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PEDAGOGY OF EMERGENCY AND VULNERABILITY: TESTING OF A MENTAL SKILL TRAINING PROTOCOL

PEDAGOGIA DELL'EMERGENZA E DELLA VULNERABILITÀ: TEST DI UN PROTOCOLLO DI MENTAL SKILL TRAINING

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Abstract[1]

The proposed research concerns the study areas of Emergency and Vulnerability Pedagogy. In 2020, due to the pandemic, the world's population was able to experience what it is like to experience an emergency situation and how much it can impact from an educational point of view. There is ample evidence in the literature that such situations can be experienced in a more functional way if one is able to exploit one's resources in terms of resilience and adaptive responses. Never as in situations like these, resilience and anti-fragile are concepts and resources that assume great importance (Piceci, Cancellara 2020; Taleb 2013).
Resilience is a multidimensional structure (Kumpfer 1999; Mariani, Marcolongo, Melchiori, Peluso Cassese 2019) and, observing its various components, the research team has built a Mental Skill Training protocol, borrowing techniques and tools generally applied in sports psychology.
The proposed pilot study tested a Mental Skill Training protocol on a group of volunteers made up of 16 university students from the Faculty of Psychology, over a period of 6 weeks. The objective was to test how participation in this protocol could affect self-esteem and sense of self-efficacy, as well as Resilience and Coping Strategies.

La ricerca proposta riguarda i filoni di studio della pedagogia dell'emergenza e della vulnerabilità. Nel 2020, a causa della pandemia, la popolazione mondiale ha potuto provare cosa vuol dire vivere una situazione di emergenza sotto vari aspetti compreso quello pedagogico. In letteratura vi sono molte evidenze che testimoniano come tali situazioni possano essere vissute in modo più funzionale, se si è in grado di sfruttare le proprie risorse in termini di resilienza e di risposte adattive. Mai come in situazioni come questa la resilienza e l'anti-fragile sono concetti e risorse che assumono grande importanza (Piceci, Cancellara 2020; Taleb 2013).
La resilienza è una struttura multidimensionale (Kumpfer 1999; Mariani, Marcolongo, Melchiori, Peluso Cassese 2019) e, osservandone le varie componenti, l'equipe di ricerca ha costruito un protocollo di Mental Skill Training, mutuando tecniche e strumenti generalmente applicati in psicologia dello sport.

1 The manuscript is the result of a collective work of the authors, whose specific contribution is to be referred to as follows: Luigi Piceci, paragraphs 4, 5, 8, 9; Anna Maria Mariani paragraphs 3, 6, 8, 9; Laura Cancellara paragraphs 1,2; Luca Rossi paragraph 7.

Lo studio pilota proposto ha testato un protocollo di Mental Skill Training su un gruppo di volontari composto da 16 studenti universitari della facoltà di psicologia, nell'arco di 6 settimane. L'obiettivo è stato quello di verificare l'impatto di tale protocollo su Autostima e senso di Autoefficacia, nonché su Resilienza e Strategie di coping.

Keywords

Emergency pedagogy, anti-fragile, mental skill training, resilience, coping

Pedagogia dell'emergenza, anti-fragile, mental skill training, resilienza, coping

Introduction

The current international pandemic situation is characterized by scenarios of uncertainty and existential vulnerability, by constant personal and collective psychological discomfort, in which we are actors of a real "polycrysis": an ecological emergency. (Piceci, Cancellara 2020).

The attention to the heterogeneous management of the SARS-CoV-2 pandemic crisis, to the science of complexity, to the theory of systems and self-organizing networks of the community practice thus becomes an integral part of the didactic experience, especially to achieve adaptive, transformative and resilient training objectives (Polowy 2017).

Acknowledging the circumstances of discomfort, fragility and vulnerability, which are irreducible to the dynamics of social integration, points to the need for a redefinition of identity and the complexity of social integration processes.

The intrinsic value offered by this contribution draws lines that identify, in the salient aspects of the "Pedagogy of Emergencies and Vulnerability", which are potential premises for the development of interactive learning environments and their relationship with information technologies. A "relational and interactive systemic look", which considers personal resilience and coping strategies as fundamental elements for the conduction of psychoeducational intervention protocols.

The choice of applying Mental training protocols adapted to a group of university students underlines the urgent need to implement a more sustainable pedagogical-didactic and trans-training approach.

The experiential and applicative aim was, as a matter of fact, to transmute usual training/education schemes (which are sometimes found to be inadequate in dealing with situations of emergency distress) in the acquisition of real "personal expertise" able to deal with adverse situations in contexts of pedagogical fragility.

1. Covid-19: strategies to deal it

The emergency scenario due to the rapid SARS-CoV-2 pandemic spread has urgently required substantial and situational changes in living environments, daily routines and relational, educational and social networks. Now, more than ever, educational and training efforts require systemic confrontation and constant multidisciplinary collaboration. Contextualizing the current socio-cultural emergency, the consequent crisis of the training models declined to the emerging historical and educational scene, is a necessary premise in considering the need for the application of a vulnerable, resilient and anti-fragile pedagogical approach (Taleb 2013), framing it in the perspective of a multidimensional and systemic complexity.

Managing the complexity in such emergency contexts, characterized thus by conditions of high individual, social and relational vulnerability, imposes an urgent educational and didactic mandate that places its archedimic point on the need to re-modulate pedagogical strategies and on the redefinition of formative interventions attentive to policies of individual and collective "transformative resilience".

