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INnovative TEaching Method for an Inclusive School

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Comparative research on innovative education in Europe

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2. Introduction

Globalized society is characterized by being a society in which knowledge becomes increasingly important as essential and vital resource. In fact, it stands out by the growing amount of relevant events and the intense interrelationship between competences and knowledge, as well as the widespread use of digital technologies and the rapid increase of innovation.

In this scenario, the centrality of educational systems has undoubtedly been demonstrated, but also the need for its radical transformation in methodologies and structures, as well as in educational purposes. The European suggestion made in Lisbon in 2000\(^1\) had already recognized the importance of education systems and its responsibility in developing and acquiring, mainly for students, the necessary tools useful to lead the modern society.

These responsibilities should lead to a redefinition of education systems, since continuous transformation is one of the main element of the knowledge society, so that education systems should gradually break down their traditional inactivity and its structural rigidity, by becoming a dynamic entity that can respond continually to social, cultural and technological changes.

In the first twenty years of formation, European students spend around 15,000 hours to school: it results therefore evident as the school has a huge impact on individual’s lifelong learning approach and, accordingly, on the entire society. It appears reasonable therefore that the responsibility to prepare the students to new professions, to innovative digital technologies, to problem solving skills, as well as to face the new crucial challenges, has been entrusted in wide measure to the education systems\(^2\).

However, this responsibility should have led to a profound transformation of educational systems, which, if not partially, have not yet occurred.

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\(^1\) The European Council held a special meeting on 23-24 March 2000 in Lisbon to agree a new strategic goal for the Union in order to strengthen employment, economic reform and social cohesion as part of a knowledge-based economy. At the start of proceedings, an exchange of views was conducted with the President of the European Parliament, Mrs Nicole Fontaine, on the main topics for discussion. http://www.europarl.europa.eu/summits/lis1_en.htm

\(^2\) For further Eurostat information and details: http://ec.europa.eu/eurostat/statistics-explained/index.php/Being_young_in_Europe_today_-_education
The teaching method currently applied in most school environments is in fact an obstacle to the desired change. The most diffused didactic practice, especially as far as Italian reality is concerned, is still the approach to the content mediated by the frontal lesson.

The traditional didactic is mostly based on the formal method: it founds on the teaching more than on the learning, as well as on the accumulation of contents and notions, more than on construction of contextual knowledges. It privileges the vertical transmission of competences by the teacher, authoritative source of knowledge and the students passively receiving content.

Insofar that education and training systems are being multiplied, an institutional request has been made, inspired by the demand to innovate such model in purpose to overcome the limits of the traditional didactics. In fact, as demonstrated by the main studies carried out on the issue in recent years, it is evident that this model does not answer to the demands neither of the students, neither of the actual society. In this direction, during the last decade, an innovative method of learning-teaching has emerged: Flipped Classroom.

The term Flipped Classroom literally means "class upside down" and emphasizes both a practical didactic and a pedagogical model, namely to overturn traditional teaching moments. In extreme synthesis: traditionally what take place in class (lesson) is developed at home, and what is developed at home (the individual study/homework) is now faced in class. In addition, the whole process is facilitated by the use of ICT tools and e-learning platforms. So “the flipped classroom intentionally shifts instruction to a learner-centred model through which it is possible to explore topics in a greater depth and create more meaningful learning opportunities during the in-classroom activities, while educational technologies such as online videos are used to deliver content outside of the classroom”3.

Therefore, this research aims to analyse the educational system in Europe with a particular focus on the partner countries systems, in order to compare the different applied methodology and innovative tools used for teaching especially regarding VET schools. Moreover, it is directed at deepening the recent “learning phenomenon” of Flipped Classroom, to facilitate its knowledge and

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application with the intent of promote this innovative methodology and to delineate more clearly the psychological and pedagogical implications of it⁴.

⁴For a methodology overview and its application especially in the Italian context: Maurizio Maglioni, Fabio Biscaro: La classe capovolta. Innovare la didattica con la flipped classroom, Ed. Erickson 2014.
2.1. European policies on education system and the use of new teaching methods.

From the analysis of the needs of teachers and of the education system in general, collected in countless European studies and literature, it is largely demonstrated that in Europe schools and initial education in general play a crucial role in strengthen and growing people’s skills. Regarding Key Competences, the European Institutions, especially the Parliament and the Council, are placing a specific interest on developing the Lifelong Learning approach, by asking Member States to ensure that initial education and training act as a useful tools for young people to develop their key competences. In particular, they invited the Member States and the EU Commission to promote creativity and innovative capacity in and through school education. The purpose is to prepare students for adult life and give them a basis for further learning and future working placement.

In this direction, the Council of the European Union underlines that “schools have a duty to provide their pupils with an education which will enable them to adapt to an increasingly globalised, competitive, diversified and complex environment, in which creativity, the ability to innovate, a sense of initiative, entrepreneurship and a commitment to continue learning are just as important as the specific knowledge of a given subject”. In conclusion, this notable European Institution, invites for more dialogue, co-operation at different levels, research and evidence for developing learning environments conducive to creativity and innovation in education and training system.

Moreover “education can be vital in tackling some important issues core points of the European Strategy by enabling young people to become active citizens and by laying the foundations for sustained growth and innovation”.

Actually is well known that the EU can support Member States by collecting and putting into context facts and figures, which can be the starting point for mutual learning. Specifically, the European Commission has launched or works closely with various initiatives to support education, training and multilingualism in the EU, such as: HEInnovate, Study in Europe, U-Multirank, The European Language Label award, EPALE and E-Twinning etc.

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More in detail, highlighting that “each EU country is responsible for its own education and training systems, these actions, policies and strategies, constitute the Education and training 2020 (ET 2020), the framework for cooperation in education and training. EU policy is thus designed to support national action and help address common challenges, such as ageing societies, skills deficits in the workforce, technological developments and global competition.”


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3. National policies and indications from the Authorities responsible of the Education systems. Eurydice network overview.

Italy

The education system is organised according to the principles of subsidiarity and of autonomy of institutions. The State has exclusive legislative competences on the general organisation of the education system (e.g. minimum standards of education, school staff, quality assurance, State financial resources). The Ministry of Education, University and Research (MIUR) is responsible for the general administration of education at national level. Its decentralised offices (Regional School Offices - USRs) guarantee the application of general provisions and the respect of the minimum performance requirements and of standards.

Regions have joint responsibility with the State in some sectors of the education system (e.g. regions establish the school calendar and the distribution of schools in their territory, are responsible for the right to study at higher level). Regions have exclusive legislative competence in the organisation of the regional vocational education and training system.

Local authorities organise the offer (e.g. maintenance of premises, merging or establishment of schools, transport of pupils) from preprimary to upper secondary education at local level.

Schools have a high degree of autonomy: they define curricula, widen the educational offer, organise teaching (school time and groups of pupils). Every three years, schools draw up their own Plan for the educational offer.

At higher education level, universities and High level arts and music education (Afram) institutions have statutory, regulatory, teaching and organisational autonomy.

The 2015 school reform and the national system for the evaluation of schools are being implemented and could improve school outcomes. Although still above the EU average, the early school leaving rate is steadily declining.

Lately, particular attention is being paid to the quality of higher education and the framework for allocating public funding to universities has significantly improved in recent years. Italy has the
lowest tertiary educational attainment rate in the EU for 30- to 34-year-olds. The higher education system is underfunded and faces the problem of ageing and declining teaching staff. Transition from education to work is difficult, even for highly qualified people.

**Iceland**

Iceland invests heavily in education and training. The Ministry of Education, Science and Culture is responsible for the implementation of legislation pertaining to all school levels from pre-primary and compulsory education through the upper secondary and higher education levels, as well as continuing and adult education. This includes the tasks of creating curriculum guides for pre-primary, compulsory and upper secondary schools, issuing regulations and planning educational reforms. Local authorities are responsible for the operation of nursery schools and primary schools in their area.

The Department of Education at the Ministry of Education, Science and Culture addresses the education system as a whole. It prepares educational policies and ensures their implementation, and is responsible for the general administration of educational issues.

The Department is responsible for educational issues at all school levels, i.e. nursery school, primary school, secondary school and university, as well as lifelong learning and scholarships. It also takes the initiative in the development of educational innovations, including distance learning and the publication of educational material.

The Quality Board for Icelandic Higher Education has issued a Quality Enhancement Framework (QEF) that includes various elements of quality assurance and enhancement such as reviews at institutional and subject levels as well as continuing and additional accreditation of HIEs.

Although education in Iceland has traditionally been provided by the public sector, a certain number of private institutions are in operation today, primarily at the pre-primary, upper-secondary and higher education levels.

**Portugal**

The Ministry of Education (ME) is responsible for general non-higher Education in Portugal.
The vocational and professional paths are the joint responsibility of the ME and the Ministry of Labour, Solidarity and Social Security (MTSSS).

Higher education is the responsibility of the Ministry of Science, Technology and Higher Education (MCTES), which is also responsible for defining and implementing policies affecting the science and technology system. Adult education and training is the joint responsibility of the ME and the MTSSS.

The duties of these three ministries are provided by services that are part of direct state administration, indirect state administration bodies, advisory bodies, and other organisations and entities within state-owned enterprises.

The school network is organized in school clusters which are made up of schools that offer all education levels from pre-school education to secondary education.

The Portuguese education system is very centralized in terms of organization and funding. However, pre-school and basic and secondary education schools have some autonomy, namely at pedagogical level, as well as with regard to timetables and non-teaching staff management.

Higher education institutions enjoy a high level of autonomy.

Compulsory education lasts for 12 years, starting at 6 and ending at 18 years of age or with the conclusion of secondary education (ISCED 3).

Public education is free and universal.

There is a single professional career for teachers of all non-higher education levels, which requires candidates to have a second cycle degree (ISCED 7 – Master’s).

In the Autonomous Regions of the Azores and Madeira, the regional governments, via the respective Regional Secretariats for Education, are responsible for defining the national education policy in terms of a regional plan and managing human, material and financial resources. State-run schools are free of charge.

