DEVELOPMENT OF SELF-EFFICACY IN CHILD EDUCATORS THROUGH THE WORKSHOP APPROACH. INTERVENTION AND DATA ANALYSIS

SVILUPPO DELL'AUTOEFFICACIA NEGLI EDUCATORI PER L'INFANZIA ATTRAVERSO L'APPROCCIO LABORATORIALE. INTERVENTO E ANALISI DEI DATI

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Abstract

The present research work focused on a training course related to L-19 art. 5 D.LGS. 13 April 2017, no. 65. The sample, which participated in the experimentation, is part of a very large group of students who have to complete the degree course. The identification of the need was detected by the qualitative analysis of the students (with the help of questionnaires and autobiographical writing), over the last two years (Demetrio, 1995; 2000). The survey revealed difficulties in managing emotions in particular, in complex situations. Hence the research hypothesis: that is, whether workshop learning can affect the development of educators' emotional maturity and consequently the development of the perception of self-efficacy in complex situations. The work, therefore, aims to establish whether there is a connection between the workshop approach and the development of emotional competence and perceived self-efficacy in complex situations.

Il presente lavoro di ricerca si è focalizzato su un percorso di formazione relativo ai laboratori infanzia L-19 art. 5 D.LGS. 13 aprile 2017, n. 65. Il campione, che ha partecipato alla sperimentazione, è parte di un gruppo molto esteso di studenti che devono completare il percorso di laurea. L'individuazione del bisogno è stato rilevato dall'analisi qualitativa degli studenti (con l'ausilio di questionari e la scrittura autobiografica), negli ultimi due anni (Demetrio, 1995; 2000). Dall'indagine è emersa la difficoltà nella gestione delle emozioni in particolare, in situazioni complesse. Da qui nasce l'ipotesi di ricerca: ovvero se l'apprendimento laboratoriale possa incidere sullo sviluppo della maturità emotiva degli educatori e di conseguenza sullo sviluppo della percezione di autoefficacia nelle situazioni complesse. Il lavoro, dunque, vuole stabilire se c'è una connessione fra l'approccio laboratoriale e lo sviluppo della competenza emotiva e dell'autoefficacia percepita in situazioni complesse.

Keywords

Professional Educators, Laboratory Teaching, Self-efficacy, Data Analysis
Educatori Professionali, Didattica Laboratoriale, Autoefficacia, Analisi dei Dati

Introduzione

The present research work focuses on a training course related to the L-19 childhood laboratories decreed by Art. 5 Legislative Decree No. 65 of 13 April 2017 (non-retroactive) implementing the reorganisation, adjustment and simplification of the university training system, with the aim that students acquire and continuously update the knowledge and skills, both disciplinary and professional, necessary to perform their function to the best of their ability. Furthermore, from A.A. 2019/20 (MIUR note of 05/05/2018 - prot. 24814), for the purposes of access to the posts of educator of children's services, the three-year degree in class L-19 - Education and Training Sciences, must meet, pursuant to Annex B of DM 378/2018, several requirements in the teaching curriculum including at least 5 CFUs of laboratories in SSDs M-PED/0l, M-PED/02, M-PED/03, M-PED/04, M-PSI/04 with specific content on childhood 0-3 years, giving particular attention to knowledge and

skills related to typical and atypical development, observation, design, organisation and evaluation of early childhood educational contexts and activities; to knowledge and skills relating to the content of educational proposals and methodologies in early childhood, with an interest in experience and the various modes of expression and the development of emotional competence; to the management of relationships in support of parenting and the management of complex situations.

The sample, therefore, which participated in the experiment, is part of a very large group of students who have to complete their degree course. The identification of the need was detected by the qualitative analysis of the students (with the help of questionnaires and autobiographical writing) over the last two years (Demetrio, 1995; 2000). The survey revealed difficulties in managing emotions in particular, in complex situations. Hence the research hypothesis: that is, whether workshop learning can affect the development of educators' emotional maturity and consequently the development of the perception of self-efficacy in complex situations. The work, therefore, aims to establish whether there is a connection between the workshop approach and the development of emotional competence and perceived self-efficacy in complex situations.

