



UNIONE EUROPEA  
Fondo Sociale Europeo



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Freie Universität Bozen  
Libera Università di Bolzano  
Università Liedia de Bulsan

## Attachment n. 5

<b>Name of PhD Programme</b>	<b>General Pedagogy, Social Pedagogy, General Didactics and Disciplinary Didactics</b>
<b>Cycle</b>	37.
<b>Sector</b>	FIS/08, M-PSI/04, SECS-P/02, M-EDF/01, M-PED/03, M-PED/01, M-DEA/01, SPS/09
<b>Duration</b>	3 years
<b>Faculty</b>	Education
<b>webpage</b>	<a href="https://www.unibz.it/en/faculties/education/phd-in-general-pedagogy-social-pedagogy-didactics/">https://www.unibz.it/en/faculties/education/phd-in-general-pedagogy-social-pedagogy-didactics/</a>
<b>Coordinator</b>	Prof. Giulia Cavrini
<b>Topics Innovation</b>	<p><b>Building blocks as visuo-spatial skills training for an innovative investment on human capital.</b></p> <p>M-PSI/04, SECS-P/02</p> <p><u>Abstract:</u> Basic and transversal skills like memory, attention, imagery and creativity contribute to foster the development of human capital across many subjects (Lowrie, Logan &amp; Ramful, 2016; Burggraaf et al., 2021). Among these, the visuo-spatial skills are the most likely to be present in the school agenda (Attanasio, 2015). As such, it has been suggested that visuo-spatial skills should be included in modern talent searches to better identify adolescents with potential for science, technology, engineering, and mathematics education (STEM), who are currently being missed (Wai et al., 2009). While at present lot of effort is devoted to study various features of STEM education, this aspect is less well understood.</p> <p>Moreover, these skills are malleable and responsive to training and investment, especially during early childhood (Heckman, 2006) and can be developed especially among groups at risk of low achievement, often rooted on gender stereotypes. Indeed, traditional gender roles that give rise to social biases may result in child rearing practices that support spatial skills development more in males than in females (Bing, 1963) and in the types of spatial development toys and games marketed primarily to boys rather than girls (Cherney &amp; London, 2006). These stereotypes may then hinder the participation of female students to the innovation in the STEM area (Carlana, 2019), depriving the society of a relevant part of the human capital.</p> <p>The core of the project is to create a cost-effective, replicable, and sustainable intervention which can help primary school teachers in structuring and consolidating their practices for developing visuo-spatial skills, especially among girls at early grades. The innovative aspect of such approach is two-fold:</p> <ol style="list-style-type: none"> <li>1) First, it consists in the use of simple building blocks produced by the ARTEC © company, based in Japan. The intervention based on the ARTEC© block is aimed at improving the learning potential of primary school children, and will consist of 40 hours, designed to be easily integrated into the standard teaching curriculum and being offered directly by the teacher.</li> <li>2) Secondly, the intervention will offer the possibility on the one hand to play and learn with the manipulatives and, on the other hand, to ideate, plan and verify solutions to problems proposed by an APP designed to simulate the blocks, using 3D-based scenarios and augmented reality.</li> </ol>