Elaborating and experimenting models of educational intervention with characteristics that are designed for contexts of high vulnerability and emergency becomes necessarily central in order to shed light (in the pedagogical-educational process) on those psychic, behavioural and emotional processes involved, which manifest themselves during and after such critical events.

In the light of these premises, this contribution fits into the context of the "Pedagogy of Emergencies and Vulnerability".

2. Effectiveness of Mental Skill Training protocols in different areas

As stated by Boyd and Zenong (1999), the human being's ability to manage his emotional and mental states makes actions and behaviour more effective and the individual lives in a state of trust and well-being. Self-mastery helps to motivate the use of ever-increasing energy to achieve the goals set (Wuff & Toole 1999). It can happen that in periods of particular crisis, excessive stress, momentary incapacity, self-mastery, self-confidence, self-confidence and commitment to decisions and actions may decrease significantly, leading to a lower state of psychophysical well-being. For more than fifty years, protocols of mental psychological training have been developed to deal with these very situations, particularly on athletes, entertainers, company managers, military personnel and other professionals in high-risk occupations (Lauria et al. 2016). Although research in these areas has demonstrated the effectiveness of this type of intervention, it still remains scarcely widespread in the world of education. In sports, mental training protocols for supporting athletic performance have been used for many years and numerous international studies attest to their effectiveness (Kendall et al. 1990; Lerner et al. 1996). There are two types of approaches to the development of mental abilities in sports performance: a cognitive approach (mental tests, visualizations, visual-motor tests, cognitive-behavioural therapy, goal setting, inner dialogue) and a somatic approach (biofeedback, progressive muscle relaxation, autogenic training and meditation), although the two are overlapping in some areas. Here we will focus on two interventions, goal setting and internal dialogue, as they have been the subject of our empirical research. One of the main interventions in mental skill training programmes is goal setting, a common tool within organisational/industrial/sporting contexts aimed at increasing motivation and which has its origins in Locke and Latham's Goal Setting Theory (Latham 1991; 2002) which was born mainly in the working environment. At the basis of this theory are the assumptions that the definition of objectives increases productivity and, therefore, performance and that if the objective is challenging (within a certain limit) performance increases. When one does not have precise objectives it is much more difficult to orient and channel one's energies and mental resources and this can make one lose motivation and surrender or succumb to critical situations or obstacles. Having responsibly and consciously decided on an important goal for yourself activates a series of large and small internal and external resources. The goal setting has two important properties; first of all, it sets direction and the athlete formulates his or her goal towards something; secondly, it generates intensity and strength and can be very important for the athlete with a positive impact on both performance and self-esteem (Sachs 1991). It is important that these goals are personal and self-defined. As a matter of fact, the Locke and Latham model (2002) states that personal and self-efficacy goals are the most immediate determinants of performance: the higher the confidence in one's own abilities, the higher the goals the person sets himself, the better his performance will be. Self-efficacy (Bandura 2006) is the trust a person has in his or her ability to influence his or her context and life. Fundamental to sustain motivation and energy towards the goal is the definition of long-term goals, as well as short-term goals. In the field of sport, numerous studies

have shown that goal setting leads to changes in behaviour either directly or indirectly (Weinberg RS, Gould D 2014). In the academic field, it has been demonstrated that, for many high school or university students, future educational and professional goals are fundamental for the motivation to pursue their academic commitment (Lens, Simons and Dewitte 2002), and this is due to the human cognitive ability to be able to mentally anticipate the results of a long-term goal and this makes motivation stronger (De Volder & Lens 1982). It has also been shown that students who set effective goals use appropriate learning strategies and achieve higher academic results than others (Locke & Latham, 1990; Zimmerman & Schunk 1989) and manage to overcome obstacles by using the resources available to them to overcome crises (Randi & Corno 2000). Another fundamental element of Mental Skill Training is the work on internal dialogue. Positive internal dialogue is the internal conversation generated by thoughts that each individual makes, in his or her own mind or out loud, to strengthen his or her convictions and actions (Calvete, Cardeñoso 2002). It arises from thoughts, is often unconscious and can have an influence on the effectiveness of defined decisions or actions. Some authors (Latinjaket et al. 2014; Latinjaket et al. 2017) distinguish between spontaneous self-talk (the immediate response to the situation, mainly emotional) and self-talk directed to the purpose (reasoned and planned response that controls and regulates cognitive reactions and actions). the popularity of self-talk is due to its association with sports performance. The intervention on internal dialogue is a cognitive technique that is mainly used by athletes to influence thoughts, feelings and behaviour (Hardy et al. 2009). Positive internal dialogue ("stay calm") is more effective than negative dialogue ("don't worry") and seems to have an important impact on cognition, such as attention, and motor behaviour (Tod et al. 2011; Hardy et al. 2018). Several studies indicate that positive inner dialogue is associated with the development of performance and self-esteem. For example, a study by Hardy et al. (2009) shows how positive internal dialogue can increase self-esteem and control of anxious states, just as the study showed that work on internal dialogue has benefits on state anxiety, self-confidence, self-efficacy and performance (Heydari et al. 2018). According to McMorris (2014), there are some factors such as successful performance, emotional and physiological activation state, positive emotions, attention and concentration, goal setting and visualizations that can lead to a performance model in the central nervous system. Greenspan and Feltz (1989) have also shown that relaxation interventions and cognitive restructuring techniques can increase the performance of young and adult athletes during competitions. The study by Heydari et al. (2018) showed that a mental training program, focused on goal setting, positive inner dialogue and visualization, has positive effects on the self-esteem of adolescent male volleyball players. This result confirms the findings of Wilson and others (2004) who had already found that focus on task, skill mastery, improvement of skills, focus on goal setting, visualization are the factors and sources of increased self-confidence, as well as the study on adolescent swimmers carried out by Mariani and others (2019) Underlying the effectiveness of both approaches is the individual's motivation to achieve mental and physical control. Once the individual feels that he or she has a degree of self-control in relation to psychosomatic function, he or she is motivated to make continuous efforts to increase performance (Wuff & Toole 1999). Ekmekçi (2015) and Cowden (2016) define mental training as the best solution for the individual to imagine and overcome difficult situations by preparing in advance. Stuart (2009) identifies some of the benefits of mental skill training in increased focus, motivation, relaxation and self-esteem, decreased aggression and pressure.