Detecting the need from the narrative allowed teachers to listen and record a set of information to which the student gave the form of a 'story' being more likely to be accepted and understood. Stories that make use of the notion of plot imply clear emotional feedback. They are the expression of the intelligent transformation of reality data, i.e. by patterns, constructs and forms. Therefore, the staging of 'narrative theatres' cannot but meet with 'theatres of the mind'.
The importance of didactics to make explicit contents dynamic in relation to (implicit) intellectual competences, appropriately balanced in role-plays in continuous metamorphosis (Demetrio, 2005) is therefore emphasised. The workshop approach offers operational spaces, in which experiences, knowledge and personal skills can be shared in a brisk and stimulating pathway this applies to the students, but at the same time to the teacher who is immersed in an experience made up of sensations and perceptions. Laboratories thus become the core of the training of educational personnel in which the teacher immerses himself by impregnating himself with experiences and in which he experiences what he will have to propose didactically (Sibilio, Aiello, 2015). Through the workshop approach, proposed to the students, an attempt was made to bring to their attention the analysis of the narrated situations, guiding them in the identification of the "bodily self" through the neuro-scientific study of bodily experience, transferring the focus on one's own acting from a sense of agency to a sense of ownership (Caruana, Borghi, 2013).
The learning process is thus closely related not only to knowing *how to do*, but above all to knowing *how to be*, an awareness that is accompanied by trials and errors, failures and successes. Error, therefore, is inherent to human existence, so much so that it can be considered a characteristic trait of it; it is part of the anthropological roots of learning (Postman, 1981).

1. Social learning

The collection and analysis of student narratives developed several questions about how social learning, particularly in education, influences the professional development of educators and how much the learning of student workers is conditioned by the work environment. For Bandura (1977), learning comes through observation and imitation and it was from this assumption that he coined the term modelling. The social learning theory, in fact, stems from the observation of children learning through the social environment by imitating the behaviour of others. This theory, however, is not limited to the developmental age, but to all learning processes (long life learning). Berthoz (2013) himself expresses the concept of vicarious solutions when one needs to adapt to a bio-psycho-social change.

Analysing, moreover, the variables involved in the learning process, it is believed that one's own and others' expectations of performance exert a very strong influence on behaviour, the evaluation of effects and results, and learning processes (Bandura, 1997). From social learning theory, Bandura developed the construct of self-efficacy: the individual's own belief and judgement that he or she can organise and perform successfully. Those with a low sense of self-efficacy will tend to believe that they are unable to cope with events, so they will be inclined to avoid certain situations or engage in low-performance behaviour, resulting in possible failure. The negative outcome in turn fuels the sense of low self-efficacy in a vicious circle from which it is difficult to escape. Helping the student to understand that it is permissible to make mistakes and that mistakes can be constructive is crucial (Coppola, Di Martino, 2017).

Identifying the value of *educator agency* entails a change of perspective: educators are given an active role in determining work tasks and prerequisites, thereby improving the quality of education. Educational work, often seen as a personal predisposition to care, tends to be undervalued and not socially considered on a par with other similar professions.
Educational work, on the other hand, is a moral conduct that is based on *refective professional judgement* and in which the development of the person, intellectual honesty, fairness and the well-being for which one works are not the means, but the end of the profession. Training, therefore, must be aimed at identifying the drivers and inhibitors acting on *educator agency*, thus working on the factors on which to act. (Federighi, 2018)

2. Neuroscience and the Error's Pedagogy

Despite the educational potential inherent in error, it is still too often demonised and seen as a failure and something to be avoided as it is perceived as a potential threat.
Neuroscience, however, supports us: a recent MIT study (Bloem, 2022) sheds light on the part of the brain that helps us make decisions. The research team found a group of neurons in the cerebral striatum that encodes information about the potential outcomes of different decisions. These cells become particularly active when a behaviour leads to a different outcome than expected, which according to the researchers helps the brain to adapt to changing circumstances. Indeed, it was shown through several trial-and-error experiments on mice that many neurons encoded details about the relationship between actions, evaluating both positive and negative outcomes. These neurons responded strongly when a behaviour led to an unexpected outcome, i.e. when the action produced the opposite result to what it had in previous trials. These 'error signals' of reward and penalty seem to help the brain work out the best strategy to use. The error signals are decoded in the striosomes, groups of neurons located in the striatum, they send information to different areas of the brain, including those producing dopamine (a neurotransmitter of the catecholamine family, with a control function on movement, working memory, movement planning. It produces the sensation of pleasure and reward). According to the authors, striosomes keep track of what the actual results are,' Bloem says. (2022) *'The decision whether to do an action or not, which essentially requires the integration of multiple outcomes, takes place downstream in the brain'.*

The striatum, therefore, learns by trial and error, is located deep within the brain, and is known to play a key role in making decisions that require the evaluation of the results of a particular motor action. Starting from the neural basis, in this study, researchers analysed how the brain makes decisions by evaluating the cost-benefit ratio (Bloem, 2022). Learning and the connections with the different brain areas, puts him in a position to appropriate all those behaviours that allow him to satisfy needs; to use the learned know-how in different and complex situations; to attempt, on the basis of previous learning, to solve different problems; to exercise those skills that put him in a

position to know how to do and how to be; to engage, finally, in each knowing how to do and in each knowing how to be his whole person (Caruana, Borghi, 2013). Knowing how to do, in this way, translates from mastery of a technique into mastery of oneself (Reboul, 2010).

