



Enhancing the Sense of Initiative and Entrepreneurship in VET Students: preliminary results

Migliorare lo spirito d'iniziativa e d'impresa negli studenti VET: Risultati preliminari

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ABSTRACT

This paper describes some preliminary outcomes from two formative interventions which are being conducted between Australia and Italy. The research seeks to find which elements trigger entrepreneurship education in Vocational Education and Training (VET). To do so, two small groups of VET students going from school to work experience (either block or once a week) are taking part in the so called Change Laboratories. They are meeting with their work tutors and teachers once a week for two months. The discussion of the problems students are having when transferring from school to work and the presence of different points of view will trigger dialectics. By so doing the participants are finding better and shared ways to improve their learning experience, thus showing initiative and being entrepreneurial. The theoretical framework chosen is the Cultural Historical Activity Theory (CHAT), because it enlarges the unit of analysis to multiple interacting activity systems, as could be the case of VET students going to school and undertaking work experience at the same time.

Questo paper espone alcuni risultati preliminari derivanti da due interventi formativi condotti in Australia e Italia. La ricerca ha come obiettivo l'individuazione di elementi che stimolano l'educazione all'impresa nell'Educazione e Formazione Professionale (VET). A questo scopo, sono presi in considerazione due gruppi di studenti VET che, dalla scuola, passano all'esperienza lavorativa (continua o settimanale) necessaria al completamento del percorso formativo. Questi studenti partecipano ai cosiddetti Change Laboratories. Si tratta di incontri con i tutor professionali che si svolgono una volta a settimana per un totale di due mesi. La dialettica è incentivata dal confronto tra e con gli studenti in fase di transizione, che dà spazio a diversi punti di vista. In questo modo, i partecipanti scoprono modi più efficaci e condivisi che consentono loro di migliorare la loro esperienza di formazione—mostrando, dunque, spirito d'iniziativa d'impresa. Il quadro teorico adottato è quello della Teoria Storico-culturale dell'Attività (CHAT), la quale estende l'unità di analisi a numerosi sistemi in interazione reciproca. Ciò è particolarmente adatto al caso degli studenti VET che si collocano nell'area di transizione tra scuola e mondo del lavoro.

KEYWORDS

Change Laboratory, Boundary Crossing, Vocational Education and Training, Cultural Historical Activity theory (CHAT), sense of initiative and entrepreneurship

Laboratorio del cambiamento, Superamento dei confine, Educazione e formazione professionale, Teoria storico-culturale dell'attività (CHAT), Senso di iniziativa e imprenditorialità

Introduction

This article is about entrepreneurship teaching between school and work experience in VET (Vocational Education and Training). It starts with an introduction to the EU educational framework and the goals of the research in the light of the European Agenda 2020. The methodological framework is then presented. A brief overview of the two cultural contexts within which the project is being conducted – namely Italy and Australia - is presented. The understanding of the different cultural scenarios is important to comprehend the outcomes of the two Change Laboratories, which are described in the following part. The final chapter draws some tentative conclusions.

Europe 2020 is the EU's growth strategy for the coming decade. Among the five targets for the Agenda 2020, one is particularly important: 75% of the population aged between 20 and 64 will have to be employed. One of the subprograms to reach this ambitious goal is "Youth on the Move" (European Commission 2010). According to this document, quality education and training, successful labor market integration and more mobility of young people are keys to unleashing all young people's potential. Moreover, smart and inclusive economic growth depends on actions throughout the lifelong learning system, to develop key competences and quality learning outcomes in line with labor market needs.

Among the eight key competencies for lifelong learning, one stands out for its role to tackle unemployment: the Sense of Initiative and Entrepreneurship. This competence refers to the individual's capacity to turn ideas into action. It includes creativity, innovation, risk-taking, and the ability to plan and manage projects (European Commission 2006).

It has been argued that entrepreneurship has never been as important as it is today (Cedefop 2011). The complex and insecure economic environment requires capabilities for solving new problems through independent and responsive action. Globalization has increased pressures on economies to compete and innovate, leading to a critical need for a vibrant base of entrepreneurs.