	<p>The project will be implemented in primary school classrooms and evaluated through a battery of cognitive tests and tasks, measuring its impact on teachers' beliefs and children's skills. This project will answer several questions: What are the returns of a scalable and transferable teacher-training intervention on visuo-spatial skills? Is the training suitable to mitigate the gap generated by gender stereotypes in STEM? Which age is more suitable to profit from the intervention? The project will be implemented in every grade of the primary school and will adopt a longitudinal design for a pre- and post- evaluation as well as two follow-up sessions, one and two years after the completion of the intervention, within the duration of a PhD program.</p> <p><b>Smart testing of physical activity and physical fitness.</b></p> <p>M-EDF/01  <u>Abstract:</u>  Smart products, apps, processes and services promise to make everyday life easier, more comfortable, productive and accessible. They open up new research and business perspectives for an economy of IoT products and services. Within this new "market", developing, implementing and testing workable solutions for monitoring individual lifestyle represents, at the same time, a promising business opportunity and a challenging direction for applied research.</p> <p>In particular, the measurement of physical activity quantity and quality and of physical fitness are of great relevance to inspire actions, at the individual and the collective levels, to counteract the continuous increase of physical inactivity and what has been recently called the "pandemic of sedentarism". Plenty of studies demonstrate that physical activity is one of the main determinants of health and wellbeing, whereas other recent studies report that both cardiorespiratory fitness and muscular fitness in young people can predict future chronic and severe diseases.</p> <p>Physical activity and physical fitness are complex phenomena and at today there are no single widely recognized measures, nor clear measurement procedures. Moreover, it is necessary to consider that there are different types of physical activity and modalities of practice and various segmentations of physical fitness, like, for example, health-related fitness and performance-related fitness.</p> <p>The present project aims to implement and test the reliability, usability and effectiveness of existing wearable smart products, apps and web platforms, which provide information on individual lifestyle, i.e. physical activity and inactivity times and individual motor performance (fitness testing). Two distinct phases of investigation are planned: (a) a comparative analysis of big data on lifestyle, available from the partner company, and of youth physical fitness values, available from the ongoing Erasmus+ Sport FitBack project; and (b) based on the results of the previous study, a randomized trial comparing the usability and the effects of different products (app and smart devices) and solutions (web platforms reporting reference values for physical fitness) on users' individual behaviours.</p> <p>The proposed project will also assist the efforts of achieving the Sustainable Development Goals, especially those related to health and well-being. Monitoring physical activity and physical fitness will be important in designing effective policies and interventions for the prevention of non-communicable diseases and for the improvement of individual and social wellbeing and health.</p>
<p><b>Topics Green</b></p>	<p><b>STEM4GREEN: Interdisciplinary approach to science in school for promoting education in environmental sustainability.</b></p> <p>FIS/08  <u>Abstract:</u>  The evolution towards a sustainable world in which resources, especially energy resources, and actions are respectful of the environment cannot take place if it is not supported from the educational point of view. The school is the primary subject for this evolution, ensuring that new generations grow up with awareness and appropriate habits. Educational research focuses especially on disciplinary teaching, often forgetting the importance of interdisciplinarity. Sustainability is certainly a challenge to be supported by thinking of scientific disciplines as interconnected and interdependent in dealing with complex processes such as environmental ones, related to energy. Interesting, in this sense, can be the "emergetic" theory, proposed by D. Scienveman and H.T. Odum.</p> <p>First and foremost, it is necessary that educational research be transversal to scientific disciplines and that it incorporate ecological and environmental perspectives that can no longer be renounced. This research must be able to propose to school new working paths for the development of a new active and aware citizenship.</p> <p>The most important school level in this is the lowest one, in which pupils face the knowledge of the world (elementary school) and orient their future (secondary school). It is urgent that</p>

educational research focuses on interdisciplinary scientific topics and paths on energy and environmental sustainability for the age group 5-14, making synergy with the many efforts and best practices at the international level and especially encouraging the promotion of new initiatives in this sense.

UNIBZ has recently concluded the European project FCHgo (PI for UNIBZ was Federico Corni, originally the general PI of the project at UNIMORE), for the dissemination in schools (age group 8-18) of the culture of hydrogen as a carbon-free and combustion-free energy carrier, therefore respectful of the environment, which has laid the foundations for an effective and suitable education for children starting from teacher training and the provision of innovative materials such as animated stories, dramatizations, card games and role-playing, stories, as well as experiments, video documentaries, lesson plans, etc.. The STEM4GREEN project intends to take advantage of the experience and results of FCHgo and the effective collaboration that FCHgo has created between the partners, in particular with INEUROPA, to develop in schools the culture of environmental sustainability and environmentally friendly energy, taking into account the whole chain of processes and all the factors involved. In concrete terms, the collaboration with INEUROPA has recently allowed to develop an Erasmus plus project of cooperation in the field of higher education "e<sup>4</sup> - higher Educational tools for an Embodied & creative Education on Energy" which aims to create a structured path for teacher training on the issues covered by this proposal.

### **Educational Environments with Nature; a research on the improvement of creative learning, wellbeing and nature bonding in indoor spaces with plants.**

M-PED/03

#### Abstract:

Eden is an acronym that stands for Educational Environments with Nature. The project aims to investigate the possibility of improving teaching and creative learning of teachers and students, to develop the sense of well-being perceived in educational spaces and to improve the nature bond, through the presence of indoor plants in the learning environments.

