theoretical framework of career construction (Savickas, 2013) was developed precisely to respond to this increased labor market instability. This theory was an advancement of earlier career counseling theories and it "explains the interpretive and interpersonal processes through which individuals construct themselves, impose direction on their vocational behavior, and make meaning of their careers" (Savickas, 2013, p. 147). Moreover, career is considered from a contextualist perspective and development is a matter of adaptation to the context instead of only inner maturation (Savickas, 2013). *Success* is a matter of matching between personal needs and characteristics and social expectations (Rudolph et al., 2019). Again, as previously observed with the theories of Super (1957) and Tiedeman (1961) the construction of self changes in this perspective. Savickas (2013) talks now about "self as project". In order to be able to make a long-term employment plan, there is a need to maintain a constant flexibility that allows one to move between different jobs and be open to possibilities (Savickas, 2013). In this optic imprinted to the project and to the projectuality people assume three social roles: that of actor, that of agent, and that of author (Savickas, 2013).

The actor role is one that the person takes from birth, acquiring social norms in family context (Savickas, 2013). The self as agent is the extension of the individual to contexts such as community and school and is related to adaptability during transitions (Savickas, 2013). Finally, the self as author, is the component most related to narrative orientation interventions. The self that grows in its experiences as an actor and agent becomes able to unite its purposes and intentions into a narrative (Savickas, 2013). In the conception of the self as an agent, Savickas (2013) focuses particularly on adaptation and developmental tasks that the person faces in life. In this regard, one of the key components in postmodern career construction theories is career adaptability. This ability permits individuals to adapt to the high complexity degree and the continual mutability of the social and economic environment.

It is composed of four dimensions: concern, control, curiosity, and confidence (Savickas, 2013). Concern indicates the ability to orient oneself in the future, control is the self-discipline in managing one's career choices, curiosity is the behavior of seeking information about career possibilities and, finally, confidence is related to the feeling of self-efficacy in one's career construction. The concept of career adaptability therefore mobilizes planned attitudes, stimulates exploration of the self and the environment as well as requiring informed decision-making (Wehmeyer et al., 2019). Good career adaptability skills appear to be associated with career success (Hirschi, 2010), a successful mastering of vocational transitions (Germeijs & Verschueren, 2007) less probability to be faced with prolonged unemployment (Fouad, 2007), less career indecision and more life satisfaction (Parola & Marcionetti, 2021).

In this sense, resources acquire a particular importance in the concept of career adaptability. Indeed, given the complexity and instability of the environment, it is difficult to operate on that, so it is up to the person to use his/her resources to adapt to this fluidity. As is evident throughout all three historical periods considered so far, the concept of self, considered as a major component in career construction theories, is central to the process of change. In this regard, Guichard's (2005) self-construction theory states that career-life identities are (re)constructed supported by narrating stories of key career-life experiences linked to possible and realizable future career-life projects.

Savickas' career construction (Savickas, 2005, 2013) and Guichard's self-construction theories are important as they underlie Life Design Counseling (Wen et al., 2022). In this framework, life is seen as a *design*, a continuous work of planning, flexibility, and openness to change. Therefore, the demand for proactivity on the part of the individual over the course of his or her life and also in his or her career building is continuous (Nota et al., 2015). The life-design framework implements the previous theories, in a life-long, holistic, contextual

and preventive model. Life-long because the paradigm moves across the lifespan, with trajectories that are not always linear (Savickas et al., 2009). In this case, one must help people understand what knowledge and skills are important for their life development. Holistic because the whole person must be taken into account (Savickas et al., 2009). It is at the same time contextual, in fact, all of the contexts where the individual operates and the interactions with these must be taken into account. It is also preventive as it not only intervenes in times of transition but also earlier. In the life-design paradigm, one is interested in the future of people even before they are faced with transitions (Savickas et al., 2009). Hence, promoting positive resources becomes a central element in the life design approach: on the one hand it plays a preventive role and on the other it allows the individual to grow positively. This is particularly true -and important to consider- for youth development (Wehmeyer et al., 2019).

Growing complexity and current crises: COVID 19, the challenge of sustainability and digitalization

The context that has developed in recent years has lead us to confront a fluid society, an ever increasing complexity, and real crises: the current COVID-19 pandemic crisis, the climate crisis and the challenges linked to sustainability (Ruiz-Mallén & Heras, 2020) in all its forms (United Nations, 2015).

The COVID-19 pandemic has impacted several sectors globally, including education and economy (Chen et al., 2020). The magnitude of the crisis is even greater than the economic crisis of 2008-2009 and is a global crisis of both economic and social nature[8]. The VUCA model (Wen et al., 2022) has become even more relevant, because this crisis has exacerbated the instability of the globalized world.

[8] https://www.un.org/en/un-coronavirus-communications-team/calibrating-covid-19-crisis-response-sdgs

Global warming and the related environmental emergency is another global crisis which impacts on politics and economy (Dordmond et al., 2021). In reaction to this situation, green economy has taken place. Green economy is defined as "economic activity related to reducing the use of fossil fuels, decreasing pollution and greenhouse gas emissions, increasing the efficiency of energy usage, recycling materials, and developing and adopting renewable sources of energy" (Dordmond et al., 2021, p. 724). As the economy becomes green, so does the work. Dierdorff et al. (2009) defines the greening of occupations as "the extent to which green economy activities and technologies increase the demand for existing occupations, shape the work and worker requirements needed for occupational performance, or generate unique work and worker requirements" (p.4). This change towards "green" shapes occupations in three ways (Dierdorff et al., 2009): 1) Green Increased Demand Occupations: green economy may increase the employment demand for an existing job. This change may not move to changes in the work itself; 2) Green Enhanced Skills Occupations: in this case, green economy impacts the work and the workers requirements; and 3) Green New and Emerging (N&E) Occupations: green economy may lead to the development of new professions. The latter case is perhaps the most interesting for the career education of future generations. It is indeed important to investigate what will be the new demands of the labor market and what skills will need to be developed for the occupations of tomorrow.

In parallel with these crises, Western societies and their labor markets are increasingly confronted with an expansive process of digitalization. The labor market undergoes changes in terms of both quantity and quality: some professions face a process of extinction as they are replaced by technology, others face changes that require new skills, competencies and qualifications.

Obviously, the impact of this instability and changes is very strong for adolescents. In particular, they are exposed to a negative view of the future, difficulty setting goals, and less

confidence in their ability to succeed in their future plans (Nota et al., 2015). In this current era, career construction interventions are increasingly necessary, as well as the use and assessment of different methods of counseling, such as the online counseling methods tested by Santilli et al. (2021) during the COVID-19 pandemic. Currently, Life Design Counseling approach is favored (Wen et al., 2020). Moreover, current career construction theories seek to consider and weigh the goals set forth in the 2030 Agenda (UN, 2015). In fact, in 2015, the 193 member countries of the United Nations adopted the 2030 Agenda for Sustainable Development. 2030 Agenda focuses on the well-being and sustainability of the planet and is composed of 17 Sustainable Development Goals (SDGs)[9]. Member countries are committed to the achievement of these goals[10]. The 2030 Agenda objectives also group five fundamental principles, the so-called 5-Ps: people, planet, prosperity, peace, and partnership[11]. There is desire for collaboration, which sees a greater focus on the collective, although Western societies are characterized by a culture of individualistic character. From this Agenda, the need arises for the mobilization of new career construction theories such as the one based on sustainable career concept.

The new career-related constructs: sustainable career, decent work, and sustainable work

The concept of sustainable career (Van der Heijden & De Vos, 2015) offers a new vision of how career plans can be structured to lead to positive outcomes. According to Holling (2001), a sustainable career involves the ability to create, test and maintain adaptability, i.e.

[9] https://sdgs.un.org/goals

[10] https://ec.europa.eu/info/strategy/international-strategies/sustainable-development-goals_it

[11] https://www.eda.admin.ch/agenda2030/it/home/agenda-2030/globaler-kompass-fuer-nachhaltige-Entwicklung.html#:~:text=L'Agenda%202030%20rappresenta%20il,ambiente%20e%20le%20crisi%20sanitarie.

the individuals' or institutions' ability to adjust to opportunities and constraints imposed by the environment. Van der Heijden and De Vos (2015) provide a more in-depth definition of a sustainable career as 'the sequence of work experiences that are reflected, over time, through a variety of continuity patterns, across many social spaces, characterized by individual agentivities, that carry meanings for individuals'. De Vos et al. (2018) propose a theoretical model that includes three dimensions on which a sustainable career is built: the individual, the context, and the time. The dimension of the individual refers to agentivity and self-determination in the proactive development of one's own career. The individual is the central actor in his or her own career and, as a result, it is important to understand how individuals, through their actions and through the interpretations that they give to their experience, modify the sustainability of their own career. The second dimension is context: careers are influenced by many contexts within which they evolve (work environment, family environment, labor market, etc.). It is therefore important to understand how individuals cope with the opportunities and constraints offered by these different contexts and which stakeholders are involved. Finally, the temporal dimension represents a significant sequence of occupational episodes over the life course. Careers evolve over time and therefore it is important to examine what makes a career sustainable across the life course, thus considering both intra-individual changes and changes in other contexts. Achieving a sustainable career, according to the conceptual model proposed by De Vos & Van der Heijden (2015), leads to positive outcomes such as reduced stress/anxiety levels and improved work performance, and increased job and general life satisfaction.

A decent work, i.e. a work with safe and fair conditions, linked to the values of the individual and allowing for work-life balance could be considered the foundation on which to build a sustainable career (Duffy et al., 2016). The crucial importance of access to decent work was underlined by the United Nations (UN) in the 1948 Declaration of Human Rights. In Article

23, paragraphs 1 and 3, it is stated that "Everyone has the right to work [...], to just and favorable conditions of work and to protection against unemployment [...]. Every worker has the right to just and fair remuneration [...] to an existence worthy of human dignity" (UN, 1948, p.75). For the International Labour Organization (ILO, 2015) decent work is not only a fundamental human right but also one of the main challenges the world is facing today. According to the ILO, decent work is fostered by access to full and productive employment, benefitting from rights at work, having guarantees of social protection, and promoting social dialogue. In the UN Agenda 2030 (UN, 2015), decent work, together with economic growth, is the 8th Sustainable Development Goal. The recent Psychology of Working Theory (PWT) (Duffy et al., 2016) distinguishes five characteristics of decent work: (1) safe working conditions, (2) adequate compensation, (3) access to adequate protections, (4) organizational values that are complementary to social and family values, and (5) working hours that make adequate rest and free time possible. Decent work could therefore be considered as the ultimate goal of individuals who wish to give direction to their career. Indeed, decent work access fosters job satisfaction and life satisfaction (Masdonati et al., 2019).

However, if already the pre-COVID 19 context was VUCA, with the crisis caused by the pandemic the possibility of attaining and maintaining decent work was further put under discussion especially, but not only, in emerging markets and developing economies (Gallagher et al., 2020). If the goal of career counseling is to promote sustainable careers, it becomes fundamental to promote access to decent work, by permitting the development of personal resources for adaptation and fostering safe and beneficial career transitions (Urbanavičiūtė et al., 2019) but also by promoting the development of decent job conditions in companies and finally permitting people to experience sustainable work.

According to Ehnert et al. (2014) sustainable work not only allows the individual to earn a living but also gives them the opportunity to grow personally as well as professionally.

According to these authors, the achievement of sustainable working conditions would help people to engage and remain at work, and thus in the labor market, throughout a working life. Rees et al. (2010) explain that sustainable work is achieved through the development of three personal resources: the ability to undertake actions autonomously, to assume social roles, and social integration. These three skills are acquired through a dynamic work environment, allowing for their training and development, as well as through other personal skills. This willingness to engage in training and personal development is an element that does not fit into the current definition of decent work and that legitimizes the 'quality leap' between decent work and sustainable work (Kyndt & Baert, 2013).

A bit of history on interventions and tools for sustaining career development

The previous section briefly illustrated the career development theories that have been developed since 1900. The interventions related to them will be now briefly reviewed.

In the first era of industrialization, vocational guidance was the favorite approach. With Parsons, orientation tools were created to understand what people's inclinations are. In this paradigm, the idea was to match the characteristics of the individual with the most suitable work context (Nota et al., 2020). At the time, the tools to orient people were limited. Parsons, in his book *Choosing a vocation*, specifically evokes the interview as a method to understand people's individual interests (Baker, 2009). On a practical level, the first means of measuring people's sensory abilities and reaction times were used at this time (Nota et al., 2020). Thus, it can be said that practical skills to deal with an occupation were also in some way assessed. Later, psychometrics brings tools more related to the exploration of the individual and the

trait-and-factor career counseling model emerges. In this model a variety of tools are used such as interviews, tests, and occupational information (Crites, 1974). In particular, mention can be made of Holland's (1959) famous theory and its types: individuals were given a questionnaire measuring their main interests. These interests were grouped and according to the result obtained each individual corresponded to a type. At this time special attention was paid to interests and abilities, elements that are assimilated to passion and were thus the core of narratives in vocational guidance (Nota et al., 2020). The individual-environment paradigm was dominant. Therefore, the approach was pragmatic and involved several aspects such as establishing a relation with the client, stimulating self-knowledge, recommending or planning a program and implementing it, and possibly directing the person to another worker for support (Williamson, 1939). Based on the person's characteristics or type, an occupation was recommended or not (test interpretation). The counselor also offered information about the profession to orient the person (Crites, 1974).

With the client-centered approach the paradigm changes. In this case, more than using techniques the counselor must maintain a certain attitude (Rogers, 1957, 1961): congruence (being open and authentic), understanding (of the person's inner world), and a positive outlook. Interviewing techniques are predominantly non-directive (1940-1950) or reflective (1950-1957). The consideration of personal traits become slowly more and more important in career intervention. It is increasingly realized that counselors must see the career as a long-term project for the individual, and thus consider not only his interests, but also his needs and aptitudes. This is characteristic of the modern era starting in 1960 where vocational guidance evolves into career education. Lately, those early changes lead to the psychodynamic career counseling approach. Bordin (1968) applies to career counseling approaches from psychoanalytic theory (Crites, 1974) which postulate that the individual

chooses professions related to a search for personal gratification. As in the original theory, the person's narrative is interpreted. In addition, the client is allowed to choose the tests to be performed to identify personal vocation (in terms of interest, personality, and aptitude) (Crites, 1974). The person remains central also in interventions based on Super (1955) theory. The counselor starts with assessing the person's degree of career maturity to tailor the intervention. Then, the idea is to facilitate career development by broadening the person's knowledge of the world of work. The interview assumes an alternation of managerial and nonmanagerial moments, exploring personal aspects and giving pragmatic information about occupations (Crites, 1974). A tendency emerges, in this developmental approach, to give information about career paths. The main tools used in the era of career education are narratives and biographical narratives, together with interviews or questionnaires-surveys that explore the interests of individuals. The relative stability of the economy and the labor market that characterized that period made this approach a winner, as these tools helped the individual to place and employ themself in a job through a long-term project built for them (Savickas & Pouyaud, 2016).

The post-modern era disrupts the previous stability, bringing elements such as uncertainty, instability, a labor market that also sees the presence of precariousness, and of partial or total unemployment. Society and economy are also subject to sudden and unpredictable changes, as happened with the recent pandemic advent. The determined advancement of the capitalist system also increasingly leads to a liberalization of the market that also allows for an increase in independent workers (Savickas & Pouyaud, 2016). For all these reasons, it becomes impossible to create a long-term career project for the individual. New skills, such as career adaptability, are required in order to adapt to changes, and even frequent changes, of the

workplace. Thus, the need for lifelong learning emerges and the Life Design paradigm becomes salient. The counseling model is now related to career construction (Savickas, 2013). The construction of self acquires a central role in the interventions and tools of the post-modern and current era (Guichard, 2005). For this reason, interventions rely on identity, biographical narrative, and accompaniment in orientation. All this is done to allow the construction of the self, the possibility of building social identities that allow to follow the flow of instability and change typical of the current era (Savickas & Pouyaud, 2016). Life design counseling is one of the new practices being used: the focus is on identity, intentions, and actions that can help the individual at a time of life transition. The counselors help the client work on his or her story - of life and identity - and on the revisiting of the same.

Life design counseling is divided into five stages, like Savickas' theory: construction, deconstruction, reconstruction, co-construction, and action (Savickas & Pouyaud, 2016). Using the Career Construction Interview (CCI) (Savickas, 2013) in the first step (construction), the counselors ask clients to narrate micronarratives, or tell small stories, that demonstrate how they have constructed their self, identity and career. An intervention of this type focuses on narration because stories are construction tools for building identities and careers out of complex social interactions. The story telling makes the self and crystallizes what clients think of themselves: the more stories they tell, the more clients develop their identities and careers. In the second step (deconstruction), the counselors must think carefully about how a client's stories might be deconstructed to reveal self-limiting ideas, confining roles and cultural barriers. The objective is to access different meanings and new knowledge that open up possibilities and restart stalled initiatives. The third step (reconstruction) implies an integration of small stories about the self in social situations constructs a large story or macronarrative, that is an identity narrative. This macronarrative reconstructs experiences to make sense and to sediment values, attitudes, and habits into a

grand story about the person's life. In life design, reconstruction means to configure and integrate agents, goals, means and interaction to form a unified and meaningful identity narrative or life portrait. The fourth step (co-construction) implies that the counselor, after having reconstructed an identity narrative from the client's micronarratives, presents to the client a draft of her or his life portrait. In the co-construction of the life portrait, client and consultant analyze the characteristics of the current situation, to find out what are the priorities of the person, and try to increase the possibilities of development. The fifth and last step (action) implies that the counselee turns intentions into behaviors. Life design interventions forge links to the world that lies ahead by promoting intention and action.

Brief conclusion

Teachers are not expected to have the same knowledge and skills required of a career guidance and counselor. However, knowing the evolution of the main theories related to career development and career counseling interventions related to the most recent ones, could help them interpret more effectively the role of career development support that is increasingly required of them as well. It is therefore useful that a selection of knowledge related to career development theories and career counseling interventions be integrated into teacher training courses designed for this purpose.

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4 – How can teachers promote adolescents' career development through their teaching?

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As seen in previous chapters of this book there are increasing difficulties in the world of work and preparing adolescents for educational and school-to-work transitions is more and more important (Maree, 2019; Wong et al., 2021). For adolescents, career preparation is actually seen as a key aspect, supported by studies that highlight how successful preparation among adolescents improves personal development, social adjustment and future well-being (Koivisto et al., 2011). What is traditionally learned in school will not necessarily be related to future job opportunities (i.e. Economist Intelligence Unit, 2018). UNESCO and OECD have called for schools to improve their services in supporting the transition between school and work and to make career guidance actions a priority (OECD, 2004, 2011, 2018; UNESCO, 2012, 2015, 2016). Schools can develop soft skills that can then be used to better orient themselves in education and work. In this regard teachers are an important player in facilitating this transition, already in their role as educators. However, it is not obvious to understand what they are already doing and then suggest what teachers could do to foster the career development of their pupils and students. Hence the question stated in the title of this chapter: How can teachers promote adolescents' career development through their teaching? We will try to provide an answer to this question by first summarizing some of the publications that have dealt with this issue and then proposing two reviews of the scientific literature, the first related to career interventions offered in schools, the second related to the use of digital games in career development.