3. Emergency education and technology

In Italy, we have witnessed a number of catastrophes that have involved many professionals at various levels. In particular, it has been witnessed how education professionals have an important role that depends on their degree of involvement in the situation. Vaccarelli (2017) on the subject of the earthquake in L'Aquila distinguishes between the figure of the rescue educator and that of the victim educator: the former indicates the person arriving from outside

as an emergency worker, the latter is part of the affected community and directly experienced the event.

This year is a special year that is putting the whole world to the test because of the COVID-19 pandemic. When we talk about emergency and vulnerability education, we often think of a distant phenomenon. This year 2020 is making this topic known to everyone, also bringing out all the issues related to technological support in the field of emergency and vulnerability education.

Much has been written about this topic in the literature. Williamson et al (2020) observe that, just before the pandemic, a paper on "Education and technology into the 2020s: speculative futures" was published in Learning, Media and Technology of 2020 and, only a few months later, this future became totally uncertain and technologically distorted.

The emergency spilled over into the world of education, which required technology to be delivered despite the fact that people were forced to maintain a social distancing, which was a prerequisite for overcoming the situation. Educational technologies are consequently seen as a frontline emergency service. Teachers and students have been subjected to high stress, having to deliver or use distance learning using various videoconferencing or e-learning systems, although they were not prepared for this (Piceci, Sgorlon, Peluso 2020). Moreover, there was no real question of how to use communication through a media that presents characteristics that are new and unknown to many. When using a digital communication tool, the emotional part of the subjects involved must be taken into account, as well. There is an important relationship between self-esteem and technology (Piceci 2019). This relationship starts from the observation that the acceleration given by technology increasingly highlights how much a strong connection is being created with psychological, sociological and pedagogical manifestations that update and adapt to the change taking place. The expansion of Information and Communication Technology (ICT) in our society has brought various aspects, many positive elements, including new media, work, learning and entertainment, across space and time, but also problems associated with inappropriate or excessive use of technology, including absenteeism at work and at school, academic failure, deteriorating family or friendship relationships and even health problems, particularly among adolescents (Muñoz-Miralles et al. 2016). A recurring factor in addiction cases seems to be self-esteem. Self-esteem is also considered an important factor in terms of resilience and physical well-being (Mariani, Marcolongo, Melchiori, Peluso 2019).

It should be borne in mind that the number of Internet users worldwide continues to grow. When we talk about Internet use, it is advisable to specify that we do not only refer to the use of browsers, but also to all the applications that exploit the network to provide services, connect or create recreation and entertainment. The International Telecommunication Union (2017) estimates that, globally, 70% of people between the ages of 15 and 24 are online. A recent survey found that in the United States, 92% of teenagers (13-17 years old) report being online every day, while 24% say they are online "almost constantly" (Lenhart et al. 2015).

Although the use of the internet is extremely widespread, the use of distance learning is not as widespread in Italy. The terms distance education or distance learning have only recently become common language and consequently their use as well.

The use of technologies such as e-learning is now recognised as a fundamental part of learning (Piceci, Cancellara 2020). The positive contribution of using technology to deal with emergency situations is undeniable, but it would be desirable to achieve this by breaking down the strong resistance to change inherent in humankind, which has been found to be harmful. It would also be desirable not to have to realise this thanks to a pandemic.

4. Description of the intervention project

Approaching a research in the field of emergency and vulnerability education means turning attention to a wide and stratified scenario that is constantly changing. This situation requires

pedagogical and educational methodologies that are just as changing. We are helped by the Taleb (Taleb 2013) with its anti-fragile concept. This concept comes from the world of Information and Communication Technology and in particular from the systems that work to defend against external attacks. Such attacks are always changeable and not always predictable (dynamic), so we develop software relying on Artifical Intelligence to increase resilience or robustness, thanks to the experience made. The antifragility highlights what intervenes from the outside that can interrupt the normal flow of things. It seems a concept very close to resilience even if it actually benefits from the external event while resilience is closer to the concept of resistance and robustness (Piceci, Cancellara 2020).

There is some evidence that the cognitive system is able to exploit any negative condition to increase its capacity (Lichtman, Vondal, Matthew Clancy, Charles et al 2018), just think how potentially advantageous it can be to bring all this back into the psychological and intervention field. Interesting results could be obtained by exploiting some of the individual's disorders to increase their resources and therefore their awareness of their ability to adapt and fit in with appropriate coping strategies. These skills can be considered "key competences" when faced with new situations, and it is assumed that they can be improved through the implementation of training sessions aimed at strengthening those protective factors of the personal dimension that are able to transform adverse circumstances into new challenges to one's own existence. The training also aims at allowing oneself to look inside oneself to transform it into a self-powering movement (Schick 2016) that can regenerate used or dormant resources.