The research "Clever Classroom" by Peter Barret, shows that learning improves up to 16% if the environment meets three conditions; naturalness (light, air, correct temperature and ability to emulate natural environments); stimulation (differentiation of spatial settings, objects, materials, etc.) and individualization (i.e., the ability to choose the most appropriate places to study and work, as well as to mark the space). The study shows that design comfort conditions that emulate natural conditions (air quality, lighting, temperature, materials, direct or indirect relationship with green areas) account for 51% of the overall figure, and that for the remaining 41%, experiencing well-being in a place seems to be guaranteed by the possibility of personalizing the space and making it as "stimulating" as possible.

Quantitative research reviewed by Raith and Lude in "Startkapital Natur" (2014) shows that nature has an effect on the mental (well-being, self-esteem, learning), social (interpersonal skills, play behavior, creativity) and physical (health, movement) development of children. In addition, the presence and care of plants appears to have an effect on environmental awareness (connection to nature, knowledge, interaction, and care skills) and sustainability education (encounter with plants and active awareness of the 2030 Agenda goals). This is confirmed by several other studies (Najafi & Keshmiri 2018, Kuo 2019, Aydogan & Cerone 2020) with benefits not only for humidification and air exchange in environments, but also for promoting attention and concentration in addition to a widespread sense of perceived well-being (Han, 2009, Mancuso 2017, Faber Taylor et al. 2011).

The research, in the face of the implementation of two green classrooms (set up with 100 plants for the 100 students that due to the pandemic could not all enter the rooms) at the Faculty of Education of the Free University of Bolzano already in November 2020 and with the incipient setting up of a green classroom at the Department of Education and Training of the University SUPSI in Locarno (CH) intends to explore the effects of such installations in order to three trajectories:

1) Issues related to the educational relationship: type of didactics experienced, possible development of a laboratory, sensory and creative learning, enhancement of exploratory and manipulative activities, improvement of concentration and attention levels even during activities not expressly related to the treatment of plants.

2) Issues related to the appropriation of school spaces: improvement of the aesthetic quality of environments thanks to plants; clearer connotation of spaces for cooperation and laboratory activities; enhancement of individual appropriation of space; sensory and perceptual stimulation; development of needs related to the preparation/appropriation of spaces with plants.

3) Issues related to the effects of the presence of vegetation in indoor environments on ecological awareness and the achievement of the 2030 goals: Qualitative maturation of

proximity relationships with plants; development of a sense of care for plants and the environment; enhancement of connection with outdoor nature; understanding and implementation of the 2030 Agenda goals.

The study will use research methodologies for quantitative and qualitative data collection.

- Questionnaires to students and faculty to investigate the possible effect of plants on the development of creative thinking, perceived well-being in indoor spaces and appropriate processes, development of bonds of proximity with nature and plants.
- Questionnaires to teachers and students to detect needs.
- Non-participant observations of activities against analysis grids.
- Interviews and logbooks to be analyzed using the content analysis method.
- Analysis of the projects/products created by the faculties from plants.

### **Green, circular and inclusive companies, in training.**

M-PED/01

#### Abstract:

As emerges from the UN 2030 Agenda, economic, social, environmental and institutional sustainability can only be achieved by guaranteeing sustainable production and consumption models. The scenario that has arisen in recent years, and even more so with the pandemic, confirms this need and demonstrates that pursuing sustainable development is now unimaginable without the involvement of businesses and the training of human resources. The initiatives introduced over the years have shown that producing responsibly is possible as long as companies and organizations adopt a model in which sustainability is integrated into the business, with the adoption of a long-term profitability perspective where sustainability and innovation can give answers to various economic, social and environmental issues.

With a view to green transition and in line with the NRP, the project aims to make companies more circular (5.4.6 Innovation, axis 1 - Circular industry) and at the same time inclusive (5.4.6 Innovation, axis 2 - inclusive industry), aiming on the one hand at substantial progress towards a concrete economy of reducing the use of raw materials and on the other hand at a new model of industry centered on the person, understood both as a worker and as a user of products and services. Since circularity does not only concern material resources and their closure in the "circuit" of use through the increase of recycling-recovery-reuse, the circular economy is a perspective that goes beyond the issue of waste. Circularity has the purpose of not losing useful resources and is therefore a form of efficient management of values. As such, it can also be applied to social and economic resources of an intangible nature, particularly knowledge and skills.