3. Laboratory Didactics

The intervention consists of 54 hours of workshop training in Ped/03, spread over 10 days. The Didactic Approach is based on David Jonassen's (2010) guidelines on meaningful didactics, i.e.: to give space to the construction of knowledge, not its reproduction; to avoid hyper-simplifications of knowledge by representing the natural complexity of reality; to work with authentic tasks; to work in learning environments taken from the real world: cases rather than instructional sequences; to offer multiple representations of reality; to activate and support reflective practices; to favour the construction of contextualised, not generalised knowledge; to favour the construction of knowledge in a collaborative manner. The workshop was, therefore, a setting within which to develop reflexive capacities and process what happens around and within oneself (Malaguti, 2007; Cadei, Simeone, Serrelli, 2022). From the analysis of the reflections that emerged, the need was felt to "deconstruct the students/educators' synapses, emotions and judgement about themselves in order to restructure their skills". Fundamental, were the psycho-educational group experiences, aimed at increasing self-esteem and managing anxiety. Indeed, encouraging storytelling, conversation, dialogue and discussion are strategies known to be effective. Neuroscience and Embodied Cognition emphasise the irreplaceable role of learning from experience (Eppe, Gumbsch, Kerzel, Nguyen, Butz, Wermter, 2020). For the pedagogical lexicon, it means almost deschooled, but considering that an embodiment of a perceptual-motor matrix characterises most cognitive processes, whether they are directed towards the external world, such as the representation of objects and space, imagination, understanding of language and the intentions of others, or towards the internal world, such as emotional experience, decision-making processes, representation of one's own body, consciousness (Caruana, Borghi, 2013).

Thus the use of narrative acts as a support for lived, experiential and relational learning, aimed at recalling the role of educational narrative - both phenomenological and value-based - as an opportunity to think about the meaning of things, life, tasks and personal responsibilities (Demetrio, 2005).

The proposed didactic workshop intervention is divided into two weeks: the first consists of four hours over five days, while the second consists of eight hours over four days. The following table shows

	FIRST WEEK	**SECOND WEEK**
DAY 1	- getting to know the participants, personal presentation, writing and sharing in the Forum area of the university platform one's autobiography (Demetrio, 2000) - mindfulness session - asynchronous session dedicated to the re-elaboration of the proposed activity through the writing of one's own experiences in the	"Destructuring brain synapses, emotions and self-judgement to structure competences" through psycho-educational group experiences that increase self-esteem and contain anxiety. It is a setting within which to develop one's reflective capacities and process what is happening around and within

	dedicated Forum (e-learning platform area)	oneself (Malaguti, 2007; Cadei, Simeone, Serrelli, 2022)
DAY 2	• Brain Storming • mindfulness session • asynchronous hour dedicated to reviewing the proposed activity by writing about one's experiences in the dedicated forum (area of the e-learning platform)	• Mindfulness session
DAY 3	• division into thematic sub-groups Cooperative Learning - discussion • mindfulness session	• Thematic video projections, cooperative learning, role playing • Mindfulness session
DAY 4	• asynchronous hour dedicated to reviewing the proposed activity by writing one's experiences in the dedicated forum (area of the e-learning platform)	• Project Work active experimentation of learnt content • Mindfulness session
DAY 5		

Tabella 1 Laboratory teaching approach

4. Tools

Two tests were administered to the students:

a) The Scale of Perceived Self-Efficacy in Dealing with Complex Problems (Farnese, Avallone, Pepe, Porcelli, 2010). The scale provides four separate scores for each subject, in relation to each of the factors that emerged:

• Emotional maturity: beliefs that people have about their abilities to handle stressful situations; to cope with unexpected events; to have good self-control over difficult events and situations.

• Finality of action: beliefs that people have about their ability to set concrete and achievable goals, prioritising them and adapting them to their competencies, and to pursue established goals.

• Relational fluidity: beliefs that people have about their abilities to interact and deal with others; to give and ask for help, to maintain good relations with others and to manage interpersonal conflicts.

Context analysis: beliefs that people have about their ability to "read" the context in which they find themselves operating by grasping the connections between different events and situations; to understand the requests coming from people in the environment; to use language appropriate to different circumstances.

b) The Social Anxiety Disorder (Social Phobia) Severity Rating Scale - This instrument is part of a number of assessment proposals made available by the APA[1]. It is a 10-item instrument

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[1] Severity Measure for Social Anxiety Disorder

that assesses the severity of social anxiety symptoms in subjects over the age of 18. The scale was developed to be completed by the subject Each item requires the subject to rate the severity of their social anxiety disorder over the past seven days. The purpose of using this test is to understand the existence of relationship difficulty on the part of educators and whether this may impair self-efficacy.

c) sub-scale of the Self-Compassion test assessing over-identification was also administered. Another way in which self-compassion is distinguished from self-pity concerns the extent to which individuals identify with personal pain and suffering. People who live in self-compassion feel completely absorbed in their feelings. This process can be termed 'over-identification' and occurs when individuals become so immersed in their current emotional reactions that other aspects of the person, those capable of providing alternative emotional responses, become inaccessible (Goleman, 1995; Bennett-Goleman, 2001).