Teacher's role in career guidance: preparing adolescents for future challenges

"We are currently preparing students for jobs and technologies that don't yet exist… in order to solve problems that we don't even know are problems yet."
("Did you know", widely circulated YouTube posting)

The development of skills such as coping with and overcoming problems, barriers and setbacks, as well as fostering a sense of curiosity and exploration, together with a positive attitude towards career development, have become central to career choice interventions aimed at adolescents (Koivisto et al., 2011). Indeed, in the context of the 21st century, in addition to traditional skills (such as literacy and numeracy), skills that enable people "to think logically and to solve problems effectively and independently" (Kivunja, 2014, p. 85) are becoming increasingly important. In this regard, Trilling and Fadel (2009) identified a portion of core competencies, called Traditional Core Skills and three other domains of skills: Learning and Innovations Skills, Career and Life Skills, and Digital Literacies Skills. These four domains are for Kivunja (2015) "The New Learning Paradigm". In particular, The Career and Life Skills (CLS) Domain is composed of five skills (Kivunja, 2015, p. 2): 1) Flexibility and adaptability skills, 2) Initiative and self-direction skills, 3) Social and cross-cultural skills, 4) Productivity and accountability skills, and 5) Leadership and responsibility skills.

These skills, while transversal, were recognized as important in career choice. Kivunja (2015) points to some strategies that can be implemented by teachers to develop these five competencies. For example, to train Flexibility and adaptability skills one can use feedback and thus lead students to modify their actions as a result of the feedback received. This leads to being flexible and responsive to stimuli. To train Initiative and Self-direction skills teachers can train students to manage goals and time, to work independently, and to be self-directed

learners. It is also important to teach how to collaborate in a group, recognizing the specificities of others, preparing students to relate in teams, even heterogeneous ones. In a complex working environment such as the current one, with very different work teams (in terms of cultural and social background), social and cross-cultural skills are indeed essential. Setting goals is also essential. As with Initiative and self-direction skills, so is with Productivity and accountability skills. Setting goals that are specific, measurable, achievable, realistic, and timely (SMART; Drucker, 2005) and learning how to properly plan resources and time is in fact a very relevant skill to work properly. Finally, students should be challenged to develop Leadership and responsibility skills. These skills are not innate but can be improved. To do this, various strategies can be implemented, such as teaching how to instruct others, motivating others, and always acting in the best interests of others.

These are just some insights from Kivunja (2015) to reflect on the importance of certain school activities for developing skills applicable to work (but not only). Teachers, in their daily job, can therefore already work on these skills. However, they can also more directly support the career development of adolescents. In this regard Wong et al. (2021) address the role of teachers in supporting adolescents in their career development. On the one hand, teachers give "general support" that can promote the development of CLS exposed above. According to Lei et al. (2018) general support can be studied under two frameworks: giving social support and promoting self-determination. In fact, general teacher support involves emotional, instrumental, informational, and appraisal support, to which autonomy support, an important aspect in self-determination theory (Deci & Ryan, 1987), can be added. Social support is linked to outputs related to career exploration (Wong et al., 2021). Moreover, according to Ryan and Deci (2000), the teacher supports the development of autonomy, decision-making, and intrinsic motivation. This fosters in adolescents the motivation to

pursue life and career goals. On the other hand, teachers can give specific career-related support (CRTS). For Wong et al. (2021) CRTS can be defined as "anything a teacher does that can facilitate the career planning of students" (Wong et al., 2021, p.132). This involves several activities, such as inquiring about career paths, helping students identify their interests, giving information about jobs, and help in setting goals (Wong et al., 2021). Studies have shown that teacher support is one of the strongest factors in students' career decision-making (Zhang et al., 2018). The more students perceive support, the higher their career expectations (Paa & McWhirter, 2000).

Metheny et al. (2008) identified four attitudes important for fostering CRTS: effort, positive regard, positive expectations, and accessibility. Invested effort indicates the will to behave in order to support future students' success. Positive regard refers to teachers being emotionally connected to their students and genuinely caring for students' needs. Expectations refers to teachers communicating their positive expectations on students' future educational and vocational success. Finally, Accessibility relates to teachers being perceived by students as "willing and readily available to attend to their needs when they seek information or support" (Wong et al., 2021, p.133). Wong et al. (2021) made a literature review, searching for sources related to CRTS. The selection process led the authors to consider 19 studies. After a careful reading of the studies, these were divided by themes according to the content covered. The themes that emerged corresponded to the four attitudes sustaining CRTS identified by Metheny et al. (2008).

Here are some findings from studies included in the review by Wong et al. (2021). For invested effort, declined by Wong et al. (2021) as the role assumed by teachers as care-givers, the study from McWhirter et al. (1998) reported a link between teachers' perceived interest

in students and their career-commitment. In addition, increased support reduced students' perceptions of barriers in their own educational and professional development. Teacher support also increases student self-efficacy by serving as a role model on one hand and provider of information on the other hand (Wong et al., 2021). Positive regard, declined by Wong et al. (2021) as the role assumed by teachers in fostering self-efficacy, is linked to an increase in the range of perceived career possibilities (Lent et al., 1986). In fact, teachers can influence attitudes, motivation, and beliefs in themselves of students (Wong et al., 2021), supporting career choices as well. Expectations are defined by Wong et al. (2021) as the role assumed by teachers in providing positive career expectations and aspirations, i.e. in motivating students (as they do as usual) to pursue their goals and develop aspirations. In fact, teachers' motivation of students has been identified as important to develop their career aspirations (Farmer, 1985). Teacher support (as well as parental support) is also important in stimulating persistence in pursuing a career (Farmer et al., 1995). On a more practical level, for accessibility, teachers also provide instrumental support giving information and advice and this support is perceived as the most important for students in the study by McWhirter et al. (1998). Teachers must therefore be well informed to provide good support (Edwards & Quinter, 2011) and always be updated on the world of work and its specific requests (Wong et al., 2021).

As it turns out, the teacher can support adolescents' career choices in several ways. Understanding what skills are already taught in school that can support future choices can be an important first step. In fact, this is an activity already covered by the teacher, who teaches hard but also soft skills. Developing and implementing appropriate strategies to develop career-specific skills (as described by Kivunja, 2015) can be another step. Finally, as seen above, support (both general and career-specific) is critical to giving youth tools to

organize their future, both in practical and emotional terms. Evidence from Wong et al. (2021) shows that providing practical information is one of the types of support most valued by youth. Again, training appropriately for today's career possibilities can give teachers tools to indicate appropriate and affordable career paths to youth.

Providing specific career-related guidance is not teachers' main responsibility (Karacan Ozdemir et al., 2022). However, their contribution can be important, and it is worth providing them with appropriate training in this regard (Amundson, 2008; OECD, 2004). An example of teacher training in career development is that of Karacan Ozdemir et al. (2022) in Turkey. A training programme dedicated to developing competencies to help middle schoolers with career development was proposed to 48 teachers. The program presented several practical objectives: raising awareness about career development and needs of middle school students, increasing teachers' skills in motivational interviewing, improving competencies that support the development of the four dimensions of career adaptability (Savickas, 2013). All of this taking into account adolescents characteristics, potential barriers in making choices and gender stereotypes potentially associated with career choice. The results demonstrated an improvement in teachers' efficacy in providing career education. This demonstrates that it is possible, through targeted training, to increase teachers' effectiveness in supporting adolescents in making career choices.

The importance of teachers' role in career guidance is also highlighted in Parola and Marcionetti (2020) study. Through five interviews with senior experts from five centers involved in transition support in Switzerland, they listed the best practices identified in career orientation. First, it emerged that career practitioners do not use a single career theory but rather an integration of different theories. In particular, they try to encourage career orientation. Second, it appeared that at-risk adolescents are those who would benefit most

from career guidance and support. In fact, these interventions allow them to acquire important career skills and psychological resources, such as improving or developing coping strategies. Third, Parola and Marcionetti (2020) emphasize that career development of pupils is possible thanks to inter collaborative relationships with the educational system. Indeed, through the interviews, Parola and Marcionetti (2020) highlighted how the senior career experts admit the strong influence of school and teachers. For this reason, they claim the importance and need to plan interventions starting from primary school.

As highlighted in this chapter, the actions that teachers can take to foster career development in school can be many and varied. To understand what effective interventions have already been proposed with this goal in mind, we conducted the literature review set forth in the next chapter.

Career-related interventions at school: a literature review

Today's situation highlights the need to bridge the gap between career counseling theory and practices (Maree, 2020b). As exposed in the previous chapters, it is especially important to prepare young people by enabling them to develop the resources they will need to cope with future educational and work transitions. The school, being the place where they spend a good part of their time, and the teachers, who weave close relationships with them, are certainly the most suitable place and people to work on these resources, both providing general support and career specific support, but also with the implementation of specific interventions. Career interventions can be defined as "any treatment or effort designed to enhance an individual's career development or to enable the person to make better career-related decisions" (Spokane & Oliver, 1983, p. 100).

In order to have an overview of career interventions conducted with adolescents in secondary schools from which to draw to possibly develop others or adapt them to other contexts, a literature review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) methodology (Page et al., 2021). A keyword search was carried out on Web of Science research database, without an established time range. The keywords combination was: ("career education" OR "career development" OR "career counseling" OR "career guidance" OR "career choice*" or "Career Development Theory") AND (adolescen* AND intervention* or "best practices" or "training") AND (school or "secondary school"). In order to get the highest possible number of results we opted for the "Topic" search, which includes in the research procedure title, abstract, author and keywords. The initial number of texts found was 134. From these, a selection was first made for the language: papers or proceedings written in a language other than English were excluded (6). Subsequently, papers and proceedings whose title did not imply direct or indirect reference to "career" and which were therefore not relevant to the search were deleted (44). Again with respect to the title, papers and proceedings referring to specific populations and / or far from the target population of adolescents were excluded (29). Among these there was 1 paper on women with disabilities, 1 on psychiatry training, 2 in medical fields, 5 on high school, 7 on people with disabilities or with entrepreneurship disorders, 4 on cultural or ethnic minorities, 1 on people in detention, 1 on sport, 1 on NEETs, 1 on military career, 2 on small children, 1 on university students, and 3 on other specific fields. Next came a reading of the abstracts. After reading, papers and proceedings that did not report the implementation of career-related interventions were excluded (34). After the selection process, 21 texts remained (17 papers and 4 proceedings). Career-related

interventions presented in these texts will be briefly exposed following the paper publication year (from least to most recent).

Lapan et al. (2003) have examined a career intervention integrated in the school-curricula of adolescents from rural areas. In particular, four career development curricular strategies by the School-to-work Opportunities Act approved in 1994 by Congress of public policy of California and emotional/instrumental support were planned to prepare rural adolescents to make successful post-high school transitions. Curricular strategies were 1) the organization of classes around a career goal - organized curriculum-, 2) teaching instruction that demonstrates to students the relevance of course content to the world of work -relevant curriculum-, 3) work-based learning experiences, and 4) work-based connected learning activities. The students involved were 347. Some positive effects were identified: better school-satisfaction about what their education offers for being better prepared for future education and career goals and increasing intention to enter post-high school settings. Gender differences were also observed: girls showed stronger positive intervention effects than boys.

Portnoi et al. (2004) proposed an intervention aimed at increasing self-knowledge, a fundamental aspect in career decision-making. To do so, they questioned a group of 25 adolescents with a personality inventory (The Alter-Ego, from Caprara et al., 1997) and provided them with personalized feedback. Before and after this intervention adolescents were tested with a personality test. Those in the experimental group were found to judge themselves faster on the second administration of the D5D and in a less biased manner than adolescents in the control group. Guiding adolescents to self-knowledge can therefore help

them to have a sharper view of how they are, thus helping them make more informed choices.

Placing a more specific focus on students at-risk of dropping out, Chen (2008) underlined that an effective career guidance, particularly with a social learning approach, helps students stay on course with their educational pursuit and prospective career planning.

Griffin et al. (2009) intervention is tied to career choices, but the ultimate goal is to prevent substance use behaviors and violence. The Building Resiliency and Vocational Excellence (BRAVE) program is implemented in the classroom and aims to develop resilient behaviors such as a sense of purpose, looking forward to the future, and cultivating social skills. It also offers the development and mentoring of career goals and career field exploration. Outcomes in a sample of 92 students showed positive changes with respect to substance use.

Faria and Rodrigues (2011) proposes a more traditional orientation intervention for learners at the end of compulsory schooling. The intervention is described in a proceeding paper, thus it is not detailed. Through a quasi-experimental design, they tested the effectiveness of a model based on the approaches of Spokane (1991) and Gibson and Mitchell (1998) on career exploration and career indecision behaviors. After the intervention, the experimental group (n=178) showed reduced levels of career indecision and more exploration behaviors.

Koivisto et al. (2011) worked on the development of career choice preparedness and positive attitudes toward career planning with the Towards Working Life (TWL) intervention. This intervention was originally developed at the Michigan Prevention Research Center in the Job Search Program known as JOBS (for more details see Caplan et al., 1997; Prince et al., 1998; Prince & Vinokur, 1995). Career choice preparedness refers to the readiness to take

advantage of opportunities and the readiness to deal with barriers and setbacks in the domain of career choice (Sweeny et al., 2006; Vuori et al., 2008). In addition to improving the career preparedness, the TWL group counseling focuses also on enhancing "competence and attitudinal factors of the career preparation process among adolescents" (Koivisto et al., 2011, p.346). In the study this is operationalized as a combination of two measures: career choice self-efficacy and inoculation against setbacks (Vuori et al., 2008; Koivisto et al., 2010; Vuori & Vinokur, 2005). Career choice self-efficacy corresponds to the degree of confidence in one's ability to successfully engage in career choice tasks. Inoculation against setbacks is an anticipatory stress management skill that in presence of setbacks helps to maintain individuals active, with a goal-directed behavior and well-being (Meichenbaum, 1985). Participants were 1034 Finnish adolescent students, divided into experimental and control groups. The TWL group counseling method, with a highly structured and intensive workshop format (15 hours in one week) was used by skilled trainers. Both direct and indirect (through choice preparedness) effects of TWL group counseling were observed on positive attitudes (Kovisto et al., 2011). In fact, it seems that to have a positive influence on career planning attitudes, an intervention first needs either to increase career choice preparedness or to target attitudes related to career planning more directly.

Turner and Conkel (2011) assessed a career intervention based on the integrated contextual model (ICM) of career development in adolescents living in inner cities. The ICM is a motivational approach for promoting adolescents' school success. After the intervention, students showed greater person-environment fit perception as well as increased perceived efficacy in social, prosocial, and work readiness, an improvement in garnering emotional and instrumental support, and higher self-regulated learning compared to students of a control group. In parallel, a group of adolescents was compared to those who instead was proposed

a more traditional career counseling intervention who only reported greater results in garnering emotional support.

In their study, Doren et al. (2013) evaluated a gender-specific comprehensive career development curriculum (PATHS: Postschool Achievement Through Higher Skills) designed to target career barriers faced by high risk (disabilities and school failure) adolescent girls. The goal of the curriculum is to promote proximal social cognitive career and self-determination outcomes, aspects that are also associated with adaptive career development and adjustment. It is composed of 77 lessons divided into four modules: self-awareness, disability awareness, gender identity, career and college. 111 girl students were recruited from six high schools located in the Pacific Northwest region of the United States. Schools were asked to designate an instructor to teach the curriculum as a standalone credit. Results showed significant improvements on autonomy, disability and gender knowledge. A significant gain in self-determination and vocational skills self-efficacy was also observed. However, only a small effect emerged on perceived social support and relevance of school.

Choi et al. (2015) investigated whether "career interventions carried out at secondary institutions can positively affect students' career development skills and lead to school success based on the integrated contextual model (ICM) of career development" (p.171) analyzing two years-long data from the Seoul Education Longitudinal Survey (SELS). At the heart of the study by Choi et al. (2015) is the desire to develop career awareness through the ICM of career development. The ICM is a motivational approach for promoting adolescents' school success. In particular, within the intervention career development skills (citizenship, self-regulated learning attitudes, career maturity, and self-concept) and school success (problem-solving orientation, academic achievement) of 4605 south Korean high school

students were examined. Students participated in six types of career education experiences: (a) career guidance curriculum, (b) lectures on career development, (c) department guide, (d) career inventory, (e) job shadowing, and (f) career counseling. After the intervention meaningful increases in career development skills and school success were observed.

Career decision-making among adolescents is taken into account in Crisana and Turdab (2016) study, where the impact of the career counseling program "Success is a voyage, not a destination" is examined. Career indecisiveness and self-efficacy regarding the career decision-making process are considered and measured. The intervention program is empirically based on the career-related information processing theory (Peterson et al., 1991; 1996), in particular on the theory's three fundamental factors for career choice: self-knowledge, occupation knowledge and career decision process (Crisana & Turdab, 2016). For Self-knowledge the Cognitrom Career Planner platform (Miclea et al., 2009) was used to help students identify their interests and values and the CAS++ evaluation platform (Miclea et al., 2009) was used to assess their abilities and skills. For a better knowledge of professions a conference was offered where different professional figures were invited. For the Career Planning, participants were asked to elaborate a personal portfolio (CV, letter of intent and a motivation letter). Results confirmed positive intervention effects: an increased self-efficacy regarding career decision making process and a reduced career indecisiveness.

A Life-Design-Based Online career intervention is taken into account by Nota et al. (2016). Digitalization is an important and ever-expanding process of our times. Therefore, technological innovations also represent an interesting way to communicate and involve the youth in important activities, such as career interventions. In this study 200 students from 10 Italian middle-schools were initially involved in the "1, 2, 3… Future!" program but only

100 students from 8 schools participated effectively. First, all participants were involved in vocational guidance activities at their school then they jumped into the online intervention program. The program, implemented by teachers and career counselors specifically trained, comprised three 2-hour sessions, each session with a video and specific activity. Those sessions took place in the IT room of the participants' schools. In the first session, with the first 15-minute video students were asked to reflect on interests, values, and future projects as suggested by Savickas et al. (2009) and Savickas (2013). Students were encouraged to cultivate more interests and values to help their career construction. A positive self-view was also stimulated with an intent to increase self-esteem. After the video measures for interests and values, such as, for example, Holland's (1959) test were proposed. In the second session, the importance of education, training and career education was highlighted. Lastly, in the third session a video provided to students a definition of "goal". After the vision, students were asked to identify two goals in line with their strengths and their future career aspirations. A control group was also present. Results indicated that after this intervention, students in the experimental group showed higher levels in three career adaptability components, Concern, Control, and Curiosity, and also in life satisfaction. Moreover, it seems that the use of an online-technological intervention can be a powerful instrument in career intervention with adolescents: it appears to stimulate their investment and motivation.

Kustanti et al. (2018) instead put their focus on career maturity, therefore the effectiveness of "Enhance Your Strength" training -an intervention model to develop vocational school students' career maturity- was examined. An experimental group and a control group both of 41 participants were involved. The study showed that a positive correlation exists between the training intervention and levels of career maturity.