In literature, resilience is a multidimensional structure composed of self-esteem, self-efficacy, locus of internal control, optimism and hope (Kumpfer 1999) plus motivation, planning, critical and creative thinking, flexibility, empathy, clarity of objectives, tenacity, other life-skills (Mariani, Marcolongo, Melchiori, Peluso Cassese 2019).

The ability to develop the sense of a stable self-agency (self-efficacy) yet open to change, provides the structure of a certain personal cognitive posture to think, imagine, build and share structured training courses (training), capable of integrating, enriching and supporting curricular in-presence and distance learning, which has now become an integral part of training. Offering an opportunity to re-establish the relational and communicative imbalances that have arisen for the management of existential critical situations will serve to experiment new cognitive approaches that lead to the re-elaboration and sharing of daily experiences.

The methodology of intervention foresees the implementation of pedagogical interaction strategies that probably reflect both on methodological-didactic criteria and also on the impact and importance of personological variables that intervene to modify the teaching/learning process.

They bring attention to the "mutual vulnerability" in order to create a space where humanizing pedagogy can be applied. In the process of applying the principle of "mutual vulnerability", personal methods of learning and critical self-reflection are questioned and compared in a shared educational context. It is intended to re-create a more "renewed and meaningful" space among all the actors involved in the teaching/learning process. (Kent, Zinn, Porteus 2009)

The survey and research work was organised according to an organisational time-line marked by the following phases:

Time T0:

- Analysis of the starting situation
- Initial psychometric administration and assessment

Time T1:

- Training Protocol
- Goal Setting Sessions, Personal Contract and Internal Dialogue (Self-Talk, Limiting Thoughts/Enhancing Thoughts)

Time T2:

- Monitoring, recalibration and readjustment of phase "Time T2" (*in itinere*)

Time T3:

- Administration and final psychometric evaluation.
- Comparison of the achieved results
- Delivery of the e-tivity at the end of the course and consequent evaluation

The intervention was administered during the lockdown period by Covid-19, from 8 May to 12 June 2020. The protocol consisted of 6 training sessions lasting one and a half hours each, carried out with the students of the degree course in Psychology, Psychological Sciences and Techniques (L-24).

Each learning session consisted of interventions of:

- Goal Setting (formation of long-term and short-term objectives for study and private life)
- Management of internal dialogue (awareness of limiting thoughts and generation of empowering thoughts);
- Individual mental training, monitoring of long-term, medium-short term goals, limiting and empowering thoughts, on a diary or personal file
- Tutoring, Monitoring and Distance Learning through interaction on the platform (forum).

Both activities were supported by initial explanations and specific exercises to be carried out during and after the meeting.

For what concerns the goal setting, we worked on long term goals and short term goals. Participants were invited to give examples of different types of goals so that they could work with researchers on a proper goal setting process according to the logic of SMART goals (Locke and Latham 1985, 1990; Locke et al. 1981).

The second type of activity was self- talk, in which work was carried out on the identification of negative self statements and their restructuring in a positive form (Hamilton and Femouw 1985; Maynard, Smith and Waewick-Evans 1995), also looking for subsequent action strategies. In the interval period between sessions, participants continued the mental training exercises individually, noting the limiting and empowering goals and thoughts in a Workbook provided to them by the research team. Furthermore, a forum was made available to participants to dialogue with the research team on setting goals and identifying limiting thoughts.

The first research hypothesis elaborated (H1) aims to verify the general impact of a Mental Skill Trainig programme, characterised by goal setting and self-talk, on the following variables that have been taken into consideration: resilience, adaptive coping strategies, self-esteem, self-efficacy and dispositional hope. The second hypothesis (H2) to be verified states that the given mental training works mainly to strengthen self-esteem and self-efficacy and that this can have an effect on coping strategies and resilience.

4.1. Measures

The effects of Mental Skill Training on the T3 sample were studied taking into account the above-mentioned variables, using psychometric questionnaires.

The first factor investigated is Resilience, for which we used the tool made by Jefferies et al. (2019) Adult Resilience Measure Revised (ARM-R), in the revised version and formed by 17 elements. It is a tool for self-assessment of socio-ecological resilience (Ungar 2012). Closely related to the concept of resilience is the factor identified in the Coping Strategies that we measured with the COPE Questionnaire Brief (Carver 1997), which assesses adaptive and non-adaptive behaviour when a stressful event occurs. Following what described in the previous paragraphs, it was considered appropriate also to investigate self-esteem and self-efficacy as well as the predisposition to hope.

For the analysis of self-esteem, the Rosenberg Self-esteem Scale was chosen (Rosenberg 1965), which is a questionnaire that measures a person's overall assessment of his/her value as a person (Rosenberg 1979). For self-efficacy, the questionnaire The Scale of perceived self-efficacy in managing complex problems (PSE-MCP) (Avallone et al. 2007) was identified, which contains two sub-scales that measure emotional maturity, finalisation of action, relational fluidity and context analysis. The text selected for analysing the propensity for hope is the Adult Hope Scale (AHS), (Snyder et al. 1991).

This whole battery of tests has been administered in telematic mode by means of modules with prior informed consent. The data was collected anonymously, for the exclusive purpose of scientific research and not in order to perform diagnoses.