The Portuguese Government has announced a series of measures to improve equity in education and fight school failure. The 2016 budget for education does not provide for significant increases from the previous year: it is envisaged that financial support for the reforms will come from increased expenditure efficiency and a decline in grade repetition.
Citizenship and intercultural education are becoming more relevant in the school curricula and the integration of migrants into the education system is being strengthened. The downward trend in university enrolment, together with the high rate of highly qualified Portuguese nationals migrating to other European countries, is aggravating the country's demographic crisis and could hamper its competitiveness. The new higher education technical vocational courses are raising enrolment in polytechnic institutes and opening up new avenues of cooperation with the business sector.

Spain

The education system is in the process of being reformed since the Act on the Improvement of the Quality of Education, modifying the 2006 Education Act, was passed in 2013. The reform, on a general framework of stability, has been presented as weaknesses are detected or new needs arise.

This reform recognises the need to combine quality and equity in the training provision. School enrolment is not enough to meet the right to education, but quality is a constituent element of that right.

Decentralisation: educational competences are shared between the General State Administration (Ministry of Education, Culture and Sport) and the authorities of the 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 regional education authorities develop the State regulations and have executive and administrative competences for managing the education system in their own territory.

Schools have pedagogical, organisational and managerial autonomy for their resources.

Participation of the education community in the schools’ organisation, governance, running and evaluation.

Spain has prioritised the modernisation and flexibilisation of its education system:

- improve efficiency in education expenditure by improving human resources performance, adjusting public prices to the real cost of education and rationalising educational provision;

- establish new criteria in the system of grants and financial support in post-compulsory and university education;

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- raise the performance of education and training systems and overall skill levels;
- ensure personalised attention to students;
- reduce early drop-out by reforming compulsory and post-compulsory education. Increase the number of young people who, once they have successfully completed compulsory secondary education, continue studying Bachillerato or intermediate vocational training cycles;
- attractiveness and relevance of vocational training of the education system, by designing a vocational qualification for students who leave compulsory education with no certificate;
- implementation of dual vocational training in the education system;
- encourage the completion of training periods by vocational training teachers, or the work placement module in other Autonomous Communities or EU countries;
- establish bridges between training paths;
- improve foreign language learning;
- continue improving higher education enrolment rates, in both university and vocational education;
- reform and improve the quality and efficiency of the Spanish university system, and increase the number of foreign students and teachers;
- prepare and implement the Lifelong Learning Plan;
- increase the current percentages of participation in lifelong learning, reaching a 15% of adults;
- strengthen ties between higher education institutions, employers and the labour market in order to adapt study programmes to labour market needs;
- promote the employability of young people through education, training, foreign language learning and information and communication technologies;
- encourage mobility through grants and financial support.

The 2016 political impasse has limited progress on education reforms: the future of the 2013 Organic Law for Improvement of the Quality of Education (LOMCE) is questioned and the reform of the teaching profession remains on hold. Spain has increased the education budget since 2015, but the previous accumulated financial cuts have reduced equity in education, and the effectiveness of education spending can be improved. Enrolment and transition rates in the 'basic vocational
education and training’ programme are below expectations after the first two years of implementation. The Ministry of Education, Culture and Sport is making significant efforts to prevent violence in schools and promote civic education and fundamental values. A new tracking system for graduates should help to improve the relevance of university programmes and graduates' employability rates. The Government takes initiatives to support cooperation between universities, businesses and research centres but university governance and financing systems do not create a favourable environment.

**Greece**

Article 16 of the Greek Constitution states that education is the main mission of the State and all Greeks are entitled to free education at all levels at State Educational Institutions.

One of the main characteristics of the Greek education system is that it is fairly centralised. The Ministry of Education, Research and Religious Affairs exercises supervisory control over all types of primary and secondary education schools by defining the content of the curricula, recruiting and appointing staff and controlling funding. Tertiary institutions are nominally autonomous; however, the Ministry is responsible for their funding and the distribution of students to undergraduate courses.

The administration of primary and secondary education is conducted at central, regional and local level respectively by: the Ministry of Education, Research and Religious Affairs; the Regional Education Directorates; the Directorates of Education (Prefectures) and the School Units.

Educational officials of the country, whatever level of education they are appointed at, primary or secondary education, are graduates of Higher Education of a University or the Technological sector, holding at least a first cycle degree.

Compulsory education in Greece lasts for ten years and extends from the age of 5 to the age of 15 years. In particular, the Greek educational system is mainly divided into three levels: primary, secondary and tertiary, with an additional post-secondary level providing vocational training.

Primary education is divided into pre-primary school lasting one or two years and primary school spanning six years (ages 6 to 12).
Pre-primary education in Greece begins at the age of four (4) when children are allowed to enroll in Nipiagogeia (Kindergartens). Attendance is compulsory for all five (5) year-old children. The operation of Nipiagogeia falls under the authority of the Ministry of Education, Research and Religious Affairs. In what regards early childhood education care, Vrefonipiakoi stathmoi (Child and Infant Centres) and Paidikoi Stathmoi (Child Centres) operate under the remit of the Municipal Authorities.

Primary Education is the next stage and comprises of the compulsory six-year attendance in Dimotika Scholeia (Primary Schools). It concerns children in the age range of 6-12 years. Since school year 2016-2017, a Single Type of All-Day Primary School is established with a new revised curriculum and daily timetable.

Secondary Education includes two cycles: the first one is compulsory and corresponds to Gymnasio (Lower Secondary School) and the second one is the optional Geniko or Epaggelmatiko Lykeio (Upper Secondary School).

Gymnasio (Gymnasium) is a three-year school, which provides general education. It covers ages 12-15 and it is a prerequisite for enrolling and attending General or Vocational Upper Secondary Schools. In parallel with day Gymnasion, Esperino Gymnasio (Evening Lower Secondary Education School) operates, in which attendance starts at the age of 14.

Upper Secondary Education is the second tier of secondary education and lasts also for 3 years. Pupils enroll at the age of 15. It is worth noting again that it is non-compulsory and it is offered in two different types:

a) general secondary education – offered in Geniko Lykeio (General Lyceum); it involves a three-year programme, which includes both common core subjects and optional subjects of specialisation

b) vocational secondary education – offered in Epaggelmatiko Lykeio (Vocational Lyceum). The latter offers two cycles of studies, which belong to the formal educational system: a. the secondary cycle and b. the optional post-secondary cycle of studies, the so-called “apprenticeship class”, a scheme which involves combined school and workplace courses.

Parallel to day schools, Esperina Genika Lykeia (Evening General Lyceums) and Esperina Epaggelmatika Lykeia (Evening Vocational Lyceums) also operate. These involve a four-year attendance and the minimum age for enrolment for the latter is the age of 16.
Higher education constitutes the last level of the formal education system and comprises of the Panepistimio (University) and Technological sectors. The University sector includes Universities, Polytechnics and the School of Fine Arts. The Technological sector includes the Technologika Ekpaideftika Idrymata (Technological Education Institutions – TEIs) and the Higher School of Pedagogical and Technological Education (ASPETE). Undergraduate courses typically last for 4 years, while postgraduate courses last from 1 to 2 years and doctorates from 3 to 6 years.

Lifelong Learning policy in Greece is part of a wider development plan aiming at giving emphasis to human knowledge, abilities and skills. The General Secretariat for Lifelong Learning is responsible for the development of national policy concerning lifelong learning. In addition, it supervises, coordinates and supports bodies constituting the National Network for Lifelong Learning.

In conclusion, early school leaving and tertiary educational attainment rates improved significantly and are now better than the EU average. Performance is disappointing on basic skills attainment by young people and adults, and on participation in vocational education and training as well as in adult learning. A national dialogue on education and a review of the education system are highlighting key problems such as serious underfunding, teacher staffing, equity and efficiency. The reversal of previous reforms aimed at increasing transparency, accountability and evaluation in schools and higher education is a matter of concern. Greece has adopted sectorial strategies on higher education, vocational education and lifelong learning. Their implementation will be a challenge. The impact of the refugee crisis on the Greek education sector remains fairly limited for the time being, but might have more far-reaching consequences in the future.

For the description of the different education systems in the partner countries, refer to the Eurydice website, 2016/2017: [https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Countries](https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Countries). Eurydice is a network whose task is to explain how education systems are organised in Europe and how they work.

Europe education systems face the challenge of providing all students with appropriate levels of key competences to participate fully in a globalised society and fast-changing job markets.

Education systems also have a particular responsibility to foster the integration of all groups in society, promote social inclusion and EU common values.

As education systems and schools strive to ensure quality education for all learners, innovation plays a crucial role in creating opportunities for schools to develop and improve. Innovation in school education can happen at many different levels, and need not be confined to classroom teaching. It may be linked to the governance of a school system or the way a school organises itself.

The New Skills Agenda for Europe\(^8\) underlines the importance of developing skills for employment, personal development, social inclusion and active citizenship. For this reason, the European Union has implemented different kinds of programs in the last years as a common strategy for innovation in training and education.

For example, the EU funded Erasmus+ programme supports innovation in school education with funding for staff mobility, partnerships and policy experimentation. In fact, current literature indicates that school education is moving from a culture of individualistic knowledge acquisition towards collaborative knowledge creation\(^9\). One innovative practice is the increased use of digital tools for learning, tackling early leaving from education and training, and promoting inclusive education.

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\(^8\) European Commission (2016). A new skills agenda for Europe. Working together to strengthen human capital, employability and competitiveness COM(2016)381/2. The New Skills Agenda includes a rich package of initiatives in order to support skills enhancement and transparency, including a proposal for a Council Recommendation on establishing a Skills Guarantee (COMM 2016 0382 final), as well as the proposed revision of the key competences recommendation (Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning).

\(^9\) This is what emerges also from: Innovative Schools: Teaching & Learning in the Digital Era, Department of Teacher Education, University of Helsinki, Finland, 2015.
More broadly, innovative practices involve putting greater emphasis on evidence-based decision-making to maximise the effectiveness of public investment in education. It is about developing new approaches to school organisation, teaching and learning.

The objectives of sustainable school development, including innovation, and inclusive education are priorities for the governance of school systems. In this context, sustainable innovation refers to systemic support for innovative learning environments (both physical and virtual), practices and partnerships to help all students acquire key skills through high quality teaching and learning. Key pillars for capacity building are the management of networks and resources, quality assurance mechanisms, and the development of the teaching professions.

