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(Eds.)

Creative person and the development of creativity

A challenge for contemporary society

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PREFACE

**CREATIVITY BETWEEN CHALLENGES
AND THE SEARCH FOR MEANING**

As one delves into the annals of human history, it becomes evident that at the heart of every epochal shift, behind every Renaissance of thought, stands a silent, potent force: creativity. This intangible concept, elusive in definition and vast in implication, defines the very tapestry of our existence. The title of this book, "Creative person and the development of creativity: a challenge for contemporary society," is a homage to this powerful trait and a passionate exploration of its multifaceted influence on humanity.

From the ancient cave paintings that encapsulated primitive life, to the architectural marvels of the Renaissance to the technological innovations of the 21st century, creativity has been the guiding compass. It is more than mere invention; it synthesizes our observations, experiences, knowledge, and emotions into novel forms and ideas. In a perpetually evolving world, our creative essence becomes the bridge that connects our past with the potential future, enabling adaptation, evolution, and growth.

Education historically, has been recognized as a cornerstone for human development. When considering the role of education in fostering creativity, it is paramount to recognize that proper education goes beyond mere knowledge transfer. It is about cultivating a mindset, honing skills, and nurturing innate talents.

In its holistic form, education creates an environment where learners are encouraged to question, analyze, and synthesize. It provides a framework for structured thinking while allowing room for divergent thoughts. The delicate balance of imparting knowledge while stimulating curiosity is what proper education seeks to achieve.

This symbiotic relationship between education and creativity is evident when we look at how the world's leading educational institutions have consistently promoted interdisciplinary studies, collaborative projects, and experiential learning – all in a bid to nurture creativity. Education prepares us not just for jobs or societal roles but also to harness our innate creativity, ensuring our imaginative prowess is not left dormant. It teaches us the value of perseverance, the joy of

discovery, and the serenity in introspection. Through education, we are not just learners but also creators, consistently encouraged to bring forth our unique perspectives and ideas. Thus, as much as creativity shapes our world, education shapes our creativity, ensuring its refinement, direction, and application.

Creativity has manifold expressions. In business realms, like human resource management, it drives innovation, fosters productive environments, and carves out competitive edges. Creativity paves the way for novel strategies that foster understanding and reconciliation in conflict resolution. Ethical and moral dilemmas inherent in our complex societal structure, often find resolution through creative introspection and reasoning. Even our physical expressions manifest this inherent creative drive through sports and motor activities, articulating our deepest emotions and experiences.

However, as pervasive as it is, understanding creativity remains a colossal endeavor. Is it an innate quality, present from birth, or is it sculpted over time, shaped by experiences? Philosophers have mused over its nature, scientists have tried to map its neural pathways, and educators have sought ways to nurture and enhance it. While its exact origin and mechanisms might remain a mystery, its importance in our contemporary landscape is undeniable. Creative solutions become desirable and essential in an era of global challenges, from environmental crises to socio-political upheavals.

Central to the creative process is fostering specific cognitive and emotional qualities. Open-mindedness, resilience in the face of failure, curiosity, and intrinsic motivation to explore are foundational to creativity. Additionally, our environment plays a pivotal role. Spaces promoting diversity of thought, encouraging risk-taking, and valuing individual expression serve as breeding grounds for creative ideas.

The goal of this book, which contains the research results of a group of international scholars who focused on this specific domain, is to inspire readers, provoke reflection, and reignite their appreciation for the boundless realms of human creativity. This volume is a deep dive into the vast sea of creativity. Each essay within is a unique exploration, a journey unto itself, reflecting creativity's myriad manifestations and implications. These are not just scholarly texts; they are profound meditations on an aspect of human nature that, while universally present, remains tantalizingly intangible. In the ev-

er-evolving tapestry of our shared human experience, creativity is our legacy and guiding light towards the future.

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PERSONAL CREATIVITY AS SOCIAL ACTION

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Abstract. The analysis of the demand for creative workers by Industry 4.0 is given. The aim of the research is to identify contextual and personal barriers to the development and manifestation of creativity, its development possibilities as a professionally important quality of a creative innovator. The connection between creativity and innovativeness is shown. For the first time creativity with its process and interactivity characteristics is viewed as a social action in its system determinacy on the levels of society culture, development contexts, personality, and organism. It is shown that on the level of society culture with dominating values of stability and security there is a serious barrier to development of personal creativity and necessity of participation in innovations. The barrier is not absolute because development values are present and can be used as predictors of innovative behavior of a certain part of potential and real staff of companies.

Introduction

The technological revolution of Industry 4.0 changes the social context of social, educational, and working life, as it involves a movement from a stable, predictable, relatively simple world to an unstable, uncertain, complex and ambiguous VUCA world (Johansen, 2013). Futurologists predict the advent of a fragile, unsettling, nonlinear, and incomprehensible world (Cascio, 2019). One can debate the extent to which the world as a whole and in a particular country has come to conform to these characteristics, but the fact that living and working conditions are becoming increasingly difficult to predict and turbulent is no longer in doubt. The resilience of a particular company and the economy as a whole depends on how quickly and even ahead of the curve businesses and organizations prepare for technological and managerial innovation (Cameron & Quinn, 2003).

The labor market is changing dynamically, placing new demands on the employee. The modern economy requires personnel with competencies beyond formal education: values of innovativeness, creative, personally involved in the work process, showing responsi-

bility and initiative, developing along with the work process, taking responsibility for self-learning (Fossen, 2019, Gimpelson, 2022).

Creativity and innovativeness

Starting from the works of E.P. Torrance, G.Eysenck, J.P. Guilford, creativity is understood as a human characteristic manifested in sensitivity to problems and existing deficit of solutions, in the ability to refuse stereotypes of perception and thinking, in curiosity, search for solutions, proposing and testing hypotheses and formulating results based on use of special qualities of cognitive abilities in the form of predominantly divergent fluent, flexible, original and irrelevant thinking. Research in recent years shows the high importance of emotional intelligence in creativity. Emotional intelligence, which includes well-being, self-control, emotionality, and sociability, suggests a better capacity for divergent thinking, which in turn increases the likelihood of creating a creative invention (Giancola, 2022). J. Kaufman and R. Beghetto's concept of the "Four C's" reveals levels of creativity: everyday creativity (also called "small-C"), which can be found in almost all people, and outstanding creativity (also called "Big-C").

They add the idea of "Mini-c," the creativity inherent in the learning process, and Pro-c, developing and requiring effort to advance beyond the "little-c," which is a professional-level experience in any creative field (Kaufman, 2009). This approach is valuable because it opens up the consideration of creativity not only in creatives, but in most people who need this quality to succeed in modern life. The stages and seven trajectories of achieving different levels of creativity are traced: from the universal creativity seen in all people from infancy; the level that is rare compared to peers (child or adult creates unusual points of view, actions, products, issues) to the development of talents (expertise, acquisition of knowledge and skills), heuristics (acquisition of knowledge of strategies and ways of doing things), information production (moving from adaptation to start adding new information and transformation or revolutionizing the field of tasks; given Creativity manifests itself in different spheres of spiritual, practical and, alas, even in criminal activity, so the question of value-motivational regulation of the development of creativity is of particular importance for society.

The labor market's demand for creative employees itself needs some clarification, because, as a rule, we are not talking about innovative employees. And it is they who, when creating a new thing, are able to implement it themselves or organize its implementation in

practice. Or they themselves, without creating innovation, are able to perceive it, not to be afraid, not to experience stress, to abandon the stereotypes that ensure adherence to the familiar, which has become traditional, and is already inferior to new technologies in its impact on productivity and labor quality. Innovation can be a therapeutic intervention, a training method, an assessment practice, a management practice, a clinical guideline, a policy directive, an improvement initiative, or another activity or program. But it is always a specific technology, when implemented, that can improve productivity and quality of work.