5. Observation of learning processes

The project was developed with the aim of offering a self-regulating tool that can be used in any area of the participating students' lives, especially in situations of crisis and change, where emotional and contextual pressure could cause problems with concentration and teaching results. The teaching environment was built as a virtual classroom in which only students who participated in the Mental Skill Training programme had access. As Amenta (2008) states, research in the educational and didactic field foresees a double level of study of human reality: on the one hand, there is the external level (non-verbal language) and, on the other hand, the internal level (intentions, motivations, learning processes and defence mechanisms). For the observation of learning processes we have proceeded in an indirect way (Calonghi 1977) performing a systematic observation which was not very structured throughout the training period, defining two areas of interest for observation: 1) involvement and motivation, 2) competence in the definition of objectives. During the training, the team has always been composed of two experimenters, one engaged in interaction with the students and the other involved in observation. Each session was structured with a first part in which the researcher explained some important concepts related to mental training, goal setting and limiting thoughts. The second part of the session was dedicated to the interaction with the students, with respect to their definition of objectives and the identification of limiting and empowering thoughts.

With respect to systematic observation, we worked on two levels:

1. observation of the external level of the students' non-verbal language
2. observation of the internal level of motivation and learning processes with respect to the definition of objectives and thoughts.

For what concerns the observation at an external level, this consisted in the observation of the non-verbal and paraverbal language of the students, as well as their daily diaries, in particular with regard to the ability to define objectives according to the indicated method and the identification of limiting and empowering thoughts.

All the students had their camera on and the researchers were able to watch all the participants. The microphone was activated when the student intervened. The researchers had the possibility to see everybody's faces and also some hand gestures (for those who had a good shot) but it was not possible to see the complete body language.

The analysis of the results of the unstructured observation revealed:

- an initial distrust of the classroom and the tools presented (goal setting and internal dialogue), especially in the first meeting and to take the floor to express their perplexities;
- an initial difficulty in defining long-term goals and to visualise oneself in the near future, as well as in identifying limiting thoughts

Already from the second meeting the diffidence proved to be lower and the students started to interact to talk about their goals, making reflections and exchanging ideas with others. It was noticed an ease of relating with the researchers, highlighting a climate of trust created within the virtual classroom. This also allowed the comparison of the different points of view

of the participants and the sharing of experiences that increased empathy and self-awareness. Sharing similar experiences made it easier to exchange and learn new ways of behaviour. The students actively participated in all the meetings, also working between meetings with the daily diary. Surely learning was facilitated by the interaction between students and researchers in the interactive forum, where participants discussed with researchers about the definition of goals and limiting thoughts. The researchers gave indications regarding the formulation of these and supported the identification of limiting thoughts with specific questions.

With respect to the learning of the tools used (such as goal setting and self- talk), the students, after an initial difficulty and thanks to the guidance and suggestions of the researchers (on the process and not on the content) during the meetings, became autonomous; while in the first meetings and during the forums it was necessary to review the process of defining objectives, in the last two, in most cases, the objectives were well formed. From a round of oral feedback during the last meeting, the students highlighted the perception of the usefulness of the tool provided and expressed the willingness to replicate it in other areas of their lives.

6. Partecipants

The aim of this research was to test a model of psycho-pedagogical intervention that could then be applied to a representative sample. For this purpose, 16 volunteers were selected among students of the degree course in Psychology, Psychological Sciences and Techniques University Niccolò Cusano, Rome.

The group of volunteers is 100% composed of women aged between 19 and 21 years. All participants in the first-degree experience and non-workers. 87.50% are single or unmarried except for 6.25% cohabiting and 6.25% married.

6.1 Data Analysis

Data screening was carried out, preliminary to subsequent analysis, in order to identify distorted scores (poor motivation and incomplete answers) without bias being highlighted.

The research hypothesis to be verified included a variation on the degree of resilience, self-esteem and hope of Mental Skill Training participants. For this purpose, questionnaires were administered before and after the training phase. In order to quantify the presence of a possible variation, the average values for each score before and after the training were calculated. The average values show small average variations for almost all scores, implying that the training may have produced variations. However, in order to understand whether these observed differences are real or due to chance, it was decided to carry out a student test for each score. This test is applicable if the distributions are divided normally; to detect this situation the Shapiro-Wilk test was carried out first, which shows that all distributions are normal ($p>0.05$). As shown in the table, the student test t shows that the difference between the averages is not significant ($p<0.05$) and this could be due to the fact that the sample considered is only of 16 elements.

Adult Resilience Measure-Revised (ARM-R)		
Total Resilience	Average1= 67,81 Media 2=67,69	The difference between the averages observed is not significant for $p<0.05$
Personal Resilience (MAX 35)	Media 1=28,75 Average2=28,69	The difference between the averages observed is not significant for $p<0.05$