Policy makers and the media pay increasing attention to measures of educational outcomes. Such evidence typically stems from international student assessments, but several countries have also established national monitoring strategies for their education systems that take account of specific national characteristics. While policy experimentation can help to design and implement better reforms, in most EU countries quality assurance systems are not sufficiently integrated with mechanisms to reflect on results and improve education processes both at the system and at the school level.

**IN ITALY**

The recent law 107/2015 on the reform of the education system, has established that Continuing Professional Development (CPD) for teachers, up to now considered as a right and a professional duty in the national labour contract, is now compulsory, continuing and structural. Each school defines CPD activities, also establishing networks with other schools in their territory. Activities must be consistent with the school three-year plan of the educational offer, with the self-evaluation report and the improvement plans of schools, according to the priorities indicated by the Ministry of education in the National training plan published every three years.

For the three-year period 2016-2019 the Ministry of education has established the following priorities:

- competence-based teaching and innovative teaching methods
- digital competences and new learning environments

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Training initiatives are generally not part of the teaching timetable and teachers have the right to participate as CPD contributes to the development of their professional life. Furthermore, teachers have the right to have five days with exemption from service during the school year to participate in training initiatives.

Moreover, from VET teachers’ training point of view, a study conducted by ISFOL shows that in Italy they “have very different features. The professional profile of teachers is much more clearly defined and regulated than trainers as far as training, recruitment, duties and skills are concerned. Additionally, when it comes to the actual teaching part of their activities, teachers are mainly defined as ‘content experts’, whereas trainers are ‘process experts’ who can play a variety of roles depending on the situation (e.g. tutors, including apprenticeships tutors, trainers, group leaders, coaches, etc.). In fact, trainers are mainly required to support the learning process by guiding and motivating learners, to strengthen the link between training and work and to update learners’ vocational skills. Teachers are employed by the Ministry of Education and work in State vocational schools and in centres for adult education. Some also work at higher technical institutes. Trainers mainly work in vocational training centres that are managed directly by the regional/provincial/municipal authorities, as well as in private vocational training centres accredited by regions. Some trainers also work in businesses, consultancy agencies, non-profit organisations and public employment services. VET teachers in-service training now is compulsory and regulated by law and it is considered an individual right under the National Collective Work Agreement. Some training activities for VET teachers are provided by universities (master courses) and public or private vocational training centres (specialisation courses). In addition, the Ministry of Education in collaboration with INDIRE (Istituto Nazionale di Documentazione, Innovazione e Ricerca Educativa – National Institute for
Educational Research, Innovation and Documentation) promotes and organises updating or training courses for teachers, to promote a higher participation to the teachers training courses”\(^{11}\).

For example, Avanguardie educative (educational avant-garde) are an innovation movement sponsored by INDIRE. Avanguardie educative was born in 2014 from the joint initiative of Indire and a first group of 22 schools that have implemented innovative experiences. The Movement is open to all Italian schools committed to transform the transmission pattern of the school - which aims at create a network by identifying and supporting innovative experiences from below that can help to overcome educational, structural and organizational limitations and inertia in the the way of teaching. This intends the usage of the opportunities offered by new technologies and digital languages to change the learning environments and offer "ideas" from the experience of the schools. Each of these is a piece of a mosaic that aims to revolutionize education, time and space organization of teaching. Today about 570 schools have joined the Movement and are constantly growing: these institutes identify themselves with its inspiring principles, they daily work to rethink the transmissive model of school and provide a concrete answer to the challenges of a continuously moving knowledge society\(^{12}\).

**IN ICELAND**

There is no single comprehensive legislation that applies to the professional development of teachers and their further education. Provisions concerning in-service training for pre-primary, compulsory and upper secondary teachers are in their wage-contracts, in laws and regulations for individual teacher education institutions and in central legislations on individual school levels.

Emphasis has been placed on making it possible for teachers to have access to in-service training or further education. Teacher education institutions offer such programmes.

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\(^{11}\) SUPPORTING TEACHERS AND TRAINERS FOR SUCCESSFUL REFORMS AND QUALITY OF VET, ITALY. Mapping their professional development in the EU, ISFOL, 2016.

\(^{12}\) For further information consult the “Comparative Research on innovative teaching and training needs of VET teachers and students in Italy”, 2017, carry out by Essenia UETP Salerno within the project IN.TE.M.I.S (INnovative TEaching Method for an Inclusive School). Available on the project’s web site at the follow link: https://docs.wixstatic.com/ugd/50a34c_6c4ba6387f794688ae6ac6797688f8e7.pdf
Educational authorities, at State level and municipal level, have adopted the policy of encouraging teachers themselves to bring about innovations and initiate developmental and in-service training projects. Individual Pre-primary schools, Compulsory schools and Upper secondary schools are required by law to develop local professional development schemes for teachers. In-service training projects are often initiated by the associations of teachers of a particular subject and in some cases by local education offices.

Regarding (social) innovation in training in Iceland, a study conducted in 2010, has identified about 200 training courses for the teachers from to divide into five different types:

- School integration as the main content of the program of training: these courses include inclusive didactics, the building ideas on inclusive practices. There are two courses in this group.

- School integration in general: these courses are integrated with the idea of school integration that is part of the program. This group includes 10 courses.

- School integration is an indirect matter: the course unfolds on diversity in general, although school integration tout court is rarely or almost never mentioned specifically. In this group 20 courses are included.

- No mention of school integration: every one lacks indication, in the description of the program, the diversity of the population, inclusion, multicultural education or pupils with special educational needs. Most of the Initial training of teachers is part of this group.

- Multicultural or didactic education of special needs: the content of these courses is special; some courses introduce specific learning difficulties, while others do focus more on multiculturalism. In this group two courses are covered.

A report on Professional development of teachers (Oct. 2010) proposed establishment of a Teachers Council; a collaborative agency of the Ministry of Education, Science and Culture, the Association of Municipalities, the Icelandic Teachers’ Union and the universities providing teacher education in the country. The function of the Teachers Council will be to organize and develop CPD of teachers at the three school levels.

The council of Continuous Professional Development of Teachers was established by the Icelandic Ministry of Education, Science and Culture in 2013. It is led by the ministry, with strong
representation from the Icelandic Association of Local Authorities and various stakeholders of the educational system.

IN PORTUGAL

With regard to the main policies and measures for developing the on-going training of teachers, the Ministry of Education (Ministério da Educação - ME) has clearly wagered its strategic target on consolidating Portuguese teachers’ competences and skills in Management and Leadership, mainly in terms of teachers’ leadership positions, as well as improving teachers’ qualifications who observe classes as part of the external assessment of the scientific and pedagogical aspect of teacher performance assessment.

The vital role played by professional training programmes that are specifically aimed at satisfying the needs of the Portuguese educational system, has been fully acknowledged. Acting upon the clear, firmly-entrenched notion to up-grade educational human resources, the Ministry of Education has implemented several programmes by going through its Directorate General of School Administration (Direção Geral da Administração escolar - DGAE) in partnerships with different actors.

These programmes are geared at school leadership training and target the Directors of Schools or Groups of School, such as the training programmes designed for school heads and the training programmes for external assessors of the scientific and pedagogical aspect of teacher performance assessment.

In Portugal, on-going education and specialised training for teachers are two ways that help to develop the teacher’s continuing professional development. On-going education is ensured as a right and a duty and has the aim of up-grading and up-dating the teacher’s professional knowledge and competences, his/her professional mobility and progress in his/her career.

Specialised training is defined as additional training that allows teachers to gain qualifications in other educational functions that are needed if the schools are to work efficiently and the educational system is to be developed.
There are different kinds of activity based on continuous vocational training: training courses, training workshops, study circles, short courses or, at the request of the Scientific-Pedagogic Council of Continuous Vocational Training, internships and projects.

Continuous training is organised by different sorts of sponsors: Higher Education establishments; training centres run by school associations; Municipal and inter-municipal run initiatives put on by schools and kindergartens that get together for the purpose; not-for-profit professional or scientific association training centres; Ministry of Education central services, training in areas considered relevant for developing the educational system and other sponsors whose intervention is deemed useful in this domain.

The accreditation of training bodies, trainers and training courses is the responsibility of the Scientific-Pedagogic Council of Continuous Vocational Training. Short courses are recognised and certified by the training bodies. For the purposes of career progress, teachers must attend and pass 25 hours at the 5th grade and 50 at the remaining grades of continuous training or specialised training courses.

The School Association Training Centres (SATC) should provide back up to schools when diagnosing needs and working out respective agendas. On the basis of this planning, the SATCs would then draw up their own action plans which are accredited by the Scientific-Pedagogic Council of Continuous Vocational Training. A few nationwide continuous training programmes have also been designed in agreement with national training priorities.

Training for school leadership is a key area where launching training initiatives has followed the Ministry of Education strategic line of action. Under the Ministry’s directive and by means of the Directorate General for School Administration which has drawn up and formed different partnerships, training programmes have been designed to target mainly top-level school leadership. It is hoped that their impact is reflected throughout the whole of the school leadership and will bring about an improvement in the students quality of learning. Accordingly, a partnership with Microsoft was established in 2010 in order to install the “Innovating Leaders” Training Programme that covered 350 directors from schools / groups of schools and thousands of users. The aim of the programme is to conceive and apply Improvement Plans favouring the educational communities falling within the programme.
Recently, with the new legislation, through Decree-Law no. 22/2014, of February 11, which establishes the new legal regime of the training of teachers, in-service training becomes geared towards improving the quality of teacher performance focusing the training system on priorities identified by the school and teachers’ professional development.

At each School Association Training Centre, there is a focus on creating groups of internal trainers that boost the level of qualifications of existing education professional in schools and allow quality training to be given in the areas identified as priorities by the schools themselves. The quality of training is guaranteed via a variety of regulation mechanisms, via monitoring by the General-Directorate of School Administration and external evaluation, which is the responsibility of the Inspectorate-General of Education. This new model of continuous vocational education involves short training courses (recognised and certified by training bodies) that last a minimum of three hours and a maximum of six hours. This training is important for career development, alongside accredited training and specialized training, with a maximum of five hours at 5th grade and 10 hours at the remaining grades.

This new legislation applies to all teachers working in state schools, in Portuguese schools abroad and private and cooperative schools teaching of the Schools Association Training Centres. This model ensures free compulsory continuous vocational training and involves short training courses (between 3 and 6 hours) recognised and certified by training bodies with a maximum of five hours at 5th grade and 10 hours at the remaining grades.