5. Sample and control group analysis
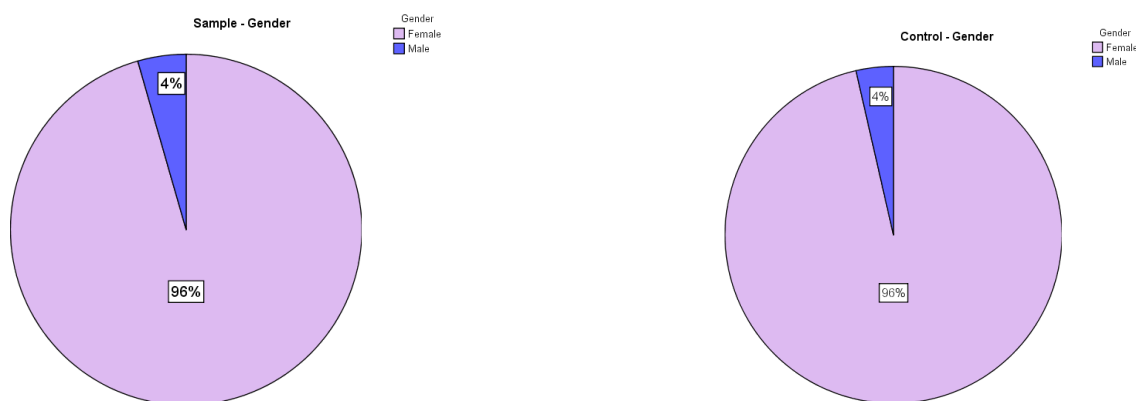
Graph. 1 & 2 Sample and Control Group gender

It can be seen from Graphs 1 and 2 that the predominance is female (96%). Control and sample perfectly homogeneous.
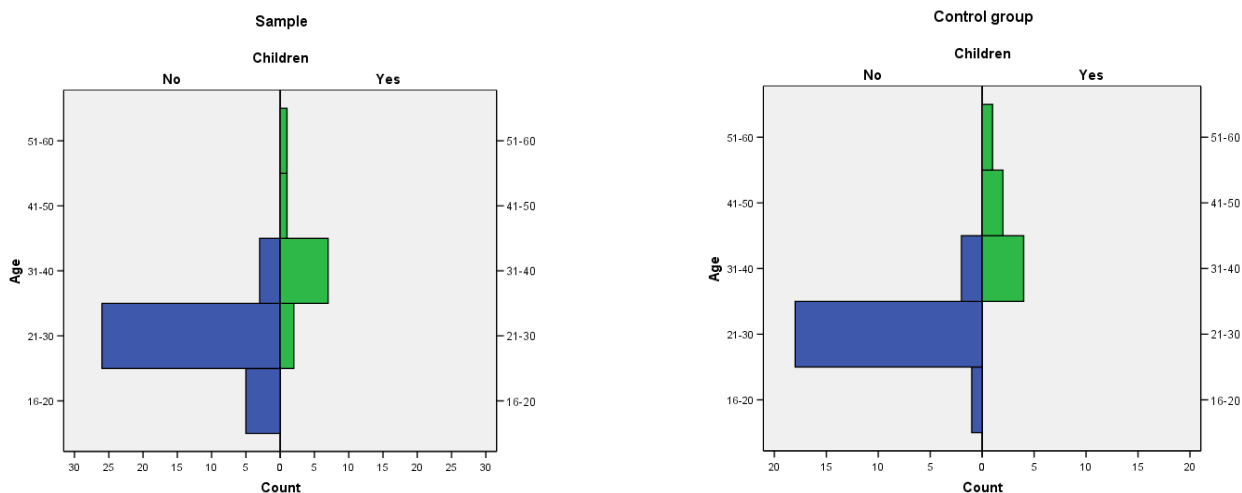
Graph. 3 & 4 Sample and control group

Graphs 3 and 4 show that the elements over 40 all have children. Almost 100% of the elements under 30 have no children and that control and sample are homogeneous.