Relational Resilience (MAX 50)	Average1=39,06 Average2=39,00	The difference between the averages observed is not significant for p<0.05
Scala di autoefficacia percepita nella gestione di problemi complessi		
Emotial maturity	Average1=18,25 Average2=20,50	The difference between the averages observed is not significant for p<0.05
Finalization of the action	Average1=22,81 Average2=24,25	The difference between the averages observed is not significant for p<0.05
Relational Fluidity	Average1=21,94 Average2=23,56	The difference between the averages observed is not significant for p<0.05
Context Analysis	Average1=24,25 Average2=25,69	The difference between the averages observed is not significant for p<0.05
Brief cope - strategie di coping		
Positive reconstruction/re-interpretation	Average1=5,31 Average2=6,13	The difference between the averages observed is not significant for p<0.05
divert attention	Average1=5,31 Average2=5,81	The difference between the averages observed is not significant for p<0.05
Expression of emotions / emotional outburst	Average1=5,19 Average2=5,31	The difference between the averages observed is not significant for p<0.05
Use of instrumental support	Average1=5,44 Average2=5,44	The difference between the averages observed is not significant for p<0.05
Dealing operatively with situations	Average1=6,06 Average2=6,63	The difference between the averages observed is not significant for p<0.05
Denial	Average1=3,44 Average2=3,44	The difference between the averages observed is not significant for p<0.05
Religion	Average1=2,94 Average2=2,81	The difference between the averages observed is not significant for p<0.05
Humour	Average1=4,19 Average2=4,19	The difference between the averages observed is not significant for p<0.05
Behavioural disengagement	Average1=2,69 Average2=3,31	The difference between the averages observed is not significant for p<0.05
Use of emotional support	Average1=5,44 Average2=5,63	The difference between the averages observed is not significant for p<0.05
Usage of substances	Average1=2,81 Average2=3,44	The difference between the averages observed is not significant for p<0.05

Acceptance	Average1=6,13 Average2=6,19	The difference between the averages observed is not significant for p<0.05
Planning	Average1=6,31 Average2=6,56	The difference between the averages observed is not significant for p<0.05
Self-criticism	Average1=6,00 Average2=6,44	The difference between the averages observed is not significant for p<0.05
Adult Dispositional Hope Scale		
	Average1=24,00 Average2=24,38	The difference between the averages observed is not significant for p<0.05
Autostima di Rosenberg		
	Average1=16,00 Average2=15,94	The difference between the averages observed is not significant for p<0.05

Table 1 - Comparison of averages

In order to verify the H2 hypothesis, the median values of the scores under examination were determined for the tests before and after the training phase (Table 2). This index was chosen for comparison because it is robust to the presence of possible outliers in the sample.

Total Resilience	Median1= 71,50 Mediana 2=70,00
Personal Resilience (MAX 35)	Median1=30,00 Median2=29,50
Relational Resilience (MAX 50)	Average1=40,50 Average2=40,50
Emotional maturity	Median1=19,00 Median2=21,00
Finalization of the action	Median1=23,50 Median2=23,50
Relational fluidity	Median1=23,50 Median2=24,00
Context analysis	Median1=25,00 Median2=26,00
Positive reconstruction/re-interpretation	Median1=6,00 Median2=6,00

Diverting attention	Median1=6,00 Median2=6,00
Expression of emotions / emotional outburst	Median1=5,00 Median2=6,00
Use of instrumental support	Median1=5,50 Median2=6,00
Dealing operatively with situations	Median1=6,00 Median2=6,50
Denial	Median1=3,00 Median2=3,00
Religion	Median1=2,00 Median2=2,00
Humour	Median1=4,00 Median2=4,00
Behavioural disengagement	Median1=2,00 Median2=3,00
Use of emotional support	Median1=5,00 Median2=6,00
Use of substances	Median1=2,00 Median2=2,50
Acceptance	Median1=6,00 Median2=6,00
Planning	Median1=6,00 Median2=6,00
Self-criticism	Median1=6,00 Median2=6,00
Adult Dispositional Hope Stairs	Median1=23,00 Median2=24,00
Rosenberg self-esteem	Median1=15,00 Median2=16,00

Table 2 - Median values

As the table highlights, there are positive variations in the median values and this implies that the mental training administered has strengthened some aspects of the variables. Moreover, these effects are also evident on some of the Brief cope's subscales:

- Use of instrumental support
- Dealing operatively with situations
- Behavioural disengagement
- Use of emotional support
- Use of substances