**IN SPAIN**

Continuing professional development is both a right and a duty of all teachers. They can voluntarily enrol in training activities, which involve the regular updating of their scientific, educational and professional expertise.

The Education Authorities are responsible for planning, organising and recognising continuing professional development within their jurisdiction providing teachers with a wide range of activities.

The 2013 Act on the Improvement of the Quality of Education, which modifies the 2006 Education Act, lays down several guidelines for the in-service training programmes offered by the Education Authorities of the Autonomous Communities. These guidelines are: to adapt knowledge and
teaching methods to trends in science and specific teaching methodologies; to offer training related to coordination, guidance, tutorship, attention to diversity and school organisation; to establish training programmes in Information and Communication Technologies (ICT) and foreign languages; to promote educational research and innovation programmes; and to provide specific training as regards equal opportunities between men and women, and coeducation.

The Spanish Ministry of Education, Culture and Sport, through the Spanish Institute for Education Technologies and Teacher Training (INTEF), annually determines the priority guidelines of in-service teacher training programmes. The main priority guidelines established by the Institute for in-service teacher training programmes are the following:

- Teachers' digital competence
- Creativity, innovation and entrepreneurship
- Foreign languages
- Multiple literacies
- Treating diversity
- Scientific culture
- Management skills
- Healthy lifestyles

In addition, the Autonomous Communities are also free to establish their own priority guidelines, taking into account the training needs of the teaching staff within their jurisdiction. This implies that both the content of the training and the institutions in charge of its provision differ from one Autonomous Community to another.

All Autonomous Communities have a network of institutions which provide teacher training activities. Although they have different names, the most widespread is Teachers and Resource Centres. Their tasks and powers are related to the organisation and development of the training plan within their area of action, the promotion of interinstitutional working teams supporting the dissemination of knowledge, the provision of resources to the teaching staff to contribute to the development of their teaching activity and the improvement of educational innovation. These institutions are responsible for a variable number of primary and secondary educational
establishments to which they provide support in relation to professional development and resources or guidance to carry out innovation or improvement initiatives.

In all the Autonomous Communities there are also other institutions involved in the continuing professional development of teachers, such as university departments, institutes of education, professional associations, unions or educational reform movements.

Continuing professional development can be implemented through in-person or on-line courses, seminars and working groups or training projects in educational institutions. Teachers can take part in these activities out of their teaching hours, during the hours spent in the school or during working hours if they are carried out outside the educational institution.

Undertaking in-service teacher training is optional but has specific effects on teachers’ professional career, regardless the ownership of the educational institution where they work. Some of these effects are: merits in public competitive examinations or receiving additional rewards. In 2011 several agreements have been reached, in terms of continuing professional development for teachers, between the MECD and the regional Ministries or Departments of Education of the Autonomous Communities:

The Education Authorities must recognise the training activities, research and innovation carried out by teaching staff out of the jurisdiction of the target Education Authority, providing that they have been previously accredited by the Education Authority where they were implemented. The recognition of the said activities is considered a merit in any call including the assessment of continuing professional development activities.

The recognition of additional rewards to teachers, related to the implementation of training activities:

Recognition of training activities carried out by teachers out of the jurisdiction of the target Education Authority, as long as they have been previously recognised by the Education Authority where they were implemented, in order to receive the specific additional remuneration for continuing professional development (bonus for every five-year and six-year periods in service).

The recognition of the said activities is carried out according to the regulations and criteria on continuing professional development activities of the Education Authority to which teachers belong.
It has effect on all the calls, competitions or administrative actions considering to assess these continuing professional development activities.

On the other hand, the Education Authorities of the Autonomous Communities encourage the development of paid study leaves for teachers working in public educational institutions, with the aim of promoting their participation in activities regarding training and education research and innovation.

In-service teacher training provided by public institutions is free of charge. As for the activities offered by other institutions, there are financial aid for participants to help defray costs.

In general, the organisation and incentives for the participation in Continuing Professional Development activities are the same as those generally established for teachers who provide a similar education at other levels of the education system. The Centre for the Innovation and Development of Distance Education (CIDEAD) is responsible for planning and managing this training.

**IN GREECE**

In recent years, both society and the state have taken a great interest in continuing efforts made to upgrade the quality of the education provided as well as the need to modernise the educational system. Scientific developments made over the past few years, in all fields of scientific activity, have set new standards in the educational field and result in readaptations in the teaching content and methods as well as in the ways of learning. One of the most important factors contributing to the improvement of education and the teachers’ professional progress and development also being a necessity is the training received. However, the term training should not be perceived as a static concept but as a continuing, constantly changing process.

Regarding the in-service education and training of teachers (INSET), the aims focus on the following:

- Targeted teacher training on the implementation of the new curricula in Compulsory Education
- Teacher training on ways to organise and implement Experimental Actions and Projects, based on the principles of experimental and inquiry-based learning.
- Training of teachers specialised in ICT, Drama, Music, Arts and intercultural education, who are employed today in all-day primary schools, using a unified and revised curriculum
- Induction INSET for newly-appointed and substitute teachers

- INSET for teachers on the use and application of ICT in the teaching practice.

At present, teachers training programmes such as the Action “Teachers education for the utilization and implementation of ICT in the teaching process” are implemented within the context of the National Strategic Reference Framework (ESPA) Operational Programme (OP) entitled “Education and Lifelong Learning”. The aim pursued is to prepare teachers for the challenges of “knowledge and information societies”, mostly focusing on the Information Technologies utilization and use in the teaching process. The programme is held outside the school operating hours in specially equipped centers, usually being schools located across the country, by specialized B level educators properly trained to this end at Universities. Such training is also known as B level training, as it is the natural sequel to A level training in basic ICT skills held in the context of previous projects.

In general in Greece, teacher training is distinguished, depending on its nature, between mandatory and optional.

The mandatory training forms that are specified in article 1 of P.D. 250/92 are listed below:

- Probationary training has a duration of up to four months for candidates to be appointed as Primary and Secondary Education teachers.

- Periodic training in two training courses per academic year, lasts up to three months for permanent teachers.

- Short-term specific training programmes lasting from 10 to 100 hours for all teachers and 200 hours for teachers serving in Special Education units.

13 The general data regarding Continuing Professional Development for VET teachers, in each partner countries, is provide by Eurydice. For further information visit the following link: https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/Countries
5. The most known and applied methodologies in the Countries of the Partnership.

The firsts studies conducted by European Agency for Development in Special Needs Education, concerning Inclusive Education and Classroom Practice in Secondary Education, show that “some of the concepts of classroom practice that have proved to be successful in primary education seem to be used to develop secondary inclusion programmes in the European countries (including partner countries), such as peer tutoring and co-teaching. In addition, the emphasis of some studies on secondary education is focused on learning strategies. Studies that pay attention to the consequences of intervention mainly focus on cognitive outcomes”.

In fact, it is important to emphasize that also thanks to the Flipped Classroom methodology, is possible to implement a series of didactic methodologies centered on the student and referable to the active learning. For example: from the Peer Instruction (education among equal), to the Jigsaw Strategy (strategy puzzle); from the Inquiry Based Learning (learning for search), to the Discovery Learning (learning for discovery); from the Problem Based Learning (based learning on the analysis and solution of problems), to the Project Based Learning (based learning on the realization of projects)\(^\text{14}\).

Furthermore, “the importance of creativity and innovation in addressing the economic, environmental and social cries has been recognized in policy discussion in Europe. Recent policies call for the strengthening of Europe’s innovative capacity and the development of a creative and knowledge-intensive economy and society through reinforcing the role of education and training in the knowledge triangle and focusing school curricula on creativity, innovation and entrepreneurship. It has been recognized that schools and initial education play a key role in fostering and developing people’s creative and innovative capacities for further learning and their working lives. It is argued that creativity, in the educational context, should be conceptualized as a transversal and cross-curricular skill, which everyone can develop”.

Here are listed the five major areas where effort and improvement is needed to enable more creative learning and innovative teaching:

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Project Name: IN.TE.M.I.S.
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- ICT and digital media,
- Teacher training,
- Pedagogies and assessment,
- “Curricula, Multi-element Curricula, Curriculum Based Measurement,
- Educational culture and leadership”\textsuperscript{15}.

In general, from the mentioned report and study, the common methodologies to ensure school innovation in the range of partner countries are:

- Flipped classroom

- Peer instruction/the jigsaw classroom

- Disciplinary laboratory Classrooms

- ICT lab

- Teal (technology enhanced active learning)

- Brainstorming

- Cases study/Debate

- Mind mapping

- Role-playing

- Gamification

- Spaced learning and differentiated learning

- Autonomous learning and tutoring

- Problem-based learning/Inquiry-based learning/Project-based learning.\textsuperscript{16}


\textsuperscript{16} For an accurate description of the majority techniques mentioned as good practices, see the follow link: https://www.nyu.edu/faculty/teaching-and-learning-resources стратегии для обучения с использованием технологии/лучшие практики-активное-обучение/активные-тактики/тактики-14.html
6. The most known and used ICT tools and equipment in the schools of Countries of the Partnership.

_Digital Agenda for Europe_ (European Commission, 2010)\(^{17}\) emphasizes the importance of digital skills both for the purposes of work and for participation in the society, and requests that all European citizens should be made aware of the potential of ICT for all kind of teachers. “The objective of the Agenda is to maximise the social and economic potential of ICT. This can only be achieved through the development of high level ICT skills, including digital and media literacy. All European countries have national strategies in place to foster the use of ICT in different areas including a specific strategy devoted to education. In many cases, these strategies aim to provide the necessary ICT skills to pupils (in particular literacy skills) as well as provide ICT training for teachers.

Another defining feature is the provision of up-to-date technology and infrastructure at schools. The target groups for the measures in all countries are teachers/trainers and the activities focus on primary and secondary school education.

- Research projects and training measures for the development of digital and media literacy as well as e-skills are widespread across Europe. E-inclusion is another relevant area where more and more specific training is offered.

- Almost all countries centrally monitor progress in meeting national ICT strategic objectives.

- Policy and strategy development rest mainly with the central administrative level, while implementation involves a significantly larger number of bodies including local administrations and schools.

