

Active Learning and ICT in Upper Secondary School: an Exploratory Case Study on Student Engagement by Debating

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Abstract

The paper outlines the first phase of a three-year research activity on active learning in the core curriculum subject, intended as a possible solution to student disengagement in secondary schools. The paper presents the problem the research intend to attack - school failure, school unsuccess, student disengagement and early school leaving - and describes the context of the research, its originality, and the remedial measures put in place by the research team and policy makers. Among those, Continuing Professional Development (CPD) of teachers and structural measures to involve several stakeholders, including students. Then, the research design is given and the research tools presented, showing what dimensions are investigated. Finally, it provides the results on one of the four case studies carried out, namely the one on foreign language teaching.

Keywords: student engagement, core curriculum subjects, upper secondary school, early school leaving (ESL), CPD, Debate.

Received on 14 January 2017, accepted on 20 June 2017, published on 26 July 2017

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doi: 10.4108/eai.26-7-2017.152907

1. Introduction

As mentioned in the 2013 European Commission Report on Early School Leaving [1], “Early school leaving (ESL) is a multi-faceted and complex problem caused by a cumulative process of disengagement. It is a result of personal, social, economic, education or family-related reasons. Schools play an important role in addressing ESL but they cannot and should not work in isolation. Comprehensive approaches that focus on the root causes of ESL are required to reduce ESL. Reducing ESL can help towards the integration of young people into the labour market, and contribute to breaking the cycle of deprivation that leads to the social exclusion of too many young people”. The Europe 2020 strategy [2] sets out a

target of reducing school drop-out rates to less than 10 %, asking a big effort to all Member States that are afflicted by this problem.

Given this scenario, the Italian Government issued a Law [3] addressing the problem of ESL, and created the so-called “Technical and Vocational Poles” as a possible solution. In fact, Technical and Vocational Poles, as imagined by the Government and described in the mentioned Law, represent an organizational model potentially capable of reconnecting VET schools – the most afflicted by drop-out rates – to their community and production districts and of fostering a systemic approach to employability, by networking schools, companies, vocational training agencies and universities (as suggested by the European Commission in the mentioned Report, this is a “comprehensive approach”). These Poles could

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be able to represent a solution to the ESL since they put together different stakeholders (companies, regional VET systems, schools) and can offer specific VET courses and opportunities (apprenticeship, dual system, VET regional courses, alternating training, etc.) answering the different needs of at-risk students.

In Tuscany, drop-out rates are heavy, reaching 16,3% - far away from the threshold set out by the European Commission for 2020. Moreover, the NEET[†] population is growing, making the ELS phenomenon ever more serious. That's why an early and systemic intervention is crucial, so that each student can be offered various VET opportunities, designed according to the specificities of the community and of the labour market where s/he lives and studies. The Tuscan Region started this new organization of the VET system in 2013, setting out a specific Decree [4] so that Poles could be constituted from then onwards[‡]. In Tuscany 25 Poles have been created, covering 5 main production sectors (agriculture, tourism, fashion, mechanics, navigation), among which 8 were identified [5] to be the object of an experimentation on 5 main areas (school and vocational guidance; active learning in the core curriculum subjects; additional VET courses; alternating training; dual system), considered as crucial to reduce ESL and school failure. INDIRE has been chosen by the Tuscan Region, together with other Institutions, to support the Poles in their innovation and experimentation processes, in particular on active learning in core curriculum subjects and alternating training.

2. The CPD Project on Active Learning

The CPD project on active learning “La didattica laboratoriale nei Poli Tecnico-Professionali” has been designed by INDIRE according to a specific definition which is in relation to a different model of schooling, where lectures are replaced by student-centred activities, so-called “lab activities”.

According to several researchers [6] [7] [8] [9] [10], even though ESL is a complex problem where many causes occur, schools play an important role, especially when student engagement is concerned. Active learning means putting in place different strategies able to: engage students in tasks oriented to projects or product construction; solicit different learning styles and preferences; develop competences and soft skills; include informal and non-formal learning of students, also by strengthening networking with different stakeholders outside the schools; differentiate and customize learning opportunities according to students' profiles and attitudes;

[†] NEET=Not in Education, Employment or Training.