There is no direct link between creativity and innovativeness (Jagolkowski, 2019). Creativity acts as the most important, but still the first step in the innovation process (Anderson, 2014). A true innovator is a person with a sufficiently high level of both creativity and innovativeness, who is able not only to produce new original ideas, but also to ensure that they are brought to prototyping and developing conditions for implementation in practice. Current research shows conditions that facilitate the transition from creativity to the next steps in the innovation process. Certain leadership styles (transactional and supportive) mediating the connection between creativity and innovativeness enhance employee innovativeness (Lee, 2020; Wenjing Cai, 2021). Innovativeness with necessity needs an environment that supports and rewards creative ideas.

Thus, the turbulent features of the world, the external and internal environment of the organization in which one studies or works, the trends of innovative development of the economy, the demands of the labor market make everyone understand the personal task of finding himself in the VUCA world as a person and a professional. The relevant question for everyone is: whether it is possible and, if it is possible, under what conditions and by what means to develop personal creativity?

The aim of the theoretical study, the results of which are presented in the article, is to reveal the opportunities and limitations in the development of personal creativity and to predict on this basis the propensity of a person to participate in innovative activities.

Creativity as a social action

Numerous studies of creativity show its processivity (formation, development, extinction, variability of scenarios in ontogenesis), as well as its dependence on social conditions and the subject's own position. These facts point to the interactive nature of the process of its formation. That is why it seems reasonable to consider personal crea-

tivity as a social action based on T. Parsons' theory (Parsons, 2000). Fig.2 shows the theoretical model of systemic determination of personal creativity at the levels of society culture, context cultures, personality, and organism. Personal conservatism as an alternative to creativity is considered.

This approach agrees not only with T. Parsons' theory, but also with the classical principle of psychology formulated by S.L. Rubinstein about mediation of external factors by internal ones, with the ideas of modern European psychology about the necessity to study personality in external contexts (Guimond et al., 2010). Contexts of society culture, family structure, organizational culture of school, university, and place of work of the subject are the most significant with regard to creativity development. Consideration of creativity as social action necessitates analysis of values that are predictors of behavior (Schwartz, 2012).

The level of culture of society

The value specifics of the level of culture of contemporary Russian society, of which any citizen is a natural part, consists in the unconditional dominance of the values of security, relationships, and stability. According to the Russian Public Opinion Survey (September 2020), the most important values were security (90%), financial situation (74%), health (94%), relationships in the family (76%). The unconditional importance of creative self-realization in and out of work was recognized by 31% of respondents. It is not quite clear in what sphere creative self-realization is manifested; the surveys do not specify it. Home embroidery, gardening and gardening may well contribute to a positive answer about the importance of creative self-actualization in the respondent's life.

At the same time, earlier studies, considering the specificity of age groups, revealed a small value consensus. This means that common value trends, are not unifying, and this is especially true for the values "Openness to Change - Preservation", directly related to the creativity of potential and real staff as part of society. These data are important for understanding the value heterogeneity of Russian society. Value diversity is a prerequisite for its innovative socio-economic development.
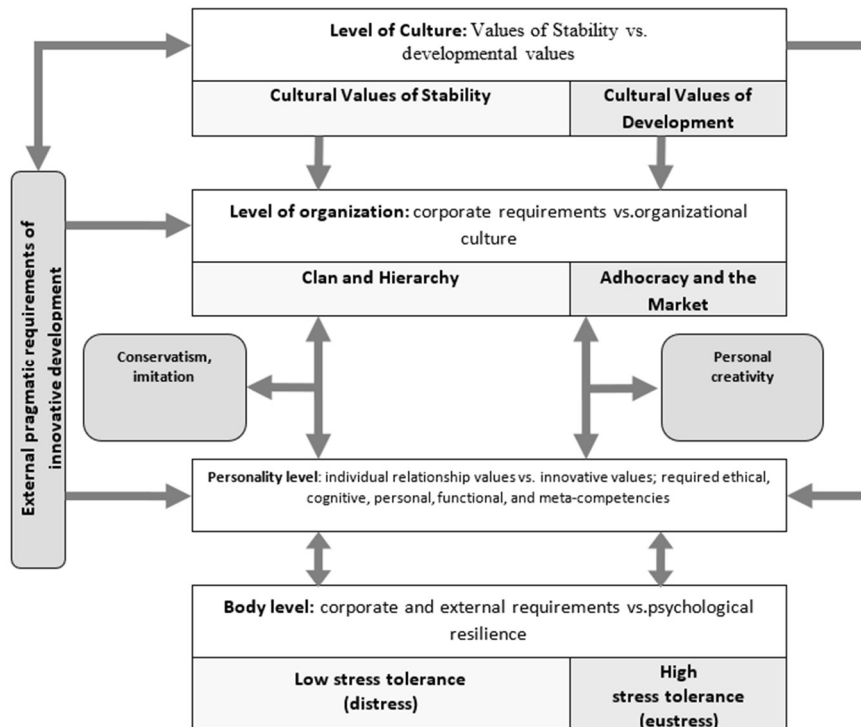
Fig. 1. Theoretical model of system determination of creativity-conservatism

According to the World Values Survey, 72-76% of Russians, regardless of age, are positive about the increasing role of emerging technologies in their lives (World..., 2020, p. 16). However, the positive attitude toward innovation reflects more of a consumer motivation, since people do want new medicines, new technology, and infrastructure where they live. Own participation in innovative activities is quite another matter. A significant portion of both executives and executive level employees of corporations do not trust the implementation of digital technologies in management (Raichenko, 2020).

The level of the family

The family, of course, most fully reflects the cultural specificity. But each family has its own peculiarities of being, including the family determinants of creativity formation, its barriers, and opportunities. The family is the first social context for the child.

Of course, it is unlikely that any parent would deny his or her desire to develop their children's creative talents. However, few would want their child to be a "white (particularly clever and creative) crow" in a peer group. In this case, he may even be subjected to bullying, and

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the basic cultural need for security warns parents against such a fate for their child. Moreover, parents are usually unaware of creativity, its importance, and methods of developing it. Only some families raise their children by purposefully developing their abilities (sports, separately, chess, which has the most direct connection with the development of intellect, internal action plan, necessary in creativity, mathematical, artistic, etc.), mainly entrusting this to professionals. Schools for especially capable children are not only a kind of incubators of children's creativity, but also a kind of psychological protection for such children.

It has been shown on young children that children's cognitive abilities and skills lead to personal choices and a personal network of peer contacts. Creative children engage each other and meet in creative social processes. However, less creative children are excluded from the creative core. Thus, the children who need creative scaffolding the most receive the least in their intellectual and creative development (Reunamo, 2014). But where such children are in the majority, it is the creative children who may be socially excluded.

Usually, parents who have the financial resources to bring in specialists to help raise children in the family direct them to pay for nannies, psychologists, and tutors without singling out intellectual development, much less creativity, as a particularly meaningful goal. Child development as a significant topic is present in parents' reasoning, but what, how it is developed, and whether the specialists involved are able to develop something remain questions without a clear answer (Sizova & Korenkova, 2020). Here it is appropriate to remember that in sociological surveys more and more respondents recognize women's equality and egalitarian family structure, but in reality, they live according to deeply ingrained gender stereotypes. Gender stereotypes hinder girls' creative development and are serious barriers to mastering professions related to technical creativity and professional fulfillment in them (Ellis et al., 2016; Savinskaya, 2020).