A lack of information about career characteristics may contribute to the presence of stereotypes in personal aspirations (Kotkas et al., 2019). The central part of the intervention proposed by Kotkas et al. (2019) has put 77 adolescent girls in situation by proposing work task-related activities in science, such as making lemonade in a factory or a solar-powered charger, precisely for the purpose of exposing them to STEM, linked to which there are strong gender stereotypes, in a direct, experiential way. This allows one to "put oneself in the shoes" of the professional. This (experimental) protocol was compared with that of a control group, in which the normal approach chosen by the teacher for teaching science was applied. Students in both groups were confronted with measures of career aspirations and opinions about how certain important skills are related to science occupations. There were no differences in the career aspirations of the two groups but technology and computer skills were considered significantly less important in the control group. The experimental group also had greater growth in their consideration of the importance of skills such as problem solving, collaboration, and technology skills (Kotkas et al., 2019). Experimenting with a profession in a hands-on way can therefore help assess the importance of certain skills, including soft skills.

The study by Babarovic et al. (2020) aimed to test a career-related intervention on 120 adolescents in the Croatian context. The intervention was based on two teacher manuals translated and adapted for students named "Exploring Future Options" (Perry & VanZandt, 2006a) and "Focus on the Future" (Perry & VanZandt, 2006b). The manuals proposed exercises and activities that were then implemented in workshops. The workshops were dedicated to three aspects: Self-Knowledge (Who am I?), Career and Educational Exploration (Where am I?), and Educational Exploration (Where am I?) (Babarovic et al., 2020, p. 435). Workshops aimed to help students better understand their interests, skills, and

aspirations, gather useful information about job and educational options, and ultimately make an informed career decision. The effectiveness of this intervention was assessed on three career dimensions: Career Decision Self-Efficacy, Career Decision-Making Difficulties and Career Readiness (Babarovic et al., 2020, p. 439). The intervention did not impact career-decision self-efficacy but decreased perceptions of Lack of Information (a category of Career Decision-Making Difficulties). For Career Readiness, there was no overall effect, but an increase on the Independence in career decision-making dimension was observed.

Zammitti et al. (2020) introduced in their training some important components of a career that are not very often taken into account: the perception of work and decent work. In addition to these two aspects, in the training they developed, Zammitti et al. (2020) also included the resources of professional curiosity and self-efficacy, which, if well developed, would also bring benefits in the adolescents' representation of the concepts of work and decent work. This longitudinal study involved 160 adolescents divided in experimental and control groups. The experimental group was stimulated to: (1) reflect on what are the situations that differentiate a decent work from a non-decent work; (2) deepen the main professions in terms of activities and competences to develop career curiosity, and, finally, (3) recognize positive thoughts to increase their self-efficacy. Specifically, the training included five group meetings of two hours each provided one time per week, for a total of ten hours in five weeks. In these meetings, different concepts were worked on. In the first three meetings the focus was on knowledge of the group, self-knowledge, knowledge of the concepts of work and decent work, career curiosity, self-efficacy, and interests. In the fourth one the focus was on the stimulation of self-efficacy. A video and a stimulus story taken from the tool "The right choice? Mine!" were used. Then participants were asked to identify a self-efficacy model and to answer the following questions: Why do they have a high self-

efficacy? How can I act in the same way as this person? What can I learn from this person? What can I do to seem similar to them?. Finally, in small groups participants were solicited to invent professions, placing them in a "dignified" context. In the last meeting, career curiosity and self-efficacy were discussed. Results showed positive effects: both professional curiosity and self-efficacy increased in the training group as well as the knowledge of the concepts of work and decent work. Stimulating adolescents to reflect on professions seemed contributing to the increasing levels of professional curiosity and self-efficacy.

Rabie et al. (2021) paper focuses on the effectiveness of a group-based career guidance intervention provided in a particular moment of career transition in south-african compulsory schools. With this group intervention the aim is to allow students to learn more about themselves, introduce them to a wider range of opportunities available in the world of work, and make informed decisions about their subject choices. The intervention consists of two contact sessions: in the first contact session was set up as a two-hour group-based test administration session of the South African Career Interest Inventory (SACII). The SACII measures Holland's six vocational interest types and the Career Maturity Inventory-Form C (CMI-C). In the second contact session students are involved in a career guidance workshop. In this workshop a standardized booklet was used as a support. The booklet provided to students "specific topics relevant to career exploration such as their favorite subjects, proposed career goals, interests, role models, personality attributes, and exploration of contextual barriers and available support." (Rabie et al., 2021, p.51). In addition, there was also other information about the world of work, bursaries, and career resources, and included personal motivation exercises, study skills for school learners, and a career action plan. Rabie et al. (2021) results on 1238 students underline the importance of career guidance interventions in early adolescence. In fact, it emerges that the intervention can have a

significant positive impact on career adaptability and ability to engage in the career decision-making process. In particular, two of four components of career adaptability significantly improved, Curiosity and Confidence. No intervention effects were observed for Concern and Consultation.

The Motivational Essay is examined by Cîrțiță-Buzoianu et al. (2021). This intervention, a self-reflexive tool that aims to guide both the process of self-knowledge and the career choice in both their attitudinal and motivational components (Cîrțiță-Buzoianu et al., 2021), is addressed specifically to economically disadvantaged adolescents. The aim is to help them choose the path of academic development. Results show the possibility and usefulness of integrating the motivational essay into the career counselor's methodological portfolio and professional counseling approaches.

Gee et al. (2021) focus on underserved adolescents, defined as learners who have reduced academic or career developmental guidance (Deil-Amen & DeLuca, 2010). Authors promote an intervention related to college and career readiness (CCR) on 61 adolescents. The intervention, called Paths to the Future for All (P2F4A), aims to empower students with college and career planning know-how but also develop social-emotional skills (Gee et al., 2021). The intervention is implemented with one class per day (for the duration of one semester), with a variety of activities, such as team-building activities or self-awareness activities. This intervention is interesting because it considers two fundamental aspects of orientation: information and personal skills development. The results show an improvement in emotion-focused coping behaviors but also a decrease in vocational expectations. This result, not anticipated by Gee et al. (2021) is however consistent with previous studies. The authors explain it by assuming that at the beginning adolescents were more optimistic and

that exposure to more focused activities made their outlook more realistic. This aspect must be taken into account for interventions, which can give good preparation but also can confront adolescents with a reality they did not consider.

Mahat et al. (2022) assume that the integration of career competencies within the academic curricula have an important equity function. In fact, it seems that in particular marginalized students or those from disadvantaged socioeconomic backgrounds benefit from career awareness and support through formal education (Doren et al., 2013; Lindstrom et al., 2019). A case study approach involving 14 Australian schools has been implemented. In these schools participatory design workshops and semi-structured interviews were used to collect information useful to reorganize the curricula and integrate career competencies. The participatory design workshops involved all school staff (students, teachers, career counselors). In a first phase they were asked to share their ideas and experiences that would later inform the design of learning activities. For example, students reflected on what careers they knew of and what educational qualifications or attributes they believed were necessary for each. Teachers were instead asked to brainstorm what types of learning activities would be useful to support students' career development. The proposed activities in those workshops were various: role-playing, voting exercises, mind maps, and storyboarding (see Dollinger et al., 2020, for a full overview of the workshops). At each workshop at least two researchers were present to collect data (observational notes, worksheets). With the semi-structured interviews the aim was instead to explore principals' perceptions of how to support early-stage student awareness and development towards higher education pathways and careers. Findings confirm that support via an integration of career interventions in educational curriculum is an important tool for young students.

As shown in the study by Kotkas et al. (2019), putting oneself in the shoes of a professional can be a good way to approach a career. The intervention conducted by McCammon et al. (2022) on a sample of 40 ethnic minority adolescents (Black and Latino) proposed the students to experience professions related to the healthcare field, where the minorities to whom they belong are underrepresented (Holden et al., 2014; Phillips & Malone, 2014). In this intervention, the adolescent was put into a situation using a digital game, in which he takes the role of an intern in a hospital. In the digital game (Caduceus Quest) the person is confronted with clinical cases, in which they have to practice clinical skills but also more transversal ones (having to relate to patients with different characteristics). The intervention is based on the theory of behavior change, using exploratory activities on health care to develop the player's interest. In addition, it aims to develop 21st century skills (in particular deep learning) and a positive attitude (positive youth development). Results showed that interest in careers related to health and medicine increased after exposure to the digital game.

Finally, Yuen and colleagues (2022) observed the effects of a strengths-based intervention program for secondary students with mild special education needs (SEN). This longitudinal study involved an experimental group of 32 SEN students from 5 inclusive Hong Kong schools as well as a control group of the same size. Participants' special needs included light to mild disabilities: literacy and numeracy deficits, attention deficits and social-emotional problems. The intervention model given is the "SUN Live" Navigation Project, where S stands for "strength-based orientation"; U for "uniqueness"; N for "new perspective" (Man, 2018). This project included a wide variety of activities: individual guidance interviews, group activities, career visits, and work experience. This project involved also a social worker in-charge who organized, implemented and followed up the activities and collaborated with other social workers as well as with SEN teachers. The theoretical foundation of this

intervention lies in self-efficacy theories of Bandura (1977) and Lent et al. (1994), as well as in the intervention Positive Youth Development (PYD) (Shek et al., 2019). Results showed positive outcomes on career goal-setting self-efficacy, personal goal-setting self-efficacy, and presence meaning in SEN students after the intervention. The intervention helped also to enhance students' self-understanding, build up their self-confidence, and exhibit stronger self-determination; as well as to make clearer goals that motivated them to work towards achieving them.

Brief conclusion about career-related interventions at school

Overall, studies previously exposed show that career interventions in schools can play a key role in supporting adolescents and youth making their career decisions. Some authors emphasize the importance of these interventions being integrated into school curricula (Doren et al., 2013; Lapan et al., 2003; Mahat et al., 2022). Others, however, aim for more specific interventions, e.g., for ethnic minority adolescents (McKammon et al., 2022), economically disadvantaged adolescents (Cîrțiță-Buzoianu et al., 2021), students with mild special educational needs (Yuen et al., 2022), disabilities (Doren et al., 2013), counteracting stereotypes in girls (Kotkas et al., 2019), or learners with reduced academic or career focus (Gee et al., 2021).

The majority of the interventions aims to introduce adolescents and youths activities that permit them to enhance self-knowledge and occupational knowledge (e.g., Babarovic et al., 2020; Cîrțiță-Buzoianu et al., 2021; Crisana & Turdab, 2016; Mahat et al., 2022; Nota et al., 2016; Portnoi et al, 2004; Rubie et al., 2021) or career choice preparedness (Koivisto et al., 2011). Some focus on knowledge of specific occupations, both to reduce stereotypes

associated with them and to increase access to these occupations for people underrepresented in them (Kotkas et al., 2019; McKammon et al., 2022). Other interventions also aim to develop more general skills, such as self-regulated learning and the ability to ask for support (Turner & Conkel, 2011), problem-solving (Choi et al., 2015), self-efficacy in making choices (Zammitti et al., 2020) and cultivating social skills (Griffin et al., 2009). Only one intervention has focused also on two components of a career that are not very often taken into account but still relevant: perception of work and decent work (Zammitti et al., 2020).

In general, although each intervention aims to tailor its activities to develop different resources, such as, e.g., improving career planning through career field knowledge or enhancing career awareness, most interventions include an emphasis on developing and/or improving self-knowledge. Therefore, it is considered important to integrate reflections on the self (Choi et al., 2015), such as one's interests and values, as well as self-efficacy (Zammitti et al., 2020), self-determination and self-awareness (Doren et al., 2013).

Interventions implicated also different settings: individual activity (Kotkas et al., 2019), group counseling (Koivisto et al., 2011), interventions made in the classroom (Doren et al., 2013; Gee et al., 2021; Griffin et al., 2009; Nota et al., 2016), more traditional career guidance settings (Chen, 2008; Cîrtiță-Buzoianu et al., 2021; Faria & Rodrigues, 2011), or a mix of all these (Choi et al., 2015; Yuen et al., 2022). Finally, in interventions different instruments were used, such as for example feedback given after personality inventories administration (e.g. Crisana & Turdab, 2016; Portnoi et al., 2004), manuals (Babarovic et al., 2020) and digital games (Kotkas et al., 2019). The next chapter focuses precisely on the latter, offering a literature review of those used for career orientation.

Digital games in career orientation: a literature review

As already mentioned in this book, digitization is changing the labor market. Interventions to orient careers are also partly following this trend. Indeed, technology offers an innovative approach to career interventions as well (Nota et al., 2016). Technological assets can be a valuable support for career development, of high quality and easy access (Sampson & Osborn, 2015). They also contain prices and reach a wider audience (Soresi et al., 2014). Additionally, professional games could provide a more engaging and motivating way of acquiring professional awareness and competence for career decision-making and learning (Hummel et al, 2018). Thus, technological tools can be adopted in career orientation interventions.

A classic approach to transpose technologies in intervention models related to life design theory (Savickas et al., 2009) is that proposed by Nota et al. (2016) and illustrated in the previous chapter. Their intervention aims to help adolescents build careers by engaging them in "meaningful activities that further self-making, identity shaping, and career constructing" (Savickas, 2012, p. 15) by using videos. This is an example of educational intervention, with a digital transposition of a traditional approach. However, more dynamic approaches can be used to get adolescents even more involved in the process.

In this regard, digital games could be a valuable support for career development, to make career choice more interesting, dynamic, and easier for young people (Shi & Shih, 2012). Juul (2003) defines digital game as "a rule-based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values, the player exerts effort in order to influence the outcome, the player feels attached to the outcome, and the consequences of the activity are optional and negotiable" (p. 5). In general terms, there are

not many experiences with respect to the use of digital games in career guidance. Parola et al. (under review) have found seven studies on digital games for career guidance selected by the adoption of PRISMA methodology (Page et al., 2021). Digital games found in their study will be briefly illustrated to understand their potential for supporting adolescents' careers.

In their article, Cisic et al. (2008) propose a mobile game-based learning divided into three games, especially the second one concerns E-guidance. Through this game platform, in single or multiplayer, you can support the development of decision-making, both cognitively and emotionally, in critical situations.

Lally and Sclater (2013) take into account the Inter-Life project game. The aim of this game is to propose a "generic set of ways of working and engaging, of exploring, and of enabling young people to develop skills that could support their understanding and processing of transitions in multiple contexts" (p.320). In this project, two virtual environments were created: Inter-Life Island 1 is dedicated to work on school-to-university and within-university transitions, while in Inter-Life Island 2 there're a range of real-world transitions challenges where adolescents can work on creative activities and skills development.

Career guidance is the focus of the serious game MeTycoon proposed by Dunwell et al. (2014). In MeTycoon "the player assumes the role of their character from birth, progressively learning various skills, attending courses, and working in various professions. The choices they make regarding their lifestyle, including factors such as hobbies and accommodation, influence the amount of money they are required to earn to support themselves and, in later years, their family." (p.1979). Through this game the role of transferability of skills learned in a given context of study or work to another context is highlighted. Dunwell et al. (2014)

investigated, through an online survey of 97 players, the responses after the use of the serious game. A high percentage of players (87%) reported developing new ideas, access to more career paths examples, and better knowledge about which jobs are more accessible in the future.

Another digital game, Youth@Work project, is proposed by Hummel et al. (2018). It consists of an adventure-like game in which the player embarks on a (career) journey in search of the holy grail (which in this case is to find some valuable career advice). In total 9 mini-games are offered, where in the first five mini-games players are asked about themselves and their strengths: preferences in their subject school, what they do in their leisure-time, questions about their future career, their abilities, skills and personal qualities. In the following phase, in the mini-games players are asked to evaluate whether advice offered by 4 different people about 6 different career dilemmas is good or bad. This stimulates the career decision-making process. The outcomes of the mini-games are then stored in a personal journal (profile). These outcomes are also used to calculate scores on the RIASEC dimensions (Holland, 1959). In this way, every player can explore specific career categories and then match with (a core set of 36) jobs.

Emembolu et al. (2019) describe a games design intervention whose intention is to encourage diversity in the uptake of computer science by young people, explore stereotypes with them and increase their awareness of careers in the sector. In particular, primary students are stimulated to reassess their perceptions about careers rather than relying on popular assumptions about the culture and stereotypes associated with those careers. In this way, students explore stereotypes with them and increase their awareness of careers in the sector.

In their research, Prokhorov et al. (2020) aim to create a career guidance 3D quest game to estimate the students' competency, attract more applicants, and increase the visibility of the IT department. There are proposed classrooms' 3D models in which players are faced with different challenges, such as, for example, resolving technical problems in the classroom. Regarding users' abilities for self-education and career guidance, players have to put together the "IT specialist jigsaw puzzle". Players were asked to group 30 elements according to 10 IT-related occupations (Mobile Developer Android, Mobile developer iOS, Frontend developer, Backend developer, Project manager, Java developer, .NET developer, UX/UI designer, QA tester, Database developer). The number of pieces for each occupation varies from 3 to 6, similar pieces can belong to different occupations. The tasks are meant not only to evaluate the users' digital competence but also to learn about the faculty life and educational system as the game models reflect real objects.

Estrada and Prasolova-Førland (2021) present several apps that have been developed for young jobseekers. In recent years, Virtual Reality applications are being used for career guidance, so-called `immersive job taste'. These apps offer the possibility to watch 360° videos at various workstations and then try the related job tasks. Specifically, the authors show apps for fisheries, wind turbine operations and road construction, car mechanics and tinsmiths, and warehouse workers and crane operators.

To complement the review by Parola et al. (under review), a literature search with the same keywords on the Web of science was conducted to identify relevant articles published at a later date than those of the paper. Three papers were found but only one focused on the use of digital instruments in career guidance. In this paper, Leung (2022) illustrates the use of a digital system developed in Hong Kong for career planning. The platform integrates the

different aspects of career planning (engagement, self-understanding, career exploration, and planning) with different activities. These include a digital game, the Work Values Game (WVG). Being attributed to several different workers, the player is asked questions about the work values that are important to that job. In a playful way, one is confronted with the value system of different jobs. Results show that adolescents (n=844) who had used the platform had fewer decision-making difficulties, more decision-making, and more career planning awareness compared to those included in schools that participated in career development intervention, but not using the interactive platform.

Brief conclusion on digital games in career orientation

Overall, the literature review about the use of digital games in career orientation suggests that digital games can help children, adolescents, and youth develop 1) internal resources, such as career adaptability (Hummel et al., 2018), useful to address career decision-making process (Cisic et al., 2008; Dunwell et al., 2014; Lally and Sclater, 2013; Leung, 2022) , and 2) awareness of careers in specific sectors (Emembolu et al., 2019; Estrada & Prasolova-Førland, 2021; Prokhorov et al., 2020). Another benefit of digital games is that they improve motivation and interest for career exploration activities. Shi and Shih (2012) state that three factors can boost users' motivation to play the career game: (a) the game is fun; (b) the game permits sharing personal ideas to the community; and (c) practical assistance to career development is given.

Therefore, considering the positive results obtained by digital games, taking into account the increasing relevance of technologies in today's society, further developing and investigating these avenues of intervention could be interesting in supporting the career choices of young people. In fact, Nota et al. (2016) claimed that the use of an online-technological intervention

can be a powerful instrument in career intervention with adolescents because it appears to stimulate their investment and motivation.