[‡] In order for a Pole to be formally created, there must be at least: two Technical or Vocational schools, at least two companies and one institute delivering post-secondary non-tertiary courses (ISCED 4). These institutions must sign a formal agreement where medium-term objectives (for 3 years), a governance organization and committees are identified.

adjust time and place of learning according to needs and requests from students; make it possible for teachers to teach with problem-solving and interdisciplinary approaches; use authentic tasks and innovative assessment practices; develop creativity and research-oriented competences.

The coaching model is based on the tutorship between expert schools - so-called “tutor” schools - and trainee schools and it is derived by the “Avanguardie Educative” Movement model [11]. Both face-to-face and virtual classrooms are in place to scaffold the piloting of schools as for the innovative methodologies proposed, namely “Debate”, “Flipped Classroom” and “Digital contents and textbooks”. Those are innovative practices capable of changing the lecture-based model of schooling particularly as for the time and space of teaching/learning activities. The project [12] lifespan is one school year (September 2015 - June 2016).

3. The Research Design on Active Learning

In order to answer learning needs of young students that use daily ICT as a communication, learning and creative knowledge construction tool [13], it is important to change the lecture-based model of schooling, with its desks in line, and rethink the school settings to make them more flexible and open, as socio-constructivist theories advocate. According to the social theory of learning [14], a classroom should be intended as a learning community where the teacher guides, engages, and interests his/her students, thus making it possible peer education and peer tutoring to be promoted. In such flexible learning situations, learning by doing, discovery learning, cooperative learning and reflective learning - where the teacher is a coach and not a lecturer - are promoted [15]. ICT should be considered as enablers for transforming learning environments, promote knowledge co-construction, allow personalization of outcomes and strategies and scaffold the acquisition of curriculum cultural and symbolic clues [16] [17] [18]. ICTs act on different levels - cognitive, communicative, expressive, creative and socio-relational levels - since they allow the manipulation of objects (i.e. simulation, 3D visualization), student authorship [15], student-student and teacher-student collaboration and active participation.

The present research activity, as highlighted above, considers active learning with ICT as a possible answer to engage at risk students and it is aimed at investigated its efficacy and effectiveness, especially in core curriculum subjects.

The three-year research activities, after a preliminary phase of literature review, will be deployed into two phases: the first one (school year 2015-16) will insist on a local and regional dimension whilst the second one (school year 2016-17) will take into account a wider dimension (national and international). During the first phase, 4 schools are taken into account and 4 case studies

being carried out, one for each core curriculum subject (maths, sciences, language education, foreign languages). Case studies have been selected by using a stratified random sampling method, the strata being the production sectors, four in total in Tuscany, or: mechanics, navigation, tourism-agriculture and fashion. The second phase will take into account inspirational cases where the “lab-approach” is in place, in order to derive innovative practices that can be exported to other contexts and scaled-up. Research activities investigate specific dimensions that literature correlates [19] [20] with disengagement and ESL such as student motivation, school well-being, teacher performance, classroom climate, school organization. Each dimension is observed before and after INDIRE CPD course on active learning takes place[§]. The tools selected by the research team are the following ones: standardized tests [21]; observations in the classrooms; student Portfolios; video-observations by the teachers, focus groups with the students; interviews with subject teachers and head teachers.

4. Results: a Case Study on English Language Teaching/Learning innovation through Debating

The case study considered deals with English teaching innovation through the practice of the Debate^{**}. The Debate is a regulated discussion of arguments between two teams, supporting two opposite viewpoints. The teams are made up of 4-8 students, so that each member of the team has the chance to sustain an argument. Generally there are 2-3 rounds for arguments and rebuttals of the two teams. A jury (composed by students or the teacher or both) is responsible for evaluating the performance and proclaiming the winning team. In school it is used to promote students’ engagement since it develops both soft skills - such as public speaking competencies, collaboration, information literacy - and topic-related knowledge^{††}.

[§] From now onwards, in the text we will refer to the 2 moments as pre-CPD and post-CPD.