- Almost all countries publicly fund ICT actions in education; in approximately half of European countries this funding is supplemented by private contributions”\(^{18}\).

\(^{17}\) European Commission services selected more than 100 indicators, divided into thematic groups, which illustrate some key dimensions of the European information society. These indicators allow a comparison of progress across European countries. Multiple interactive charts allow to assess countries’ profiles via the following link: [https://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators/visualizations](https://digital-agenda-data.eu/datasets/digital_agenda_scoreboard_key_indicators/visualizations)

\(^{18}\) For a complete comparative situation among EU countries see: Key Data on Learning and Innovation through ICT at School in Europe, Education, Audiovisual and Culture Executive Agency, Brussels, 2011.
Moreover, communication on the Youth Strategy (European Commission, 2009) recognized that technology offers today's 'net-generation' new opportunities for learning, creating and participating, while it also brings challenges regarding privacy, internet safety and media literacy. Since an increasing sharing of learning occurs at the workplace, in non-formal contexts and in leisure time – often through new ICT-based learning tools and methods – the development of creative and innovative capacities has relevance for all aspects of lifelong learning. This document emphasizes the important role of schools in nurturing these capacities from the first levels of education. People must be equipped to express their creative and innovative potential through digital media and technologies. In this direction, Education and Training 2020 pointed out the potential of new technologies for enhancing innovation and creativity, new partnerships and for personalizing learning needs to be better exploited.

Certainly, there is a need for pedagogic training which empowers teachers with the required ICT skills with which they can enable their students to become digitally competent on the one hand, and to guide them towards more exploratory interaction with ICT tools through which creative and innovative practices may be fostered. Rapid changes characteristic of ICT tools mean that policies and systems dealing with pedagogic training focused on ICT should be modular taking into account the development of enhanced and new ICT tools and applications ensuring that teachers are able to transfer their knowledge across different subjects, as well as aligning their knowledge with students’ real and future needs.

In fact, the mentioned study Creativity and Innovation in Education and Training in the EU27 (ICEAC), carried out by IPTS in collaboration with DG Education and Culture, says that “over the past decade there have been various efforts in Europe to provide access to technology, especially at school level. According to the education experts consulted in the study, although insufficient availability of computers is still a problem in some countries, the majority of European schools are equipped with PCs, interactive whiteboards (IWBs) and Internet connection. In some countries, technology laboratories, laptops and wide-area networks through which pupils and teachers may interact are

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also available. It is important that strategies are sought on how to evaluate the use of new technology, so as to ensure that such tools contribute to personalise learning by enabling students and teachers to do creative and innovative things with such tools and not simply replace traditional tools. Teachers’ proficiency in using technology is indeed one of the major concerns related to how technology can enable creative learning and innovative teaching. The majority of teachers in the mentioned survey contend that technology has improved their teaching (85%) and that ICT can be used to enhance creativity (91%)\(^{22}\).

Below a list of the main ICT equipment used in the partner countries schools:

- L.I.M.
- Educational software
- Projector
- Computer
- Basic connection/ADSL/Wifi
- School website
- Tablet
- 3D printer
- Audio and video systems
- Interactive screens (IWBs)
- IpadWells
- E-book reader
- Edmodo (Social didactic network).

There are also several bases of e-learning available for the management of scholastic courses, therefore, as an example, we will mention the two most important: Moodle and Edmodo.

\(^{22}\) Moreover, this report underlines that “Currently, various European schools use Moodle, wikis, blogs and most schools have their own homepage where they share information about their school. The study data shows that almost three-fourths of teachers (72%) use the Internet to download teaching material though textbooks remain the number one resource used in classrooms (85%). However, in some countries, teachers are uncomfortable and reluctant to show their lack of expertise in using technologies for fear that this will compromise their authority in class”.  

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Moodle (acronym of Modular Object-Oriented Dynamic Learning Environment), is the most diffused Learning Management System (LMS). It allows both the teachers and the students to contribute to the didactic experience. For example, the teachers can publish the didactic material to make it accessible, to share resources and link, to communicate the relevant information on the lessons, to predispose (and eventually correct) quiz, performs or exercises, to monitor students' accesses by controlling the work done. On the other side, students can load new materials, to comment the published ones, to share and exchange information, file, data, etc. At the same time, they are able to work collaboratively with the peers.

Edmodo, (defined the "social didactic network") - both because it is a product of Social Learning Network, both because it has characteristics similar to Facebook as the glass showcase, the posts and the comments -, it is a didactic platform that allows to create and to manage virtual classes correspondents to the real classes. Edmodo is thought for building a virtual social community among teachers, students and even parents. Thanks to it, is possible to manage runs of learning in simple and effective way, are possible interactions, communications, exchange and sharing of resources, contents and materials. Among the different functions of this base, there are the creation, correction and evaluation of the proposed exercises, with the possibility to provide and to receive immediate feedback, as well as the insertion of video lessons, exercises and assignments and the possibility to set and submit surveys, quiz and verifications to the students.

Edmodo stands out for its creativity and emphasis on social learning. Learning should not be done in isolation and Edmodo leverages real-time communication and collaboration to give students the support they need to master difficult concepts, complete assignments from their teachers, and more. Students have a “one-stop shop” for their learning needs, making for happier, more productive learners, maximizing efficiency and thus, time spent actually learning.
7. The Flipped Classroom Method. Description and identification of its strength and weak points. The application in Europe and in the Countries of the Partnership.

The concept of the Flipped Classroom (FC) is a recent technological innovation in the educational environment that shows much promise. FC is a learning model where direct instruction is replaced by videos and in the actual classrooms, students are encouraged to focus on important learning activities with their teachers instead.

Flipped Learning (the pedagogical approach inherent to the FC method in which direct instruction moves from the group learning space to the individual learning space), is not a specific prescriptive methodology for teaching. It is focused on learning activities that take place beyond traditional lecturing. The model represents a shift in education, emphasizing the need to re-examine the most common approach to teaching. From this point of view, Flipped Learning “could be as simple as watching a video before class and then attending class for more in-depth discussions that involve judging, analysing, and creating. If students work with the fundamental material before class, they are better prepared to apply the information and engage in higher-level discussions with their peers and teachers”23.

For the results of Creative Classroom Lab guide24, project co-ordinated by European Schoolnet and supported by the European Commission’s Lifelong Learning Programme, flipped classroom learning stories are intended to be used as if the classroom was inverted. It “aims to engage students in the preparation of a prototype class or workshop on a topic related to the curriculum, rather than the teacher being responsible for organizing all the resources for students to work on. Students organize themselves in teams in order to present the content, according to their own technical, aesthetic, and organizational preferences. Therefore, most study will occur outside the classroom, at home, at their own pace and according to their preferences.”

23 This is what is summarized by “Flipping the Classroom in Adult Education”, Intellectual output I – Conceptual Framework of iFLIP, Project co-funded by the Erasmus Plus programme, Ljudska Univerza Velenje, 2016. For more information and get inspiration about the newsworthy reconstruction of the FC model: http://projectiflip.eu/wp-content/uploads/2016/11/iFLIP_IO1_Conceptual-framework.pdf

24 For more information visit the official web site of the project: http://creative.eun.org/
In order for this to happen, teachers need to prepare resources that can be used as initiators of the study, contextualizing the new learning activities intended to promote new knowledge regarding students’ previous learning. Video can be used to present the new topic students must study and explore, as it can be easily distributed online and is accessible from anywhere. In addition, video can be reviewed as often as necessary, at different speeds or in excerpts. The key idea is to enable students to engage with the new content in a natural way, appealing and motivating their interest.

At school, the teacher needs to develop strategies of inquiry and explanation to clarify the most important aspects of the whole process. Given this goal, videos prepared should include questions which make students reflect upon and question themselves as well as bring out topics and ideas for further discussion. Among the learning objectives of the FC model, the key ones are the development of individual skills, collaboration and self-study, self-learning organization, research, development of critical thinking and learning how to learn.

When planning Learning Activities (LA), teachers must take into account the physical and virtual environments where learning activities take place, what technologies required are available, and what their own roles are and those performed by students and family members/parents or others, e.g. experts, students’ friends, classmates, etc., allowing students the possibility of developing teamwork outside school. Even so, the teacher needs to allow students some time to perform individual and collaborative tasks in teams, in the classroom or in the laboratory, depending on students’ needs and styles. The teacher also needs to plan and design moments of reflection and building assessment tools for students and for the teacher him/herself.”

In the Flipped Learning Model, Hachmann Roland e Holmboe Peter make an accurate description of the model reported below. For the two writers it “consists of seven core dimensions that are dynamically related to each other. The dimensions in the model embrace a wide range of learning approaches and are not attached to a specific methodology or pedagogy, but are all fundamental elements that should be reflected upon and incorporated in all designs for learning. Therefore, the dimensions of the model will not always be of equal importance. In some approaches to learning, the activities and actions may rely on and emphasize a certain element of the model and in other approaches; the focus may be on other dimensions.

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25 CCL GUIDE: LEARNING STORY FLIPPED CLASSROOM. What is the Flipped Classroom model, and how to use it? University of Minho, Portugal, 2013.
Thus, the model is a generic model that can and should build on the teachers understanding of learning, relations, communication, approaches, etc. In this way, the model is more a guide and roadmap for the teacher, so that he/she will have concrete and firm points to stick to, when navigating the “landscape” of education.

The model consists of three interrelated elements:

1. The inner core dimensions
2. The generic circle
3. The evaluation circle

The elements are all interrelated, intertwined and build upon each other. It is possible to emphasize certain parts, but none should ever be left out. The model acts like a spider’s web. If one dimension is changed or affected, for instance by a specific approach towards collaboration or technology, this will have an impact on the other core dimensions and the two surrounding circles.

**Student-centering**

This dimension focuses on how the students can be engaged in their own learning. Student-centering means focusing on each student’s interests, abilities, and learning process, with the teacher as a facilitator of learning. The student is actively engaged in his or her own learning process and has an influence on how the learning goal is reached and which technologies are used. The most important point of this is to acknowledge the student’s voice as central to the learning experience.

The teacher challenges and supports, according to the student’s potentials and pace. Through this dimension, the individual student becomes able to create connections between learning goals and his or her life experience.
The teacher asks the question: How do I ensure that my students are the center of their own learning process?