Brief conclusion

The kind of support teachers can provide to foster the career development of young people is of different kinds. Indeed, they enable the learning of specific skills in certain disciplines, but also the development of more cross-disciplinary skills, also called soft skills, 21st century skills, etc. The latter, or at least a selection of them, should be the subject of interventions aimed at encouraging the career development of adolescents as they are particularly important for fostering career choices and successful transitions. In this regard, Chapter 6 of this book offers a synthesis of the specific competences proposed by the EU Digital, Life, Entrepreneurial and Green Competences Frameworks.

Metheny et al. (2008) also highlight how important a certain kind of approach or attitude on the part of teachers is to foster positive career development in their pupils and students. It is therefore important to make the teachers called upon to support their students attentive to these aspects.

Finally, the amount of interventions that can be implemented at school with or without the use of digital games to support career development is enormous and teachers cannot be expected to develop these interventions. It is therefore important to provide them with both specific training, adapted to their work context and which is in line with the latest developments in the career development field, as well as tools that enable them to support their students in this important process in simple but effective way.

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5 – Promoting well-being through Positive Psychology in adolescents in school context: Theoretical Framework and Interventions

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The general aim of this chapter is to review the theoretical frameworks and interventions of Positive Psychology (PP) to improve the well-being in adolescents in educational settings. To do so, the following sections will be reviewed: (1) the contributions of the PP approach in Psychology, and the most relevant models on well-being; (2) the definition of Positive Education (PE) -as a branch of the PP applied to the educational context- and the theoretical PE models that have been developed; (3) the definition of PP interventions (PPIs), and examples of evidence-based PPIs that have been developed specifically in the educational field and/or focused on children and adolescents; and (4) the PPIs based on Information and Communication Technologies (TICs) that have been applied in the field of PE. Finally, we will analyze the limitations and strengths of this field and reflect on its potential future directions.

Introduction: Well-being and new challenges in adolescents

Adolescence is generally considered to be a life stage that spans from 10 to 24 years old and involves moving from being considered a child to an adult (Sawyer et al., 2018). In this period several hormonal, neuronal, anatomical, and social changes occur. The brain development changes that occur, together with the interaction with the adolescent's social environment, shape the adolescent's capabilities (Blakemore, 2019).

The problems in childhood and adolescence that used to affect during the first half of the 20th century have diminished (e.g., acute infections or high infant mortality), but the focus

has shifted to other problems. Currently, there is a broader concept of "millennial morbidity" (Palfrey et al., 2005), which reflects the influence of mental health, socioeconomic status, and the environment of children and adolescents on their health (Ravens-Sieberer et al., 2008; Stengård & Appelqvist-Schmidlechner, 2010). This "new morbidity" is characterized by emotional problems, behavioral problems, and learning disabilities (Stengård & Appelqvist-Schmidlechner, 2010). In this period, the onset of different mental disorders (e.g., depression, anxiety, eating disorders, addictions, etc.) is common (Blakemore, 2019; WHO, 2021), and adolescents have to face many pressures and challenges in their daily lives (e.g., leaving home for the first time to go to college, limited employment prospects, concerns about human relationships, etc.) (Stengård & Appelqvist-Schmidlechner, 2010). The *Center for Disease Control and Prevention (*CDC) states that there is currently a shift in mental health trends. Although adolescence is an opportunity to begin a healthy life in adulthood, mental health problems in this period are increasing and complicating this transition (CDC, 2021).

Another problem usually starting in adolescence is the high percentage of young adults who find themselves disengaged from both education and the labor market (see Chapter 1).

One of the causes underlying this increase in NEET individuals may be the shortcomings in career management skills that the students have. Career management skills are defined as "competencies which provide structured ways for individuals and groups to gather, analyze, synthesize, and organize self, educational and occupational information, as well as the skills to make and implement decisions and transitions" (Sultana, 2012, pp. 229). Nowadays, workers rarely hold their jobs for prolonged periods. Hence, current or future workers should enhance skills that can enable them to develop a view of themselves and their environment that can help them negotiate and harmonize opposing forces and navigate their increasingly unpredictable "chaotic" careers. Individuals are responsible for their life project

and their work project, that is why current literature uses the term "career management" (Di Fabio, 2014).

Therefore, it is critical to identify factors that can contribute to a successful career and improved mental health during this important period of life. One of these possible facilitators is the experience of positive emotions (Boehm & Lyubomirsky, 2008), and the enhancement of students' character strengths (Dixon & Tucker, 2008; Lian et al., 2021). As the World Health Organization emphasized in 1948, health and mental health do not only involve the absence of illness or mental problems, but also a complete physical, mental, and social well-being (Cieza et al., 2016). This means that to promote well-being in adolescents (and in all people) we must not only address the negative issues, attempting to eliminate or diminish them, but we must also focus on fostering positive aspects of health (Larsen, 2022), and the need to investigate on strengths or positive outcomes (Stengård & Appelqvist-Schmidlechner, 2010). In this regard, Positive Psychology (PP) may help us build a holistic framework to deal with the well-being and new challenges faced by adolescents.

Positive Psychology

The *Positive Psychology* (PP) framework tries to prevent mental disorders, but also to promote and enhance the positive aspects of the human being to feeling good and functioning well (Huppert & Johnson, 2010). This branch of scientific knowledge addresses aspects such as resilience, well-being, happiness, optimism, or strengths (i.e., morally valued traits whose use contributes to fulfillment and happiness), among many other variables (Seligman & Csikszentmihalyi, 2014). Hence, PP is aimed at understanding and building optimal functioning in individuals, but also in organizations and communities (Seligman & Csikszentmihalyi, 2000). In recent years, there has been a great increase of interest in PP. For example, in 2022, the term "PP," yields more than 200,000 results in Psychinfo. Similarly,

entering these same words into PubMed yields more than 140,000 results, with around 90.000 results in the last 10 years.

As stated by the pioneering authors of this approach (Seligman & Csikszentmihalyi, 2000), the goal of PP is to expand the field of psychology from a focus on repairing negative aspects to promoting the positive aspects of life or well-being. PP has been defined as a branch of Psychology that conducts scientific research into the conditions and processes that contribute to the flourishing or optimal functioning of individuals, communities, and institutions, drawing on their strengths and virtues (Gable & Haidt, 2005). That is, PP states that well-being is not just the lack of negative psychology, it is a more complex construct that involves something more (Seligman & Csikszentmihalyi, 2000).

Overall, the theoretical models aimed at studying subjective happiness and well-being are based on the Greco-Roman philosophical foundations. The eudaimonia described by Aristotle and the hedonism promoted by Epicurus is very relevant in current models of PP. Initially, in 1984, Diener proposed his tripartite model called *Subjective well-being* (SWB), which incorporates three different components: positive affect, negative affect, and life satisfaction. This theory is not exempt from criticism, since it is not able to account for meaningful experiences and engaging on-site experiences (Filep, 2012).

A few years later, Ryff (1989) proposed her model of *Psychological well-being* (PWB) with six factors, namely, self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. With this increase in the number of factors, she criticized previous literature, indicating that a limited description of positive functioning had been made. Ryff criticized the excessive emphasis on short-term affective well-being (i.e., happiness), instead of giving importance to life purpose and direction, achieving satisfying activities with others, and feeling self-fulfilled (Ryff, 1984).

It is also worthwhile to mention Keyes's (2005) conceptualization of well-being, which combines the affective states of perceptions and evaluations of the own life, but also the own psychological and social functioning. Specifically, the three different dimensions are (1) *emotional (or hedonic) well-being* (referred to as the experience of positive feelings about oneself and life); (2) *social well-being*, such as being connected to others and valued by the community (i.e., social coherence, social actualization, social integration, social acceptance, and social contribution); and (3) *psychological (or eudaimonic) well-being* in terms of functioning well (referred to the six domains of Ryff: having trusting relationships, seeing oneself with an adequate self-development, having direction in life, being able to shape the own environment to satisfy needs, and having a high degree of self-determination). Moreover, this author explained that individuals might be in a state of "flourishing" (as opposed to "languishing") when they experience high levels of subjective, psychological, and social well-being.

One of the most influential models in PP is the *Authentic Happiness theory*, which was developed by Seligman (2002). He initially proposed three elements to achieve happiness: (1) *Positive emotions* (e.g., pleasure, ecstasy, warmth, comfort, etc.), in which a life dedicated to these emotions is called "the pleasant life" (i.e., the pursuit of hedonism); (2) *State of Flow*, in which the only relevant thing for the person is the activity done at that precise moment, and a life lived in this way refers to the "engaged life"; that is, in the flow experience, the person is completely immersed in the experience (e.g., writing, drawing), and it is only after the completion of the activity that the person can feel happiness and well-being (Csikzszentmihalyi, 1997); and (3*) Life of meaning*, which is an element related to the pursuit of eudaimonia. This concept refers to belonging to and serving something that you believe to be superior to yourself, and it is referred to as having a "meaningful life". These three paths are not incompatible and can help to achieve happiness (Lambert D'raven & Pasha-Zaidi, 2016).

In 2011, Seligman expanded his model and developed the PERMA model of flourishing, which incorporated two new pathways to happiness: the building of positive relationships and achievement. PERMA is the acronym for Positive Emotions, Engagement, Positive Relationships, Meaning, and Achievement, as the main factors for well-being. We will develop this model in the following section, as it is currently one of the most influential in the school context.

Finally, the conceptual framework for defining well-being by Huppert and So (2013) becomes highly relevant. These authors examined the symptoms of common emotional disorders (anxiety and depression) in the most important mental disorder classifications (i.e., the Diagnostic and Statistical Manual of Mental Disorders –DSM– and the International Classification of Diseases –ICD–) with the ultimate objective of identifying the "positive" opposite aspects of each symptom. After a deductive approach, the authors identified ten characteristics of a high level of well-being (also referred to as flourishing): (1) competence (e.g., Most days I feel a sense of accomplishment from what I do)[12], (2) emotional stability (e.g., I felt calm and peaceful), (3) engagement (e.g., I love learning new things), (4) meaning (e.g., I generally feel that what I do in my life is valuable and worthwhile), (5) optimism (e.g., I am always optimistic about my future), (6) positive emotions (e.g., Taking all things together, how happy would you say you are?), (7) positive relationships (e.g., Taking all things together, how happy would you say you are?), (8) resilience (e.g., When things go wrong in my life it generally takes me a long time to get back to normal – reverse score), (9) self-esteem (e.g., In general, I feel very positive about myself), and (10) vitality (e.g., I had a lot of energy). After analyzing these indicators in a European sample of 22 countries, Huppert and So (2013) concluded that high levels of well-being included hedonic (i.e., presence of positive

[12] The examples in Brackets of each component are the indicator items from the European Social Survey (ESS; Jowell and The Central Coordinating Team 2003, https://www.europeansocialsurvey.org/) that was used to assess 22 European countries (N = 43,000) including individuals aged 15 and above. The survey of 2006-2007 included those indicators for measuring well-being.

feelings) and eudaimonic components (e.g., positive functioning). Regarding the differences across countries, they found that the Nordic countries had the highest rates of well-being, Eastern European countries had the lowest rates, and Southern/Western Europe had a large variation. For instance, some countries were at the top of the ranking in some components: Spain in self-esteem, the Netherlands in vitality, and Switzerland in competence; but also, the same countries were in the lowest ranking in other components, such as Spain in competence or the Netherlands in engagement. These findings highlighted the multidimensionality of the concept of well-being, and the need to distinguish it from other constructs such as life satisfaction (as the correlation between the ten indicators of well-being and life satisfaction was low).

In addition, the sense of grit is another variable that should be highlighted, given its association with well-being in the educational context. Grit is a stable characteristic associated to the individual's perseverance of effort (i.e., the tendency to be persistent in accomplishing long-term aspirations) and consistency of interest (i.e., the tendency to stay focused on achieving long-term goals) (Duckworth et al., 2007). Grit has been strongly positively related to emotional stability, generalized self-efficacy, and positive affect (Credé et al., 2016), which constitute important variables associated with well-being. More specifically, the dimension "perseverance of effort" has been associated with behavioural engagement, emotional engagement, and flourishing in a sample of high school students in a non-Western setting (Datu et al., 2016). Moreover, the sense of grit in terms of perseverance of effort and consistency of interest has been related to several dimensions of the identity development process in adolescents, that in turn, had an effect on variables related to well-being (Weisskirch et al., 2019). Additionally, the sense of grit has also predicted a greater academic performance (i.e., final exams' marks) in undergraduate students

during online learning settings, through its effects on triggering self-efficacy (Sulla et al., 2022).

PP research has been interested in adolescence, as mental health in this period is strongly linked to the mental health of adults. The presence of a mental disorder in youth greatly increases the probability of having a mental disorder in adulthood (Suhrcke et al., 2007). Therefore, prevention in earlier stages of life (e.g., adolescence) is essential. In addition, school is one of the most important settings to promote adequate mental health and enhance the strengths of adolescents (Clonan et al., 2004; Waters, 2017). In this context, the term Positive Education (PE) has risen, and it has been defined as the combination of traditional education principles together with happiness and well-being (Seligman et al., 2009). PE has the principle that the skills and mindset that are promoted through positive emotions facilitate both learning and academic success (Williams et al., 2013). In the following section, we will review several theoretical frameworks on PE.

Positive Education: Theoretical framework

As we mentioned before, *Positive Education* (PE) is defined as an applied science that tries to include the knowledge from PP into educational practice to support students' well-being and academic achievement (Waters & Loton, 2019). In the last decades, there has been an increased interest in considering not only the learning curriculum but also fostering positive mental health in students (Chodkiewicz & Boyle, 2017). Overall, PE is aimed at promoting positive emotions, positive relationships, character strengths, and in general, developing skills for achieving happiness and well-being in the educational context.

Although PE has been applied worldwide in many schools since Seligman et al. coined the term in 2009, there is not a unifying or cohesive theoretical framework including the underlying psychological constructs explaining the development of well-being. In this regard,

Froh et al. (2011) carried out a content analysis of the PP research conducted in the schools, and they found that the scientific papers with a PP approach addressed more than 400 positive constructs or processes (e.g., achievement, adjustment, competency, creativity, engagement, locus of control, motivation, self-concept, self-esteem, happiness, optimism, or gratitude). Hence, given this huge expansion of the use of different concepts, there is a need to consider different theoretical frameworks on PE to identify the core components that promote well-being in adolescents. Moreover, evidence shows that well-being is not a unidimensional construct, as all the frameworks coincide with the fact that well-being is composed of different dimensions. For instance, some students may need to improve their sense of meaning, while others may need to improve social relationships (Kern et al., 2015). In the literature, there are several multidimensional frameworks of PP that have been applied in educational settings. In the following subsections, the most relevant frameworks are detailed.

PERMA's model (Seligman, 2011)

The PERMA model developed by Seligman (2011) is a theoretical framework commonly used for school applications of PP. In this model, Seligman incorporated various indicators of well-being, including hedonic components (i.e., the experience of positive emotions and the satisfaction of the person's desires) and eudaimonia components (i.e., the presence of a vital purpose and the development of human potential). This implies a clear advantage compared to other models which tend to focus on one of the two aspects, either the hedonic component (e.g., SWB by Diener, 1984) or the eudemonic component (e.g., PWB by Ryff, 1989). This model represents the cornerstone, in which future theoretical models of happiness and well-being were initiated (Burke & Minton, 2019). The PERMA's model is the acronym for the following elements (see Figure 1):

(1) *Positive Emotions*: the experience of hedonic feelings of happiness (e.g., joy, content, cheer).

(2) *Engagement*: the psychological connection to activities or organizations (e.g., feeling interested or absorbed, engaged in life).

(3) *Relationships*: the feeling of being socially integrated, supported by others, and satisfied with social connections.

(4) *Meaning:* the belief that one's life is valuable, and that one is connected with something greater than oneself.

(5) A*ccomplishment*: the progress toward goals, feeling capable to do daily activities, and experiencing achievement.

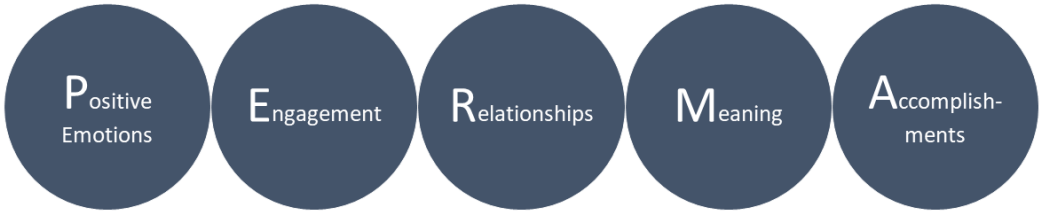

Figure 1. The PERMA model (adaptation from Seligman, 2011)

To assess the PERMA components in adolescents, Kern et al. (2016) published an instrument based on the PERMA's model, namely the *EPOCH Measure of Adolescent Well-being*. This instrument analyzes the 5 dimensions of the PERMA model -but with different terminology-: *engagement* (e.g., I get so involved in activities that I forget about everything else), *perseverance* (e.g., I keep at my schoolwork until I am done with it.), optimism (e.g., In uncertain times, I expect the best), *connectedness* (e.g., There are people in my life who really care about me), and *happiness* (e.g., I feel happy.). This self-reported questionnaire presents adequate psychometric properties for assessing well-being in adolescents aged from 10 to 18

years, and may help in the development and assessment of interventions for fostering well-being in school settings.

Seligman argued that each of the components of the PERMA model contributed to the well-being, and was intrinsically rewarding (Goodman et al., 2018). However, well-being cannot be achieved solely by focusing on one of the pillars. To achieve a fulfilling life, it is necessary to promote all the components of the model, as they are interrelated. In addition, high scores on these dimensions were associated with high academic performance, feelings of competence, and participation in volunteering (O'Connor et al., 2017). In a similar vein, the PERMA model predicted better physical health, higher vitality, and life satisfaction in college students and the general population (Coffey et al., 2016).

Regarding the empirical support for the PERMA model, it has received mixed results (Tansey et al., 2018). For instance, several studies have found solidity in the structure of the five domains of the PERMA (e.g., Butler & Kern, 2016). On the contrary, in the Australian validation, four factors were obtained, as the meaning and positive relationships items constituted a single factor (Ryan et al., 2019). Furthermore, the study by Coffey et al. (2016) predicted flourishing in a sample of students with four of the PERMA's model factors (all factors except meaning). Thus, future studies should confirm the five-dimensional structure in more diverse samples.

PROSPER's framework (Noble & McGrath, 2015)

Noble and McGrath (2015) have proposed the PROSPER framework as a way of flourishing (i.e., a high level of feeling good and functioning effectively) in organizations or communities. Thus, the authors used the "PROSPER" acronym to make a word game of the verb "to prosper" -which is defined as a way of flourishing, thriving, and succeeding healthily-. This

framework arose intending to be an organizer for PPIs to help individuals or groups in flourishing. Specifically, in the field of PE, PROSPER aims to enhance the well-being and academic achievement of all the members of a school community. The theoretical and evidence-based components of this framework are (see Figure 2):

(1) *Encouraging Positivity*. This is referred to as the promotion of positive emotions and a positive mindset in schools. Intervention may provide opportunities for experiencing and amplifying positive emotions, fostering positive learning environments (e.g., using music), or teaching explicitly the values and skills needed for a positive mindset (e.g., expressing gratitude, optimistic thinking, mindfulness). Moreover, the opportunities to put these skills into practice should be guaranteed.