It is thought that education for entrepreneurship can be particularly effective in initial Vocational Education and Training, as students are close to entering working life, and self-employment may be a valuable option for them. Although many initiatives have been taken throughout Europe, especially from a bottom-up level, there is also a general perception that there is a gap to be filled in the curricula for vocational education (European Commission 2009). Further, VET students feel there is a mismatch between what they are expected to learn in the curriculum and what they find they need to know as trainees (Young 2001). The links between VET school and workplaces are often weak, and the practical element of entrepreneurship is sometimes missing, according to a report of the European Commission (2009).

This research project seeks to improve the students' competence for lifelong learning called Sense of Initiative and Entrepreneurship. To do so, a study in Australia and Italy is being carried out. Two groups of VET students moving from school to work (either block or weekly work experience) are participating in the so called "Change Laboratory". This type of formative intervention is conducted within the Cultural Historical Activity Theory (CHAT), and aims at triggering social change.

During the Change Laboratories, students meet with their VET teachers and work tutors. The participants discuss salient problems students are having between school and workplace. The different points of view of the participants en-

courages useful discussion, which is also triggered by the so called “mirror materials”. These are stimuli gathered during field research representing disturbances of the activity systems. They may be documents such as graphs and tables; or videos representing regular work activities, or interviews with teachers, students, work tutors or directors. During this phase of analysis of the problem, the historical analysis is also important to understand how the problem has originated and evolved. After this, the participants may start envisioning the future of the activity system, coming out with a solution, and eventually putting it into practice with the necessary adjustments. During this prototypical model of learning action, which is called cycle of expansive learning, “learners learn something that is not yet there” (Engeström & Sannino 2010, 2). To do so, they have to mobilize their agency, thus improving their sense of initiative. Results from the two Change Laboratories, which come from two very different cultural contexts, and their comparison will provide guidance on how to improve entrepreneurship education in VET.

1. Methodological framework

The arguments for this research are largely located within the explanatory framework of CHAT. There are reasons for this. First of all, CHAT does not restrict the focus of action on the individual, but the on the system of activity, its rules, community, division of labor, tools (Engeström & Sannino 2010). Action is seen as object oriented, thus imbued with purpose. The Third generation of Activity Theory expands its objects to multiple interacting systems of activity, as it could be the case for VET education, where school and workplace cooperate on a mutual object, and the learning outcomes of the students.

As a consequence, Engeström, Engeström, and Karkkainen (1995) argue for a horizontal dimension of competence, where practitioners operate in and move between multiple parallel activity contexts. Experts move across boundaries to seek and give help, to find information and tools wherever they happen to be available, as could be the case of VET students undertaking work experience. One could note continuity between this definition of expertise and the definition of sense of initiative - turning ideas into action.

The basic tool of the Change Laboratory is a 3x3 set of surfaces for representing the work activity. The horizontal dimension of the surfaces represents different levels of abstraction and theoretical generalization, whereas the vertical stands for movement in time, between the past, present, and future (Engeström, Virkkunen, Helle, Pihlaja, & Poikela 1996).

The two main epistemological principles used in the Change Laboratory are the double stimulation and ascending from the abstract to the concrete (Sannino 2011). In double stimulation the subject transforms an initially meaningless situation into one with a clear meaning. This process is considered to be the principle behind the genesis of will and agency. In this process, the first stimulus is the problem itself. The second stimulus could be another stimulus provided by the researcher (such as the triangle of Engeström representing the activity system(s) and their multiple interactions) which could be turned into a sign and mediate the resolution of the controversial problem. In the second principle, ascending from abstract to concrete, a new idea or concept is initially produced in the form of an abstract and simple relationship, a germ cell. This abstraction is then progressively enriched and transformed into a concrete system of multiple and constantly developing manifestations (Engeström & Sannino, 2010). In the

Change Laboratory, this principle triggers the concept formation to generate a shared solution of the conflictual problem.

A variation of the Change Laboratory is the so called Boundary Crossing Laboratory, where representatives of the two interacting activity systems meet (Engeström & Sannino 2010). A possible outcome of the Change Laboratory are the so called shared objects which would represent shared mental concepts. As a matter of fact, in formative intervention, the key implication of transformation of practice as concept formation is that the analyst needs to find traces of concept formation (Engeström 2011). They could take the form of banners or presentations, and would represent the shared view of the conflictual problem and its solution.