**Collaboration**

The dimension of collaboration focuses on how, when and why students work together to achieve a certain learning goal. Do the students cooperate or collaborate? How is their work environment, virtually as well as physically? Do they work together in face-to-face sessions or asynchronously over the Internet? Another focus in this dimension is supporting the students in discovering their own roles in group work. Where are their strengths and weaknesses when they are involved in a group and how do they contribute actively?

The teacher asks the question: How do I provide a framework for collaboration, where students are active and reflective on their own involvement?

**Presence**

This dimension addresses the presence of both teacher and students that is necessary to maintain a continuous flow of learning. An "absent presence" may include facilitation by video and/or any online activities that the teacher or students participate in. In this way, learning and teaching is not attached to a specific place or time, but can take place anywhere and at any time.

The dimension of presence challenges the way we traditionally think about school, teaching and learning. It is not only the presence of the teacher that is addressed, but also how the students and their formal and informal networks are used in the process.

The teacher asks the question: When, where and how are my students and I present in the learning process?

**Learning Goals**

Visible and understandable learning goals are essential to both teacher and students, as they are tools for navigating through learning processes. Learning goals create transparency for the students, who can instantly evaluate on their progress. The goals are set by the curriculum, but teachers and students can create milestones that ensure progression in the right direction. Visible learning goals offer a chance to see and express signs of learning for both student and teacher. Learning goals are
more “static”, while milestones should be flexible and adjustable when needed to support the student.

The teacher asks the question: How do I help my students understand their learning goals and how do I combine this with the other core dimensions in a meaningful way?

**Access**

Digital resources and the Internet make instant access to knowledge and information possible. Therefore, this dimension addresses accessibility to the content needed by the student. Which resources should not only be accessible at school, but also at home or in other learning contexts outside the classroom?

Besides books, videos and other digital materials, the teacher is also an important resource. Therefore, this dimension also addresses the students’ access to the teacher, as it is important to question whether or when they need help or guidance. This access does not need to be face to face but can also be online, synchronously as well as asynchronously.

The teacher asks the question: How do I provide access to relevant resources for my student during their learning process and when am I accessible to them?

**Technology**

This dimension addresses the use of technology in the classroom. Teachers can use different technologies and may distribute, communicate or create collaborative work environments on different platforms. At the same time, technologies can help to give students the opportunity to transform knowledge into professional products and meaningful contexts. Thus, it makes sense to speak about extended learning “spaces” as rooms, social communities and practical training spaces for students and teachers. These spaces can be physical or virtual.

The teacher asks the question: Should I introduce new technologies or use familiar ones? What will be the impact of these technologies?

**Structure**

Structure addresses the design for learning. There are two divergent ways to design - either a “closed” design or an “open” design. The closed design is highly controlled by the teacher, who
decides how, when, where the students engage. The students do not have any influence on activity, choice of resources etc.

In the open design, the framework is set in a looser manner. It could just be a topic or the learning environment itself. The more open the design, the more student-centered the design will be, since the student will need to take actions and decisions into their own hands. Structure is a dynamic variable and will often depend on other choices in the model.

The teacher asks the question: How and where in my teaching design do I open and close the design?

The Generic Circle

The grey circle in the model reflects the generic character of the model. In the grey circle a teacher can place different learning approaches – such as an inquiry-based learning approach, an instructional learning approach, etc. Each learning approach will build upon specific dimensions that will affect and combine the seven core dimensions and the dimensions of the evaluation circle in a dynamic process. If a teacher chooses, let’s say, problem-based learning this will lead to certain views on structure, views on collaboration, views on assessment, etc.

The Evaluation Circle

The outer circle focuses on evaluation. How do the teacher and students provide and receive feedback?

Evaluation and assessment

These evaluation types act as counterpoints. Where evaluation is formative and part of an ongoing learning process, assessment is summative and ends a process by measuring the outcome – very often by a given grade.

Evaluation and assessment are both typically used at the end of a longer learning process or learning activities such as a project. The long term aim of evaluation and assessment is providing evaluation that can be used and transferred into broader contexts. This means that focus is not on the here and now, but also on both past and future learning processes, where students are challenged in different ways - to support or to give them a push forward, depending on what is needed.

Feedback and feed-forward
These evaluation modes are instant and rapid. They focus on providing evaluation that can be used during the on-going process. Feedback is retrospective, while feed-forward means giving advice and instruction as to the future actions of the student based on experiences from the past: “You just did... what should your next move be and why?”, etc.

Feedback and feed-forward are “here and now evaluations” that instantly and continuously help the students in monitoring their own progress towards learning goals.

What have I learned, and what do I still need to learn?  

In short, FC method is useful to:

- Transforming the transmissive model of school through active learning
- Using the opportunities offered by ICT and the digital languages to support new ways of teaching, learning and assessment
- Create new spaces for learning with flexible, multi-purpose, modular and easily configurable solutions according to the activity carried out and for informal use.
- Reorganize the time of doing school through overcoming some organizational rigidity.
- Reconnect the knowledge of the school and the knowledge of the society thanks to the spread of the Internet.
- Investing in the "human capital" allows teachers to feel more and more directors of active teaching models and see change in a resource.
- Promote innovation because it is sustainable and transferable to other contexts producing similar results.
- Promote digital citizenship, cooperative learning, inclusion, innovation and problem solving skills.

In conclusion, the students look at this approach as an innovation that can stimulate, motivate them and make them autonomous about the learning management (time, place, tools of enjoyment). On

26 For the present construction of the flipped classroom model, refer to: Hachmann, Roland & Holmboe Peter, Flipped Learning – mere end bare video, Praxis, 2014.
the other hand, it can induce a sense of loss, isolation, depersonalization and it can accentuate the relational distance among peers and with the teachers.

**FLIPPED CLASSROOM IN ITALY**

A focus on FC methodology applied in Italy has been included in the project *ICON (Inverted Online Classroom)*[^1], funded by the Erasmus Plus program, where Italy is one of the partner countries.

This research underline that the Flipped Classroom teaching will accomplish ten years in 2017, the first experiments that flippers pioneers, the two professors Jon Bergmann and Aaron Sams began in Eaglecrest High School in the small county of Arapahoe, bordering the Denver metropolitan area in Colorado. When it got in Italy (homework and lessons in class, preferably video lessons to follow at home), it is difficult to determine. Some Italian teachers were using this methodology without knowing who followed in the footsteps of Bergman and Sams.

A sort of approval, or rather a consideration by the Education Ministry, arrived with the first courses recognized by the Ministry of Education by decree of 21 July 2014, aimed at teachers of primary school, designed and created the association Flipnet, whose founders, Maurizio Maglioni and Fabio Biscaro, are authors of the book "*La classe capovolta. Innovare la didattica con la flipped classroom*", released in the same year. To do a chronological overview, as well as the positive evolution and dissemination of this methodology, was Grazia Paladino, who shows in his presentation that "the idea of creating an association to spread in Italy capsized in a class is born in November 2012 ".

Grazia Paladino is a teacher of Science and Mathematics, Institute Comprehensive Federico De Roberto in Zafferana (Catania) and trainer for Flipnet, networked active with his site “Flip the Sciences”.

Reversing the point of view has opened the possibility that students of different ages, different needs, they could see at home a lesson, several times, with more aid, using tools such as pc, tablet or even smartphone. The students arrive in class with the desire - it is hoped - to have answers or explanations. Obvious advantages for all. It is clear that this method can especially help those in need with the traditional teaching that the majority of students: bored, dyslexic, inattentive, hyperactive. A former Minister of Education, a linguist and professor emeritus, Tullio De Mauro,

[^1]: Here the official website: [http://www.icon.ipleiria.pt/](http://www.icon.ipleiria.pt/)
promoted class overturned; other media talk about how this innovative practice can enter the Italian classes. Everything now seems possible. It was born in mid-2014, the first draft of the training: "Turn the Special Educational Needs" an online course for teachers recognized by the Ministry of Education. A track that branches off the initial input, exactly as happened in other places in the world, with a natural use of social networks, discussion groups on Facebook, pages to post video lessons, or use them on YouTube. Were born sites that teachers can easily arrange to stimulate students to search and explore.

In the meanwhile comes published the book "La classe capovolta", by Maurizio Maglioni and Fabio Biscaro, with a preface by Tullio De Mauro.

2014 looks like a year of educational innovations in Italy. INDIRE, the Institute of Innovation and Educational Research of the Ministry of Education, was already working with the movement Educational Vanguards to survey and analyse what new, technological and creative was happening in Italian schools; the movement becomes official, and it turns out that in many Italian schools there are overturned classes since 2011; for example, the Institute of education Savoy Benincasa of Ancona, or Technical Institute Pacioli of Crema, Melchiorre Gioia of Piacenza, in high school Artistic Argan of Rome and to the scientific Bertolucci Parma. Supported by INDIRE, 22 pioneer schools lead an innovative movement, which today has a population of more than 400 schools.

**FLIPPED CLASSROOM IN ICELAND**

Sudurnes Lifelong Learning Centre (Miðstöð símenntunar á Suðurnesjum/MSS) in Iceland, conduced a research about FC model. This study shows that “*in Iceland traditional teaching has been used in for a long time. It is the one size fits all method. But during the recent years, changes have been made at all levels. The school system demands that teachers acquire retraining. One part of the retraining is to follow up and dedicate to the latest technology. However it differs between institutions how well new methods are implemented.*

*Distance learning has been an option in Iceland for many years. We must know the different between the methodology of flipped classroom and traditional distance learning. The use of a tablet has become the norm in several schools in Iceland, but not only for use in flipped classroom. It is well
known in Iceland that secondary schools use the methodology of flipped classroom. The use of this method has both been popular and easy for students to adapt to.

In the work environment of MSS the institutions in the area are leaders in using flipped classroom. This methodology is used at all school levels in the area. Primary and secondary schools, Keilir and MSS. Another method the schools in the area use is individual learning, and it aligns very well with the flipped classroom method. When it comes to teaching adults we must have an open mind and be willing to adapt to new teaching methods.