Gender stereotypes are only part of the cultural stereotypes that inhibit the development of creativity. A study of the relationship between parents' cultural values and their children's creativity has shown that the strong emphasis of parents, especially fathers, on social conformism and unquestioned parental authority has a negative impact on their children's creativity.

An open question remains the involvement of the family in the child's choice of the sphere of application and development of his general and creative abilities, which he finds by participating in many activities with varying degrees of success. Is this wide choice

given to him or her, or do parents decide what is more useful or prestigious for their child to do? Or maybe this choice is passed on the shoulders of the school vocational guidance specialist, when the child, having been on social media uncontrollably for a long time, has chosen an idol from the many popular bloggers-influencers and will try to emulate him.

An important resource of a family way of life is intrafamily relations, the psychological climate in the family. The family way of life with not too liberal, but also not too rigid requirements to children's behavior, where nonstandard behavior and cognitive development are stimulated, is favorable for development of creativity, formation of positive perception of own abilities, level of independence in decision-making, responsibility. At the same time, strict limitations and control, or the elimination of parenting altogether, have a dramatically negative, inhibiting effect on the development of creativity. It is especially important not to focus the child on the authority of parents, encouragement of doubts, allowing the right to make mistakes (Lubart et al., 2019; Tkachenko & Manukyants, 2021, Agulova, 2022).

The latter seems especially important because strict control, censure and even punishment for mistakes, lead to the formation of motivation not of achievement, but avoidance of failure. Fear of punishment leads first the child, then the adolescent, later the student to search for ways that may contain a creative component, but of a negative nature, cheating, copying off, etc. The flourishing of plagiarism not only in universities, but also in science puts a limit to genuine creativity, reduces the creative potential of society as a whole.

The significance of the quality of family relationships for the development and manifestation of creativity is confirmed by the data that high creativity in organizational management is found in managers with a positive history and a favorable family climate not only in the stages of growing up, but also in the stage of real managerial activity (Szopiński, 2013).

Organizational culture of educational institution, potential and real place of work

If the position of the child in the family, the presence or absence of any factors of creativity development is not controlled by society, the educational institutions, potential and real places of work act or can act as carriers of the request for creativity of students, pupils, employees. However, it is not all that simple. In organizations creativity develops or does not develop, manifests or does not manifest depend-

ing on the organizational culture (OC), which represents the dominant values and corresponding behaviors, providing both external adaptation in the current conditions to an unstable and uncertain world through internal integration in relation to external and internal challenges. Schools tend to be dominated by dependent-passive, less often by dependent-active OCs, close to the hierarchical-clannish and clannish-hierarchical types according to the typology of C. Cameron and R.Quinn (Cameron & Quinn, 2003), and very rarely there are free-passive and free-active types of OC (mainly in elite schools), and in colleges and universities the clannish-hierarchical type of OC prevails (Shakurova, 2013; Patutina & Revina, 2020; Zakharova et al., 2017, 2020).

It has been known since M. Weber that hierarchical (bureaucratic) cultures not only do not create a demand for creativity, but also push it out of organizational life, because the basic values of such cultures are following instructions, algorithms, standards (Weber, 2003; Diamond, 1996; Cameron, 2001; Brettel et al., 2015). Management's attempts to innovate in such cultures lead to high psychological costs for the staff, cause states of psychological malaise, feelings of health deterioration by experiencing high levels of stress (Caesens et al., 2017; Zakharova & Leonova, 2020, 2021).

Understanding the difficulties and even impossibility of creativity development in such organizational conditions, management is looking for ways to overcome the organizational and cultural barrier. These searches go in the direction of changing organizational conditions, because the market-adhocratic QA of the few innovative companies in Russia so far successfully mediates between the culture of society and the employee, making him/her an adherent of new innovative values using the practices of supportive managerial interaction (Zakharova, 2021). The same happens in elite schools and universities. Tools are being developed to increase the innovativeness of OC, which can be used to improve innovation in any organization based on its culture. OC parameters are saturated with characteristics important for increasing innovativeness: goal orientation, employee engagement and commitment, trust, and team spirit, and methods are being developed to reduce the psychological costs of changing OC.

Much attention is paid to the development of technologies to support employee innovativeness, models of corporate training for creative thinking designed to improve both idea generation and idea implementation skills in trainees. (Zavyalova et al., 2018; Birdi, 2021). There are still controversial attempts to introduce new types of organizational functioning in the form of so-called lilac and mother-of-pearl organizations, aimed at increasing responsiveness, revealing the

creativity of employees, liberating thinking, providing opportunities for self-realization and self-management without excessive control of managers with high responsibility of executors for their actions. Management, on the one hand, gives freedom of thought and creativity to its own team, and on the other hand, preserves the direct vertical hierarchy.

The personal level of determination of creativity

If nevertheless, despite all difficulties of an exit on a trajectory of development of creativity or having got in a favorable environment of family structure, school, higher education institution, the person sets questions of development of the creativity, certainly, at this level of determination there are possibilities. They can be divided into three blocks: reflexive estimation of own creativity - conservatism, development of personal creativity, development of creativity in group work.

1. Reflexive evaluation of one's own creativity conservatism

1.1 It is necessary to assess, for example, with the help of reflective thinking, the strength of the influence of values and negative stereotypes of society's culture on oneself. If one wants to develop one's creativity in a changing world, one has to give up negative stereotypes, such as the stereotypes of age and gender bias. That new is well forgotten old, etc. It is worth practicing checking your decisions for stereotypes, observing other people and practicing to see in their decisions and actions signs of stereotypes, conservative values that have lost their firmness, etc. One should try to solve ordinary everyday problems, comparing stereotypical and original solutions for their correspondence to morality, practical importance, prospective value for individuals and society as a whole. These rather simple methods of checking oneself for conservatism, stereotypicality of thinking and behavior will help to overcome unconscious resistance to creative solutions.

1.2 It is worth to give the same analysis of the power of influence of those restrictions of creative thinking, which took place in family upbringing, in educational institutions and even, perhaps, in the sphere of additional education, on which parents pinned their hopes. What opportunities were used, what entered the personal creative capital: what values, characteristics of thinking, fantasy, imagination, embodiment of creative plans in life, what spheres of application of

personal creativity are already defined, and which are seen as actual and attractive.

1.3 Keeping in mind the influence of OC on the development and manifestation of creativity, it is worth worrying about the careful attitude to the choice of workplace, collect information about the company's OC, about the demand for innovation in it, the management's value attitude towards innovative development. The models of OC with a dominant hierarchical component will hold back the development of personal creativity, and not only prevent its manifestation, but may gradually turn the employee into a convinced conservative.

2. Development of personal creativity

2.1 Stimulation of creativity. Human life usually takes place in similar conditions and, at first glance, does not require much creativity. But only at first glance. Even the situation of giving New Year's gifts can be very different. Usually children prepare for gifts, wait for them, hint or directly ask for one or the other. Parents and loved ones try to be on top of things. But it's only worth getting the child the valuable idea that before you get presents, it's a good idea to prepare them yourself for your loved ones, your favorite dog, your neighbors, etc., as the situation changes fundamentally. It is easy enough to help the child to find adequate, for him/her creative solutions, based on a desire to please with an original memorable gift, considering the individual characteristics of recipients of gifts, material and time resources. This situation is a challenge to creativity and adults. This is a very simple example where both stimulation of creativity and even the use of special methods of solving creative problems are required.