Marital status - SAMPLE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	28	62.2	62.2	62.2
	Married	9	20.0	20.0	82.2
	Cohabitant	7	15.6	15.6	97.8
	Separate/Divorced	1	2.2	2.2	100.0
	Total	45	100.0	100.0	

Tab. 1 Marital status - sample

Marital status - CONTROL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	19	67.9	67.9	67.9
	Married	4	14.3	14.3	82.1
	Cohabitant	3	10.7	10.7	92.9
	Separate/Divorced	2	7.1	7.1	100.0
	Total	28	100.0	100.0	

Tab. 2 Marital status - Control

62.2% are single in the sample vs. 67.9% in the control group. Only a small percentage (2.2%) are separated/divorced in the sample vs. 7.1% in the control group

Education - SAMPLE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma Superiore	40	88.9	88.9	88.9
	Bechelor's degree	5	11.1	11.1	100.0
	Total	45	100.0	100.0	

Tab. 3 Education - sample

Education - CONTROL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Diploma Superiore	22	78.6	78.6	78.6
	Bechelor's degree	6	21.4	21.4	100.0
	Total	28	100.0	100.0	

Tab. 4 Education - Control

88.9% of the sample has a high school diploma vs. 78.6% of the control group. No element has a Master's degree/doctorate.

Children - SAMPLE

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	34	75.6	75.6	75.6
	Yes	11	24.4	24.4	100.0
	Total	45	100.0	100.0	

Tab. 5 Children Sample

Children - CONTROL

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	21	75.0	75.0	75.0
	Yes	7	25.0	25.0	100.0
	Total	28	100.0	100.0	

Tab. 6 Chinldren Control

75.6% had no children in the sample vs. 75.0% in the control group

6. Data Analysis

6.1 PAIRED-SAMPLES T-TEST (SPSS STATISTICS)

In this study design, we wish to determine whether there are changes in the scores of a dependent variable between two related groups.

In this case, the two 'related groups' are two 'time points' (i.e. Time Point No. 1 and Time Point No. 2 in the diagram below).

The null hypothesis (H0) for a paired-samples t-test is:

H0 : the population mean difference between the paired values is zero (i.e., μ diff $= 0$).

And the alternative hypothesis (HA) is:

H0 : the population mean difference between the paired values is not equal to zero (i.e., μ diff $\neq 0$).
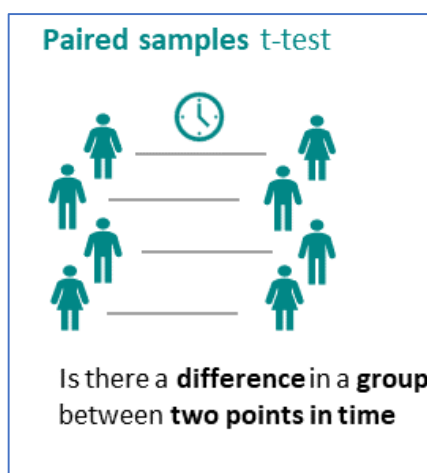
Paired samples t-test

Is there a **difference** in a **group** between **two points in time**

Verification of applicability conditions

The conditions for applicability of the test are:

• **A dependent variable that is measured continuously**

Always verified in our analysis

• An independent variable consists of two related categories, groups or matched pairs (i.e. a dichotomous variable).

Always verified in our analysis

Normality

• The distribution of differences of the dependent variable between the two related groups should be approximately normally distributed. With 45 statistical units, the normality test is deemed unnecessary.

In conclusion, we can consider the conditions verified.

6.2 Data analysis – Perceived Self-Efficacy (in complex systems) – T1 vs T2

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Emotional maturity - T2 - Emotional maturity	-1.156	4.269	.636	-2.438	.127	-1.816	44	.076

Tab. 7 Pared Samples Test Emotional maturity

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Action finalization - T2 - Action finalization	-2.200	5.455	.813	-3.839	-.561	-2.706	44	.010

Tab. 8 Pared Samples Test Action Finalization

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Relational fluidity - T2 - Relational fluidity	-2.711	5.480	.817	-4.357	-1.065	-3.319	44	.002

Tab. 9 Pared Samples Test Relational fluidity

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Context Analysis - T2 - Context Analysis	-2.600	5.821	.868	-4.349	-.851	-2.996	44	.004

Tab. 10 Pared Samples Test Context Analysis

We evaluate the statistical significance value (i.e. the *p* value) (column " Sig. (2 code) ") of the t-test for paired samples. If $p < .05$, this means that the mean difference between the two related groups is statistically significant. Alternatively, if $p > .05$, there is no statistically significant mean difference between the two related groups.