The research project is part of this framework with the specific objective of identifying circular models of economy (design of sustainable products; industrial symbiosis; service economics; responsible consumption; extension of product life; efficient management of natural resources and raw materials ) that also pay attention to the social and territorial dimension of the company (response to social and territorial needs, creation of new jobs, development of skills, enhancement of collaborators, inclusion of fragile categories, circularity of networks, culture of sustainability, growth responsible consumption, ecosystem approach). The birth of circular entrepreneurial start-ups, the capacity of human resources and the strengthening of territorial networks are training guidelines which, if taken jointly, can generate, on the one hand, competitive advantages at the company level and trigger process / product innovations, from another to develop strategies for the creation of green jobs, also in support of fragile people or families. In particular, the research will start from the analysis of virtuous case studies, identified to be company spin-offs, engaged in the circular economy, able to employ even vulnerable workers with potential for expansion, through cluster networks, networking, social management and co-marketing. The deliverables of this analysis will be shared with a territorial milieu of corporate realities - profit, non-profit and for benefit - with the aim of outlining in a participatory way a territorial and local work track for the formation of a capacitive economic ecosystem, able to increase green employability.

### **Regional Policies for Sustainable Attractivity of EUREGIO.**

M-DEA/01

#### Abstract:

The economic literature places increasing emphasis on quality of life as a determinant of the location choices of highly skilled individuals and households (Diamond, 2016 ). It follows that the Euregio (Tyrol, South Tyrol, and Trentino) region, which is environmentally and culturally rich, has great potential for attracting these flows, also considering calls for a "new rurality" as a socially and environmentally sustainable approach. Sustainable attractivity involves not only the region's environment, but also its capability for promoting sustainable communities.

Sustainable communities are places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned, built and run, and offer equality of opportunity and good services for all' (ODPM, 2006, p. 12). For this to materialize, however, isolated and decontextualized interventions must give way to organic and systemic measures involving urban planning and policies. In the absence of these, to date, the attractiveness of the Alpine region is only partially expressed, with an outflow rate of the younger and more highly educated workforce that does not seem to be compensated by the nature of the incoming flows.

**Objectives and Techniques:**

The project is aimed at studying sustainable communities as a condition for the attractiveness of the Euregio region.

The analysis will require:

- i) an In-depth quantitative analysis of the available data and of the factors that drive highly skilled individuals to locate in the Euregio region or to emigrate, with the objective of identifying regional strengths and weaknesses, and to identify the importance of sustainable communities in the decision. In this stage, a natural approach would be to administer surveys to a properly identified relevant sample of individuals.
- ii) Qualitative analysis of experiences of sustainable attraction policy through sustainable communities implemented abroad.
- iii) Design of a set of cohesive regional policies for sustainable attractivity.

**Going beyond despair and hope: the greening of consciousness. Young people climate strikes and the financialization of climate change.**

SPS/09

Abstract:

The past few years have shown the importance of young people's protest movements for addressing climate change in society and building political will to act, also at the local level.

The 'Youth for Climate' movement criticize the political and economic elite, politicians and big corporations and sees the capitalist logic of constant economic growth as incompatible with saving the planet.

Discourses about sustainable solutions use neoliberalism as a point of reference where the principles of the free market, privatization, individualism, consumerism, and competition all shape the current direction of climate change politics.

However, although young people are clearly demanding necessary far-reaching political decisions in addition to changes in individual consumption and lifestyles, their agency and strategies to act in terms of policy pressure and political participation are still to be recognized and developed in order to transform young people's despair and dissent into manageable opportunities of action.

Against this background the proposed research project aims to investigate from a sociological perspective on the one side young people's mobilisation and opportunities to engage in policy pressure and climate policy development, focusing both on strategies developed from below in order to transform dissent and protest into targeted political action as well as on rationalities of recognition and processes of enabling participation in the local political and institutional context. On the other hand, it is interesting to consider how politics at European and extra-european level is responding to the climate crisis, through the summits of the Conference of the Parties (COP, the next of which will be Glasgow in November 2021) and financialisation as a tool.