(2) Bu*ilding Relationships*. This component is related to the need of developing skills and prosocial values for experiencing and building positive relationships with peers and teachers. Several strategies may be taught by promoting these positive interactions, such as teaching explicitly social and pro-social skills. Moreover, interventions should give opportunities to practice these skills and create an adequate context to practice them (e.g., cooperative learning).

(3) *Facilitating Outcomes*. Interventions should teach specific skills aimed at enhancing students' outcomes and accomplishments. To do so, interventions should teach explicitly skills for organization, goal achievement (e.g., effort, persistence, willpower, and problem-solving), and effective studying. Moreover, there is a need for promoting critical and creating thinking, and a growth mindset (e.g., increasing the perception of competence, understanding that achievement depends on effort, being persistent, and developing a sense of mastery and accomplishment).

(4) *Focusing on Strengths*. There is a need to self-knowledge one's strengths, as well as the application of these in various contexts (e.g., in lessons, in extra-curricular and

leadership activities). Moreover, teachers should send assignments in accordance with the strengths of the students.

(5) F*ostering a Sense of Purpose*. Students need to develop a sense of purpose and meaning. To do so, students should be provided with opportunities, such as: exploring spirituality, being involved with community service or service-learning, undertaking peer mentoring or leadership roles, etc.

(6) E*ngagement*. There is a need for providing opportunities for greater student engagement. For instance, interventions may incorporate critical and creative thinking or differentiate the curriculum according to the students' flow experience).

(7) *Teaching Resilience*. Students should develop the skills and attitudes for being resilient. To do so, several skills may be taught explicitly, such as good decision-making, self-management, acting with courage, etc.

Hence, the PROSPER model is similar to Seligman's PERMA model (2011), but includes two new important components: Strengths and Resilience. Moreover, the seven components meet Seligman's three criteria to be considered a "well-being element" (Seligman, 2011): (1) they contribute to well-being; (2) they can be defined and measured independently of the other elements; and (3) many people pursue the element by itself.

Although the PROSPER model can be used in organizations, communities, and workplaces, it is more oriented toward PE. The authors state that it can be used at the school level both as a planning tool and as a screening tool, to identify student's strengths as well as areas that could be improved.

Figure 2. The PROPER framework (adaptation from Noble and McGrath, 2015)

The Geelong Grammar School Journey (GGS, Norrish et al., 2013; Norrish, 2015)

This is an empirical-based approach that provides a pathway for implementing PP in the educational context, but also for guiding evaluation and research. This framework arose after five years of implementing a PE program in one Australian school named "Geelong Grammar School". From this framework, optimal well-being is a multi-dimensional and holistic concept that includes hedonic and eudaimonic well-being, and the aim is to promote it across different elements of the school systems (e.g., students, staff members, teachers). The six key domains for fostering well-being are (see Figure 3):

(1) Po*sitive Emotions*: the ability to anticipate, initiate, experience, prolong, and build positive emotional experiences (e.g., joy, gratitude, and hope).

(2) *Positive Engagement:* living with high levels of interest, curiosity, and absorption, as well as determination and vitality in pursuing goals. Engagement may be achieved by

cultivating the experience of flow, intrinsic motivation, and applying one's character strengths (consistent with one's values).

(3) *Positive Accomplishment of meaningful outcomes*: perseverance in pursuing valued goals despite disappointments and challenges, as well as the experience of competence and success in important life domains.

(4) *Positive Purpose through contributing to others and the community*: understanding of the benefits of serving a greater cause and engaging in activities to support that.

(5) *Positive Relationships with self and others*: cultivating social and emotional skills to promote strong relationships.

(6) *Positive physical and psychological health*: developing sustainable habits for improving health.

All of these six elements are integrated into the school setting on three different levels: (1) *living it*: educators should follow comprehensive programs to apply PE principles in their daily lives and their work at school; (2) *teaching it*: educators should help students in learning these skills, both explicitly and implicitly (i.e., integrated with traditional curriculum); and (3) *embedding it*: applying complementary school practices for promoting a culture for well-being (e.g., running projects devoted to random acts of kindness). Moreover, the six elements are framed in the character of strengths framework of "The Values in Action (VIA) Classification of Strengths" (Peterson & Seligman, 2004) (see Figure 4). That is, the model highlights the need of encouraging, using, and growing character strengths (i.e., personality traits that are morally valued by the individuals). Overall, this model provides a flexible approach to plan, implementing, and evaluating the PP in the school setting, involving explicit and implicit teaching.

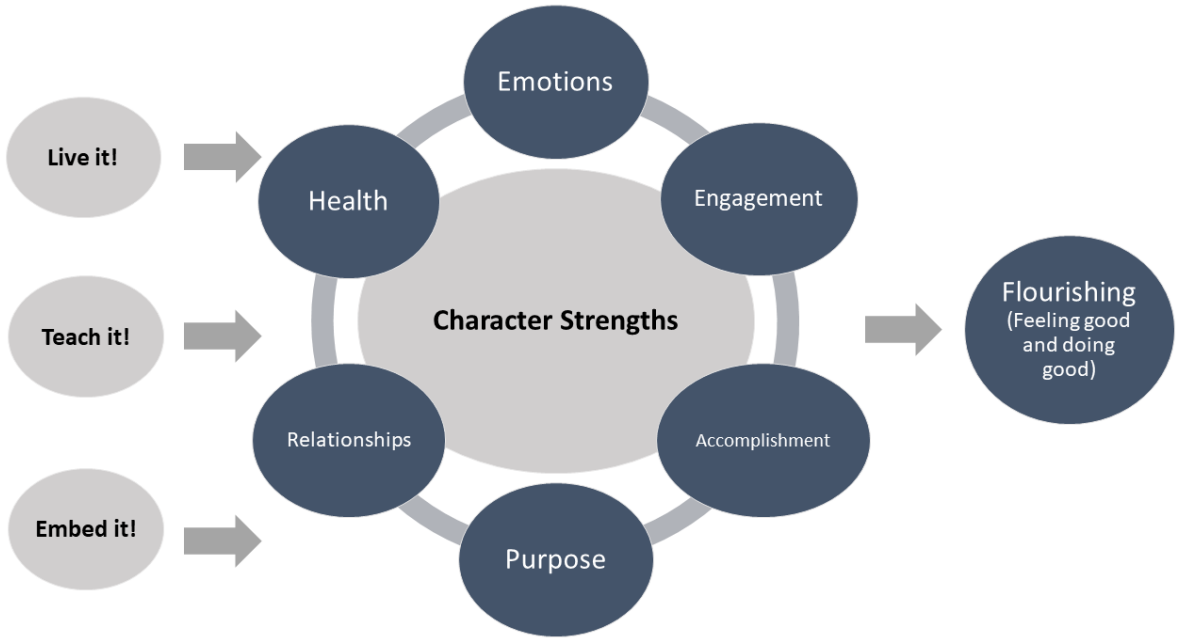

Figure 3. The Geelong Grammar School Journey (adapted from Norrish et al., 2013)

Wisdom	Courage	Humanity	Justice	Temperance	Transcendence
• Creativity • Curiosity • Judgment • Love of learning • Perspective	• Bravery • Perseverance • Honesty • Zest	• Love • Kindness • Social intelligence	• Teamwork • Fairness • Leadership	• Forgiveness • Humility • Prudence • Self-regulation	• Appreciation of beauty and excellence • Gratitude • Hope • Humor • Spirituality

Figure 4. The VIA Classification of 24 Character Strengths (adapted from Peterson and Seligman, 2004; https://viacharacter.org/resources/activities)

A meta-framework of PE: the SEARCH framework (Waters & Loton, 2019)

The SEARCH framework is an evidence-based and multidimensional approach that was developed to guide the design, investigation, and implementation of PE interventions. To do so, Waters and Loton (2019) reviewed 75 school-based PE intervention studies conducted

in North America, Europe, Asia, the UK, Australia, and New Zealand. After this process, six different mechanisms or pathways to foster well-being and school-based academic outcomes were identified (see Figure 5):

(1) *Strengths*. They are pre-existing qualities in the individual that arise naturally, such as curiosity, creativity, love of learning, and hope. Character strengths are intrinsically motivating and energizing. Interventions should be aimed to help students in identifying their strengths, to set goals to put their strengths into action or be aware of how their peers are using their strengths. One of the most popular strengths taxonomies is the *Values in Action (VIA)* (Peterson & Seligman, 2004), which constitutes a review of universally valued character traits (i.e., 24-character strengths) grouped in six virtues categories (i.e., wisdom, courage, humanity, justice, temperance, and transcendence) (see Figure 4).

(2) E*motional management*. This mechanism is related to emotional intelligence; that is, the ability to identify, understand, use, and regulate one's emotions. It also implies the understanding of the effect that emotions have on one's thoughts, feelings, and actions. To intervene in this mechanism, emotional intelligence, and gratitude interventions are common. Thus, intervention help students in knowing all the stages of the emotions, as well as to notice and appreciate the positive aspects of their lives.

(3) *Attention and awareness*. Attention, on the one hand, refers to the ability to focus on internal aspects of self (e.g., emotions and physical sensations) and environmental aspects (e.g., the lesson taught by the teacher). Awareness, on the other hand, refers to the ability to pay attention to a stimulus as it occurs. In this regard, mindfulness interventions are applied to develop this skill.

(4) *Relationships*. This mechanism is associated with the skills required to build and sustain supportive social relationships. To develop this pathway, "mentoring" interventions

-consisting of a process in which more experienced students guide, support, and care for less-experienced students- seems to improve relationships. Moreover, teacher-student support helps to enhance a sense of connectedness and belonging.

(5) *Coping*. This is referred to the cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as exceeding the resources of the individual. In this regard, interventions should help in changing thoughts and behaviors when dealing with stress, as well as in developing resilience in terms of maintaining, recovering, and improving mental health after stressful situations.

(6) *Habits and goals*. Habits are repeated and learned patterns and preferences in behavior and decision making, while goals are formal milestones, endpoints, achievements, or aspirations that guide what activities they invest effort in. To change habits and maintain goals, self-regulated learning interventions are needed to persist through the learning process (planning, implementing, and monitoring goals).

This meta-framework constitutes the starting point for psychologists or researchers for designing, applying, and evaluating PE interventions. Thus, evidence supports the fact that intervening in one of these six pathways may boost well-being and academic achievement in students from 4 to 18 years old. The effects of PE interventions framed in one of these mechanisms are associated with increases in optimism, hope, life satisfaction, motivation, self-confidence, positive affect, engagement, and social well-being, but also academic grades, student satisfaction, academic expectations, academic motivation, and perceptions of academic ability. Hence, future intervention should consider the need of intervening over one path or multiple paths to teaching students how to use their strengths, handle their emotions, focus their attention, build caring relationships, cope with stressful situations, and set healthy habits and goals.

Figure 4. The SEARCH framework (adaptation from Waters and Loton, 2019)

The Flourishing Classroom System's model (FCSM, Allison et al., 2021)

This approach is based on the principles of *Systems-Informed Positive Psychology* (SIPP; Kern et al., 2020) and, more specifically concerning education, on the principles of *Systems-Informed Positive Education* (SIPE) (Kern & Taylor, 2021). The SIPE incorporates aspects of the systems sciences into PE practice to optimize the individuals, but also the social system in which individuals interact. In this regard, considering that educational systems are dynamic, interconnected, and interdependent from different elements (e.g., students, teachers, parents), the *Flourishing Classroom System* (FCSM) (Allison et al., 2021) proposes that human flourishing should not only be promoted through content but also context, focusing on both individuals and groups. The ultimate objective of this model is to make a group of people feel good and function well.

FCSM states that the classroom has a high potential to promote human flourishing; consequently, PE-based interventions should be focused on the group level and not just on

the individual level. That is, teachers: (1) can alter specific elements to develop a context of well-being, (2) can work with the classroom as a system (viewing well-being as a collective phenomenon), and (3) can act as a change agent who takes care of her/his classroom supporting both learning and well-being. Allison et al. (2021) state that previous research has largely focused on designing PP-based interventions at the individual level (e.g., keeping a gratitude journal), and they propose to include the collectivity of the group that the classroom offers (e.g., creating class identity through a whole-class appreciative inquiry activity). Another novelty of this approach is the interconnection between the different elements (i.e., changing one element can create changes in others).

For developing the FCSM (Allison et al., 2021) model, the authors included the components of the *Classroom Systems Observation Model* (CSOM; Fish & Dane, 2000), which is a working model that describes three components for achieving learning outcomes in a classroom system (see Figure 6): (1) *Classroom cohesion* (i.e., emotional bonding, supportiveness, and boundaries by classroom members); (2) *Classroom flexibility* (i.e., a classroom adaptable to the students' and teachers' needs when considering leadership, discipline, and negotiation), and (3) *Classroom communication* (i.e., abilities of students and teachers for communicating thoughts and feelings through listener skills, self-disclosure, and clarity).

In addition to these components, the FCSM includes "*classroom well-being*" as a fourth component to create group-level change in learning outcomes, but also in flourishing. The "*classroom well-being*" is a component that includes the six elements of the SEARCH model: strengths, emotional management, attention, relationships, coping, and habits (Waters & Loton, 2019; see subsection 2.5 of this chapter). The inclusion of this fourth component is crucial for making flourishing an individual and a collective observable phenomenon within the classroom, and a roadmap for boosting well-being collectively.

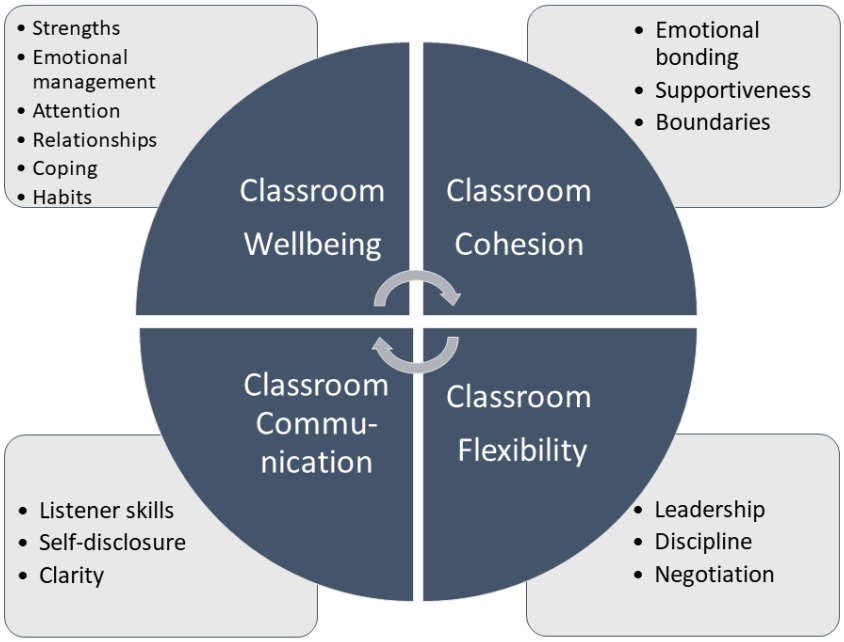

Figure 6. The Flourishing Classroom System model (FCSM) (adapted from Allison et al., 2021)

Positive Psychology Interventions (PPIs) for enhancing well-being and other positive functioning variables

PP-based interventions (PPIs) have been defined as an approach that promotes protective factors, rather than exclusively focusing on reducing risk factors (Sin & Lyubomirsky, 2009). Increasing subjective well-being is usually one of the main objectives of PPIs (Seligman et al., 2009).

Regarding the results of PPIs in adults, the meta-analysis by Sin and Lyubomirsky (2009) concluded that PPIs significantly increase well-being and reduce depressive symptoms. However, this effect does not occur equally in all samples: depressed, relatively older, and highly motivated people have a greater improvement. Along the same lines, Bolier et al. (2013) observed similar results. In their meta-analysis of Randomized Controlled Trials (RCTs), they found that PPI succeeded in increasing subjective well-being and these changes were maintained for 3 and up to 6 months, although the effect sizes were small. The more

recent meta-analysis by Carr et al. (2021) also replicated these results, which involved 347 studies with approximately 72,000 clinical and non-clinical participants, with children and adults from 41 different countries. They found small and medium post-test PPIs effects on well-being, strengths, quality of life, depression, anxiety, and stress. Moreover, these changes were maintained during a 3-month follow-up. In a similar vein, the meta-analysis by Hendriks et al. (2020) confirmed that multicomponent PPIs have a small -but significant- effect on the variables discussed above. They also observed small effect sizes on follow-up measures when outliers were removed.

Particularly noteworthy is the meta-analysis conducted by van Agteren et al. (2021) about RCTs of psychological interventions to improve mental well-being. These authors observed that interventions based on mindfulness and those based on multicomponent PPIs had better efficacy in both clinical and non-clinical populations than the rest of the interventions evaluated. Therefore, the evidence points to the fact that PPIs are successful in increasing well-being, in addition to improving mental health (i.e., reducing symptoms of depression, anxiety, and stress) (Hendriks et al., 2020).

Considering the need for prevention and intervention during adolescence, PE interventions have become a crucial method for improving positive psychological functioning. They are evidence-based interventions aimed at improving positive functioning variables (e.g., emotions, thoughts, behaviors, strengths) through activities that might be implemented in school settings (Bernard & Walton. 2011). In the following subsections, we will review the effects of PPIs in the school setting, and we will describe how to develop PPIs addressed for high school students.

Effect of PE intervention on well-being

In the context of PE, well-being has been proposed as an equally important priority as academic performance to promote well-being and reduce distress in the school setting

(Waters, 2011). Evidence points out that improvement in well-being is associated with other improvements in the academic performance and engagement of the students (Datu, 2018). Several PPIs that target the two components of well-being (hedonic and eudemonic) have been developed in school settings. Regarding their effectiveness, several systematic literature reviews and meta-analyses have been conducted in the last decade. In the following paragraphs, we summarize the effectiveness of evidence-based PPI through the review of crucial systematic reviews and meta-analyses.

The review by Waters (2011). The objective of this work was to review school-based single component PPIs that have been designed to foster student well-being and academic performance. This study presents 12 PPIs that were applied in Australia, Portugal, Pennsylvania, the UK, and California, in age ranges from 5 to 19 years, and that covered five specific PPI components: *gratitude* (e.g., letter of gratitude, counting blessings), *hope*, *serenity* (e.g., meditation), *resilience* (e.g., 'You Can Do It!' program), and *character strengths* (e.g., Strathhaven Positive Psychology Program). Moreover, this review found two common characteristics of the programs that showed a significant effect on student well-being: (1) they were implemented by the teachers; and (2) they integrated the teaching of PP skills into the school subjects.