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Total - T2 - Total	-8.667	16.950	2.527	-13.759	-3.574	-3.430	44	.001

Tab. 11 Pared Samples total Test

6.3 Data analysis – Self Compassion - Over-identification – T1 vs 2

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Over-identification - T2 - Over-identification	.25556	.98207	.14640	-.03949	.55060	1.746	44	.088

Tab. 12 Pared Samples Test Over indentification

The statistical significance value (i.e. the p-value) (column " Sig. (2 code) ") of the t-test for paired samples is $p > .05$, so there is no statistically significant mean difference between the two related groups. 6.4 Analisi dei dati – Social Anxiety Disorder – T1 vs T2

Paired Samples Test

| | | Paired Differences | | | | | | | |
| | | | | | 95% Confidence Interval of the Difference | | | | |
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	df	Sig. (2-tailed)
Pair 1	T1 - Social Anxiety Disorder - T2 - Social Anxiety Disorder	.04889	.70859	.10563	-.16400	.26177	.463	44	.646

Tab. 13Pared Samples Test Social Anxiety

The statistical significance value (i.e. the p-value) (column " **Sig. (2 code)** ") of the t-test for paired samples is **p > .05**, so there is no statistically significant mean difference between the two related groups even though total anxiety on average decreases

6.7 Analisi dei dati – Correlazioni al periodo T1

Correlations

		T1 - Social Anxiety Disorder	T1 - Over-identification	T1 - Emotional maturity	T1 - Action finalization	T1 - Relational fluidity	T1 - Context Analysis	T1 - Total
T1 - Social Anxiety Disorder	Pearson Correlation	1	-.557**	-.353*	-.212	-.433**	-.236	-.378*
	Sig. (2-tailed)		.000	.017	.162	.003	.118	.010
	N	45	45	45	45	45	45	45
T1 - Over-identification	Pearson Correlation	-.557**	1	.288	.056	.247	.070	.200
	Sig. (2-tailed)	.000		.055	.714	.103	.648	.187
	N	45	45	45	45	45	45	45
T1 - Emotional maturity	Pearson Correlation	-.353*	.288	1	.504**	.430**	.499**	.736**
	Sig. (2-tailed)	.017	.055		.000	.003	.000	.000
	N	45	45	45	45	45	45	45
T1 - Action finalization	Pearson Correlation	-.212	.056	.504**	1	.617**	.614**	.838**
	Sig. (2-tailed)	.162	.714	.000		.000	.000	.000
	N	45	45	45	45	45	45	45
T1 - Relational fluidity	Pearson Correlation	-.433**	.247	.430**	.617**	1	.657**	.834**
	Sig. (2-tailed)	.003	.103	.003	.000		.000	.000
	N	45	45	45	45	45	45	45
T1 - Context Analysis	Pearson Correlation	-.236	.070	.499**	.614**	.657**	1	.853**
	Sig. (2-tailed)	.118	.648	.000	.000	.000		.000
	N	45	45	45	45	45	45	45
T1 - Total	Pearson Correlation	-.378*	.200	.736**	.838**	.834**	.853**	1
	Sig. (2-tailed)	.010	.187	.000	.000	.000	.000	
	N	45	45	45	45	45	45	45

· Correlation is significant at the 0.01 level (2-tailed).

*· Correlation is significant at the 0.05 level (2-tailed).

Tab. 14 Correlations t1

The increase in anxiety correlates with a strong decrease in Self-Compassion (Over-identification) and Perceived Self-Efficacy in complex systems (Relational fluidity) and with a decrease Perceived Self-Efficacy in complex systems (Emotional maturity) and Perceived Self-Efficacy in complex systems in general. All areas of Perceived Self-Efficacy in complex systems are strongly positively correlated with each other. By working on a single area, improvements can also be expected in the other areas

6.8 Data analysis - Correlations to period T2

Correlations

		T2 - Social Anxiety Disorder	T2 - Over-iden tification	T2 - Emotional maturity	T2 - Action finalization	T2 - Relational fluidity	T2 - Context Analysis	T2 - Total
T2 - Social Anxiety Disorder	Pearson Correlation	1	-.657**	-.436**	-.321*	-.454**	-.209	-.421**
	Sig. (2-tailed)		.000	.003	.031	.002	.169	.004
	N	45	45	45	45	45	45	45
T2 - Over-identification	Pearson Correlation	-.657**	1	.360*	.307*	.310*	.235	.359*
	Sig. (2-tailed)	.000		.015	.040	.038	.121	.016
	N	45	45	45	45	45	45	45
T2 - Emotional maturity	Pearson Correlation	-.436**	.360*	1	.727**	.734**	.597**	.909**
	Sig. (2-tailed)	.003	.015		.000	.000	.000	.000
	N	45	45	45	45	45	45	45
T2 - Action finalization	Pearson Correlation	-.321*	.307*	.727**	1	.648**	.576**	.866**
	Sig. (2-tailed)	.031	.040	.000		.000	.000	.000
	N	45	45	45	45	45	45	45
T2 - Relational fluidity	Pearson Correlation	-.454**	.310*	.734**	.648**	1	.498**	.846**
	Sig. (2-tailed)	.002	.038	.000	.000		.001	.000
	N	45	45	45	45	45	45	45
T2 - Context Analysis	Pearson Correlation	-.209	.235	.597**	.576**	.498**	1	.779**
	Sig. (2-tailed)	.169	.121	.000	.000	.001		.000
	N	45	45	45	45	45	45	45
T2 - Total	Pearson Correlation	-.421**	.359*	.909**	.866**	.846**	.779**	1
	Sig. (2-tailed)	.004	.016	.000	.000	.000	.000	
	N	45	45	45	45	45	45	45