The PhD Candidate should develop the following:

- a mapping (mapping review) of the sociological literature on young people's climate young people's agency building in local climate policy engagement and activism, with a particular focus (systematic review) of stepping up youth involvement in climate policy
- a systematic mapping and analysis of EU initiatives for stepping up young people's climate action and their involvement in climate policy making (document analysis and expert interviews)
- the response of the economy and the financialized public policies about climate.
- at least three local case studies in order to provide an in-depth analysis of young people's agency building in local climate policy within three specific local contexts. The case studies will investigate young people's agency perception and building as well as their possibilities to participate in local climate policy making.

At this aim, the case studies will involve an online survey tool to gather data on young people's climate engagement and their perception of agency and participation, expert interviews with representatives/spokespersons of initiatives and organizations of collective action (such as the FFF movement and NGOs) and representatives of local governments and political institutions.

<b>Study places</b>	<b>7</b>
<b>Selection process</b>	<p><b>Requirements:</b></p> <p>All Master and all degrees from the old Italian system with <b>final mark/grade of minimum 100/110</b> Italian system. (laurea specialistica/laurea magistrale).</p> <p>Prerequisites for admission to the PhD-programme are related to having acquired an appropriate educational, and/or cultural, and/or professional background in the field of General Pedagogy, of Social Pedagogy and Social Sciences, or of General Didactics and Disciplinary Didactics.</p> <p><b>Language requirements:</b> All candidates have to be proficient in at least two of the three languages of the programme: Italian, German, English. Language certification at B2 level (CEFR) in two of the three languages of the PhD programme (Italian, German, English).</p> <p><b>Admission procedure and evaluation criteria for examinations</b></p> <p>Admission is based on the successful outcome of the selection procedure consisting of a written exam and a personal interview.</p> <p>The written exam (open book exam) consists in the development of a project which corresponds to the title and the abstract of the chosen topic as well as to the specific project proposal submitted. The written exam can be completed in Italian, German or English, according to the free choice of the applicant.</p> <p>Evaluation criteria for the written examination:</p> <ul style="list-style-type: none"> <li>- Formal register and terminological accuracy;</li> <li>- Task completed according to requirements;</li> <li>- Clear and logical argumentative structure;</li> <li>- Demonstrated knowledge of scientific debates in the field;</li> <li>- Originality of the research design;</li> <li>- Clear methodological approach for the proposed research project.</li> </ul> <p>Candidates who pass the written test with a minimum mark of 40/60 are admitted to the interview.</p> <p>The evaluation criteria of the oral test take into consideration the following criteria:</p> <ul style="list-style-type: none"> <li>- The quality of discussion on the subject of the written test;</li> <li>- The ability to present an argument for one's own research project with reference to the theoretical and methodological assumptions of the research field;</li> </ul> <p>To be successful in the interview, candidates must receive a minimum mark of 40/60.</p>
<b>Documents for the application</b>	<ul style="list-style-type: none"> <li>- <b>Language certification at B2 level</b> (CEFR) or self-declaration, attesting proficiency in two of the official languages of the programme – Italian, German, English.</li> <li>- <b>Degree certificate/exam transcript</b> with an indication of the <b>final mark/grade obtained:</b> in case of Italian university qualifications, the</li> </ul>

	<p>certification <b>MUST</b> be substituted by a <b>self-declaration</b> or by the Diploma Supplement.</p> <ul style="list-style-type: none"> <li>- <b>Curriculum vitae</b> containing: <ul style="list-style-type: none"> <li>a) a list of research experience;</li> <li>b) if available, a list of publications with the respective online links.</li> </ul> </li> <li>- <b>Research project proposal:</b> must be congruent with the chosen topic and has to be written in Italian or German or English (2 or 3 pages). <u>Applicants must specify in their own project proposal the title of the research topic they have chosen among those listed above.</u></li> <li>- <b>Declaration of the PhD-candidate</b> (template available in the application portal)</li> </ul> <p><b>Only one project proposal may be submitted per PhD for the 'Innovation' topics and one project for the 'Green' topics.</b></p>
<b>Date, place, type</b>	<p><b>18.11.2021, 2:00 p.m.</b> written exam  <b>19.11.2021, 12:00 p.m.</b> noon, oral exam  meeting via MS Teams.</p>