Putting the Change Laboratory into practice, during the meetings the students with their teachers and work tutors discuss problems relevant to them. They might be connected to their curriculum, or stem from their relationships with tutors and teachers, or the lack of ties between school and work. These discussions would secure active participation and agency. By so doing, the students should improve their sense of initiative and entrepreneurship, and be creative in committing for improvements (that is, learning actions) in both school and work.

2. The two settings of the empirical research: cultural differences and meaning of the stage

In order to find which elements characterize most the competence of entrepreneurship between school and work, the project is being implemented in two very different contexts. The first setting is the Italian one. As the educational policies are converging in the European Union, we were looking for a completely different context where the European practices could stand out. That is why the state of Victoria in Australia was chosen as a comparative context from which to draw analogies and differences.

In order to better understand the meaning of work experience and compare the two settings, some data should be highlighted.

First of all, Europe and particularly Italy are suffering from an economic slump – Italian GDP is predicted to dip by 2.6% in 2012. The Italian part of research has been carried out in Lombardy, one of the richest and most productive regions. The city chosen was Mantua, which is outside Milan's urban area. According to Istat, in 2012, unemployment in Lombardy is rising by 7.4 % against Italy 9.4 % and the E.U. 11.3 %. However, data for young people is even worse: in Italy, 36% of boys and girls from 15 to 24 years old are looking for a job, more than one in three. As a consequence, many young people in Italy are pessimistic about the future, and think that no matter what they study, it will be hard for them to find a job once they have completed their degree. By contrast, the economic situation in Australia is fairly different. Australian GDP is expected to rocket by 3.8% in 2012. The city chosen for the research was Sydenham, a small suburb within Melbourne's urban area. According to the Australian bureau of statistics, the unemployment rate in the state of Victoria is 5.5%, while the average in Australia is 5.1 %. Moreover, the unemployment figures for young people in Victoria are more encouraging compared to the Italian ones: only 10.2% of the males and 7.4% of the females aged 20 to 24 are unemployed.

Secondly, education is delivered diversely. In Australia, there is only one stream in high schools, and a student needs to get their VCE (Victorian Certificate of Education, a sort of high school certificate) to enroll on a University course. Some vocational education is provided in schools for those students

who have difficulty in course subjects (such as English, mathematics or sciences), which are needed to get a VCE. VET in school is thus seen as a medium to retain low achieving students in the school system. Further, to a certain extent for some jobs such as brick laying or child care, a young person can get a qualification just by working, without getting a VCE. However, getting a qualification just by working would not be possible in Italy. Although there are different high school streams in Italy from the most theoretical to the most practical, to a certain extent, no matter what stream they are in, it is possible for students to get their high school degree needed to enroll on a University course.

Thirdly, also the length and the functions with which work experience is delivered are different. In Italy, short and mandatory block work experience is usually pursued during either high school or university, while voluntary longer ones are carried out afterwards. While the former is considered to have only an orienting function, to see whether a kind of occupation might be suitable for a student, the latter is used to build up the skills needed by the industry. Sometimes long work experience is perceived by companies just as a mean to lower the cost of labor rather than being a real chance to take on workers they need. For example, it is not rare that students are exploited and used at the copying machine. Since 2005, the so called new form of work experience "alternation between school and work" has been made available in Italy. Young people between 15 and 18 can alternate periods of study and work. This system is expected to enhance the knowledge as well as the skills needed by the labor market. Such alternation has been used in the Italian part of this project.

In Australia, companies are skeptical about work experience and do not take on students, as they think that schools should prepare students for work. To overcome this problem, schools have been funded by the government to build trade training centers - sort of workshops where students learn by doing. Those centers "reproduce" to some extent the relative work environment, and train students in crafts such as bricklaying, plumbing and hospitality. By so doing, schools provide certificate II (sometimes III) to their students. However, a certificate II is considered only as entry level for the relative crafts, and further training is needed to enhance their employability. Moreover, for some professions, such as the helping professions, modeling a real work environment would prove to be difficult. Hence, the government pays both companies and students to engage in work experience. This is why work experience in some courses is offered in certificate III once or more a week rather than block throughout the school year. Certificate III has to have a certain component of industry placement, and is the basics to get a job in Australia. A certificate IV or a diploma is becoming necessary to be employable; such qualifications are generally issued by TAFEs (technical and further education), institutions providing a wide range of predominantly vocational tertiary education courses.