The goal of creativity stimulation is to go beyond the ordinary, to gain freedom of thought and imagination, to expand and enrich associations, to strengthen the categorization perception function, to reduce functional fixation, **to** activate the right hemisphere and emotions, to overcome the stereotypical decisions that prevail in our mind. There are many means of stimulating creativity. Among the most effective and at the same time pleasant is art. It is possible to use for stimulation of creativity an appeal to works of music, painting, poetry.

Contemporary art allows one to look at reality from unexpected positions, to gain a creative impulse. It is worth noting here that it is very likely that over time an individual sensitivity, in terms of gaining fresh associations, to the works of a particular current in art or of a particular author will emerge.

2.2 Stimulation of emotional intelligence. To stimulate the emotional intelligence, works of classical art may be appropriate first,

and then works of modern art. First in painting and poetry, then in music. This is a kind of training in recognizing emotions first in realistically presented actors in an understandable situation, then, moving toward more and more abstraction, for example, by the works of P. Picasso. Trying to understand what experiences you would have had in similar situations and why is also a useful technique for developing emotional intelligence.

2.3 Mastering methods of creative problem solving. By now many effective methods have been developed that are used to solve problems that require a creative approach. These are brainstorming, focal object method, etc., which have already become traditional. Relatively new are virtual brainstorming, the method of mental pockets, design thinking, etc. The Robinson method helps to find unusual ways of using ordinary and even seemingly unnecessary objects, it is useful for stimulating creativity as well as for finding creative solutions. The method of focal objects (F. Kunze, C. Whiting, E. de Bono), which gives properties of random objects to the object that is the subject of the problem being solved, can be very effective if properly mastered. TRIZ (Theory of Inventive Problem Solving), created by G. Altshuller, is a formalized methodology that includes a large set of methods, techniques and algorithms and is currently experiencing its second birth.

2.4 Development of creativity in group work. Here it is possible to allocate several aspects: search or creation of creative group, use of methods of creative work in group and mastering of communicative competences aimed at maintenance of positive interpersonal relations and creative interaction. The main point of uniting creative people in groups is mutual understanding, which is a good psychological support in the presence, and it usually happens, of numerous critics. But not only that. It is an enriching mutual influence, contributing to the creative growth of participants, more effective problem solving. For performing group tasks collective motivation turns out to be the most successful, because at the moment of common goal-setting peculiarities of psycho-emotional state of a person, personal attachments and friendly preferences are erased, and he gets involved in the energy field of the group, revealing maximum individual potential in aggregate collective work. The role provision of creative management teams is revealed in the research and advisory practice of M.R. Belbin (Belbin, 2011).

He showed the necessity of presence in a team of people capable of performing the roles of coordinator, navigator, generator of ideas, expert (experts), executor (executors), diplomat and closer. Exactly such composition can act as a collective creative innovator, provid-

ing good understanding of problems, generating ideas, their expertise and bringing development to the final result to be implemented. It is difficult to overestimate the role of the diplomat, smoothing out contradictions, preventing possible conflicts. All these roles belong to people with specific individual-psychological qualities. Violations in the formation of teams lead to low effectiveness of solutions.

There is very productive research of role ensembles of group decision of creative tasks, made in our country by Y.A. Ponomarev and his pupil Ch.M. Gadzhiev. They not only developed the role structure of creative team: task finder, critic, activator, generator of ideas, resonator, performers, but also revealed the psychological mechanism of group solution of creative tasks (Gadzhiev, 1982; Gadzhiev & Ponomarev, 1983). This model is built on Y.A. Ponomarev's theory of creative decision making based on the use of by-products of the decision process. They are usually not noticed by the generator of ideas himself, but there is a resonator who is sensitive to the by-products and can convey their value to the group. In addition to role differentiation, functional diversity is recommended, increasing openness to experience in the group (Wang et al., 2022).

Numerous group methods of creative problem solving can be applied in a group. The well-known method of Six Hats (E.de Bono), intended to increase creativity in group decision also assumes a role division of functions. The participant in the white hat works with information, in the green hat - produces ideas, in the black hat - a pessimistic critic, in red - relies on intuition, in yellow - an optimist who finds strengths in the proposed solutions, and in blue - leads, sets goals, coordinates, summarizes results.

One of the most complex methods W. Gordon and J. Prince Synthesis, based on the combination in the process of finding a solution to a problem heterogeneous, sometimes even incompatible elements, is very effective and actively used.

Finding your place in a creative group, creating it or being part of it, means strengthening the resources of personal creativity.

The organismal level of creativity determination

This level includes practically personally unregulated psychophysiological characteristics related to the brain organization of creativity, as well as the most important regulators in the form of managing the level of creative motivation, mental performance, prevention and overcoming distress. Mental performance is extremely important for a creative person. It is based on a healthy lifestyle in general and a correct daily routine in particular. Stress prevention and overcoming

are based on learning or working activities in innovative OC, with managerial interaction providing support and trust within the team, a sense of security with a dissenting opinion (Duchek, 2020; Huang & Liu, 2022).

In group work, specific coping strategies are actualized. Some types of resources reduce nonconstructive ways of responding to stress, others reinforce constructive ways, and others are resourceful in both reducing non-adaptive coping and reinforcing adaptive coping (Sovmiz, 2020). Creative motivation management skills are very important. Creative tasks tend to be difficult to solve and take time. One's own desire for a quicker solution, external demands, and subjective time constraints cause stress. Stress is more destructive to the process of solving a difficult task (Kitaev-Smyk, 2009). A vicious circle emerges: the stronger the desire to solve quickly, the more stress destroys the activity. Understanding the mechanisms of creative problem solving helps to build the correct activity using Helmholtz's theory of unconscious inference. Its meaning is that having gathered all the available material necessary for the solution of the problem, to divert oneself from its solution by engaging in some other activity. Temporary withdrawal from the problem also makes it possible to get away from too high a level of motivation. In accordance with the Yerkes-Dodson Law, a lower level of motivation is needed to solve subjectively difficult tasks, which include creative tasks. If this level is lowered, it is possible to reach the so-called motivational optimum, which facilitates finding a solution.

Conclusions

Therefore, in a nutshell, we can affirm that:

1) Creativity is now a sought-after quality not of individual creative people, but of the majority. Both the innovative development of the country's socio-economic sphere and the personal success of its citizens in private and professional life depend on its availability.
2) Creativity has a process and interactive nature, so it can be considered as a social action in its systemic determination at the level of the culture of society, the culture of family and organizational contexts, the personal and organismic levels.
3) Development of personal creativity supposes a reflexive revision of possibilities and restrictions of its formation received on the way of life in the form of values and habitual patterns

of behavior learned in family and educational institutions, refusal of those stereotypes of thinking and action which have lost their expediency in modern conditions.

4) Development of creativity includes on the personal level of determination finding a place of work (study) with innovative values of the personnel's creativity request and its support, stimulation of creativity, development of emotional intelligence, the mastering of special methods, search or creation of creative groups to solve creative problems as a collective creative innovator. As psycho-physiological support of creativity it is advisable to develop competences on maintaining mental performance, managing creative motivation, preventing, and overcoming stress.

5) The preservation of traditional types of organizational culture in educational institutions is a barrier to the development of creativity in most students, and in companies - a barrier to the development of staff creativity, as a result - reducing the resilience of the company in a turbulent environment. It is advisable to create circles (clubs) of creativity development in educational institutions, in companies - to develop appropriate modules in corporate training systems.