^{**} The Debate is a teaching methodology where two different parties are confronted on a topic through the proposition of a claim, which is generally given by the teacher (i.e. “Homework is useless”). The two groups are one in favour and one against the claim and propose, in turn, and in accordance with time restrictions, their arguments and rebuttals, by using evidence, examples or stories to convince the jury (which may be made up of students, the teacher himself or a mix of the two). The use of ICTs is rather limited in this learning practice and only devoted to the search for data, evidence, and pieces of information to be used as a basis for the debating session itself. In the classroom that was the object of our case study, however, the methodology was adopted and adapted by the teacher and her students who gave a stronger role to the use of ICTs - as way to better argument their opinions and communicate them in a more convincing way to the audience (other students).

^{††} For a detailed description of this methodology see http://avanguardieeducative.indire.it/wp-content/uploads/2014/10/AE_debate.pdf.

Some information on the composition of the classroom is useful to have a clearer understanding of the educational context. The students attend the second year of a technical navigation school, located in Leghorn, which is a rather historical school of the harbour city. There are 22 students, 18 boys and 4 girls, among whom there are 3 Special Education Needs (SEN) students^{‡‡} and 2 failed students. Few technologies are available in the classroom (one IWB, not properly working). Wifi is available only for teachers.

4.1. Standardized Tests

AMOS standardized tests provide teachers, psycho-pedagogists, and school psychologists with tools for the assessment of study skills, cognitive styles and emotional and motivational aspects of learning, thus allowing a deep understanding of student strengths and weaknesses and suggesting remedial activities to be put in place to scaffold them. The specific tests that were administered during the pre-CPD phase in the classroom, in December 2015, and later during the post-CPD phase, in May 2016, are the following ones. QSS: questionnaire on study strategies, subdivided into 3 dimensions (a. efficacy - the student beliefs as for the efficacy of possible strategies that an ideal student can use; b. use - relating to the actual use the student does of those strategies; c. coherence - measuring the gap between the strategies considered as ideally useful and those actually employed by him/her). QC: questionnaire on the student personal beliefs and confidence as for his/her intelligence and personality, his/her learning goals (mastery versus performance goals) and his/her self-efficacy perception in facing study activities. QAS: the questionnaire aims at assessing the student self-regulation skills (identifying three dimensions: a. organization - capacity to plan the quantity of material to be studied in due time; b. personal processing - capacity to process the content in order to understand and remember it; and c. self-evaluation - capacity to predict the results of one’s own performances, to realize the degree of achievement and detect possible weak points in one’s own study strategies), his/her knowledge of possible strategies and sensibleness in using them according to the situation and to personal characteristics. QSC: questionnaire on student cognitive styles. Cognitive style is intended as the student’s preference in the use of specific strategies. The test discerns among two styles: global - when the person prefers to have a global picture of a content - versus analytic - when the person looks at details and specific topics and verbal versus visual. QAR: questionnaire on anxiety and resilience, measuring both the degree of

^{‡‡} Definitions of SEN students vary widely across countries as they are specific to each country’s legislation. In Italy SEN students are made up of three main groups: disabled student, student with learning disorder (i.e. dyslexia), students with socio-cultural disadvantages (Ministry of Education Note NO.8 issued on March 6th 2013).

arousal - physical and psychological - when facing a threat or an obstacle and the ability of the student to face difficulties and unsuccess.

Considering the QSS results, the major change is the coherence dimension, which is the most important out of the three because it positively correlates to academic success. An opposite trend was observed in the QAS questionnaire, where 4 out of 5 dimensions have worsened. This can be due to the period of the school year, since in May students are more tired compared to the beginning. That's why the scores to the tests might have decreased. When considering the differences in the QSC test, a relevant difference can be noted. Whilst at the beginning students' cognitive styles are more verbal and global, at the end they turned out to be less polarized, showing more cognitive flexibility. This could be due to the fact that by introducing the Debate, which enabled the introduction of ICTs (in particular imagines and videos), the teacher influenced the students' cognitive preferences. As for QAR, measuring anxiety and resilience, a slight negative change can be detected in both scales. This result can be explained by considering the period of the school year when students are worried to fail.