The literature review by Shankland and Rosset (2017). This work provides a review of brief PPIs to show the effectiveness of "easy-to-implement" practices (i.e., PPIs interventions that do not require extensive time, materials, or experience) that have had an impact on school engagement and performance, but also on psychological and subjective well-being. This study presented 16 brief PPIs that were applied in North America, Europe, and Australia, and showed to be effective in improving well-being and learning. The interventions were grouped in the following four domains:

(1) *Mindfulness*. Helping students train their attention to be more aware of what is happening while promoting a state of non-reactiveness towards their experiences (e.g., Brief Body Scan, or Mindful Breathing).

(2) *Gratitude*. Shifting attention towards things they are grateful for and improving their ability to notice people's intentions and the benefits they obtain from them (e.g., Gratitude Journal, the Gratitude Letter, the Gratitude Graph, the Gratitude Box).

(3) *Character strengths*. Enhancing well-being by using the strengths oneself already possesses in a new way, instead of developing new ones (e.g., Identifying Strengths, Strengths 360º exercise, Cultivating Strengths, Secret Strength Spotting).

(4) *Positive relationships*. Creating cooperation and supportive interactions with both students and teachers (e.g., Cooperative Learning Groups, Active Constructive Responding, Secret Acts of Kindness).

Overall, this review constitutes a relevant paper for looking for specific examples of PPIs in each domain. Moreover, the authors highlighted the need for an alliance between teachers and researchers to implement effective interventions.

The meta-analysis by Goldberg et al. (2019). The objective of this study was to analyze the effectiveness of interventions adopting a whole-school approach to improve social and emotional development in children and adolescents. These "whole-school approach" includes a set of activities involving: (1) *the curriculum teaching* (e.g., providing a support guide to help develop policies based on the intervention's principles; establishing a school committee for planning and implementing the intervention; and staff meetings to plan the approach, monitor its progress and arrange professional development); (2) *school values and environment* (e.g., defined school-wide rules, posters in the corridors reflecting intervention concepts, encouraging the use of skills; training the staff on how to apply teaching strategies;

instructional methods in interactive teaching, problem-solving, cooperative learning, and positive communication; and strategies to foster collaboration with parents), and (3) *family* (e.g., informing parents about the intervention's key principles, teacher-parents meeting, offering parent education programs or workshop oriented to protective and risk factors in the home environment).

Moreover, this meta-analysis was focused on interventions on social and emotional learning (i.e., those aimed at understanding and learning skills related to recognizing and managing emotions, solving problems effectively, and establishing positive relationships) (CASEL, 2005), involving the whole school, and discarding individual classroom-based interventions. A total of 45 studies (with 30 interventions) were included: 23% were implemented in secondary school, and 20% of the interventions were implemented across primary and secondary school. They were carried out in Finland, Norway, the USA, Australia, Canada, Belgium, Hong Kong, the UK, and New Zeeland. Findings showed that there were significant -but small- improvements in participants' social and emotional adjustment (d = 0.22), behavioral adjustment (d = 0.13), and internalizing symptoms (d = 0.11). However, there was not a significant impact on academic achievement. The community partnership was a significant moderator (e.g., participation of community members in school components; additional support from specialists for "at-risk" children; intervention activities implementation through community leaders, the media, and social workers), and results showed that intervention that included this element had larger effects. This meta-analysis highlights the need to identify the specific components in the intervention of the school context to achieve successful outcomes.

The systematic review and meta-analysis by Tejada-Gallardo et al. (2020). The objective of this systematic review and meta-analysis was to analyze the effectiveness of

school-based multicomponent PPIs aimed at increasing subjective and psychological well-being and reducing the most common psychological distress indicators (depression and anxiety) in adolescents aged between 10 and 18 years old. A total of 9 studies met the inclusion criteria. The school-based PPIs were delivered in a group format, the number of sessions varied between 6 and 18, the duration of the programs ranged from 4 to 30 weeks, and they were conducted in the UK, Australia, Portugal, USA, Italy, or Israel. Moreover, PPIs in schools were not commonly integrated into the school curriculum, and they were implemented by external professionals.

Findings showed that multicomponent PPIs achieved small effects sizes for increasing subjective well-being ($g = 0.24$) and psychological well-being ($g = 0.25$), and decreasing depression symptoms ($g = 0.28$). Regarding the moderation analyses, results showed that those PPIs that combined a multicomponent intervention with another type of evidence-based positive intervention (e.g., acceptance and commitment therapy or well-being therapy) had larger effect sizes on well-being (Shoshani & Steinmetz, 2014) and depression (Burckhardt et al., 2016). Moreover, the effects on psychological well-being and depression symptoms were significant in the long-term (i.e., from 6 to 12 months), but not in subjective well-being and anxiety symptoms. Hence, in the short-term subjective well-being is boosted, provoking positive experiences for adolescents, but it is not maintained in the long term, as in the research on adults (Boiler et al., 2013; Hendricks et al., 2020). Nevertheless, the tendency of adolescents to seek immediate gratification can make subjective well-being an essential component of the effectiveness of PPIs in the short term. Moreover, psychological well-being is another key component in the long term, that makes students have a sense of meaning and fulfillment.

The systematic review by Mendes de Oliveira et al. (2022). This study aimed at identifying effective school-based PPIs for increasing well-being in children from 3 to 13 years old. A total of 15 studies met the inclusion criteria. The school-based PPIs were delivered in a group format, the number of sessions ranged from 3 to 160, the duration of the programs varied between 7 hours and 32 weeks, and they were conducted in the USA, UK, China, the Netherlands, New Zealand, Finland, or Israel. Moreover, PPIs were conducted by teachers, staff, research teams, or other external professionals (e.g., therapists). The positive components that were assessed were happiness, character strengths, gratitude, positive emotions, kindness, optimism, hope, values, mindfulness, engagement, positive relationships, achievement, self-concept, and positive thinking.

Findings showed that 10 out of 15 PPIs -both single and multicomponent- were effective for promoting child well-being, with small, moderate, and large effect sizes. Two interventions showed no effect on general well-being, but an improvement was observed in specific well-being domains: satisfaction with self and with friends (Boniwell et al., 2016) and positive affect (Froh et al., 2014; Quinlan et al., 2015). In addition, 4 out of 7 studies that did a follow-up observed significant effects on well-being in the long-term: an intervention based on positive thinking (Carter et al., 2018), a mindfulness-based program (Devcich et al., 2017), a gratitude intervention (Froh et al., 2014), and a character strength intervention (Ruit et al., 2019). Interestingly, 7 out of 10 programs that showed a positive effect on well-being were delivered by teachers, as well as 2 out of 4 studies that showed long-term effects.

The systematic narrative review by Chuecas et al. (2022). This review aimed at synthesizing available evidence about the characteristics of subjective well-being intervention programs in the school setting. Although this review not only covers PPI but also non-PPI, it concludes that well-being promotion programs are mostly based on PP and most of them

use activities that promote positive emotions (77%). The PPIs are divided into a single component (e.g., kindness, gratitude, hope, optimism, positive thinking, strength of character) and multi-component interventions. The authors conclude that longer interventions, which are focused on promoting more than a single factor targeting positive emotions are more likely to show positive effects.

How to develop PE interventions

As commented in the previous section, theoretical frameworks are needed to develop evidence-based interventions. Moreover, to develop appropriate PE interventions, Seligman and Adler (2018) published a report in the Global Happiness and Well-being Policy that was aimed at summarizing the ideal steps that should be chronologically taken. The following steps have been developed from Dr. Adler's case study of Education for Gross National Happiness (GNH) in Bhutan, in which it was empirically demonstrated for the first time that teaching well-being increased academic performance (Adler et al., 2016):

1. *Contextual and cultural immersion and understanding.* Exploring the knowledge, attitudes, and values of a country is necessary before beginning any kind of program.
2. *Multi-stakeholder engagement.* When developing a new program, it is essential to jointly design and deliver it with as many stakeholders as possible: ministries of education, teachers, principals, school staff, students, parents and caretakers, academic researchers, private sector employers, etc.
3. *Needs and goals assessment.* It is necessary to identify strengths together with the needs, objectives, and incentives for the different stakeholders through unstructured data collection, structured interviews, and quantitative data.
4. *Study design and quantitative baseline measurement.* Assessing the effects of an intervention requires collecting baseline and post-intervention data through

validated measures, such as the EPOCH instrument of adolescent well-being (Kern et al., 2016) and standardized exams.

5. *Curricular development and adaptation.* Cooperation may help maintain a balance between evidence-based practices and teachers' needs when developing the curriculum that will target the components of the program. The co-developed *Gross National Happiness* curriculum of Bhutan targeted ten non-academic "life skills": mindfulness, empathy, self-awareness, coping with emotions, communication, interpersonal relationships, creative thinking, critical thinking, decision making, and problem-solving.
6. *Training of educators.* Since all adults in a school are the ones who define the behaviors and the culture of the school, they all -principals and teachers- should receive training. In Adler's study, all principals and teachers were trained by psychologists and trained staff members from Bhutan's Ministry of Education during a 10-day *Gross National Happiness Curriculum* retreat. They were taught how to practice and how to teach the ten life skills.
7. *Curriculum implementation.* Educators should also be trained to infuse their academic subjects with the components of the program (e.g., literature can be taught by identifying strengths in characters from novels), as well as learn how to give students feedback to empower and motivate them (e.g., identifying not only what students are doing wrong in their classwork, but also what they are doing right).
8. *Post-intervention measurement.* Collecting data at the end of the intervention- comparing control and treatment schools- is necessary to assess the impact of the program both on well-being and academic achievement. In Bhutan, *Gross National Happiness Curriculum* was found to significantly increase students' well-

being and academic performance in treatment schools compared to control schools, which was maintained one year later.

9. *Ongoing impact evaluation, adaptation, and scaling.* Repeating measurements after finishing the intervention is useful to assess the long-term effects of the intervention. In addition, financial, human, and infrastructural resources seem necessary to ensure that all teachers have immersive well-being experiences. In Adler's study, the distance between the adults who had the immersive experiences and the students who received the intervention has been negatively related to the effect size of the intervention –being the effect size higher in the schools in which the immersive training was for teachers than in schools in which it was for the intermediary trainers (e.g., other staff members)– (Adler et al., 2016).

Along the same lines, Kern (2022) developed a chapter to unpack the PERMAH[13] model of Seligman (2011) to: (1) describe profilers that measure PERMAH; (2) explore strategies for putting PERMAH into practice; and (3) provide a broad perspective for understanding and using PERMAH.

(1) *PERMAH Profilers.* This author recommends: (1) the PERMA-Profiler (Butler & Kern, 2016) for assessing the six PERMAH components, and five additional items for measuring negative emotions, loneliness, and overall well-being; and (2) the EPOCH questionnaire (Kern et al., 2016) for assessing the five domains of PERMA in younger ages. The questionnaires are freely available for research and noncommercial purposes (https://www.peggykern.org/questionnaires.html). Moreover, for having a broader view of the students, Kerns recommends combining

[13] It should be noted that this author refers PERMA as PERMAH, as many authors have included the "health" (i.e., individuals' perception of their health, such as eating well, moving regularly, sleeping deeply) as a sixth pillar.

the EPOCH measure with "Healthy Pathways Scales" (Bevans et al., 2010), "the Kessler-6 measure of psychological distress" (Kessler et al., 2003), and questions related to socioeconomic status, demographics, or personality. Moreover, depending on the objective of the study the author recommends removing dimensions of the questionnaires when they are not necessary, as well as changing the instructions of the questionnaire to assess the relevant period of interest. Furthermore, Kern suggests not focusing solely on the cutoffs of the questionnaire, as there is a need of considering what is optimal for everyone.

(2) *PERMAH in Practice.* Kern suggests that the application of the PERMA model depends on the context and objectives of each school, as there is no exclusive formula. First, the author recommends identifying pillars that will be developed, and to choose specific activities that will support the chosen pillars depending on the characteristic of the school context. For instance, the strategy of "creating a hope map" is useful for developing the "accomplishment" pilar, and an example of activity may be (Kern, 2022, pp. 15): *"Take a sheet of paper horizontally and fold it into thirds. In the right column, write "Goals" and write down a goal you want to achieve over a specific period. In the left column, write "Pathways" and list at least three actions that could help you to reach your goal. In the middle, write "Obstacles." For each pathway you listed, note obstacles or challenges you might encounter. At the bottom of the page, add the things you can do to maintain motivation, people who can support you, and ways you can celebrate your efforts.".*

Second, the component that will be relevant to developing the pillars chosen should be identified. Third, it will be important to establish a baseline in well-being for identifying the important areas in which we will intervene. Fourth, it is important to plan the activities that will be developed (i.e., the skills that will be developed) and to explain the purpose, rationale, and process to the students. Activities should emphasize pedagogically, focusing on quality

rather than on quantity. Fifth, it will be crucial to provide professional support for teachers (e.g., understanding the underlying ideas of PERMAH model, and practicing activities in their own life). Sixth, it will be important to encourage teachers to incorporate PERMAH into the taught curriculum (i.e., in explicit lessons, activities, and teachings) and the caught curriculum (i.e., in norms, practices, and culture of the school, such as in the language or behaviors of adults). Finally, the author recommends introducing the model within the strategies, policies, and structures of the school to make it a permanent pillar of the school's culture.

(3) *PERMAH in Perspective.* According to Kern, a system-informed perspective is necessary. In the school setting, that means that it is mandatory to consider all the elements of the context (e.g., people, environment) to make classrooms and schools physically, mentally, and socially sustainable. Moreover, Kern highlights that the structure of the PERMA model may be problematic (given the criticism of the robustness of the five-domains structure), but it is practically useful, as the pillars of PERMA are interconnected even at the definitional level.

Overall, PERMAH model is a framework that may be useful for delivering PPIs in the school setting, as the five (or six) pillars of the model can be measured, and several strategies can support each pillar. Moreover, it constitutes a framework in which all the elements of the educational system may be involved: principals, students, teachers, and other members of the educational community.

PPIs supported by Information and Communication-Technologies in school settings to promote well-being

Information and Communication-Technologies (ICTs) have much to offer in terms of prevention and promotion of well-being in adolescents. In this regard, *Positive Technology*

should be mentioned, as this is a scientific and applied approach to the use of ICT for improving the quality of our personal experience (Riva et al., 2012). From this approach, it is possible to use ICTs to impact three specific features of our experience (i.e., affective quality, engagement, and connectedness) that might serve to promote adaptive behaviors and positive functioning. Specifically, online PPIs stand out as a promising strategy for enhancing well-being in the school setting (Francis et al., 2021).

Since adolescents are an age group with a certain ease of use of technologies (Baños et al., 2017), there are many PPIs supported by ICTs. For instance, evidence has shown the potentiality of digital games to facilitate the learning of conceptual understanding, process skills, and practices, epistemological understanding, players' attitudes, identity, and engagement (Clark et al., 2016). The high acceptance of technology by adolescents, as well as high immersion in digital worlds, make ICT-based interventions a specifically useful tool for adolescents.

Moreover, online PPI programs provide flexibility to meet the needs of diverse students, teachers, or environmental needs (Francis et al., 2021). Moreover, ICTs offer high accessibility to the public (e.g., Internet, mobile devices), with a good cost-effectiveness ratio for the prevention of mental disorders and the empowerment of human strengths (Baños et al., 2017), and reach a larger number of participants (Barak et al., 2008).

To our knowledge, the more recent systematic review in this field has been conducted by Fracis et al. (2021), which is explained in the following paragraphs. They analyzed 9 studies that tested the efficacy of online school-based PPIs. To review the effectiveness of the interventions, the authors thematically analyzed the studies using the RE-AIM framework (Glasgow et al., 2019). Thus, the interventions were evaluated according to five enhanced RE-AIM components: Readiness and Reach (e.g., buy-in characteristics; motivation for non-participation), Efficacy (e.g., intention to treat), Readiness and Adoption (e.g., use and

completion of programs), Implementation (e.g., core message fidelity, program flexibility), and Maintenance.

The interventions were conducted in the UK, the Netherlands, Australia, German, and Finland, and involved weekly sessions over 4 to 6 weeks, with sessions lasting from 20 to 60 minutes. Except for one study that targeted primary school pupils, the rest were addressed to secondary school students. Regarding the agent that delivered the programs, 6 were student-driven or teacher supervised, whereas the other 3 were health specialist delivered or coach facilitated. Here, we describe the programs that were analyzed, and the specific results achieved:

(1) *Think, Feel, Do* (Stallard et al., 2011). Program based on cognitive behavioral therapy principles, designed for emotional problems of anxiety and mood. It covers emotion recognition and management; linking thoughts, feelings, and behavior; identifying and challenging negative thoughts; and problem-solving. The program is highly interactive, with quizzes, video clips, animation, and cartoons that guide users through the activities. The studies showed a positive effect on symptoms of anxiety and low mood (Atwood et al., 2012).

(2) *E-health4Uth* (Bannink et al., 2012). This is a computer-tailoring program that focuses on nine topics related to health risk behavior and well-being: alcohol consumption, drugs use, smoking, sexual behavior, bullying, mental health status, suicidal thoughts, suicidal attempts, and unpleasant sexual experiences. It presents tailored messages based on the responses to a questionnaire that reflect the current behavior or well-being and offers advice and links to relevant websites. It has been applied to adolescents aged between 12 and 18 years old. In the intervention, participants must participate during a 45-minute class session. This program showed significant positive results on quality of life.

(3) *Mood-gym* (www.moodgym.anu.edu.au). This is an online cognitive-behavioral program designed to prevent or decrease the symptoms of anxiety and depression in adolescents by changing dysfunctional thoughts and beliefs, improving self-esteem and interpersonal relationships, and teaching important life skills, such as problem-solving and relaxation. It contains different characters that deal with stressful situations in different ways and form the basis of examples and discussions. It also includes quizzes, information, animated demonstrations, and exercises. This program was used in four studies, showing stronger effects on anxiety when the adherence was high than when it was low (Calear et al., 2013); lower levels of anxiety at post-intervention and 6-month follow-up, and reduction in depressive symptoms only significant in males (Calear et al., 2013); small benefits for depressive symptoms, attributional style, and self-esteem when completing three or more modules (O'Kearney et al., 2006); and a faster decline in depressive symptoms 20 weeks after the intervention (O'Kearney et al., 2009).

(4) *Youth COMPASS* (Puolakanaho et al., 2019). This is an online program aimed at enhancing adolescents' psychological flexibility by guiding them in exploring their emotions, interests, thoughts, and sensations, setting goals, and changing behaviors according to their goals. It is based on the Acceptance and Commitment Therapy, and also offers support via WhatsApp. The contents include awareness of self, acceptance, cognitive defusion, mindfulness, self-compassion, and learning adaptation skills for use in personal and social life. The program included short texts, pictures, video clips, comic strips, and audio-based exercises. Participants receive motivational support once a week. The intervention with Youth COMPASS has shown a significant decrease in overall stress and an increase in academic buoyancy.