Thirdly, Italian students are not generally used to working when they are studying. Only a minority get a job while studying at the University. Many parents pay for their children's study, and tuition fees are low. By contrast, many students in Australia work while studying to afford their tuition fees which are very high compared to Europe. Students in Australia often get a job during high school, for example as waiters or cashiers.

As a consequence of the points listed above, work experience is perceived differently by Italian and Australian students. The former see it as a necessary experience to be put on the C.V. to enhance their employability, hoping to find a job once the economic crisis will have finished. The latter think they do not need it on their C.V., as they want to receive a compensation when they work.

3. Description of the research

The protocol used during the experiment is the following. Observant participation in the classes participating in the project was done for at least two months before the Change Laboratories. By so doing, the researcher tried to understand the problems students are facing when at school. Some videos such as interviews with students who had already completed their work experience, were taken to be used as mirror materials. During students' work experience, the researcher went to the facilities where the students were working to visit and gather data. Some interviews with the facilities managers, work tutors and teachers, were carried out to gather possible mirror materials. The researcher questioned the interviewed subjects to find which problems the students are having during their work experience. The most relevant materials, i.e. the ones that according to the researcher might trigger discussion, were used during the Change Laboratories as mirror materials. Also videos of students carrying out their relative duties in their work experience were made and shown during the Change Laboratories as mirror materials.

A questionnaire on entrepreneurship was taken as baseline at the beginning of the laboratories. This questionnaire is based on the European competence of the sense of initiative and entrepreneurship, and considers the knowledge, skills and attitudes connected to it. In one setting, the results were also shown as mirror materials. A final questionnaire on entrepreneurship will be administered at the end of the research. This questionnaire will be identical to the first one, in addition it will ask the students to think about the contexts of expression of the knowledge, skills and attitudes connected to this competence. Comparison between the initial and final questionnaires should make it possible to draw conclusions on the efficacy of the Change Laboratory to enhance entrepreneurship. No transcription of the meetings and consequent analysis of the conversation is expected in this doctoral dissertation. Another source of data, though, may be the analysis of the banner made by students seen as shared mental objects.

The groups are meeting in the schools once a week for one hour and a half. During the first meeting, the triangle of Engeström is shown as a way to analyze work and school activities, and then explained with examples. In the following lessons the two interacting activity systems are discussed to illustrate connections between school and work. When deemed appropriate, if a problem or a solution is proposed during the Change Laboratories, the researcher suggests contextualizing it in the light of the triangle and the system of activity, i.e.: the instruments, the rules, the division of labor and the community. However, the participants are never forced to use this method. The cycle of expansive learning is also illustrated to show that the group is still analyzing and questioning the present situation, and to show that hopefully, sooner or later, the group may come up with a solution to the problems shown by the mirror materials. Short videos showings interviews or students working are used as mirror materials, as well as tables, pictures, and graphs.

The researcher prepares the contents of the Change Laboratories in advance. All the meetings are both video and audio recorded. The researcher listens to them and takes notes before the following meeting. Some mirror materials (mostly interviews) are prepared beforehand to be projected on the whiteboard, and a Power Point slide is prepared with the bullets of the topic(s) of the day.

The Change Laboratory session starts with a summary of the previous lesson and an agenda with the topics of the day or mirror materials that will be used in the current session. The researcher tries not to intervene too much, only encour-

aging the students, the teachers and the work tutors to actively participate in the debate. The point of view of the participants is always respected. The researcher tries to create an informal atmosphere during the meetings, he is friendly with the students and encourages them to express their concerns and problems so as to find a shared solution.

Throughout the lessons, the student group has been encouraged to summarize the lesson or to symbolize the problem in the form of a diagram with banner and markers, with the aim of encouraging the creation of shared mental objects that could be analyzed afterwards. Furthermore, banners are used in the following lesson to summarize the content of the previous one, thus giving a sense of continuity to the weekly meetings.

The main surface used is the central one where the researcher shows videos and slides. The presentation it keeps tracks of all the previous meetings as if it was a diary. Moving to the other surfaces, in the Australian part of the project they are not available, and are substituted by photocopies of the triangle or the cycle of expansive learning. In the Italian setting two surfaces are available, and used primarily to take notes about what is being discussed, and to summarize the lesson or the concept. In both settings, the banners are turned into .jpg pictures and then made into slides.