The most promising results come from the QC questionnaire. Out of the 6 dimensions, 2 have dramatically improved, that is the students' beliefs on their personality and their confidence in their intelligence; 2 dimensions remained unchanged and 2 show a negative trend, in particular the one considering learning goals which are more performance-oriented than mastery-oriented (which is again probably due to the end of the school). It is not clear, though, the scores obtained in the last dimension, considering the students' perceptions of their abilities. Since the scale shows a negative trend, this could be due to the fact that the teacher introduced the Debate, which meant new challenges for them. This can have engendered a reframing of their personal abilities since the new competences that the Debate required to them are not mastered yet. In general, a positive trend is observable and this might be due to the introduction of the new teaching/learning strategy.

4.2. Observations in Classroom

The pre-CPD observation was done in December 2015. Before visiting the classroom, the researchers informed the teacher on the observation protocol. The observation was carried out by two researchers, who stayed in the classroom during one-hour lesson without interacting with the students and the teacher. They used an observation grid presenting several sections: general context information; organization of space and time of the lessons; student work organization (group work, individual work, etc.); classroom climate (social, emotional and relational aspects); teacher role; ICT use (roles, attitudes, etc.). Each researcher noted his/her personal notes and afterwards produced a narrative observation report, referring to the sections above. The

two reports were then sent to the teacher for comment integration.

On the first observation day, in December 2015, 19 out of 22 students were present, among whom one is a SEN student (his SEN teacher was in class) and two have learning disorders. The setting was traditionally arranged, with the whiteboard, the teacher desk and the student desks set in line. The setting remained unchanged during the lesson; the teacher, instead, went around, presenting herself more as a facilitator than a "knowledge broadcaster". However, the rhythm of the lesson was totally guided by the teacher, asking students, involving them in the discussion and providing feedback and examples. It was an interactive lesson on grammar and vocabulary, following a flexible storyboard, with some conversation in English. Interactions were always between one single student and the teacher. The classroom seemed to be quiet and well behaving, but only little engaged. Students seemed to be tired, shy, unemotional. They only participated a little bit more when some familiar content was considered (i.e. their smartphones). The role of the teacher, as said above, was that of facilitating and scaffolding students, trying to involve them and to interest them, even by joking of playing with words. An IWB was present but no ICT were used during the lesson. Based on the observation, researchers found a class with low motivation, little engaged, even though good and trustful relationships exist among students and with the teacher.

The second lesson observation took place on May 2016, following the same observation protocol and it was done by the same researchers of the first session. It was one hour English lesson, with 18 students being present out of 22.

The lesson was not performed in the traditional teaching space - the classroom - but in the school Auditorium. The students decided to perform a Debate and thought the Auditorium fitted more since it has a stage, microphones, a projection console with pc and tv and seats for the public to watch. The choice of having the lesson in the Auditorium instead of the traditional classroom stands for a huge change as for the space setting, which is more suitable for students to take control of the classroom activities and to be better engaged. In fact, they performed on the stage, spoke out, discussed whilst the teacher seated in the seat row watching them.

The Debate was divided into two rounds, one for presenting each team's arguments and the second for discussing their rebuttals. Students used a typical 20 minutes Debate format. During the second part of the lesson, the teacher asked some questions to the students, in order to deepen some arguments and to make them reflect on their cognitive performances (metacognition). Then she gave homework so that during the following lessons the Debate topic could be further developed. She played as a facilitator rather than a traditional lecturing teacher.

Students used ICTs during the Debate, in particular three of them had the control over the multimedia console

in order to project images, sounds or videos when needed, to highlight certain arguments. The work on images and videos was previously prepared by the students both collaboratively and individually. The students who performed in the Debate were at ease in using the microphone. One student used the iPad to record the performance.

There was a good classroom climate. Students seemed to be engaged, active, collaborative and confident even if at the beginning they were anxious and embarrassed because of the researchers' presence. The Debate was well performed, following the format and respecting the timing. The students who didn't take part in the Debate were interested in watching their mates.

After the Debate was finished, students discussed about their performances and were honest to admit whose performance was good and whose was weak. They also tried to imagine what could be done to improve them, for example by competing and by using peer evaluation techniques.