(5) *Bite Back* (http://www.biteback.org.au/). Australian online program aimed at improving adolescents' mental health, as well as increasing their well-being. It includes interactive activities relating to nine domains of PP: gratitude, optimism, flow, meaning, hope, mindfulness, character strengths, healthy lifestyle, and positive relationships. In addition, it provides information on the benefits of increasing well-being, methods to develop certain skills, and other sources of information. Finally, it allows for online discussions and comments. Although the intervention with Bite Back demonstrated improvements in life satisfaction and reductions in stress, depression, and total symptom scores, it showed no significant differences with the control condition (based on a workbook with questions and links to non-psychology websites, like the Australian Youth Climate Coalition) (Burckhardt et al., 2015). The authors of the study attribute these results to delivery-specific factors; the program was administered in a structured manner and with a specific frequency, whereas the same program delivered in an unstructured format and with the freedom to choose engagement frequency showed positive results in comparison to a control group (Manicavasagar et al., 2012).

In their systematic review, Francis et al. (2021) offer some key recommendations for practitioners derived from their review, such as (1) all the agents are probably more motivated to buy-in when PPIs are age-appropriate, engaging, and meaningful; (2) to improve intervention fit, include stakeholders in the program co-creation or develop interventions that adapt to the user input; (3) people with lower baseline measures and those who complete more sessions tend to benefit more from PPI; (4) frequent and brief sessions seem more valuable than longer and less frequent sessions; (5) multi-level buy-in and support for the process result in greater completion rates.

In addition to the programs included in the Francis et al. (2021) systematic review, in this section, we also include several evidence-based PPIs supported by ICTs in the school setting that meet the following inclusion criteria: (1) they use ICTs (i.e., mobile apps, computer programs or websites), (2) they have been applied on adolescents; and (3) they are based on components of PP (e.g., resilience, happiness, well-being, emotional competencies).

- *EmoTIC* (de la Barrera et al., 2021a, 2021b). This intervention consists of a mobile application with a space adventure theme, where participants must rebuild their spaceship to return to their original planet. This app teaches emotional competencies to adolescents aged between 11 and 15 years. Specifically, it consists of an emotional intelligence program based on the model of Mayer et al. (2016). It is structured into 4 classes group sessions in the classroom and 12 individual sessions. This program has been effective in improving self-esteem, positive affect, emotional symptoms, negative affect, behavioral problems, and hyperactivity.
- *Spock* (Cejudo et al., 2019). This intervention is aimed at improving the emotional intelligence of adolescents aged between 17 and 19 years old. The program is composed of 10 sessions that deal with four different components: identifying and perceiving emotions, emotional facilitation, emotional comprehension, and emotional regulation. After implementation, an improvement in emotional intelligence, general behavior, externalizing problems, adaptive skills, and personal adjustment has been observed.
- *"Aislados" (or in English "Isolated)* (Cejudo et al., 2020). This program aims to improve subjective well-being, mental health, and emotional intelligence. During the intervention, the player has a character who is on a ship and arrives on newly discovered islands. The video game presents different hypothetical situations in which the player must implement both intrapersonal and interpersonal

competencies. The intervention is effective in increasing positive affect and improving mental health, quality of life, and life satisfaction.

- *Reach Out Central* (http://www.reachout.com) (Shandley et al., 2010). This is a serious game based on the principles of cognitive behavior therapy that aim to improve the mental health and well-being of individuals aged between 14 and 25 years old. It was administered through a website where the game could be played. Players took the role of a character who was new to a city. The character must learn how to settle in, make new friends and find their way around. The intervention tries to imitate real-life characteristics through the roles and scenarios of the video game, to improve problem-solving, consolidate already learned skills, and be able to apply them in their daily life. Findings suggested that this program enhances protective factors (e.g., help-seeking in both genders, resilience in females) for the prevention or early intervention of mental health disorders.

In conclusion, the effects of PPIs supported by ICTs in school settings are promising, but more studies guided by PP theories are needed. Moreover, one key aspect to be considered is the need of developing engaging and meaningful content according to the age of the students, and the need to apply online programs guided by teachers (Francis et al., 2021). To do so, identifying the essential ingredients for increasing well-being in adolescents, and the context in which the PPIs are delivered stand out as crucial challenges.

Brief conclusion

The general aim of this chapter was to review the theoretical frameworks and interventions framed on Positive Psychology (PP) aimed to improve the well-being of adolescents in educational settings. To do so, we focused on the most relevant models of well-being in Positive Education (PE), and the effectiveness shown by several PP interventions (PPIs) in

the educational field -both face-to-face and supported by Information and Communication Technologies (TICs)-. Thus, our ultimate objective was to disentangle the theoretical components of the PPIs and the best conditions that make adolescents not only have an adequate academic achievement, but also "feeling good and functioning well".

The positive effects of PPIs in the educational context are inarguable, as several systematic reviews and meta-analyses conclude (e.g., Tejeda-Gallardo et al., 2020). However, making the "well-being construct" something tangible to be treated by PPIs seems not easy. In this regard, multicomponent interventions, which target two or more components of well-being (e.g., positive emotions, positive relationships, character strengths, etc.), seem to be more effective than single-component interventions in boosting hedonic and psychological well-being. According to the Synergistic Change Model (Rusk et al., 2018), multicomponent interventions are more likely to maintain their effects in the long term.

Moreover, when selecting the active ingredients on the PPI, researchers should consider evidence-based frameworks. In this regard, several theoretical models have been developed in educational settings, with the PERMA's model (Seligman, 2011) as starting point. Thus, several frameworks have improved or complemented the Seligman's (2011) model -not being mutually exclusive-, such as the PROSPER's framework (Noble & McGrath, 2015), The Geelong Grammar School Journey (Norrish et al., 2013; Norrish, 2015), the SEARCH framework (Waters & Loton, 2019), and the Flourishing Classroom System's model (Allison et al., 2021).

Moreover, several authors encourage the need of implementing PPIs as a part of the school curriculum (Tejada-Gallardo et al., 2020), and involve the whole school (Goldberg et al., 2019) -not just an isolated classroom-. Moreover, findings point out that the more successful PPIs are implemented by teachers or school psychologists previously trained -and also lived on themselves-, and integrated into the daily practice and school culture (Tejada-Gallardo et

al., 2020). That is, PP should be explicitly taught, but also implicitly incorporated into all the members of the school community and outside the classroom (e.g., in playgrounds). In this regard, it is important to highlight the guidelines developed by Kern (2022) to put the PERMA's model of Seligman (2011) into practice. The author recommends using reliable and valid measurements to assess the components of the PERMA's model and explain deeply how to deliver PPIs in the school settings to increase well-being successfully. To our knowledge, this is one of the first evidence-based studies guiding researchers and members of the educational community on how to implement PPIs. However, further studies are needed to determine what contents (e.g., strengths, positive emotions, relationships), how (e.g., self-guided or guided by teachers, frequency, number of sessions, type of ICT used, integrated into the learning curriculum or not), when and for whom (e.g., at what age) the PPIs should be implemented. In this regard, personalization and contextualization should be considered. On the one hand, it should be considered to match the adolescent's needs, preferences, and lifestyle with the intervention; on the other hand, it would be desirable to deliver the interventions at moments of need or at an opportune moment when are easy to follow (i.e., just-in-time interventions).

Hence, the small effect sizes of the PPIs in the education context in well-being found in the recent metanalysis of Tejeda-Gallardo et al. (2020) may be increased through the consideration of the aspects mentioned above. In this regard, ICTs have much to offer in terms of prevention and promotion of well-being in adolescents. The implementation of PPIs supported by ICTs (i.e., mobile apps, computer programs, or websites) has many advantages for adolescents, given their acceptability, flexibility, and accessibility. However, greater efforts should be made in developing evidence-based PPIs supported by ICTs in school settings to increase psychological and hedonic well-being. To do so, PPIs should be guided by PE theories, including multiple components or ingredients, involving the whole

school, being delivered by teachers, and considering the particular needs of the school and the students when developing the contents, with the ultimate aim of generating engagement and meaning when fostering well-being.

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6 – Competences useful in career transitions: EU frameworks at a glance

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The education system needs long-term sustainable solutions in improving the educational transitions and the school-to-work transitions of students. This may be particularly true in countries continuously affected by economic, social and environmental changes.

Enhancing the career readiness of students should be the central scope of the schools. Several studies showed that career interventions in schools aiming at the development and actual use of competences have positive effects on career readiness (Maijers et al., 2013). Students need certain resources and competencies to successfully manage career transitions and stimulate their well-being and performance (Hirschi, 2012). In light of this, it is essential to unpack the necessary competences and understand how teachers can promote and increase them in the classroom environment.

Students competences toolbox

Before unpacking the many skills that students should acquire in the classroom, it is important to specify the definition of competences and the framework referred to.

We refer to the very detailed approach outlined in the EU Recommendation of Key Competences for Lifelong Learning (European Union, 2018) which defines competences as a combination of knowledge, skills, and attitudes. Specifically, "all key competences are equally important. Key competencies are those, which all individuals need for personal fulfillment and development, employability, social inclusion, sustainable lifestyle, successful life in peaceful societies, health-conscious life management and active citizenship. Skills such

as critical thinking, problem solving, teamwork, communication and negotiation skills, analytical skills, creativity, and intercultural skills are embedded throughout the key competences" (p.7).

The Recommendation highlighted that "in a rapidly changing and highly interconnected world, each person will need a wide range of skills and competences and to develop them continually throughout life" (p.7). The EU identified eight key competences needed for personal fulfillment, a healthy and sustainable lifestyle, employability, active citizenship, and social inclusion:

1 - Literacy competence

2 - Multilingual Competence

3 - Mathematical, science, technology, engineering

4 - Digital

5 - Personal, social and learning to learn

6 - Citizenship

7 - Entrepreneurship

8 - Cultural awareness and expression

Among the competence frameworks developed by the EU, the Digital Skills Framework (DigCom; Vuorikari et al., 2016, 2022), Entrepreneurship Competences Framework (EntreComp; Bacigalupo et al., 2016), the Personal, Social, and Learning to Learn Framework (LifeComp; Sala et al., 2020) and the most recent European sustainability competence framework (GreenComp; Bianchi et al., 2022) are a good starting point to create a toolbox for students in transition. The current society demands new competencies and the need for

new professionals endowed with a broad skill set that includes digital competencies, life competencies, green competencies, and entrepreneurial competencies. These sets of competences seem to be the basic competences needed for today's students.

Digital Competences

According to the Digital Competence Framework for Citizens (DigComp 2.2; Vuorikari et al., 2016, 2022), "digital competence involves the confident, critical and responsible use of, and engagement with, digital technologies for learning, at work, and for participation in society. It includes information and data literacy, communication and collaboration, media literacy, digital content creation (including programming), safety (including digital well-being and competences related to cybersecurity), intellectual property related questions, problem solving and critical thinking." (Council Recommendation on Key Competences for Life-long Learning, 22 May 2018). Digital competences are the main goal of the European Policy Agenda. The current society requires its students to be trained in digital competences. Students should be able to use technology on a functional level boosting their academic, personal, and professional paths.

Five are the competence areas that outline what digital competence entails (Dimension 1 of the Framework): (1) Information and data literacy, (2) Communication and collaboration, (3) Digital content creation, (4) Safety, and (5) Problem solving.

1) **Information and data literacy** refers to articulating information needs, locating and retrieving digital data, information and content, judging the relevance of the source and its content, to store, managing, and organizing digital data, information and content.
2) **Communication and collaboration** refers to interacting, communicating and collaborating through digital technologies while being aware of cultural and

generational diversity, participating in society through public and private digital services and participatory citizenship, to manage one's digital identity and reputation.

3) **Digital content creation** refers to creating and editing digital content, improving and integrating information and content into an existing body of knowledge while understanding how copyright and licenses are to be applied, to know how to give understandable instructions for a computer system.
4) **Safety** refers to protecting devices, content, personal data and privacy in digital environments, protecting physical and psychological health, being aware of digital technologies for social well-being and social inclusion, and to be aware of the environmental impact of digital technologies and their use.
5) **Problem solving** refers to identifying needs and problems, resolving conceptual problems and problem situations in digital environments, using digital tools to innovate processes and products, to keep up-to-date with the digital evolution.

Each area includes related competences for a total of 21 competences (Dimension 2 of the Framework)

Area 1. Information and data literacy

1.1 Browsing, searching and filtering data, information and digital content: to articulate information needs, search for data, information and content in digital environments, access them and navigate between them, to create and update personal search strategies.

1.2 Evaluating data, information and digital content: to analyze, compare and critically evaluate the credibility and reliability of sources of data, information and digital content, to analyze, interpret and critically evaluate the data, information and digital content.

1.3 Managing data, information and digital content: to organize, store and retrieve data, information and content in digital environments, to organize and process them in a structured environment.

Area 2. Communication and collaboration

2.1 Interacting through digital technologies: to interact through a variety of digital technologies and understand appropriate digital communication means for a given context.

2.2 Sharing information and content through digital technology: sharing data, information and digital content with others through appropriate digital technologies, to act as an intermediary, to know about referencing and attribution practices.

2.3 Engaging in citizenship through digital technologies: to participate in society through the use of public and private digital services, to seek opportunities for self-empowerment and participatory citizenship through appropriate digital technologies.

2.4 Collaborating through digital technologies: to use digital tools and technologies for collaborative processes, and co-construction and co-creation of resources and knowledge.

2.5 Netiquette: to be aware of behavioral norms and know-how while using digital technologies and interacting in digital environments, to adapt communication strategies to the specific audience and to be aware of cultural and generational diversity in digital environments.

2.6 Managing digital identity: to create and manage one or multiple digital identities, to be able to protect one's reputation, and to deal with the data that one produces through several digital tools, environments and services.

Area 3. Digital content creation

3.1 Developing digital content: to create and edit digital content in different formats, to express oneself through digital means.

3.2 Integrating and re-elaborating digital content: to modify, refine, improve and integrate information and content into an existing body of knowledge to create new, original and relevant content and knowledge.

3.3 Copyright and licenses: to understand how copyright and license apply to data, information and digital content.

3.4 Programming: to plan and develop a sequence of understandable instructions for a computing system to solve a given problem or perform a specific task.

Area 4. Safety

4.1 Protecting devices: to protect devices and digital content, understand risks and threats in digital environments, know about safety and security measures and have due regard to reliability and privacy.

4.2 Protecting personal data and privacy: to protect personal data and privacy in digital environments, to understand how to use and share personally identifiable information while being able to protect oneself and others from damages, to understand that digital services use a "Privacy policy" to inform how personal data is used.

4.3 Protecting health and well-being: to be able to avoid health risks and threats to physical and psychological well-being while using digital technologies, to be able to protect oneself and others from possible dangers in digital environments (e.g. cyberbullying), to be aware of digital technologies for social well-being and social inclusion.

4.4 Protecting the environment: to be aware of the environmental impact of digital technologies and their use.

Area 5. Problem solving

5.1 Solving technical problems: to identify technical problems when operating devices and using digital environments, and solve them (from trouble-shooting to solving more complex problems).

5.2 Identifying needs and technological responses: to assess needs and to identify, evaluate, select and use digital tools and possible technological responses to solve them, to adjust and customize digital environments to personal needs (e.g. accessibility).

5.3 Creatively using data technologies: to use digital tools and technologies to create knowledge and innovate processes and products, to engage individually and collectively in cognitive processing to understand and resolve conceptual problems and problem situations in digital environments.

5.4 Identifying digital competences gaps: to understand where one's digital competence needs to be improved or updated, to be able to support others with their digital competence development, to seek opportunities for self-development and to keep up-to-date with the digital evolution.

Additional Dimensions outline Proficiency levels (Dimension 3), Examples of knowledge, skills and attitudes (Dimension 4, thanks to the latest update 2.2) and Use cases (Dimension 5). Proficiency levels refer to foundation, intermediate, advanced and highly specialized levels. Examples of knowledge, skills and attitudes dimensions provide for each of 21 competences 10-15 statements. Knowledge examples are the outcome of the assimilation of information through learning and, therefore, most linked to the specific field of study. Skills are the ability to apply knowledge to complete tasks and solve problems, such as cognitive and practical skills. Attitudes are conceived as the motivators of performance and include

values, aspirations and priorities. Dimension 5 provides useful scenarios in employment and learning settings for each of 21 competences.

The activities and tools in the classroom should be addressed to the improvement of digital competences in students. The teachers' ability will aim at identifying and dealing with their own and their students' needs for the 21 competences. This aspect is also recommended in the European Framework for the Digital Competence of Educators (DigCompEdu; Redecker, 2017) in which the key role of the teacher in facilitating learners' digital competence is highlighted. Teachers should stimulate the discussion about digital environments and incorporate learning activities aimed at facilitating the learning of digital competence.

According to the DigCompEdu (Redecker, 2017), related to Information and media literacy, teachers should integrate into classrooms learning activities, assignments and assessments which require learners to articulate information needs; add information and resources in digital environments; to organize, process, analyze and interpret information; and compare and critically evaluate the credibility and reliability of information and its sources. Related to Digital communication and collaboration, teachers should incorporate learning activities, assignments and assessments which require learners to effectively and responsibly use digital technologies for communication, collaboration and civic participation. Related to Digital content creation, teachers should incorporate learning activities, assignments and assessments which require learners to express themselves through digital means, modify and create digital content in different formats, and teach learners how copyright and licenses apply to digital content, and how to reference sources and attribute licenses. For Safety, the teacher should choose measures to ensure learners' physical, psychological and social

wellbeing while using digital technologies, to empower learners to manage risks and use digital technologies safely and responsibly. Finally, related to problem-solving, teachers should incorporate learning activities, assignments and assessments which require learners to identify and solve technical problems or transfer technological knowledge creatively to new situations.

In conclusion, in the process of preparing young people for transition, students should develop the skills required by the current (and future) labor market to aspire to decent work and adapt to the rapidly challenging economy. Increasingly digital skills are being demanded by employers. Digital skills will enable students to participate positively, safely, and effectively on the web and media and respond to the current and future job demands.

Life Competences

Personal, Social, and Learning to Learn Framework provides a conceptual framework that can help students to flourish in the 21st Century. The framework was born as a response to the current challenges of society. The competences systematized in LifeComp (Sala et al., 2020) are defined as "the ability to reflect upon oneself, effectively manage time and information, work with others in a constructive way, remain resilient and manage one's own learning and career". Specifically, it "includes the ability to cope with uncertainty and complexity, learn to learn, support one's physical and emotional wellbeing, to maintain physical and mental health, and to be able to lead a health-conscious, future-oriented life, empathize and manage conflict in an inclusive and supportive context". It consists of 3 competence areas, 9 competences, and 27 descriptors. Each area is composed of three

competences. Each competence is described by three descriptors. Three are the competence areas: (1) Personal, (2) Social, and (3) Learning to Learn.

The **personal** area contains Self-regulation, Flexibility and Wellbeing.