3.1. The Change Laboratory in Australia

This sums up the part of the research conducted in Melbourne (Australia). The research started in March 2012 and ended in August 2012, although one or two follow-up Change Laboratories are expected in November 2012. The research is taking place at the Sydenham Catholic Regional College, located 30 km North-West of Melbourne. This high school has approximately 1,000 students, and it is placed in a neighborhood inhabited by blue collar workers and people considered socially disadvantaged. That is why the Sydenham Catholic College provides a wide range of vocational courses, and also has a trade training center running vocational courses (mostly certificate II and III) such as hospitality, baking, signs and picture framing. The college is part of a wider network of Catholic Regional Colleges, so students come to Sydenham from other schools to attend their vocational training, while some students in Sydenham go to other Catholic Regional Colleges to attend courses not provided at Sydenham such as hair dressing or bricklaying.

A suitable course for the research was a Certificate III in Child Care; this course prepares an assistant kindergarten teacher, and is partially subsidized by the Victorian government. The class was composed initially of 19 female students aged 17-18 from the network of the Regional Catholic Colleges plus other schools in the district. A few students have withdrawn their participation during the school year, and, at the end of August 2012 only 14 remained. The Certificate III in Child Care is a part time course provided two days a week over a school year: on Tuesdays the students go to school, and on another day they go for their work experience in a kindergarten. The actual training is provided by an external organization (TRY Australia) which also provides for the work placement, generally two different places over the year so students can learn with children with different ages: babies, toddlers and infants. Even though the child care centers are subsidized by the Victorian government to take students, finding a placement is difficult, only one student out of the 19 was able to find a placement on her own. This is why TRY provides both for the training and the work placement.

The participant observation started in April 2012 before the project was introduced to the students. The class is rather heterogeneous, as the students are sent by other schools from the district; some of them have also learning disabilities. There are issues of participation in the course, some students do not take part actively in the lesson and are often noisy, playing with their smart phones. It seems that not every student is willing or happy to be there; some were sent by their parents and others by their English teacher, as a vocational path was suggested as the only one suitable for them. Further, some students started the course some weeks after the beginning. As a result, the students do not know each other, there is a general diffidence, and the atmosphere is sometimes tense. For various reasons there have been four different teachers over the school year.

The project was introduced to the students in June 2012, and only 5 of them decided to take part in it. The scarce participation in the research may be due to the fact that most of the students looked at it as another burden besides homework, and only few saw the opportunity to learn to be more competent. Moreover, while in the Italian context the students involved in the research were given the chance to undertake a long work experience, the Australian students were only promised a certificate of participation. As the kindergartens were scattered around the district and the research was not funded, no work tutor could afford to come over during the meetings. Nevertheless, the work tutors' opinions was made available through the mirror materials, as the researcher visited the kindergartens where the students were working, and interviewed the personnel (kindergarten teachers and directors) to learn about the problems of having young students working in their child care facility.

At the meetings the five students, TRY teacher and coordinator, representatives from the Sydenham Catholic College, namely the career counselor and the person responsible for the VET training were present. As flesh and blood representatives from the different activity systems were lacking, it could be said that in the Australian context a Change Laboratory took place rather than a boundary crossing laboratory.

In the first meeting, the triangle of Engeström was explained as an analytical tool to analyze the system of activities of work and school. The questionnaire on entrepreneurship was given to the students with the mediation of the career counselor. As the laboratories were taking place before lunch time during the regular lessons, the students asked the teacher to make up the time with group work.

During the second workshop, the researcher showed the girls a table with the changes that the course in child care will undergo from next year. In order to contrast the lack of motivation of some students, starting from next year prior to the enrollment, an interview, some work experience and an orientation day for the parents will be mandatory. Even though this decision had been already taken few days before when representatives of the various colleges and TRY met, the students taking part in the Change Laboratory were asked their opinion. The students agreed that something had to be done the following year to select more motivated students. Furthermore, they were happy to be asked their opinion, and said that the measures appeared reasonable. At the same meeting, the teacher learnt more about the Change Laboratory, and was so enthusiastic and decided to attend the following two meetings, although this would be on maternity leave by then.