In conclusion, it can be noted that the students' lack of motivation that was observed during the first visit had strongly decreased. If during the first lesson observed students were really disengaged, during the second lesson a big change could be noted: students were active and took the control over time, tools (ICTs) and activities performed in the lesson.

The most important changes we could observe are related to the space settings and to the introduction of ICTs, that had not been used previously. Students autonomously decided to have the debate in the Auditorium, a larger space allowing them to be on a stage and to move more freely compared to their usual classroom, which is quite small and uncomfortable (traditional students' desks in rows and teacher desk provided with an IWB - unfortunately not working). Since the school did not provide them with technologies or devices, students used ICTs at home in order to prepare digital contents and the presentations to be used during the debating session. They looked up in the Internet for information, evidence and multimedia material to be showed during the debate and to be referenced when the two groups were presenting their opinions (arguments and rebuttals). They worked both individually - during the collection of data - and in groups - when selecting the best multimedia material to be included in the presentations. In this "adapted" type of Debate, students played an active role in learning also through the use of ICTs. In fact, they became digital authors, digital presenters and scaffolders for their mates engaged in the debating performance.

Relational aspects too were positively managed by the students. It would be interesting to keep observing this classroom dynamics in the next school year in order to understand whether the everyday lesson routine has changed and if active learning through Debate is a permanent feature of everyday school life as for the considered curriculum subject.

4.3. Student Portfolio

The student portfolio, divided into four sections, is a tool designed to help students become aware of their learning strategies and study method. It can be used as a mean for sharing one own's progress in one or more areas taken into account [22]. The student portfolio is an online tool to allow students reflect on their competencies, guide them in their decision making process and develop their metacognition, considering its multidimensional meaning: attitudes, skills and behaviours [23]. The style of the portfolio is informal, comprising both open and multiple choice questions - some of them even using visual hints such as comics - and asking students to upload their material (note-taking, pictures, etc.). Students were asked to fill in the four sections during the whole school year, in particular, Sections 1 and 2 in the pre-CPD phase and sections 3 and 4 in the post-CPD phase. Section 1 - filled in by November 2015 - dealt with study habits and preferences, self-esteem and learning needs. Section 2 was to be filled in after a usual - very likely traditional - lesson, in order to gather the student's emotions towards that lesson, his/her thoughts on the teaching process, the lesson weaknesses and strengths and, finally, his/her suggestions to improve it. Section 3 should be filled in after an active lesson has been experienced (it could be from March onwards) according to the same schema as in Section 2. Finally, Section 4 aims at summing up the whole year experience and metacognition process and bringing to conclusions and perspectives.

Between November 2015 and January 2016, Section 1 and 2 were filled in by 19 out of the 22 students of the classroom. This paragraph looks in particular to some of the answers provided by the students to the question "How I learn" and the one asking them to provide a definition of what they mean by "active learning". Students report that they learn better if they are actively involved in the learning process (i.e. by repeating, personally processing or making exercises and practical work) and that they are facilitated by the mediation of a classmate. They also like getting some feedback by the teacher and they prefer their work being constantly checked. They also report working better if the tasks are clear, thus suggesting a crucial point: a well-designed and performed lesson. They say they remember more if they write on their notebook what they do during the lesson. When they are asked to do some exercises, they prefer to have concrete examples, to read/listen to rules and study them beforehand. As for their definition of "active learning", they generally relate it with the process of applying knowledge. Some think of "active learning" as something happening in the lab, a physical place that is generally designed for applying knowledge and linked with the workplace.

4.4. Video-observation

Teachers were also given a specific protocol of video-observation, called EVIDENT (Evidence-based VIDEO Enquiry iN Teaching) [24], implying the video recording of a typical lecture (of at least 45 minutes), the self-analysis against a specific Self-Assessment Grid, the visual representation of his/her scoring through a Radar and a reflection process through a specific format (Self-Analysis and Improvement Report). The protocol is based on the DASI dynamic model [25] and on Hattie's work [26].