	Resilienza Totale	Maturità Emotiva	Finalizzazione dell'azione	Fluidità relazionale	Analisi del contesto	ricostruzione/ reinterpretazione positiva	distogliere attenzione	espressione delle emozioni / sfogo emozionale	uso del sostegno strumentale	affrontare operativamente le situazioni	negazione	Religione	umorismo	Disimpegno comportamentale	Uso del supporto emotivo	Uso di sostanze	Accettazione	Pianificazione	Autocritica	Adult disposition	Autostima
Resilienza Totale	1,00																				
Maturità Emotiva	-0,18	1,00																			
Finalizzazione dell'azione	-0,06	0,11	1,00																		
Fluidità relazionale	-0,15	0,49	0,32	1,00																	
Analisi del contesto	0,14	0,24	0,63	0,34	1,00																
ricostruzione/ reinterpretazione positiva	-0,13	0,16	0,47	0,17	0,31	1,00															
distogliere attenzione	-0,04	0,37	0,11	0,44	0,05	-0,06	1,00														
espressione delle emozioni / sfogo emozionale	0,37	-0,34	-0,14	-0,19	0,18	-0,25	-0,29														
uso del sostegno strumentale	0,14	-0,46	0,02	-0,13	0,20	0,47	-0,20	0,33	1,00												
affrontare operativamente le situazioni	-0,20	0,27	0,34	0,16	0,31	0,59	-0,01	-0,29	0,03	1,00											
negazione	-0,29	0,47	-0,07	0,29	-0,03	-0,32	0,47	-0,01	-0,43	-0,13	1,00										
Religione	0,11	-0,31	0,12	-0,14	-0,06	0,33	-0,18	0,12	0,35	-0,01	-0,47	1,00									
umorismo	0,09	-0,02	-0,06	-0,49	0,03	-0,34	-0,13	0,35	-0,09	-0,04	0,19	-0,33	1,00								
Disimpegno comportamentale	0,23	-0,23	-0,08	-0,36	-0,18	-0,36	0,12	0,21	-0,14	-0,47	0,13	0,00	0,08	1,00							
Uso del supporto emotivo	0,50	-0,47	0,09	-0,20	0,32	0,11	-0,10	0,68	0,70	-0,07	-0,17	0,17	0,33	-0,10	1,00						
Uso di sostanze	-0,04	-0,21	-0,26	-0,49	-0,18	-0,26	0,03	-0,02	-0,14	0,12	0,06	0,38	0,11	0,21	-0,07	1,00					
Accettazione	0,09	0,62	0,40	0,21	0,66	0,30	0,19	-0,11	-0,19	0,31	0,29	-0,38	0,08	0,07	-0,07	-0,25	1,00				
Pianificazione	-0,11	0,39	0,41	0,14	0,44	0,70	0,03	-0,06	0,32	0,61	0,05	0,19	-0,18	-0,08	0,07	0,03	0,52	1,00			
Autocritica	-0,03	0,13	0,11	0,11	0,39	-0,26	-0,04	0,18	-0,25	-0,03	0,32	-0,21	-0,02	0,17	-0,02	0,04	0,53	0,13	1,00		
Adult disposition	-0,26	0,57	0,59	0,42	0,57	0,55	0,00	-0,07	-0,07	0,71	-0,01	-0,02	0,10	-0,50	-0,08	-0,25	0,46	0,55	-0,02	1,00	
Autostima	0,14	0,39	0,16	0,11	-0,01	-0,09	0,22	-0,08	-0,38	-0,24	0,33	0,11	0,06	0,36	-0,31	-0,03	0,38	-0,10	0,25	0,08	1,00

Table 3 - Correlations between the sub-subscriptions (T0)

All other sub-scales do not show any changes. Conversely, there are median decreases in Personal and Total Resilience.

In order to assess whether the difference might, however, be real, it was decided to compare the two correlation matrices obtained between all the scores before and after the training phase.

	Resilienza Totale	Maturità Emotiva	Finalizzazione dell'azione	Fluidità relazionale	Analisi del contesto	ricostruzione/ reinterpretazione positiva	distogliere attenzione	espressione delle emozioni / sfogo emozionale	uso del sostegno strumentale	affrontare operativamente le situazioni	negazione	Religione	umorismo	Disimpegno comportamentale	Uso del supporto emotivo	Uso di sostanze	Accettazione	Pianificazione	Autocritic a	Adult dispositio n	Autostima
Resilienza Totale	1,00																				
Maturità Emotiva	-0,03	1,00																			
Finalizzazione dell'azione	-0,01	0,49	1,00																		
Fluidità relazionale	-0,24	0,54	0,61	1,00																	
Analisi del contesto	-0,11	0,63	0,89	0,70	1,00																
ricostruzione/ reinterpretazione positiva	-0,18	0,42	0,41	0,27	0,44	1,00															
distogliere attenzione	-0,25	0,13	-0,99	-0,28	-0,31	-0,14	1,00														
espressione delle emozioni / sfogo emozionale	0,01	0,06	-0,16	-0,19	0,03	0,03	0,30	1,00													
uso del sostegno strumentale	-0,12	0,11	-0,19	0,09	-0,07	0,23	0,44	0,33	1,00												
affrontare operativamente le situazioni	-0,02	0,38	0,33	-0,09	0,34	0,71	-0,04	0,23	-0,08	1,00											
negazione	-0,14	-0,18	-0,07	-0,51	-0,20	-0,13	0,18	-0,24	-0,55	0,09	1,00										
Religione	0,33	-0,50	-0,41	-0,30	-0,34	-0,06	-0,31	-0,20	-0,27	-0,22	0,09	1,00									
umorismo	-0,14	0,40	0,22	-0,16	0,28	0,17	0,64	0,44	0,14	0,44	0,35	-0,54	1,00								
Disimpegno comportamentale	-0,03	-0,31	-0,61	-0,77	-0,55	-0,38	0,57	0,05	-0,15	-0,09	0,63	0,33	0,28	1,00							
Uso del supporto emotivo	-0,14	-0,34	-0,20	-0,13	-0,10	-0,15	0,35	0,39	0,45	-0,36	-0,01	0,17	0,10	0,26	1,00						
Uso di sostanze	-0,04	0,33	-0,18	-0,34	-0,14	0,01	0,46	-0,05	-0,17	0,17	0,56	0,02	0,33	0,64	-0,01	1,00					
Accettazione	-0,06	0,51	0,24	0,46	0,40	-0,06	0,23	0,64	0,18	-0,01	-0,46	-0,43	0,32	-0,28	0,13	-0,07	1,00				
Pianificazione	-0,13	0,41	0,52	0,27	0,60	0,79	-0,06	-0,08	-0,06	0,69	0,08	0,11	0,30	-0,10	-0,04	0,19	-0,03	1,00			
Autocritica	0,03	-0,03	0,13	0,14	0,27	0,18	0,23	0,33	0,12	0,09	-0,21	0,33	0,22	0,11	0,48	-0,09	0,37	0,53	1,00		
Adult disposition	-0,38	0,53	0,72	0,54	0,76	0,61	0,01	0,29	0,16	0,51	-0,17	-0,59	0,47	-0,52	0,04	-0,11	0,43	0,54	0,24	1,00	
Autostima	-0,17	-0,10	0,20	-0,20	0,13	-0,17	0,23	0,20	-0,26	-0,07	0,41	-0,05	0,34	0,35	0,27	0,43	0,21	0,10	0,30	0,17	1,00

Table 4 - Correlations between undergraduates after training (T3)

The two tables show a variation of the correlation after the training, highlighting to some extent its effects.