In the third Change Laboratory, the topic of the discussion moved from how the Certificate III in Child Care will change next year to how the participants could continue their experience in child care the following year (2013). Generally speaking, all the girls in the workshop would like to continue studying the same subject and enroll on certificate IV. The problem is that some of them will

not be 18 years old by that time, and a certificate IV would not count as Vocational Education in school. The Sydenham Catholic College and TRY committed to try to find a solution to this problem. Next, a video showing the interview of a girl's work tutor was used as mirror material. The participants discussed the role of motivation in their work as the work tutor said in the recorded interview "you have to be willing to be there if you want to become a good teacher". They agreed that an individual has to be born with the necessary traits to be a good kindergarten teacher ("a good teacher has to love children"), but this disposition has to be nurtured by both study and practice.

During the fourth session an interview of a kindergarten director was used as mirror material. The discussion was about whether the childcare facility's directors should have the right to choose which girls should get into the child care program. It was agreed that, although a director can choose whether a student is suitable or not to work in their center, it is not their right to decide if she can be enrolled on the course. In this same session, the teacher who was about to leave go on pregnancy leave asked for feedback about the booklet of competence. This is a set of forms that the students have to fill in for homework, and it also has to be filled in by their work tutors. Eventually, the booklet has to be returned to the teacher for the final evaluation (competence achievement). The students argued that sometimes the language is too difficult both for them and the work tutors. It was decided that students must take the initiative to give the booklet to their work tutor on a regular basis.

In the fifth session the students discovered that the current teacher, their third, was only temporary, and from the next lesson there would have yet another teacher. This caused some concern among the girls, who did not like the idea of a new teacher who knew nothing about them. With the help of the career counselor they brainstormed, and prepared a banner to explain to the new teacher and coordinator what a perfect teacher in child care should be like (e.g. a good communicator, nurturing, have clear expectations and able to understand the different individual's needs).

In the sixth session the new teacher (the fourth one) was invited to participate. She was shown by the girls how a perfect teacher should be with the help of the banner they had prepared at the previous session. The new teacher, who was also the course coordinator, was happy about this initiative, and said that she would be eager to receive other feedback and suggestions. During the second part of the sixth and the seventh meetings another video from a kindergarten director was shown as mirror material. The director said that she would not be keen to hire any of these students as they are not there at 7 20 am when the childcare center opens but arrive at 9, and leave at 3 30 pm well before the centre closes at 6.30 pm. This causes a problem for the director, as in her opinion "they are part of the (adult/child) ratio". The students were very surprised to hear this and the interview triggered much discussion and anger. The debate was about the following dilemma: "are the girls students or workers in the workplace?" To address this problem they prepared a banner together with the career counselor with the reciprocal expectations, which was to be shown to the coordinator of the course.

3.2 The Boundary Crossing Laboratory in Italy

This part sums up the first five boundary crossing sessions of the Italian part of the research. At the time of writing, the project is still ongoing, and five more workshops are expected to take place over the next few weeks. In Italy the re-

search is being carried out in a technical institute for building surveyors of 500 students in Mantua, a city of 50,000 inhabitants located 130 km east of Milan. At the end of 2011, two 4th grade high school classes were nominated to participate in the project by their school director. Then the project was approved by the boards of class teachers and presented to the parents and the students.

The project was introduced as a two months' period of block work experience for the students at the beginning of grade 5. Contemporaneously, the students, their teachers of technical subjects and their work tutors would meet once a week during the block work experience in the so called Boundary Crossing Laboratories to enhance the students' competence. The parents and the students immediately realized that the project would be an important experience to enhance the students' employability as most of those students hope to start work after their completing their high school diploma and not go on to university. It was also made clear that only 12 out of the 40 students present in the two classes could participate in the project. The others would start the 5th grade normally, and undertake a regular two weeks' block work experience.

In January and February 2012 the researcher started conducting the participant observation in the two classes involved in the research to learn more about their problems. In this institute, a mandatory two weeks' block work experience for the students has been already running for 20 years during grade 4. This has been found to be the best compromise between the students' technical preparation and the need to leave the fifth year for the state exam as well as the class trip. Generally speaking, the students are happy with this system. However, while the school representatives think that working two weeks in a company could be just for career guidance to see whether surveying might be the right job for the student, some students claim that "in two weeks' work experience they had learnt more than in two years' study", and that the school does not prepare them enough for a job as a surveyor. Furthermore, while the fact that the students have to look for their own placement enhances their sense of initiative it has led some extent to a lack of contact between the school and the local building companies.