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INTERDISCIPLINARITY IN CREATIVITY RESEARCH A COMPARATIVE ANALYSIS OF SCIENTIFIC PUBLICATIONS IN RUSSIAN AND ENGLISH

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Abstract. Research on creativity leads scholars to reflect on the breadth of the concept and the need for interdisciplinary approaches to study it comprehensively. In order to analyse the results of interdisciplinary research, a series of content analyses of articles revealing the application of approaches from several branches of science in creativity research was conducted. In the Russian-language segment of creativity, creativity, and giftedness research, 75 texts were selected in which the authors stated the use of several concepts from different sciences in combination, which allowed to obtain enriched results and to consider the phenomenon of creativity from different sides. We believe that these articles represent the entire volume of texts devoted to interdisciplinarity in Russian scientific publications, and it is not possible to expand the body of texts at this time with Russian-language texts. In the English-language segment, 338 scholarly articles from *Creativity Research Journal* (all issues) were selected, which represented the concepts of several disciplines and were focused on the analysis of creativity in the broad sense of the word.

Introduction

For more than 50 years creativity and its derivatives (creative personality, creative thinking, creative product, creative process, creative class) have been an attractive field for researchers from different fields of knowledge, without any unified definition (Zakharova, 2017) and research methods. The study of creativity is being carried out by representatives of different fields: psychology, economics, philosophy, sociology, cultural studies, etc. Currently, there are several thousand publications on this topic; it is studied especially intensively in the countries with rapid economic development (Mayorov, 2022). At present, creativity is one of the most sought-after personality traits in the modern world - in business, studies, and any field of professional activity. It is welcomed by university graduates, employees, and is associated with hopes for a successful career.

One of the key tasks of a modern university is to find and attract talented applicants to the areas of study that correspond to its sphere of interest. In 2022 the NNSU Lobachevsky's leadership set the task of developing methods for recruiting creative applicants. The reasons for selecting the creativity competence lie in the integral nature of this characteristic. The Information Design Laboratory was founded in 2021 on the initiative of Lobachevsky NNSU Faculty of Social Sciences within the Priority-2030 program. One of its tasks was to develop a complex research program on the students' creativity level based on psychological, sociological, linguistic and cross-cultural methods as well as intelligent analysis of user data in social networks. The experience of applied sociological research and the beginning of mastering big data technology in the socio-humanities are supplemented by a long fruitful cooperation with universities in other cities of Russia and abroad. The creation of the laboratory is an important milestone and recognition of the successful work of the team of the Department of Subject and Applied Sociology in cooperation with other units of the Faculty of Social Sciences.

Creativity: labour market demands

Modern companies need employees capable of identifying problems and communicating them in a timely manner, coming up with a new product or predicting possible options for the company's development. Creativity in this situation is both reactive - responding to contemporary challenges, acting proactively, and proactive - creating new opportunities for development as a driver of societal transformation. Success, innovation, progress and prosperity are currently associated with creativity.

Creativity as the ability to find non-standard, new solutions applicable in practice can be seen in terms of cognitive processes, socio-cultural conditioning, necessary sets of knowledge and skills. The notion of creativity overcomes the notion of creativity as the destiny of the gifted and the chosen and helps to see the importance of creative processes in all spheres of society.

In a broad sense, creativity is not just the ability to create. It is the ability to act in situations of uncertainty and to solve non-standard problems in the same non-standard way.

No soft skills rating can do without creativity: for example, according to the World Economic Forum, it will rank fifth among all soft skills by 2025. Creativity helps to build new systems and improve the performance of existing ones, plays a critical role in forecasting and the ability to see new opportunities.

In recent years, business has been actively discussing and shaping competency models for the future, with creativity as one of the keys. In 2019, business social network LinkedIn measured demand by analysing the skills listed in the profiles of the highest paid professionals. Only cities with at least 100,000 social network users were included in the sample. According to the results of the study, creativity was the most sought-after competence among employers (Lytvynova, 2019). In 2020, the situation regarding the importance of creativity remained the same (more than 660 million professionals and 20 million employers were surveyed) (Veselko, 2020).

According to hh.ru, in 2020 the requirement of creativity skill was found in 97 thousand vacancies on the website, in 2021 - in 160 thousand, for part of 2022 - in 106 thousand vacancies. Thus, we can conclude that the demand for creativity in Russia is indeed growing. The point of appealing to creativity is that robotization of old and routine functions does not cancel the business demand for creative employees generating solutions for implementation and implementation of future innovations (Beryozkin, 2019). At the same time, job seekers themselves indicate the possession of creativity skill in 2% of CVs. (Ignatova, 2022). Consequently, the market is experiencing a shortage of employees with creative abilities. Consequently, stimulating creativity and increasing its level is the main task of existing social institutions, including educational institutions.

Creativity: a comparative analysis of scientific publications

The content analysis was carried out using the Lekta software package. In the course of the study the texts of the articles are divided into small (not more than 70 words) semantic passages, a dictionary of the most relevant concepts used in this corpus of texts is compiled, further passages are vectorized by selected words and a factor analysis is conducted, which allows to identify the relationship of concepts within the texts. About 30,000 linguo-semantic chains have been analysed in the Russian language content and more than 70,00 in the English language content. The strength of connection and the combination of concepts in the corpus of texts are presented as sub-themes, which carry interesting semantic loads and are the main subject of analysis. It is the interpretation of the identified themes that allows us to judge the degree of established interdisciplinarity in the study of creativity, as well as the prospects for development to a broadly understood interdisciplinarity (not just combining the methods of different sciences, but interdisciplinary construction of the subject and methodology of analysis).

As a result of the programmatic content analysis in the Russian- and English-language corpus of articles, it was decided to identify 16 factors, the explanatory power of which is more than 25% in each case (Table 1).

Table 1. Factors of content analysis of interviews

Content analysis of articles in Russian		Content analysis of articles in English		
Factor 1	Cognitive science	Factor 1	Psychology	
Factor 2	Careers	Factor 2	Thinking	
Factor 3	Management	Factor 3	Management	
Factor 4	Linguistics	Factor 4	Education	
Factor 5	Humanism	Factor 5	Cognitive science	
Factor 6	Existentialism	Factor 6	Problems	
Factor 7	Education	Factor 7	Deviance	
Factor 8	Knowledge	Factor 8	Expertise	
Factor 9	Psychology	Factor 9	External/Internal	Theory
Factor 10	Thinking	Factor 10	Emotions	
Factor 11	Various sciences	Factor 11	Measurement	
Factor 12	Art	Factor 12	Culture	
Factor 13	Capital	Factor 13	Dialectics	Design
Factor 14	Philosophy	Factor 14	Conflict	
Factor 15	Measurement / Mentality	Factor 15	Upbringing	Academy
Factor 16	Creation	Factor 16	Clinics	Creation

The factors are arranged in the order in which they were identified in the programmatic content analysis, according to the values of the factor loadings (maximum 0.8 for both contents). Several factors proved to be bipolar and included two sub-themes that in some way mutually influence each other. Of interest is both the search for and interpretation of common and different factors in the Russian and English content, as well as the semantic content of similar themes. The factors common to the two contents are highlighted in green, the conventionally similar ones in orange. The location of the factors is also significant for the analysis and shows the development of these themes and their representation in the articles studied, and more broadly in the Russian/English segments of scholarly research on creativity.