Self-regulation refers to awareness and management of emotions, thoughts, and behavior. It is described as a human capacity to regulate responses. The LifeComp framework refers to the self-regulation theory of Zimmerman (2000) who highlighted that engagement in self-regulation depends on the individual's beliefs regarding their self-regulatory strength that, in turn, contributes to a sense of personal agency in oneself and the environment. The three descriptors are:

P1.1 Awareness and expression of personal emotions, thoughts, values, and behavior

P1.2 Understanding and regulating personal emotions, thoughts, and behavior, including stress responses

P1.3 Nurturing optimism, hope, resilience, self-efficacy and a sense of purpose to support learning and action

Flexibility refers to the ability to manage transitions and uncertainty and to face challenges. The construct of flexibility is most useful in times of uncertainty because the openness to experience, which is the basis of the concept of flexibility, allows for a successful and satisfactory school-to-work transition. Flexibility has a critical role to promote adaptive behaviors in career development. According to van Vianen and colleagues (2009) having a flexible attitude can help students to make changes and consider different options to face uncertainty. According to the LifeComp framework, being flexible also means being able to improve digital skills to change the threats of today's society into challenges by taking advantage of new possibilities of technology. The three descriptors are:

P2.1 Readiness to review opinions and courses of action in the face of new evidence

P2.2 Understanding and adopting new ideas, approaches, tools, and actions in response to changing contexts

P2.3 Managing transitions in personal life, social participation, work and learning pathways, while making conscious choices and setting goals

Finally, ***wellbeing*** refers to the pursuit of life satisfaction, care of physical, mental and social health and adoption of a sustainable lifestyle. It is based on the strong relationship between physical, mental, social and environmental aspects of wellbeing. Following Seligman and colleagues (2005) perspective, LifeComp adopts the positive psychology view taking into account the role of positive emotion as part of personal growth and development in life. The three descriptors are:

P3.1 Awareness that individual behavior, personal characteristics and social and environmental factors influence health and wellbeing

P3.2 Understanding potential risks for wellbeing, and using reliable information and services for health and social protection

P3.3 Adoption of a sustainable lifestyle that respects the environment, and the physical and mental wellbeing of self and others, while seeking and offering social support

The **social** area contains Empathy, Communication and Collaboration.

Empathy refers to the understanding of another person's emotions, experiences and values, and the provision of appropriate responses. It is related to pro-social behavior and allows students to cope with stressful events and manage conflicts. The three descriptors are:

S1.1 Awareness of another person's emotions, experiences and values

S1.2 Understanding another person's emotions and experiences, and the ability to proactively take their perspective

S1.3 Responsiveness to another person's emotions and experiences, being conscious that group belonging influences one's attitude

Communication refers to the use of relevant communication strategies, domain-specific codes and tools, depending on the context and the content. This competence is also linked to digital skills because the spread of digital technologies has created a new way of communication. The three descriptors are:

S2.1 Awareness of the need for a variety of communication strategies, language registers, and tools that are adapted to context and content

S2.2 Understanding and managing interactions and conversations in different socio-cultural contexts and domain-specific situations

S2.3 Listening to others and engaging in conversations with confidence, assertiveness, clarity and reciprocity, both in personal and social contexts

Collaboration refers to the engagement in group activity and teamwork acknowledging and respecting others. Also in this case digital technologies provide new and innovative ways of collaboration using the virtual environment. The three descriptors are:

S3.1 Intention to contribute to the common good and awareness that others may have different cultural affiliations, backgrounds, beliefs, values, opinions or personal circumstances

S3.2 Understanding the importance of trust, respect for human dignity and equality, coping with conflicts and negotiating disagreements to build and sustain fair and respectful relationships

S3.3 Fair sharing of tasks, resources and responsibility within a group taking into account its specific aim; eliciting the expression of different views and adopting a systemic approach

Learning to learn contains Growth Mindset, Critical Thinking and Managing Learning. According to the framework, Learning to learn is the most important skill for current challenges and it is a relevant driver for change in adolescence and adulthood because it promotes employability and competitiveness (Rawson, 2000; Hoskins & Deakin Crick, 2008).

Growth Mindset refers to the belief in one's and others' potential to continuously learn and progress. The three descriptors are:

L1.1 Awareness of and confidence in one's own and others' abilities to learn, improve and achieve with work and dedication

L1.2 Understanding that learning is a lifelong process that requires openness, curiosity and determination

L1.3 Reflecting on other people's feedback as well as on successful and unsuccessful experiences to continue developing one's potential

Critical Thinking refers to the assessment of information and arguments to support reasoned conclusions and develop innovative solutions. It is defined as a crucial skill to cope with uncertainty providing the process of managing learning and agency in taking responsibility in the learning process. It includes divergent and convergent thinking (Cropley, 2006). Divergent thinking is needed to create new ideas. Convergent thinking is needed to consider different options and provide the best possible solution to a problem. The three descriptors are:

L2.1 Awareness of potential biases in the data and one's personal limitations, while collecting valid and reliable information and ideas from diverse and reputable sources

L2.2 Comparing, analyzing, assessing, and synthesizing data, information, ideas, and media messages in order to draw logical conclusions

L2.3 Developing creative ideas, synthesizing and combining concepts and information from different sources in view of solving problems.

Managing Learning refers to the planning, organizing, monitoring and reviewing of one's learning. It refers to metacognitive knowledge and metacognitive regulation of learning. Metacognitive knowledge refers to knowledge about cognition, of one's personal knowledge state and knowledge about the task, and strategic knowledge of general strategies for learning, thinking and solving problems. Metacognitive procedural regulation applies the metacognitive knowledge to planning, monitoring and evaluating one's learning. The education system must promote motivated behaviors in their students and enable students to achieve meaningful learning. Meaningful learning consists of the capacity of students to integrate the new knowledge into other concepts that they have mastered. Students that have acquired knowledge through meaningful learning can be able to transfer this knowledge to new situations. Moreover, learners who can manage their learning are actively involved in their learning paths. The three descriptors are:

L3.1 Awareness of one's own learning interests, processes and preferred strategies, including learning needs and required support

L3.2 Planning and implementing learning goals, strategies, resources and processes

L3.3 Reflecting on and assessing purposes, processes and outcomes of learning and knowledge construction, establishing relationships across domains

Entrepreneurial Competences

Entrepreneurial competences are needed to support adolescents and young people to innovate and create jobs. Moreover, empowering individuals with entrepreneurship education, an entrepreneurial mindset and behaviors, are tools to develop human capital (Seikkula-Leino et al., 2021). Researchers differentiated entrepreneurial and managerial competences, recognizing the main role of entrepreneurial competences in better evaluations of opportunities, better strategy formulation and identification of critical and valuable resources (Shane & Venkataraman, 2000; Man et al., 2002). Different frameworks and models aimed to create the univocal definitions of entrepreneurial competences identifying a great diversity of related entrepreneurial competences considered necessary to become a successful entrepreneur (Michelmore & Rowley, 2010; Rezaei-Zadeh et al., 2014).

According to the European Entrepreneurship Competence Framework (EntreComp; Bacigalupo et al., 2016), entrepreneurship is defined as a transversal competence. Specifically, "entrepreneurship is when you act upon opportunities and ideas and transform them into value for others. The value that is created can be financial, cultural, or social (FFE-YE, 2012)". It is applying to different areas of life. Entrepreneurial competence could benefit youth development and entering the labor market facilitating the school-to-work transition. This competence could allow the creation of a link between learning and work. Three are the competence areas and each area is composed of 5 competences. Each thread unfolds into learning outcomes across 8 progression levels. The three areas are (1) Ideas and opportunities, (2) Resources, (3) Into Action.

Ideas and opportunities include:

1.1 Spotting opportunities: use your imagination and abilities to identify opportunities for creating value

1.2. Creativity: Develop creative and purposeful ideas

1.3 Vision: Work towards your vision of the future

1.4 Valuing ideas: Make the most of ideas and opportunities

1.5 Ethical and sustainable thinking: Assess the consequences and impact of ideas, opportunities and actions

Resources include:

2.1 Self-awareness and self-efficacy: Believe in your- self and keep developing

2.2 Motivation and perseverance: Stay focused and don't give up

2.3 Mobilizing resources: Gather and manage the resources you need

2.4 Financial and economic literacy: Develop financial and economic know how

2.5 Mobilizing others: Inspire, enthuse and get others on board

Into action includes:

3.1 Taking the initiative: Go for it

3.2 Planning and management: Prioritize, organize and follow-up

3.3 Coping with uncertainty, ambiguity and risk: Make decisions dealing with uncertainty, ambiguity and risk

3.4 Working with others: Team up, collaborate and network

3.5 Learning through experience: Learn by doing

The key to developing a successful school-to-work transition is to stimulate entrepreneurial intentions. In this view, entrepreneurship education is relevant in fostering the development of entrepreneurial competences by providing positive environments for students to enhance the most relevant resources. EntreComp adopts a holistic approach and incorporates competences related to "being entrepreneurial", for example, creativity, perseverance, coping with uncertainty, and "becoming an entrepreneur", for example, planning and management, and mobilizing resources. The framework gives value creation a central role. Entrepreneurship education provides students with the knowledge, skills and motivation to encourage entrepreneurial success. Specifically, it is all about creating value, in the social, cultural and economic context. In the educational setting, teachers should be involved (and previous informed) to promote a positive attitude toward entrepreneurship. Before that, teachers should be encouraged to make their teaching practices more entrepreneurial.

Green Competences

Life on our planet is among the principal threats and challenges that adolescents and young people will have to confront. Humanity must be proceeding in a sustainable manner taking care of the future life of the planet. Crucial is to educate students as global citizens for sustainable development. The European Sustainability Competence Framework (GreenComp; Bianchi et al., 2022) was born in 2022 as an EU's strategic action to promote learning for environmental sustainability. GreenComp responds to the growing need for all to improve and develop the knowledge, skills and attitudes to live, work and act sustainably.

GreenComp provides a common definition of sustainability and sustainability competence. Sustainability refers to "prioritizing the needs of all life forms and the planet by ensuring that human activity does not exceed planetary boundaries", while "sustainability competence

empowers learners to embody sustainability values, and embrace complex systems, in order to take or request action that restores and maintains ecosystem health and enhances justice, generating visions for sustainable futures". It consists of 4 areas and 12 competences. The four areas are: (1) Embodying sustainability values, (2) Embracing complexity in sustainability, (3) Envisioning sustainable futures, and (4) Acting for sustainability.

Embodying sustainability values includes:

1.1 ***Valuing sustainability***: To reflect on personal values; identify and explain how values vary among people and over time, while critically evaluating how they align with sustainability values.

1.2 ***Supporting fairness***: To support equity and justice for current and future generations and learn from previous generations for sustainability.

1.3 ***Promoting nature***: To acknowledge that humans are part of nature, and to respect the needs and rights of other species and of nature itself in order to restore and regenerate healthy and resilient ecosystems.

Embracing complexity in sustainability includes:

2.1 ***Systems thinking***: To approach a sustainability problem from all sides; to consider time, space and context in order to understand how elements interact within and between systems.

2.2 ***Critical thinking***: To assess information and arguments, identify assumptions, challenge the status quo, and reflect on how personal, social and cultural backgrounds influence thinking and conclusions.

2.3 ***Problem framing***: To formulate current or potential challenges as a sustainability problem in terms of difficulty, people involved, time and geographical scope, in order to

identify suitable approaches to anticipating and preventing problems, and mitigating and adapting to already existing problems.

Envisioning sustainable futures includes:

3.1 ***Future literacy***: To envision alternative sustainable futures by imagining and developing alternative scenarios and identifying the steps needed to achieve a preferred sustainable future.

3.2 ***Adaptability***: To manage transitions and challenges in complex sustainability situations and make decisions related to the future in the face of uncertainty, ambiguity and risk.

3.3 ***Exploratory thinking***: To adopt a relational way of thinking by exploring and linking different disciplines, using creativity and experimentation with novel ideas or methods.

Acting for sustainability includes:

4.1 ***Political agency***: To navigate the political system, identify political responsibility and accountability for unsustainable behavior, and demand effective policies for sustainability.

4.2 ***Collective action***: To act for change in collaboration with others.

4.3 ***Individual initiative***: To identify own potential for sustainability and actively contribute to improving prospects for the community and the planet.

Brief conclusion

To support the transition between education and labor market, adolescents need an integrated competences toolbox. The skills component of such a toolbox will include digital skills, life skills, entrepreneurial skills, and green skills. As suggested by the Recommendation on Key Competences for Lifelong Learning, the key competences are complementary and interconnected to each other and the related Frameworks reflect this view. For example, links

to LifeComp are mentioned in the DigCom framework such as managing personal careers and supporting one's physical and emotional well-being. In the same ways, Entrepreneurial Competences are linked to DigCom for example in the creative use of digital technologies.

In a school, all teachers should be informed about the challenges and benefits of digital, life, entrepreneurship, and green education and gain an understanding of the opportunities for their students. The lack of skills of teachers in many countries is still hindering the uptake of this education. For this reason, it is important to train the teacher to train their students. Competences linked to digital, life, entrepreneurship, and green education should be a priority in initial teacher education programs catching up with the latest developments.

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Conclusion

The Handbook **"EU Framework of Career Development in Teacher Education"** represents the first result of the NEFELE Erasmus+ project (Project number: 2021-1-IT02-KA220-HED-000027538).

The NEFELE ERASMUS+ project aims at modeling innovative methodologies for pre-service teachers of middle schools that can be useful to support adolescents' career development and a positive vision about their future. The starting point of the project has been the development of an ad hoc framework for pre-service and in-service teachers.

This handbook has brought together, for the first time, different psychological theories referring to career theories and positive psychology and existing EU competences frameworks useful for mastering career transitions.

Indeed, as outlined in the introductory chapter, the goal has been to map the landscape of career developmental and positive psychology paradigms, jointly with the EU framework of competences, to provide a roadmap to teachers.

In doing so, we have begun to explain the current challenges in the labor market and highlighted the crucial role of educational systems in fostering the career choices of their students. As well explained in the handbook, making career choices represents one of the most demanding developmental tasks for adolescents. The career decision-making process must be considered taking into account the context in which the career transitions take place. Nowadays, the context presents several threats and challenges for adolescents that are called to make career choices. Among others, the main features are digitalization, youth unemployment and sustainable challenges. But also, war and pandemics should be considered. These challenges require suitable equipment for adolescents because it is even more difficult to answer the question "What do you want to do when you grow up?". The

schools are responsible for the reach of autonomy and should provide career guidance. Although teachers are often aware of their role in supporting career choices, they are not adequately trained for this arduous responsibility.

NEFELE wants to bridge this gap by providing a theoretical and practical guide on what and how to do it.

The book considers the interplay of career theories and positive psychology. For the first one, NEFELE takes up theories of career development and the role of teachers in career support focusing particularly on career construction theory (CCT, Savickas et al., 2009) as an anchor theory. Instead, in the positive psychology paradigm NEFELE in particular refers to Positive education (Seligman, 2009; Waters & Loton), focusing on the SEARCH model (Waters & Loton, 2019).

Positive education is aimed at promoting positive emotions, positive relationships, character strengths, and in general, developing skills for achieving happiness and well-being in the educational context.

The interplay of career theories ad positive psychology is critical and crucial to identify factors that can contribute to successful career choices and improved mental health during adolescence. For instance, positive psychology can enrich the career construction theory and provide a fruitful focus on adolescents' well-being.

Hence, students need certain resources and competencies to successfully manage career transitions and stimulate their well-being and performance. Considering this, it is essential to unpack the necessary competences and understand how teachers can promote and increase them in classrooms.

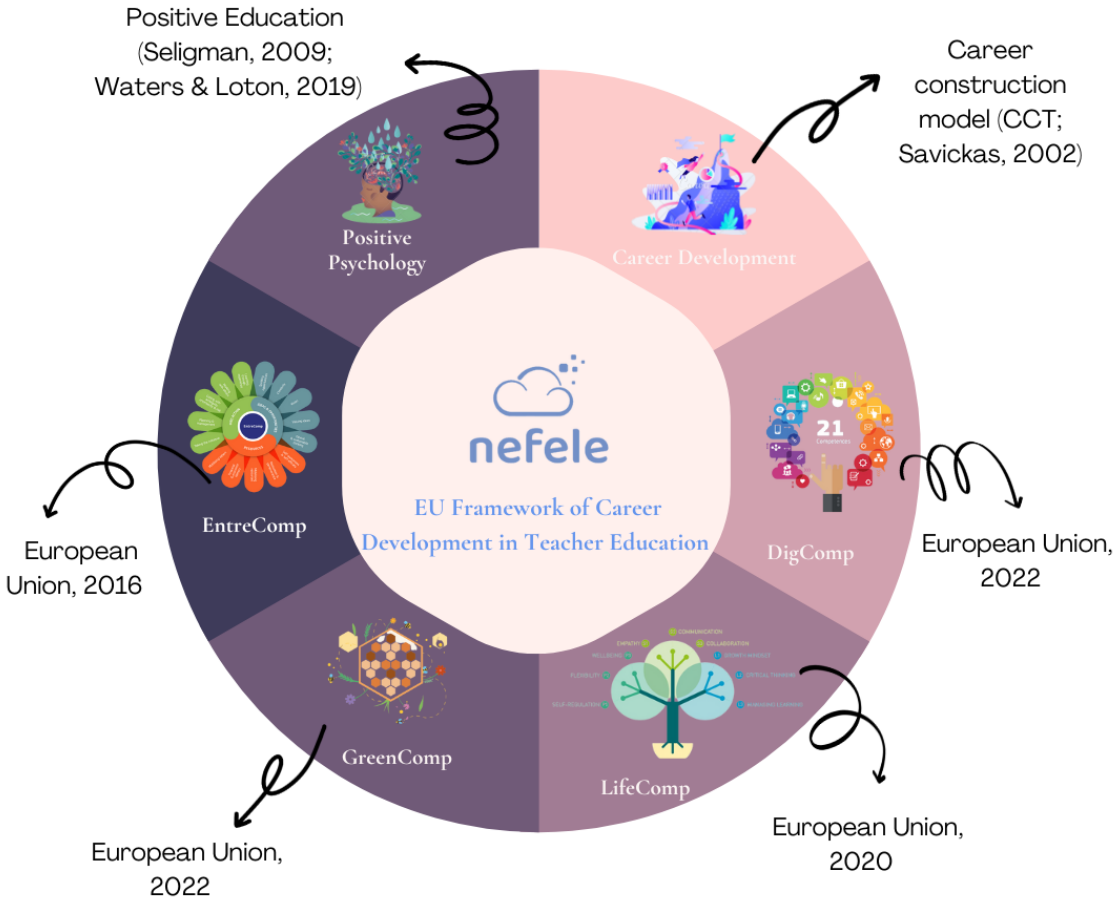
The NEFELE framework considers the EU Recommendation of Key Competences for Lifelong Learning. Specifically, the Digital Skills Framework (DigCom), the Entrepreneurship Competences Framework (EntreComp), the Personal, Social, and Learning to Learn Framework (LifeComp) and the European Sustainability competence framework (GreenComp) that were used as interconnected to create a toolbox for students in transition (see Appendix).

... and now?

The handbook offers knowledge that can be useful to teachers for fostering adolescents' career development. The NEFELE framework will be delivered to teachers through the MOOC, which is the second project result. Moreover, during the MOOC lessons, teachers will be trained to use also the NEFELE game (third project result) which is a supportive technology that they can use in the classroom. The final aim of NEFELE will be the implementation of a MOOC in HEI courses to allow teachers to learn the NEFELE framework also proving tools to support adolescents' career construction in school practices.

So, **stay tuned**!

Appendix - Infographic of the NEFELE framework



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