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Tab. 15 Correlations t2

After the intervention, correlation analysis shows that the increase in anxiety is correlated with a strong decrease in Self-Compassion (Over-identification) and Perceived Self-Efficacy in complex systems (Emotional maturity, Relational fluidity and Total Area Value) and with a decrease in Perceived Self-Efficacy in complex systems (Action finalisation)

Self-Compassion (Over-identification) is positively correlated with Perceived Self-Efficacy in complex systems (Emotional maturity, Action finalization, Relational fluidity and Total Area Value

All areas of Perceived Self-Efficacy in complex systems are strongly positively correlated with each other. By working on a single area, improvements can also be expected in the other areas.

6.8 Data Analysis - Increase in Correlations between Periods T1 & T2

Correlations T1

		T1 - Social Anxiety Disorder	T1 - Over-identification	T1 - Emotional maturity	T1 - Action finalization	T1 - Relational fluidity	T1 - Context Analysis	T1 - Total
T1 - Social Anxiety Disorder	Pearson Correlation	1	-.557**	-.353*	-.212	-.433**	-.236	-.378*
	Sig. (2-tailed)		.000	.017	.162	.003	.118	.010
	N	45	45	45	45	45	45	45
T1 - Over-identification	Pearson Correlation	-.557**	1	.288	.056	.247	.070	.200
	Sig. (2-tailed)	.000		.055	.714	.103	.648	.187
	N	45	45	45	45	45	45	45
T1 - Emotional maturity	Pearson Correlation	-.353*	.288	1	.504**	.430**	.499**	.736**
	Sig. (2-tailed)	.017	.055		.000	.003	.000	.000
	N	45	45	45	45	45	45	45
T1 - Action finalization	Pearson Correlation	-.212	.056	.504**	1	.617**	.614**	.838**
	Sig. (2-tailed)	.162	.714	.000		.000	.000	.000
	N	45	45	45	45	45	45	45
T1 - Relational fluidity	Pearson Correlation	-.433**	.247	.430**	.617**	1	.657**	.834**
	Sig. (2-tailed)	.003	.103	.003	.000		.000	.000
	N	45	45	45	45	45	45	45
T1 - Context Analysis	Pearson Correlation	-.236	.070	.499**	.614**	.657**	1	.853**
	Sig. (2-tailed)	.118	.648	.000	.000	.000		.000
	N	45	45	45	45	45	45	45
T1 - Total	Pearson Correlation	-.378*	.200	.736**	.838**	.834**	.853**	1
	Sig. (2-tailed)	.010	.187	.000	.000	.000	.000	
	N	45	45	45	45	45	45	45

· Correlation is significant at the 0.01 level (2-tailed).

· Correlation is significant at the 0.05 level (2-tailed).

Tab. 16 Correlations between t1 & t2

Correlations T2

T2 - Social Anxiety Disorder	T2 - Over-identification	T2 - Emotional maturity	T2 - Action finalization	T2 - Relational fluidity	T2 - Context Analysis	T2 - Total
1	-.657**	-.436**	-.321*	-.454**	-.209	-.421**
	.000	.003	.031	.002	.169	.004
45	45	45	45	45	45	45
-.657**	1	.360*	.307*	.310*	.235	.359*
.000		.015	.040	.038	.121	.016
45	45	45	45	45	45	45
-.436**	.360*	1	.727**	.734**	.597**	.909**
.003	.015		.000	.000	.000	.000
45	45	45	45	45	45	45
-.321*	.307*	.727**	1	.648**	.576**	.866**
.031	.040	.000		.000	.000	.000
45	45	45	45	45	45	45
-.454**	.310*	.734**	.648**	1	.498**	.846**
.002	.038	.000	.000		.001	.000
45	45	45	45	45	45	45
-.209	.235	.597**	.576**	.498**	1	.779**
.169	.121	.000	.000	.001		.000
45	45	45	45	45	45	45
-.421**	.359*	.909**	.866**	.846**	.779**	1
.004	.016	.000	.000	.000	.000	
45	45	45	45	45	45	45

Tab. 17 Correlations t2

After the intervention, new correlations appeared or there was a strong increase in correlation in the areas: Perceived Self-Efficacy in complex systems (Emotional maturity, Action finalisation and Total Area Value) vs. Social Anxiety. Self-Compassion (Over-identification) is positively correlated

with Perceived Self-Efficacy in complex systems (Emotional maturity, Action finalisation, Relational fluidity and Total Area Value, whereas before the intervention there was no correlation.