Based on the results of the content analysis of Russian-language articles in the field of interdisciplinary studies of creativity, it can be concluded that the semantic space of creativity is not yet divided into the subject fields of different sciences, although psychology (in Russia cognitive sciences are considered to be part of the psychological sciences) and pedagogy clearly dominate. At the same time, the significant presence of broad philosophical themes (Existentialism, Humanism, Philosophy as a Science) is most indicative of the fact that the phenomenon of creativity has so far been conceptualised not so much operationally - for empirical research, but at the level of concepts and key categories, more fundamental than practice-

oriented. This may indicate a lack of conceptualisation of the concepts and the need for further analysis of the possibilities of different sciences in the space of creativity phenomenon.

Creativity appears to be a property of the individual, and most of all, a characteristic of his or her cognitive activity (factor 1). Diagnosis, ego, individual, cognitive abilities, introspection, and diversity are the key concepts in the factor. Quotations from articles related to these categories speak primarily to the mutual influence of creativity and human cognitive abilities:

individual real achievements are the result of formed and integrated cognitive and personal resources as effects of interaction between different types of abilities (cognitive, conceptual, creative) and different forms of mental experience (conceptual, metacognitive, intensional) [Druzhinina S.V.]

Various authors in the Russian-language corpus of papers suggest that, in addition to psychology and pedagogy, the study of creativity should necessarily take into account the managerial component (factor 3), the linguistic one (factor 4), and the contribution of various sciences (factor 11) from genetics and its influence on the identification of creativity to biology, chemistry (internal processes in human bodies) and the possibility of forming an integral approach.

An interesting turn in thinking about creativity is the involvement of different components of economic science - the motivational part in the manifestation of creativity and the requirements of employers for job applicants (factor 2); the need to consider creativity in the management of organisations (factor 3) and the contribution that creativity can make in the development of human capital and the formation of a data and value-based management strategy (factor 13).

The early hypothesis that most articles in the Russian-language segment of creativity studies will focus on creativity and art has not been confirmed; these topics are located in the last third of the list (factors 12 and 16), which is most likely due to the deepening of the scientific study of creativity in the last 10 years in Russia.

The English-language content analysis demonstrates a much clearer subject division of the creativity space: the different sciences are each presented as a separate topic (Psychology, Pedagogy, Management, Cognitive Sciences) and are balanced between them by factor loadings (about 0.5 in each of the factors). The theme of theoretical analysis of creativity is secondary to factor 9 and includes categories related to refining the definition of creativity and its components. The two constructs on the contradictory and dialectical nature of creativity are more about the complexity of the phenomenon than the need for a philosophical reflection of it.

At the same time, there are no texts in this corpus dealing with a philosophical meta-analysis of creativity or suggesting a contribution of exact or natural sciences to its study. This is due to a longer (since the mid-20th century) process of creativity research in Europe and the USA and, therefore, a more precise operationalisation of the concepts in the space of this phenomenon.

Therefore, in the corpus of English-language articles there are topics that reflect a deeper substantive analysis of creativity: Problems (Factor 6), Deviance (Factor 7), Expertise (Factor 8), External/Internal (Factor 9), Emotions (Factor 10), Conflict (Factor 14), Upbringing (Factor 15). The topic within the factor is represented by the lexemes which were selected according to the value of at least 0.2.

The analysis of what is considered to be the norm and deviation at different times, and whether creativity is a deviation or a standard of behaviour, are presented as significant areas of research. External and internal factors in the development of creativity have emerged from the content analysis as a separate topic, and the balance of these has hardly been agreed upon yet. Whether creativity is a property of a personality, which is also genetically determined, or a competence that can be developed during a lifetime, these questions remain unresolved.

Creativity turns out to be associated with emotions, both positive and negative, and the activation of the creative component of work and learning evokes a variety of public reactions. Creative products and behaviours are becoming the subject of social-humanitarian scrutiny, and numerous corporations and foundations are involved in the implementation of creative ideas. Creativity as a property of modern employment, learning and even life in general is becoming an occasion not only for recognizing the diversity of people, but also for their unequal access to various benefits and digital content, which leads to social conflicts. This is why a separate problem factor has been identified, which includes not only the complex situations of a particular individual's life, but also the social dimensions of tension around inequalities related to creativity.

Bipolar factor 15 is represented by two themes at once - education and academia. On the one hand, the study of creativity, though pedalled by many business actors and global corporations (Tesla, Sber, etc.), is centred around academic institutions, most of them psychological, but also not excluding the social sciences (using such constructs as universities, departments and faculties, specific sciences). On the other hand, it is often academic science that is most con-

cerned with identifying creativity in childhood, and developing it in parenting, parent-child relationships, and family learning strategies.

The Mesaures factor (15th) in the Russian-language content turns out to have very little content, located closer to the third part of the list of topics, and to be of little significance in terms of factor load, actually at the cut-off point for lexeme selection (0.2). The analysis of the articles has confirmed the hypothesis that quantitative (statistical) research on creativity is not very well represented in the Russian-language segment, unlike in the English-language corpus of publications.

The English-language content shows a much greater variety of components of the Measurement topic - this includes categories indicating the most frequent variants of statistical research, as well as the importance of data collection and processing, and the subsequent modelling of creative behaviour based on this data.

Conclusion

Summarising the content analysis of Russian and English publications in the field of interdisciplinary research on creativity, the following conclusions can be made. The longer-term study of the phenomenon of creativity has led researchers in the English-language segment of publications to a stricter separation of the subject fields of different sciences studying creativity; a smaller number of texts without an empirical component of analysis and a philosophical understanding of the category; a larger number of topics devoted to an in-depth study of individual aspects of creativity.

At the same time, a much more detailed description of qualitative and quantitative studies allows us to talk about a deeper operationalisation of the concept, a greater number of measurements taken, and including a combination of methods from different sciences. It is this fact that allows us to talk about a more developed problem of interdisciplinarity in the English-language segment of the analysis of creativity, which we can strive for in further research.

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VALUE OF CREATIVITY AND SOCIAL TRUST IN CROSS-CULTURAL COMPARATIVE PERSPECTIVE

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Abstract. The article presents one comparative cross-cultural research on the relation of social trust to the perceived value of creativity. The research is based on the data of the 7th wave of the World Values Survey. The results show that social trust is positively related to the value of creativity and that this relation is not wholly explained by cross-country differences in the level of modernization as measured by economic affluence. Besides, in more affluent countries and in better educated individuals, the relation of social trust to the value of creativity is lower, indicating that as the value of creativity becomes more widespread, t turns from worldview into a matter of individual preferences.

Keywords: value of creativity, social trust, modernization

Introduction

Creativity, same as other personality traits and individual abilities, has come to be regarded as less of a stable immutable attribute and more of a feature that can be stimulated, taught, trained, and/or (self)educated. For this reason, much of the contemporary research on creativity focuses on the ways of increasing creativity, especially in educational and organizational settings (Beghetto, Kaufman, 2010; Simonton, 2012; Chiang, Hsu, Hung, 2014; Thuan, 2020). A crucial factor, as in virtually learning endeavor, is to boost the learners' motivation by helping them legalize the value of creativity.

According to Inglehart's modernization theory, the perceived value of creativity is closely related to the value modernization, and specifically, to the transition from survival to self-expression value orientations (Inglehart, Oyserman, 2004). With the increase and stabilization of material prosperity, innovation, and experimentation with new ways of doing things becomes viewed not as a threat to an existing fragile equilibrium, but as a mode of progressing toward something even better than the current state of affairs (Inglehart, 2018). Thus, economic modernization leads to the modernization of values, and specifically to an increased value of creativity.