7. Discussion

The Mental Skill Training programme administered, containing mainly two types of interventions (goal setting and internal dialogue), has often been defined in the literature as a programme that affects people's Self-esteem and Self-efficacy and, more generally, their psychophysical well-being. Our first hypothesis (H1) predicted an influence of the path on the values of all the variables investigated, which has not been confirmed. Surely, this result was affected by the limited number of participants and the limited length of the path. It should be considered that Mental Skill Training courses in the literature have a duration ranging from 5 to 25 meetings (Mamassis, Doganis, 2004; Thelwell, Greenless 2001), where the smallest number of meetings is mainly related to individuals and not to groups.

The second hypothesis (H2) can be confirmed only for the variables Self-esteem and Self-efficacy, considering the result of the median, where the T3 values of the two variables increased compared to T0 even if with a small variation. This could be attributed to the already identified limits of the sample and the brevity of the intervention.

On the contrary, only some sub-scales regarding coping strategies have increased (Use of instrumental support, Dealing operatively with situations, Behavioural disengagement, Use of emotional support, Use of substances). In particular, for what concerns Behavioural disengagement and Use of substances, this variation was not expected, but it is nevertheless considered interesting and valuable for further investigation, isolating those aspects related to the emergency situation and those related to isolation.

Another interesting aspect is the variation detected between the correlations of the different sub-scales of the variables considered. In particular, we have compared the correlations between T0 and T3 of the sub-scales of Self-efficacy and coping strategies.

The statistically significant negative correlation between Finalization of the Action, Relational Fluidity, Context Analysis (sub-scales of Self-efficacy) and the dis-adaptive coping strategy, as well as that between Relational Fluidity and Denial, are further strengthened. Similarly, the positive correlation between Context Analysis, Finalization of the Action and Planning has had an equal trend. We know that the interventions carried out in the protocol are particularly relevant to the areas of self-efficacy and self-esteem. The variations, albeit minimal, in the averages of Self-efficacy values may have influenced the trend towards more adaptive coping strategies. Self-efficacy is the belief of the individual that he or she possesses the skills to produce the required levels of performance and that he or she exerts his or her influence on events that have an impact on his or her life. Beliefs about self-efficacy determine how the individual feels, thinks, is motivated and behaves (Bandura 1994). The strengthening of this belief could support the abandonment of inactive behaviour towards more adaptive responses, or the reinforcement of the choice of more functional actions.

A fact that goes against the trend of what has been said so far is the decrease of the correlation between Emotional Maturity (self-efficacy underwriting) and Acceptance (adaptive coping strategy).

For what concerns the Adult Dispositional Hope Scale, a significant positive correlation with all the self-efficacy sub-scales was found, as well as the strengthening of this correlation in the second survey (T3), with the exception of the Emotional Maturity which, on the contrary, decreased. With respect to coping strategies, the Hope correlates positively and significantly with different adaptive response strategies (Positive Reconstruction/Re-interpretation, Dealing operatively with situations, Planning) and negatively with Behavioural Disengagement. These correlations were reinforced in the second survey (T3) with the exception of "Dealing operatively with situations".

No significant changes were found in the sub-scales of self-efficacy and coping strategies affecting emotional aspects. Considering that these aspects play an important role in the management of the emergency, it is considered appropriate to supplement the Mental Skill Training protocol with an intervention that will strengthen emotional management.

The Adult Dispositional Hope Scale measures the perceived ability to act on pathways towards achieving desired goals and to self-motivate oneself by the thought of being effective in achieving them. This construct has some aspects in common with the concept of self-efficacy, therefore the Hope variable may have been influenced by Mental Skill Training in the same way as it was detected for Self-efficacy.

The self-esteem values in both the first and second detection do not correlate significantly with any of the sub-scales identified, although the median values have undergone a positive change. Self-esteem concerns more structural aspects of the person and its variations may take longer than is necessary for self-efficacy.

8. Conclusions

The outlined hypotheses tended to observe the relationship between Mental Skill Training as a methodology of intervention to strengthen the resources needed in an emergency situation. Moreover, the present study also aimed at testing a protocol that could then be replicated on a statistically significant sample.

The results obtained lead us to deepen the research on a numerically larger sample with a larger number of sessions. Considering that no significant variations have been found in the sub-sheets of self-efficacy and coping strategies concerning emotional aspects, which could be important resources in emergency situations, it is considered appropriate to integrate the experimental protocol with an intervention that works on the emotional and psychophysical component, through mindfulness sessions whose scientific evidence suggests that they can strengthen attention and emotional self-regulation (Meiklejohn et al. 2012).

We are aware that the number of samples observed, and their duration represented a limit in this research, which has been highlighted in the data processing. However, it is still confirmed the value of the experimentation that has allowed even on a small sample to have such a feedback as to improve the effectiveness of the intervention.

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