Below we will look into three main Iceland schools where the flipped classroom method is used and the focus is on the needs of each student:

**Sudurnes Lifelong Learning Centre**, uses the flipped classroom method. Students like this new way of learning. Most students in MSS have little or no formal education. Many of the students are people that have a long history of low paid jobs. The problem in the past with MSS has been to retain the students, therefore the institution decided to switch gear and use the method of flipped classroom. Especially for the students that take part in evening classes. They believe that this arrangement makes the studies easier. Therefore, they can listen to the lectures at home and attend to workshops at school. This method gives the students more access to the teacher and a better use of the time.

MSS also uses other teaching methods.

**Sudurnes Comprehensive College** (Fjölbrautaskóli Suðurnesja) is a secondary school and there is a teacher Ívar Valbergsson, who has specialized in the use of this method for quite a long time. Ívar is a teacher in marine engineering. He gets many student who have had learning disabilities. He believes that the method of flipped classroom is better for this group of students where the time in the classroom is put in a better use. The teaching becomes more personalized and it is more beneficial for the students.

**Keilir Academy** (Preliminary University Studies Department), partner in this project, uses the flipped classroom method exclusively for full-time students. Keilir has been a leading institution in this method. Keilir required all teachers to take part in the development of this teaching method, as it leads to more independence of the students. Many students in Keilir do not have good memories from early school years, because traditional teaching did not work for them. Hjálmar Árnason the
The director of Keilir believes that to get good results we must rethink the educational journey and teachers must realize that it is a learning process not a teaching process.

Here an important direct testimony of Keilir teacher Sigrún Svafa Ólafsdóttir, (August 2017):

“I’ve been a teacher for 6 years, teaching adults the danish language. The first two years I used traditional methods, standing in front of my class and talking the whole day. I remember that many times my students had questions for me, but I did not have time to answer, because I was so busy talking myself. I was exhausted, my students were both bored and exhausted, they had a lot of homework they had problems with finishing because they needed help from me, but I didn’t have the time to help them.

The year 2012 my school director heard about “The Flipped Classroom” theory for first time. He suggested in a teachers meeting if we could try that method with our students. As a small group of 12 young teachers we agreed, even though no one of us knew how to do this. The first year we did our best, we pre recorded all of our lectures and tried to activate students in the classroom, but we made many mistakes in the beginning. To mention few of our mistakes:

To many students in one group - not enough time for the teacher to help them all.

If some of the students didn’t listen at the lecture at home and came unprepared in class, the teacher just repeated the lecture. That is a big mistakes, the result is that no one will listen next time, knowing that it would be a waste of time since the teacher will repeat it in class.

Not having enough of projects for students to work on in the class.

To long recordings, the video lecture should be short and focused on one topic.

The first year I started out with my “flipped classroom” with my best intentions. I had my course all planned out, all my lectures were ready and I had defined all projects and deadlines. In the beginning of each class I defined in details how my students should spend their time and wrote the schedule on the whiteboard. I even defined how many minutes the students should spend on each topic. So every now and then I said to my students “now you should change project, stop doing this and start doing that”. In only few days I felt that this was very wrong. I was constantly stopping the workflow of the students that were slow and all the students that were quick wanted to leave class when they had finished all the projects of the day. I realized that I was trying to have the control, I was still trying to
be in charge of everything in the classroom. After that I started to let students work in their own pace and take more control over their own study. The result was that no one was at the same place in the book, but it didn’t really matter, because the lectures were all accessible all the time and the right answers were online as well, so the students could check if they were right or wrong and then just keep working. I had a lot of time to walk around, talking to all the students, answering questions and getting to know each and every one of them.

After the first year I felt that this teaching method had worked well, most of the students were happy with my course, even though many things could still get better. Throughout the years I’ve been improving my teaching every year, always trying something new and rethinking new ways to deliver the content to my student in effective way, aiming to make the study easier and more interesting.

One of the most interesting thing for me was to realize why I was teaching things the way I did in the beginning. Usually the ideas of my teaching methods came from my own experience as a student. Now I try to remember to ask myself the question “why are you doing that this way?” Sometimes the answer is ok, but even still after all this years of work I once in awhile get the answer “It has always been done this way” or something similar. And then I know that I have to work more on that topic.

I would never even consider to change back to my traditional way of teaching and the positive feedback I’ve had from my students support my opinion. And I love the challenge to constantly try to improve my work, think of new ways to do things better for my students”.

FLIPPED CLASSROOM IN PORTUGAL

Within the mentioned international project ICON, a Portuguese pilot study focused in these courses was developed. For this study, the methodology sounds adequate, as ‘Flipped Classroom’ is quite recent phenomenon in Portuguese higher educational context. It allows a first look on the issue and opens the debate regarding the subject, as it is innovative within the context and shows the constrains as well it highlights the philosophical choices behind the pedagogical approach. The study focus on two courses that were selected by systematically procedure to find out, among courses

28 For more info visit the Keiler website at: http://www.keilir.net/english
delivered by all Schools of a large university in Portugal, which of them put in practice the expression “Flipped Classroom”.

Students' expected work is other main issue of FC approach as it crucial to perform FC as it is closely related with students’ commitment. Furthermore, as much as students are involved with subject matter as much the classroom is an interactive place to learn. ICT resources and ICT lecturers’ abilities are important to flip class and was reported both as a constraint and as a strength of FC model.

From the perspective of the lecturers, FC is a promising methodology to teach and lean as it increases students commitment and satisfaction, but time is needed to change students’ attitude regarding they own role into more active participation. Also lecturers’ training needs to be more focused.

In a flipped classroom environment, students watch the lectures outside the classroom via videos and/ or vodcasts as a homework strategy, while classroom time is used for problem-solving activities, project-based learning and collaborative work applying the concepts learnt at home. The goals were to analyze and understand the perceptions of both students and teachers using vodcasts and the flipped classroom method in studying poetry as well as identify advantages and disadvantages of the flipped classroom approach. This case study was developed in a Portuguese Literature 10th grade class in an international school in order to investigate the applicability of this method to a poetry unit.

Both qualitative methods, such as interviews, field notes, direct and participant observation, open question survey, and quantitative methods, such as closed question survey using Likert type scale, were used to better understand the case study. The findings of this research show that:

- The flipped classroom approach is an efficient strategy to achieve the benchmarks in a literature unit;

- Students went through an initial stage of adaptation to a different learning method than they were used to and it developed their sense responsibility towards self-learning and collective learning;

- Students faced some frustration mostly related to the fact that watching the vodcasts did not allow for the immediate teacher response to questions that might have arisen;
- Watching the vodcasts demanded more concentration and the development of organizational strategies such note-taking and flagging questions and doubts;

- Vodcasting is a major asset for revising content and promoting self-paced learning, due to the “pause” and “repetition” features as well as its ubiquitous availability online;

- It allowed for more collaborative work and activities in class without sacrificing the breadth of the curriculum;

- The interaction student-student and teacher-student was increased, which allowed for a socio-constructivist approach to learning;

- The role of the teacher changed since she became more of a tutor and guide to students’ performance, which resulted in a different way of structuring class time.

**FLIPPED CLASSROOM IN SPAIN**

Within the same international project ICON, also a Spanish study was developed as an official result of the partner project. It shows that “flipped or inverted classroom is a form of the teaching-learning system in which students learn new content online by watching video lectures, usually at home, and what used to be homework (assigned problems) is now done in class with teacher offering more personalized guidance and interaction with students instead of lecturing.

*This teaching method is not widely known and spread in Spain yet but there are many brave teachers that, individually, have had the will to prepare their own projects and stand up for them in front of their schools’ teaching staff. As a meeting point for all those educators, a group of professors and primary and secondary education teachers created the website http://www.theflippedclassroom.es/ where they can share experiences and resources.*

*The flipped classroom method is mainly used in private schools where the budget for new technologies and the students’ socioeconomic context is higher so pupils can have easy access to a computer. Fortunately, this method is being implemented in some state schools such as Alcalde de Móstoles state school in Aluche, Madrid, in which 10-year-old children learn Spanish language and Maths following the inverted classroom techniques.*
Another example in public education is IEDA “Instituto de Enseñanzas a Distancia de Andalucía”. Instead of giving lessons in the traditional way, IEDA creates own materials so that the students become the protagonists of their learning process while, the teachers, play a supporting role as a coach or guide. In this school, pupils are treated as individuals taking into account that each one has its own learning pace and personal circumstances. The task is the beginning, the starting point from which the student looks at and up what they need to know and then asking for further explanations/clarification from the teacher.

The INTEF (National Institute of Educational Technologies and Teachers’ Training) is the main public institution that offers lots of online courses including the flipped classroom, providing free access to a whole course on this methodology”.

FLIPPED CLASSROOM IN GREECE

An important study has been performed to investigate the application of the model of the FC as a complementary method to school distance education in junior high schools in Greece. The research Implementing a flipped classroom: a case study of biology teaching in a Greek high school, 2017, has used as educational platform the Learning Activity Management System (LAMS). “The findings were evaluated qualitative rather than quantitative, and can provide evidence about the prevailing situation. During the action research, it became evident that time management in the classroom was improved. Furthermore, it was observed that students’ involvement in the educational process was also improved. Students had already familiarized themselves with the cognitive aspect of the lesson before entering the class and they considered the learning process as an individual affair, which does not only depend on the teacher. The implementation of digital activities accomplished by distance led to taking action and initiative and finally to active learning.

A general conclusion of this study, which can be reached, is that it is possible to make good use of the “flipped classroom” methodology as a complementary tool to school distance education in junior high school considered.

The following elements of the “flipped classroom” that contribute to the optimization of the learning process were noticed as results of the study:
- The implementation of the “flipped classroom” had a great effect on time management. Students watched the following lesson away from class, from a distance, on their own thus giving free time for targeted, constructive activities, troubleshooting, and detection of tricky meanings in the class under the guidance of the teacher.

- The implementation of the “flipped classroom” demands more time and effort in order for the teacher to prepare the lesson. The distance, online parts of the lesson need to be digital, polymorphic and attractive, while the in-class part ought to be focused on the individual learning needs of the students. This difficulty can be overcome given that these lessons are re-usable and can be distributed along the educational community. During one school year, a teacher could create one or two “flipped” lessons, which he subsequently shares with the learning community, such as the LAMS community. In this way, one lesson can be reusable, adaptable, versatile and free-offered to the modern, globalized society as a part of open educational resources.