This dynamic does not mean that creativity cannot be valued in relatively less affluent societies. A lack of objective factors of security can be at least partly compensated by subjective perception of the environment as safe and secure. For the social environment, it means social trust – a notion that people in general are trustworthy. Social trust as opposed to trust only in people who belong to an ingroup, however is also an attribute of modernization. Although it remains unclear whether an increase in economic affluence primarily fosters social trust or the other way round, the positive relation between the two at the country level has already been empirically demonstrated (Bjørnskov, 2012; Bartolini, Mikucka, Sarracino, 2017).

The aim of this research is to find out whether the positive relation between social trust and the perceived value of creativity is wholly due to modernization. Based on the idea that social trust might create a subjective environment regarded as safe as secure as a compensation, I suggest that social trust also affects the perceived value of creativity independently on the modernization level. Moreover, in more modernized countries, as well as among individuals with a better access to the achievements of modernization due to their better education, the direct relation between social trust and the value of modernization might become weaker as the importance of creativity in these cases is largely taken for granted.

Based on these considerations, I put forward the following hypotheses.

Hypothesis 1. Social trust is positively related to the perceived value of creativity even when controlled for a country's modernization level.

Hypothesis 2a. The positive relation between social trust and the value of creativity is weaker in more economically affluent countries.

Hypothesis 2b. The positive relation between social trust and the value of creativity is weaker in better educated individuals.

Data and Methods

The research hypotheses were tested by means of the data of the currently most recent 7th wave of the World Values Survey. The dataset comprises data collected in 2017 – 2022 on country level representative samples in the following 64 countries: Andorra, Argentina, Armenia, Australia, Bangladesh, Bolivia, Brazil, Canada, Chile, China, Colombia, Cyprus, Czechia Ecuador, Egypt, Ethiopia, Germany, Great Britain, Greece, Guatemala, Hong Kong SAR, Indonesia, Iran, Iraq, Japan, Jordan, Kazakhstan, Kenya, Kyrgyzstan, Lebanon, Libya, Macau SAR, Malaysia, Maldives, Mexico, Mongolia Morocco

Myanmar Netherlands New Zealand, Nicaragua, Nigeria, Northern Ireland, Pakistan, Peru, Philippines, Puerto Rico, Romania, Russia, Serbia, Singapore, Slovakia, South Korea, Taiwan ROC, Tajikistan, Thailand, Tunisia, Turkey, Ukraine, United States of America, Uruguay, Venezuela, Vietnam, Zimbabwe.

To measure the values of creativity, I used a variable from the set items estimating desired qualities in a child. For each item in the set, respondents were asked whether they would like their children to possess a given personality traits by means of the following instruction: "Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five!" Out of the 17 qualities on the list presented to respondents, the item most closely matching creativity is the quality of imagination. Same as all the other items in this set, this variable is a dichotomy indicating whether imagination was or was not mentioned among the desirable child qualities.

The item estimating social trust is also a dichotomy. Respondents were asked "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" with the answer options "most people can be trusted" and "need to be very careful."

Education level was measured via a sociodemographic section of the WVS dataset as the higher education level attained, recoded into a dichotomy differentiating between respondents with and without a higher education degree. Two control variables, age (full years) and gender (female or male), were taken from the same section of the survey. The countries' economic affluence was estimated as the GDP per capita PPP based on the data from the World Bank Data Bank.

To test Hypotheses 1, I estimated a multilevel binary logistic regression model with value of creativity as a dependent variable and social trust, age, gender, and the GDP pc as independent variables. To test the Hypotheses 2a and 2b, I added to the model interaction terms of social trust with education and social trust with the GDP pc respectively.

Results
Descriptive Statistics

Figure 1 presents country scores on the value of creativity. The ratios of respondents mentioning imagination among desirable qualities in a child vary considerably from just 5% in Zimbabve to 54.5% in Guatemala, with the mean of 21.4. The considerable variance of the results shows not just the existence of marked cross-cultural differ-

ences in the perceived value of creativity, but also the validity of the WVS variables selected to measure creativity as a sufficiently sensitive tool of capturing these differences.

While we find both relatively more and less affluent countries at the top and the bottom of the sorted list in Figure 1, Figure 2 shows that, as hypothesized, there exists a positive correlation between a country's economic affluence as measured by the GDP pc and the country level aggregate score on the perceived value of creativity ($\rho = 0.272$, $p < 0.01$). Although some countries are rather far from the regression line, in general, more affluent countries do appear to have a larger fraction of the population believing creativity to be of high importance.

Regression analysis

Table 1 presents results of the regression analysis. M1 is a baseline model without interaction terms estimated for testing Hypothesis 1. The results show that, as hypothesized, social trust is significantly positively related to the value of creativity even when controlled for the GDP pc. Also this model shows that the positive effect of the GDP pc on the value of creativity remains statistically significant even when controlled for the basic sociodemographic variables. Each of the latter also has a statistically significant effect on the value of creativity: the value of creativity is significantly higher in younger people, in men, and in those with a higher education degree.

M2 was estimated to test Hypothesis 2a. As expected, the individual level interaction effect between social trust and education level is significant and negative. It means that the positive relation of social trust to the value of creativity is lower in respondents with higher education compared to those who do not have a higher education degree.

M3 was estimated to test the Hypothesis 2b. Here again, an interaction effect was found to be significant. The negative cross-level interaction effect between social trust and the GDP per capita means that the positive relation of social trust to he perceived value of creativity is the lower, the higher a country's GDP pc.
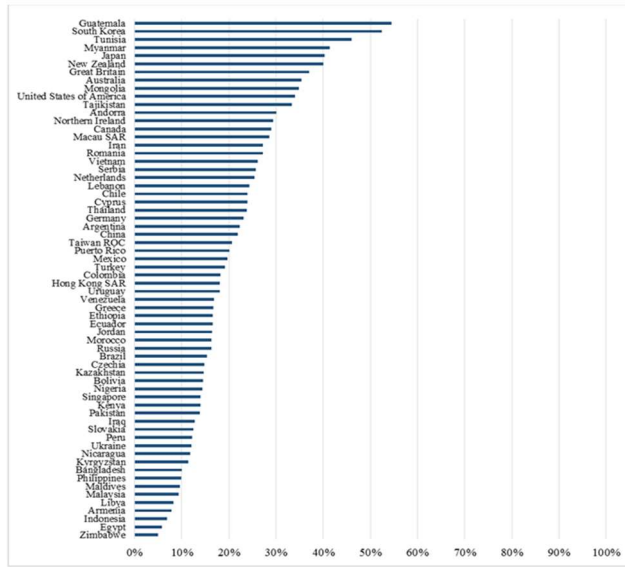
Figure 1. Country scores on the value of creativity (ratio of respondents who mentioned imagination among desirable qualities in a child)
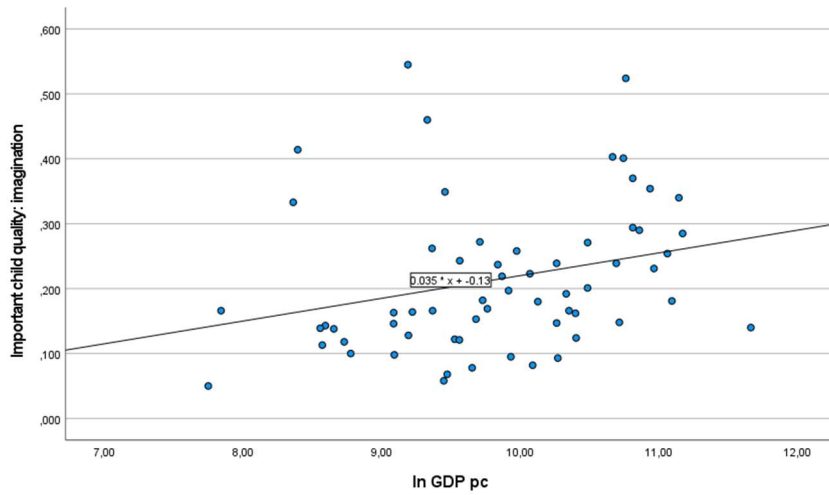

Figure 2. Country level correlation between the GDP pc and the value of creativity (ratio of respondents who mentioned imagination among desirable qualities in a child)

Table 1. Multilevel binary logistic regression models estimating the effect of social trust on the value of creativity.