This data gathered during the observant participation was important to understand where the problems stem from and how to improve the school's training scheme. There appeared to be an understanding from the students, the teachers and the business world that work experience could be improved. That is why the Change Laboratory has representatives from the world of work, teachers of technical subjects, the students, plus the school principle. In other words, as there are representatives from the activity systems of the businesses and the school, this Change Laboratory is configured as a boundary crossing laboratory, the main goal being to enhance the practice of work experience.

Returning to the research project, it was agreed that in the two classes the long block work experience would be postponed to the beginning of the fifth year, at the end of summer 2012. Further, the students taking part in the project should start their two months' work experience at least 2 weeks before the beginning of the academic year, so as not to lose too much of the school year. At the same time, postponing the block work experience until the fifth year would mean having more time for technical subjects in the 4th year, so the students would be more prepared for work. Unfortunately, this could not happen as the 2011-2012 school year finished a few weeks early because of earthquakes. As can be imagined, this project has represented a big organizational challenge for the school.

The "alternation school and work project" started regularly at the end of August 2012, and 13 students started their two months' work experience. Four different placements were found for them by the school. Two of the employers are lo-

cal building companies, while the third and the fourth are two different branches of the local government (province of Mantua); one deals with the road system and the other is about the maintenance of public constructions. Once a week the students, two of their teachers of construction, two out of the four work tutors (as they rotate), the deputy head and the researcher meet in the school for a boundary crossing laboratory. Generally speaking, during the workshops there is a good atmosphere with a good contribution from the work tutors explaining their point of view while the students listen, participate and ask questions.

In the first meeting, the researcher met only the 13 students involved in the project and the school head. The school head summarized the rules and what was expected from the students. The researcher administered the questionnaire on entrepreneurship and explained the triangle of Engeström as an analytical tool to understand school or work activity. Furthermore, as an exercise, the students represented the company where they are doing their work experience according to the triangle.

In the second workshop, a group of students complained about the lack of supervision in their work placement. It was agreed that it is up to the students to show initiative and to ask to be supervised better by their tutor. Next, the researcher showed some videos as mirror materials. One depicted four of the students taking measurements on a building site; another was an interview with the building site manager, who complained about the lack of technical preparation of the students. These two videos caused the participants reflect that they were not completely ready to work as surveyors. This is also because some topics are taught during grade 5. At the same time, it is important to understand that the school has to prepare the students how to quickly learn the technical skills that have to be learnt in the field. At this time the term “absorption time” was used to indicate that every student has their own time to learn skills in the field. Although some of the work tutors complained about the students’ technical preparation, all of them agreed that the students take the initiative, they are motivated, ask questions, are ready to learn and do it quickly. At the end of the workshop, one teacher congratulated the researcher on this methodology used during the workshop.

In the third meeting, the students explained the banner they had prepared the previous time summarizing the previous session. After that, data from the initial questionnaire on entrepreneurship acted as mirror materials. It was clear that the opinion of teachers, students and work tutors on the students’ knowledge, skills and attitudes connected with entrepreneurship often diverge. Two conclusions emerged in the discussion. Firstly, teachers have a better perception of the students’ abilities than the students themselves, who often tend to underestimate their skills. Secondly, one class seemed to have more real self perception. This was probably connected with the practice of evaluation as in this class, the teacher asks the students to self-evaluate and justify their performance before giving them his mark. A second mirror material depicted another group of students visiting a building site and assisting their tutor to evaluate and negotiate the outcome of the work conducted by a group of workers. The same tutor was participating in the boundary crossing meeting, and explained what he was doing and why he was doing it. The importance of the visits to the building sites as essential for the students’ training was stressed. Those visits were defined as “laboratory of experience that has to be lived in the first person” and videos of it used as training materials during the lessons would probably be of no use.

The fourth laboratory was intended by the researcher to start tackling the work experience in school from a historical point of view. With this aim, a video with a short work experience, and an interview of a student who had undertak-

en a short work experience were projected as mirror materials. The group preferred to stay in the present, and pointed out how undertaking a work experience in small groups has pros and cons. Sometimes it is better to work in groups, as teamwork is an essential ability in the world of work, but a possible drawback is that one thinks s/he has understood how to carry out a task, while s/he is not able to do it by her/his own. The issue of the lack preparation of students came up once again. One teacher underlined that for students it is better to have the basics rather than specific skills ("The school has to aim at opening the student's mind"). Another discussion was whether to observe in the building site is to participate or not in the activity. The students agreed that when they observe they still learn and they are also part of the community.