- There was efficient detection and dealing with the students’ cognitive needs due to the fruitful educational design. The methodology required the use of an online digital platform. LAMS environment was selected due to the diversity of pedagogical tools that it provided to the authors.

- The use of polymorphic educational material that was prepared for home study and for classwork led students to taking action and initiative and finally to their active learning.

- The students’ attitude towards the use of ICT was positive, being quite capable of handling digital files, although it was the first time that they used such a platform. They expressed their desire to attend more lessons using similar tools.

- The “flipped classroom” methodology enabled those students who wish to study a specific subject more deeply. This is one of the strong features of the methodology which teachers can use in order to satisfy their students’ personalized interests –something that can hardly occur in a traditional class.

- Students’ involvement and active participation in the educational process were remarkably increased. Students knew that their teacher was monitoring (supervising) their progress while they attended the lesson at home. So, they were already familiar with the cognitive aspect of the lesson before entering the school class. As a consequence, pupils entered the class with less stress and
higher confidence. They were involved more easily in co-operative and discovering activities and they considered the learning process a personal affair which did not only depend on the teacher.

- It is worth mentioning that students exhibiting learning disabilities revealed a peculiar interest concerning the use of digital tools and participated sufficiently in the distance study as well as in the in-class activities. Although this group was not a separate objective in our work, the positive effect of the "flipped classroom” methodology gave an added value to the results of this research”.

In conclusion, it is also clear that the role which school plays “cannot be questioned or replaced. School distance education combined with the radical development of ICT can be complementary with the use of various methods, like the “flipped learning”, and gives a new perspective and potential to the limited choices of conventional education in the Greek educational system” 29.

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29 At the following link the entire document: https://files.eric.ed.gov/fulltext/EJ1147721.pdf
8. Comparison among the situation emerged in the different Countries

The Peer Learning Report on Training Profession defines trainers “all those who actively facilitate the formal learning of faculty members and role teachers”\(^3\). The definition therefore includes those who participate in the initial training of teachers and who collaborate on the continuum of professional upgrading. This project is mainly concerned with higher education instructors, although much of the content of this report is also valid for existing teachers and other educational systems.

For example, the authors of the Spanish report (partner Country), believe that the teaching methods that will give the best training outcomes in relation to the spread of inclusive practices are those where higher education instructors apply the same principles to their cadres and the same methodologies that would apply to their students in the classroom:

- To be welcoming and respectful of the differences between students as a factor of enrichment of teaching and class time.

- Be aware of each student’s starting point, assessing what they know about the topic that will be developed before propagating new learning experiences or explaining certain content.

- Encourage an active and participatory learning experience that takes into account the diversity of skills, the diversity of learning methods and the different motivation of students.

- Promote the opportunity to diversify teaching content, prompting students to choose and use different ways of expressing the content they learn.

- Diversify evaluation methods according to the obvious differences in the progress and performance of the students.

- Practice collaborative and cooperative work while explicitly accrediting and evaluating individual progress.

- Use information and communication technology to facilitate access and participation.

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- Explain ethical values and guidelines on the right to quality education.
- Maintain, at all times and with different procedures, critical reflection on values and behaviors towards diversity and how to manage common classes.

Iceland's report also underline the importance of trainers to support the teaching and daily work of their students, offering a variety of possible inclusive pedagogical approaches.

The University of Iceland offers an optional course dedicated to school integration co-taught by a trainer and a role-based teaching professor in regular school. This course introduces a curricular design system and explores how to adapt a single learning environment to a heterogeneous group of students. The training program nowadays often includes not only lessons and seminars, but also different opportunities for discussion and reflection, collaboration with peers, tutors and other stakeholders.

Overall, Nordic countries, as the Iceland case shows (state-of-the-art country), are more willing to use innovative methodologies and the teachers do not show reticence in classroom daily application. To facilitate this result, there is the easy access to ICT tools in the schools for each students and greater attention by the government in providing an efficient vocational training system for VET teachers. On the other hands, Mediterranean countries seem to be more closed to the traditional teaching method, even if in the last decade important steps forward have been made, especially from the governmental reforms point of view. To still hinder the full application in these countries, there are some endogenous factors such as:

- The scarcity of economic resources to equip the school of ICT tools;
- The delay with which national governments have implemented innovative reforms;
- The high gap between North and South in school learning;
- The absence of differentiated school policies based on the needs of the area and the types of schools.

In this context, as evidenced by the findings of the present investigation, among all innovative education models and although recently applied, the flipped classroom method is functional to improve learning outcomes and promote meaningful learning in all partner countries, especially in
those contexts where active teaching/learning techniques and strategies need to be adopted and strengthened.

For these reasons, even if the education system around Europe has always been a firm supporter of traditional teacher oriented pedagogical approaches, the reform of these approaches is necessary in order to promote innovation and inclusion in European schools, exactly as emerged from the project results31.

31 For the first internationally comparative perspective on the conditions of teaching and learning, refers to OECD’s Teaching and Learning International Survey (TALIS). With a focus on lower secondary education in both the public and private sectors, TALIS examines important aspects of professional development; teacher beliefs, attitudes and practices; teacher appraisal and feedback; and school leadership in the 23 participating countries: https://www.oecd.org/berlin/43024880.pdf
9. Conclusion of the state of the art and brief description of future scenarios, recommendations and room for improvement European Policies

As part of the project Creativity and Innovation in Education and Training in the EU27 (ICEAC), the report takes into consideration examples of good practices and public policy actions to strengthen creative skills at schools level. For this purpose, “a specific consultation in the form of an online survey was arranged to reach the classroom teachers in the European countries. This survey was carried out in collaboration between IPTS and European Schoolnet. The online consultation aimed to explore the perceptions of teachers in Europe about creativity for learning and their reflection on their own teaching practices. Particular emphasis was given to ICT, so as to get a better understanding of current ICT practices and the potential of ICT applications to foster creativity in students.

Another part of the ICEAC project was to gather insights on creativity and innovation in education through in-depth interviews with education experts from different fields of education, namely: the academia, teacher training institutions, inspectorate boards, curricula development agencies and ministries of education. This work was conducted by Futurelab, in collaboration with IOE, London. The main objective of this study was to identify enablers and barriers for creative learning and innovative teaching throughout EU27”.

Notwithstanding the diversity of education systems in EU27, analysis of the interview shows a series of common trends. “Experts made various references to instances where different factors in education are connected. For instances, changes in curriculum will not be effective unless changes in assessment take place. They also suggested that school curricula should be inspiring and flexible documents. These documents were harshly criticised for not allowing space and time for teachers and learners to think, imagine, create and deviate from what is prescribed.

Educational institutions are in many cases resilient to change. Education in Europe has a strong ethos of control, disciple and often favours hierarchical relationships. This contributes to an environment which stimulates conformance and discourages divergence, thus hindering potential for creative learning and innovative teaching. Constraints also come in the way that school space is organised architecturally.
Several interviewees recognise that traditional methods are still common in many countries, with frontal teaching, teacher-centred interactions and chalk and talk continuing to be widespread educational practices. Pockets of innovations have been observed but the challenge is to sustain and upscale them. Moreover, in many countries, strong emphasis on traditional assessment methods, based on factual recollection and knowledge acquisition is limiting creative potential. How to assess and monitor learners’ performances and progress remains a delicate area of disagreement between teachers, parents, students and policymakers.

ICT facilities are available in many countries but more training is needed. While provision of ICT tools is widespread there is an urgent need to provide training on how such tools could be instrumental in fostering creative learning and innovative teaching.

A shift in the culture and mind-set of teachers and other educational actors is asked for: a consensus and debates on the importance of creativity in education which include parents and students is important”. For example, ITT (Initial Teaching Trainer) and CPD (Continuing Professional Development) are key “for a change in teachers' mentality and practices. Teachers need support in terms of training to be up-to-date with innovative teaching practices. They also require more hands-on training which allows teachers to put their knowledge into practice once they are in the classroom”.

Training has been recognised as a key element in the Lisbon agenda for the creation of a well functioning ‘knowledge triangle’ of education, research and innovation (Council of the European Union, 2010). In fact, teachers are critical in enhancing or inhibiting the creative potential of their

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32 In addition, the mentioned OECD’s Teaching and Learning International Survey (TALIS), underlines that “two alternative views of teaching emphasise, on the one hand, the teacher’s role in transmitting knowledge and providing correct solutions, and on the other, the teacher’s role as a facilitator of active learning by students who seek out solutions for themselves. Comparing teacher beliefs with classroom disciplinary climate, the analysis found that in Hungary, Italy, Korea, Poland and Slovenia, teachers with “constructivist” beliefs that regard students as active participants in the process of acquiring knowledge are more likely to report positive classroom disciplinary climate. In contrast, teachers who favour the “direct transmission” of knowledge are more likely to report a negative classroom disciplinary climate in the seven countries where there is a detectable net effect (Belgium, Korea, Norway, Poland, Portugal, Slovenia and Spain). In virtually all TALIS countries, there is a relation between teachers’ beliefs and their classroom practices. In particular, teachers who employ student-oriented practices are more likely to be those who take a “constructivist” view of teaching; that is, teachers who believe that students should be more active participants in the learning process tend to follow this through in practice. On the other hand, there is no consistent pattern to the association between teachers’ beliefs and more structured lessons and teaching”.

students. Behaviour and attitude of teachers is largely dependent on the skills and experience they have acquired and the support they receive for their work.

In this sense, teacher training is one of the most important areas, where more effort is needed, as well as Flipped Classroom methodology is only one approach to ensure innovation and active learning that should be improve by the national government reforms. These should be inspiring to the virtuous European models and proceeding towards a qualitative and not quantitative analysis of training system.

To this end, the commitment of the European Social Fund (ESF) and the European Regional Development Fund (ERDF) is also directed. In fact, in the period 2014-2020 outlines the priorities and objectives to spend EUR 3.019 billion, of which EUR 1.615 billion from the EU budget, contributing to an improved education system, better qualifications of students, and better school buildings and equipment.\(^{34}\)

In conclusion, in addition to the efforts of European and national policies already in place and with increasing attention to vocational training, there would be a need for a strong awareness of teachers in applying innovative classroom methodologies, by rethinking the formal approach to teaching, the rigidity of the school curriculum, and the vertical transmission method of competencies and knowledge.

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