The investigated dimensions are presented the following ones. Organisation and structure of the lecture: structuring of the lecture in terms of methodological-teaching components, form of message, relations with contents already dealt with, and with phenomena linked to the student's personal life. Description provided by the teacher on the reasons why a certain content is learnt. Problematization: behaviour of the teacher aimed at the problematization of contents, posing questions, answering students' doubts and favouring/ promoting discussion on a new content. Examples and application: opportunities in terms of: modelling (the teacher provides behavioural models, cognitive, emotional and relational strategies that the students can follow and copy); application (the teacher foresees exercises, experiments, etc., ensuring the processing of new contents in an active way, by students). Time management: management of the activities, avoiding waste of time by the teacher and organizing the school-time at best, as well as the time for studying at home. Learning environment: the class is perceived as a learning environment, profitable in terms of learning and socialization. Assessment and metacognition: presence of assessment, self-assessment elements, peer-evaluation and description/sharing of associated criteria. Attention to metacognitive aspects.

The results of the analysis made by the English teacher confirm what was observed by the researchers during the observation visit. The strongest aspects are "Organization and structure of the lecture" (10/10) and "Problematization" (10/10): in fact, the lecture was highly teacher-led, with the teacher asking questions to students and guiding the progress of the work. The teacher makes an extensive use of "Problematization" (10/10). This is coherent with what we observed, since the teacher asked the students to apply grammar, to compose sentences and to propose examples for vocabulary or grammar rules. Another strong dimension is "Assessment and metacognition" (10/10). What we observed showed that the teacher pays attention to provide an immediate feedback to students, even though we could not see in that lecture an innovative use of assessment practices (peer evaluation, rubrics, etc.). It can be that in the lesson she observed, those aspects were covered. The only very weak point is the dimension "Management of time" (4/10) intended as the actions that the teacher puts in place in order to manage the activities, avoid waste of time, and organize the school-time at best, as well as the time for

studying at home. The rhythm of the lesson we observed was little bit slow, with some students talking with each other or not paying attention because the engagement was not stable. Another dimension to be improved is "The classroom as a learning environment" (8/10), in particular for the area of the ICT use and for differentiation, since the lesson was generally delivered as if all students had the same needs, styles and preferences.

4.5. Focus group with the students

During the second school visit, a focus group was carried out with 11 students of the classroom (2 girls and 9 boys) selected by the teacher so to be representative of the features of the class. The objective of the focus group was gathering students' opinions concerning their school and teachers, the innovation introduced through the Debate practice, possible early school leaving reasons, the general school well-being and their classroom climate. Students were asked about their school and teachers attention to single needs and interests so to ease their academic results. Students reported that teachers generally take into account their preferences and needs, even though differences may be found according to each teacher. They would like have remedial sessions, personalized paths and functional classroom settings/furnitures.

As for the classroom climate (inclusion, relationships, participation), students gave a positive feedback - it was actually one student speaking and the rest nodding.

When asked about the Debate they said they appreciated not only the practice itself but also the way the teacher proposed and introduced it. In fact, the practice introduction was done gradually, topics were chosen together and it was perceived as entertainment rather than schoolwork. Lessons turned out to be more interesting because they had fun, and debating in English was a way to practice the language and to learn it better. "One versus one is funnier and we learn better because we practice English", one of the interviewee said. As for the relation with their English teacher, they said they consider her almost as a friend, since she is reliable and ready to listen to them. This makes the learning easier. As for the use of ICTs in the classroom, students said that ICTs are very important for studying, for example pictures and videos might be used to learn, understand and memorize better. Moreover, ICTs are more engaging. "If you study also by using pictures, videos etc. connections with other topics are clearer and your performance will be better".

During the focus group, some students highlighted the fact they would appreciate more practice and hands-on activities, especially in the English language where oral production competences should be better trained - and not only grammar or writing skills. They proposed to watch videos and movies with a progression in difficulty levels - from first watching them in Italian, then in English with subtitles and eventually in English only. They supported this idea by reporting their experiences abroad and appeared to be fully aware of how ICTs could engage

them. They went further with proposals, mentioning whatsapp groups that could be created for enhancing a more effective student-teacher communication and that could serve both organizational and relational aspects. Some of the most representative students' claims are "If you explain a topic by using a picture or a video, it's easier to make connections, and you can use it to support your view" or "I take a picture and I send it to my group".