6.9 INDEPENDENT-SAMPLES T-TEST (SPSS STATISTICS)

The independent-samples t-test is used to determine whether there is a difference between the averages of two independent groups on a continuous dependent variable.

The null hypothesis (H0) for an independent samples t-test is:

H_0: the population averages of the two groups are equal (i.e. $\mu 1 = \mu 2$)

And the alternative hypothesis (H_A) is:

H_0:

the population averages of the two groups are not equal (i.e. $\mu 1 \neq \mu 2$).

Verification of applicability conditions

The conditions for applicability of the test are:

- **Independent observations**

Each statistical unit represents a different person. The condition applies to our data).

- **Normalità**

The dependent variable must follow a normal distribution in the population. This is only necessary for samples smaller than about 25 units. With 45 statistical units, the normality test is deemed unnecessary.

- **Omogeneità**

The standard deviation of our dependent variable must be equal in both populations. We only need this assumption if our sample size is (clearly) unequal. SPSS checks whether this is true when we perform our t-test. If not, we can still report the correct test results. In conclusion, we can consider the conditions verified.

6.10 Data Analysis – Perceived Self-Efficacy (in complex systems) – T2 vs Control group

Group Statistics

	Stefy	N	Mean	Std. Deviation	Std. Error Mean
T2 - Context Analysis	Control	28	22.61	3.614	.683
	Stefy	45	24.67	4.011	.598

Tab. 18 Group Statistics

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
T2 - Context Analysis	Equal variances assumed	.648	.424	-2.214	71	.030	-2.060	.930	-3.915	-.204
	Equal variances not assumed			-2.269	61.928	.027	-2.060	.908	-3.874	-.245

Tab. 19 Independent Sample Test

Of what was studied, only the area Context Analysis - Perceived Self-Efficacy (in complex systems) - shows a statistically significant improvement between the control group and the sample subjected to treatment. The other areas show improvement, but not statistically significant. This suggests that it might be useful to prolong the intervention to see if it also has a statistically significant impact on the other areas.

1. Discussions and Conclusions

The Perceived Self-Efficacy Test (in complex systems), and the DSM V social anxiety test were administered to the sample. Before the intervention, increased anxiety is strongly negatively correlated with Self-Compassion (Over-identification) and Perceived Self-Efficacy in complex systems (Relational fluidity), while it has a negative correlation with Perceived Self-Efficacy in complex systems in general and the Emotional maturity area in particular. All areas of Perceived Self-Efficacy in complex systems are strongly positively correlated with each other. By working on a single area, it can be assumed that improvements can also be achieved in the other areas. After the intervention, the correlation analysis shows that the increase in anxiety also became strongly negatively correlated with the Emotional maturity area and the Total Value Area, while a negative correlation was also added with Perceived Self-Efficacy in complex systems (Action finalisation). Self-Compassion (Over-identification), which showed no correlation before the intervention, after the intervention is positively correlated with Perceived Self-Efficacy in complex systems (Emotional maturity, Action finalisation, Relational fluidity and Total Area Value).

All areas of Perceived Self-Efficacy in complex systems reinforce the strong positive correlation between them. In general, new correlations appeared after the intervention or there was a strong increase in correlation in the areas. It is emphasised that Self-Compassion (Over-identification) is positively correlated with Perceived Self-Efficacy in complex systems (Emotional maturity, Action finalisation, Relational fluidity and Total Area Value, whereas before the intervention there was no correlation at all. Of the areas under study, only the Context Analysis - Perceived Self-Efficacy in complex systems area shows a statistically significant improvement between the control group and the sample undergoing treatment. The other areas show improvement, but not statistically significant. This suggests that it might be useful to prolong the intervention in order to check whether it also had a statistically significant impact on the other areas.

The analysis of the data that emerged, therefore, seems to us to be in line with what has been shown in the literature, with respect to the efficacy of experiential involvement (Embodied Cognition) on emotional elaboration processes, in the workshop activity. The increase between T1 and T2 of the Emotional Maturity data, although weakly significant, could have influenced the negative correlation of over-identification by enhancing percived self-efficacy.

In conclusion as far as the line of research is concerned, the sample should be enlarged. The results, although positive, indicate the need for a necessarily longer time of workshop teaching to consolidate competences. From the encouraging data, it is clear that the teacher's attention must be focused on soliciting an active role from the pupils, who must be put in a position to choose and decide between several options. Responsibility for the result must be placed, with appropriate gradualness, in their hands, entrusting them with the organisation and monitoring of the activities; urging continuous reflection on what is being done and has been done; making the learners work as a 'working group' (discussing, evaluating options, taking responsibility, deciding, managing conflicts, etc.). It is also essential to anchor learning activities (macro or micro) in the learners' current experience from reality and not from the disciplines (Sibilio, 2016).

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