The fifth meeting tried to untangle a problem that had started emerging in the previous meeting. It seems that some of their teachers in their regular classes are continuing with the program. The students participating in the project are afraid they might not be able to catch up. During the presentation of the project in November 2011, they were told that the rest of their classes would wait for their return before dealing with new topics. Instead, some of the teachers are explaining new topics. This is partially because the 2011/2012 school year finished earlier because of the earthquakes. The teachers taking part in the meetings tried to reassure them, but were vague about the measures to be taken. They said that the students should concentrate on their present experience and encouraged the students to be proactive. For example, when having a problem, a student should go to their work tutor and introduce the issue together with a proposal of a solution.

Conclusions

While the Change Laboratories are continuing, and the final questionnaire will shed light on the students' improved sense of initiative and entrepreneurship, some tentative conclusions might be made.

Firstly, in both settings students and teachers are happy to participate in the meetings. In Australia, students in the Change Laboratory said that every student should be given the chance to express their suggestions about the course they are enrolled on. TRY is glad to participate in the experience, and sees it as a way to improve its training courses. Also the school representatives in Sydenham are happy, as they could get more involved in the Child Care course provided by TRY. In fact, the high turnover of teachers is a concern. In Italy, the atmosphere during the meetings has been positive so far, the students listen carefully to the interactions and are intervening more and more. Overall, they are aware that this will represent an important experience to enhance their employability. The teachers are also happy because they feel it gives the students to reflect on the meaning of work experience and their overall studies. In addition, teachers have invited their colleagues to the workshops. The work tutors are increasing their participation; some of them are coming every week instead of once every fortnight as agreed at the beginning. They bring their experience which contributes to the debate. One of them said that only by participating in the Change Laboratory did he understand how the school world differed from the business world.

Secondly, both in Italy and Australia, the discussion of the problem the students are having between school to work together with the meetings of representatives from both the activity systems are strengthening the ties between school and work. Moreover, it could be said that students are becoming real

boundary crossers. According to the European Commission (2009), to strengthen the ties between school and work is an essential condition to improve entrepreneurship education. In other words, such increased relationships will be of benefit not only to the participants, but for all the students of the institutes involved in the research.

Thirdly, it seems that students in both settings are improving their sense of initiative, even though in different ways. In Australia, where relationships are more horizontal and informal, the teachers are younger and the group of students is smaller, the students can really have ideas and put them into action. This is demonstrated by the students presenting to TRY's course supervisor the two banners of the perfect teacher and the mutual expectations. In Italy, where the group is larger, the relationship is more hierarchical and the teachers participating in the workshops have been teaching for about 25 years, students are timidly showing initiative in the form of interventions in the debate. However, they sometimes challenge their teachers, and in the workplaces, they ask questions and are becoming more proactive, as they know that by showing initiative they increase their chances to learn and to find a job in the future.

Fourth, as in both contexts the activity systems are not facing a major transformation, it is clear that an impressive cycle of expansive learning cannot be expected. Owing to the fact that there is no major problem to face, there is sometimes a lack of focus. As a consequence, it is difficult to give continuity to the meetings, as different topics are discussed every time. It is also hard for the Italian group to think about the ideal work experience and thus share a vision. Nevertheless, some topics, such as the initiative of the students in both school and work appear cyclically. However, the researcher is registering the many small cycles of expansive learning happening during the meetings. Examples of them are, the Australian students asked to work in a group to make up the school lessons, and the Italian had the idea to use this work experience to write their thesis for the state exam at the end of this school year.

In this research it is claimed that the Change Laboratory in VET brings three orders of benefits. First, the agency embedded in the laboratory boosts the students' sense of initiative and participation. Next, the workshop improves the skills concerned with the sense of initiative and entrepreneurship, such as teamwork, project management and creativity. Finally, the changes induced by a cycle of expansive learning (triggered by the Laboratory) are more likely to be sustainable in the local setting over long periods. The Change Laboratory within the Cultural Historical Activity Theory may enhance VET students' entrepreneurial mindset, thus contributing to match the educational goals in terms of skilled workforce set by the initiative Youth on the Move within the European Agenda for 2020.

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