As for their school, they would like it to have better furniture. However, since it might be hard to get new one, even more colourful walls could be useful to make it more attractive. They would like to have more hands-on activities, especially in Navigation, the most important professional subject in this school and to use more ICTs in learning.

When asked about how the school could better engage their students, and face the Early School Leaving problem, students said that apart from the physical settings - which should be beautiful - the introduction of ICTs may play a crucial role^{§§}.

The school should reward not only students' academic success but also students' attitudes, behaviours and relational competences. This would represent an important drive to participate in school and classroom activities.

On early school leaving, many reasons were identified: teacher-student relationship, subject attractiveness, family expectations, low motivation, just to mention some.

The main focus group argument is the importance that students give to the relation with their teachers. They said it is crucial to have a teacher you can rely on, acting as a guide and a facilitator standing next to them in their educational and academic progression (also in the Portfolio they reported to need both autonomy and guidance in classroom activities). They said they need this trustful relationship, which is having an impact on the specific curriculum subject attractiveness.

4.6. Interview with the English teacher

An interview with the English teacher was carried out at the end of the school year, on May 2016, to investigate the educational/academic outcome of the project, the impact on students' engagement, and her personal experience during the training. The teacher reported that the classroom climate has positively improved, students seemed to be more motivated, interested, collaborative and autonomous. A very positive general feedback, though. Still, a small group of four students is negatively lead by one student, who's playing as the negative leader and who, despite all the attempts made by the teacher during the school year, has never been deeply engaged

^{§§} It is worth mentioning that during the school year 2016-17 - which follows our observation visit - the school has started a digitization process and has created a multimedia room with PCs, IWBs, flexible furniture and a 3D printer and that the renewed classroom is precisely that of the students interviewed here.

with the activities. The Debate allowed students to make homework more easily, also using ICTs. Those who performed the Debate during the second school visit proved to be much more collaborative compared to the beginning and more inclusion has been achieved (i.e. SEN students have worked better and more with their mates and less polarization between the good and bad students was visible; in fact the groups are now more heterogeneous). She thinks the class has evolved in terms of collaboration, especially when they had to perform a Debate. She also noticed more autonomy and responsibility from the students. As for the Debate, she thinks it has worked with this classroom and it has been important to introduce it gradually. After the first face-to-face meeting with the CPD tutors, she shared with her classroom her intention to try the Debate with them and they agreed. Then also the other class teachers and families were informed. The major advantages that students had from this experience are mainly on the social and relational level. Before the Debate the students grouped in homogeneous yet separate groups (the good students, the bad students) whilst afterwards more inclusion and positive interdependence has emerged. In case a High Tech Classroom is available, those advantages can be strengthened. In fact the actual classrooms are so tiny that collaborative settings are very difficult to be arranged. The CPD experience was useful to acquire a deeper awareness of what is needed, that is functional and performant ICTs and digital competences from the side of the teachers. That's why teacher training projects are so important. As for her personal training on active learning with ICTs, in particular on Debate, the teacher appreciated the several face-to-face meetings since she's interested in sharing experiences and in networking with colleagues. On the whole, she thinks that the training has developed her professional competences (both in methodological and technological terms) and nourished her intrinsic motivation. The training represented an occasion to strengthen internal collaboration with her school colleagues. She appreciated visiting other schools and seeing real experiences, spaces and practices of other teachers since she could both touch innovative and interesting activities but also feasible ones and got confident that her school too could start an innovation process..

4.7. Interview with the head teacher

At the end of the school year, on July 2016, an interview to the head teacher was carried out in order to identify the organizational impact of the CPD.

The major outcome is the awareness of the importance of technological innovation at school. Recently, the school has started a process of digitization, by providing wi-fi connection, adopting the school electronic logbook,

providing students with iPads, and creating a High Tech Classroom^{***}.

The CPD project made it even more urgent to have ICTs in everyday lessons and the head teacher thinks active learning through ICTs the only answer to reduce early school leaving and to increase motivation and academic success. In this school, the major problem is rejection, the head teacher said. Thanks to the innovations introduced by the teachers participating in the CPD, students performances have improved. Another outcome was a stronger commitment on teacher in-service training. The head teacher reported to have started a massive teacher training plan so that ICTs can be used in a more informed and fruitful way.

A crucial aspect for the CPD project to succeed was the active involvement of teachers, not only the ones directly participating in the case study. They were free to decide autonomously, according to their experience, which methodology to the trained in and how to implement them in their classrooms.

Finally, the head teacher considers a good teacher-student relationship as a strategic lever since clear communication, truthfulness, reliability and respect are key aspects for ensuring good academic results.

5. Conclusions and Research perspectives

Out of the 22 students attending the school at the beginning of the school year, at the end of it (May, 2016), 20 remained. One student left the school and another one had a deep distress for the loss of a person loved. Some students were less absent. One case is particularly relevant: the student acting as the bad leader changed his behaviour and participated more in the class activities. There is a sort of recovery and at-risk students are improving.

As the teacher reported in the interview and it was observed during the second school visit, the initial demotivation has decreased and a positive change has occurred. In particular, relational aspects and student participation to lesson activities have made progress. This was visible during the Debate performance when students were able to use ICTs and organize the activities. The teacher said there is an improvement in the classroom climate, students are more inclined to learning, ready, engaged, collaborative and autonomous. During the focus group the students said their relationship with teachers is highly important and it has a strong impact on their attitude towards studying and attending school. Together with their family, the relationship with their teachers is

^{***} It is worth mentioning that during the school year 2016-17 - which follows our observation visit - the school has started a digitization process - as promoted by the project - and has created a multimedia room with PCs, IWBs, flexible furniture and a 3D printer. In May 2017, when we met the English teacher once again, she said "This summer I have a lot of work to do!"

the most important factor for a positive disposition to school. Students, as they reported in the Portfolio too, need to count on their teacher as a guide or a facilitator, standing next to them in their educational and academic path.

Both students and their teacher appreciated the Debate practice, which was used during English lessons. The way the Debate was proposed to the classroom was appreciated too, since it was done gradually in a funny way and with the use of ICTs (mainly at home, though).

As for the teacher's experience, she was open to innovation and change and ready to pilot the Debate in her classroom. The fact that she introduced the Debate gradually, facilitating the commitment of the students, was strategic. She involved the other colleagues and the families too and gave the students the chance to improve both in terms of autonomy and engagement. The only negative aspects have been lack of time and poor technological facilities. Given her deep concern and dedication, she was asked to play as a tutor in the following CPD turn, in the school year 2016-17, so that she could share her positive and fruitful experience with others.

As for organizational aspects, the project made it possible for the school to focus on some crucial areas to improve, such as technology, teacher training, school-family and teacher-student relationships. The new institute policy is declared in the Self-Evaluation Plan issued recently.

The results of the first year research activities, with reference to the case study presented in this contribution, are promising. The three more case studies carried out - one in science on the creation of digital contents, one in language and literature using the Flipped classroom methodology, one in maths on the creation of digital contents - that are being analysed seem to confirm these positive feedback. Therefore, research activities and the CDP project on active learning with ICTs will continue as they were much appreciated by all stakeholders (students, teachers, head teacher). In particular, the students taking part in the case study piloted the Debate and appreciated having a central role in the learning design.

In the second year of the CPD project, due to the positive feedback from the participating teachers, the financing authority, the Tuscan Region, asked INDIRE to provide the training to all the 25 Tuscan Technical and Vocational Poles. INDIRE decided to introduce two more innovative methodologies, namely "Coding" and "Study Strategies".

The DigCompOrg international framework [27] for educational organization innovation, will also be considered as a tool for supporting teachers and head teachers in innovating teaching/learning practices, school leadership/governance, and networking.

At the end of the second year of the project (May 2017) a follow-up investigation of the four case studies will be carried out, by using the same protocol as in first year (observation in classroom, focus group with the

students, interview with the teacher and head teachers and administration of standardized tests).

As for the third research year, national and international case studies will be designed.

Acknowledgements.

The authors wish to thank Carlo Beni, data analysis responsible, for his precious contribution.

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