	M1	M2	M3
Individual level predictors			
Most people can be trusted (ref can't be too careful)	0.246***	0.408***	0.398***
Age	-0.013***	-0.013***	-0.013***
Gender female (ref male)	-0.318***	-0.138***	-0.138***
Higher education (ref no higher education)	0.229***	0.393***	0.226***
Country level predictors			
ln GDP pc PPP	0.279**	0.280**	0.396***
Interaction effects			
Trust * higher education		-0.099*	
Trust * ln GDP pc			-0.063*
AIC	80892.8	80889.0	80888.8
BIC	80958.2	80963.7	80963.5
N1	83861	83861	83861
N2	62	62	62

Discussion and Conclusions

The main hypothesis was confirmed. Social trust is significantly positively related to the perceived value of creativity, and this relation is not wholly due to a country's modernization level as measured by economic affluence. One possible interpretation of this relation is that people with higher level of social trust are open to more life opportunities, have a greater need for creativity to make the most of these opportunities, and therefore place a higher value upon it. Another explanation is that creativity is regarded as experimentation as therefore as a sort of activity to be exercised in a safe and secure environment (as opposed to insecure surroundings that would rather require sticking to well-known, habitual ways of doing things), and people who believe those around them in general can be trusted obviously view the world they live in as relatively safe. It is important, however, not to overlook a possibility of endogeneity. The perceived value of creativity might also affect social trust. One explanation of such adverse relation would be that people who place a higher value on creativity believe that one can adjust oneself to a variety of environments by exercising sufficient ingenuity and therefore feel more secure, regard those around them as less likely to cause serious harm and thus more trustworthy.

An important implication of this positive relation of the perceived value of creativity to social trust is that creativity is understood by the majority of the population in a varied selection of countries around the world in a predominantly positive way. A darker side of creativity, such as "social creativity" essentially meaning distortion

of reality to fit the cherished worldview, particularly the self-serving bias, seems to be recognized primarily by social scientists (van Bezouw, van Der Toorn, Becker, 2021) but practiced by the majority without explicitly acknowledging it as one way of being creative.

The hypotheses about interaction effects were also confirmed. In more affluent countries as well as among better educated respondents, we find not just higher level of the perceived value of creativity but also its weaker correlation to social trust. A plausible explanation of this weaker correlation might have been a lower variance, but, according to the descriptive statistics, at least at present, there is not a single country where a high value of creativity is uniform. Even the highest within ratio of those who highly value creativity is only slightly over one half of the sample, meaning that in the countries with a higher value of creativity, the variance is larger, not smaller. The interaction effects are therefore not technical, but substantive.

Apparently, the original grounds of the hypotheses hold: modernization at the cultural level and its individual level equivalent – education as access to the store of knowledge accumulated by the humanity up to date – do not strengthen but replace other factors affecting the value of creativity. With modernization, individual level varieties in the perceived Value of creativity apparently get more determined by less obvious, idiosyncratic factors. The value of creativity becomes less a matter of worldviews and more a matter of preferences. To find the factors affecting the values of creativity and ways of fostering it, we will need to make more effort, target less obvious factors – in short, be more creative.

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THE POTENTIAL OF DEVELOPING CREATIVITY THROUGH LEARNING CHINESE CHARACTERS AS L2

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Abstract. Developing creativity and measuring it is an important part of educational process in innovative world. In this paper, the Chinese characters have been examined as idiomatic symbols and their structure has been described. Through the survey, the approximated potential of Chinese writing system to create new idiomatic symbols has been calculated. The problems of teaching Chinese and Chinese characters has also been described to better understand the possible difficulties of teaching and learning characters in case of developing creativity. The findings from this study describe the achievable models of using Chinese characters as metrics to examine the creativity ability of a person and the system to develop person's creativity ability.

Keywords: creativity; education; Chinese; characters; idiomatic symbols.

Introduction

Creativity is part of the subject's ability to understand the world in new and original ways and to use novel approaches in solving problems. It is a complex and multidimensional phenomenon which has been approached from cognitive, psychological, or social perspectives. A broad definition of creativity would understand it as the ability to both generate new ideas, possibilities, and alternatives in different situations (i.e., divergent thinking) (Sternberg, Lubart, 1995). Consequently, as any other human ability, the creativity can be trained through the process of education.

Modern linguistic, psychological, cognitive, and other interconnected research describe languages' distinction and different approaches to organize, structure and reproduce information in preserved in the language by native speakers and L2 learners. Linguistic relativity, also known as Sapir–Whorf hypothesis describes a principle that the structure of a language affects its speakers, thus, more languages we know, more different structures affect our way of speaking and thinking.

The main aim of this study is to ascertain whether creativity, understood as divergent thinking, and its three associated constructs (i.e., fluency, flexibility, and originality), might be developed by learning Chinese characters as L2 and the possible approaches to implement such methods.

Chinese characters

Chinese language belongs to Sino-Tibetan language family, and the main difference from Indo-European language family is the use of characters. Such important feature as Chinese characters, which in its basic is a developed system of idiomatic symbols with complex grammar and stylistic rules, brings finite phonetic system consisting of 413 syllables that are used to nominate characters. The standardized Chinese (普通话) has four tones that increase the number of syllables to 1522. It makes it one of the most homophonic language in the world, and due to that, the Chinese language native speakers rely more on visual perception than acoustic perception (Elina, 2021).

Chinese character's structure

Chinese characters are a system of written symbols for recording language and is the most important augmentative communication tool (黄伯荣, 廖序东, 2017). Chinese characters writing system consists of three levels: strokes (笔画), components (部件) and full character (整字).

The first level of Chinese writing system is strokes. There are 32 strokes: 8 basic strokes (丶, 一, 丨, 丿, 乀, 乁, 乛, 亅) and 24 complex strokes (乛, 𠃌, 乛, 乛, 乚, 乚, 乚, 乚, 乚, 乛, 乛, 乛, 乛, 乚, 乚, 乛, 乚, 乚, 乛, 乛, 乛, 乚, 乚, 乚, 乚, 乚). The strokes themself don't signify any meaning and are used only to form characters. Though, there are two single-stroke characters signifying meaning: "一" (means one and consist one stroke 一) and "乙" (means second and consist of one stroke 乙).

The second level of Chinese writing system is components that are made of strokes. Components are the smallest units that can form characters. There are two types of characters: word-forming components (成字部件) and non-forming-word components (非成字部). Word-forming components can be used without changes at all or with slight changes to form characters, for example component "人"

is used in such characters as 从or坐. Non-forming-word components, that are used to form characters, can either do not have a word-forming variation like 宀 "roof" (e.g., 字 consists of a word-forming component 子 and non-forming-word component 宀) or be a non-forming-word component variation of a word-forming component (e.g., 侍, 你 consist of a non-forming-word component variation of a word-forming component 人).

The third level of Chinese writing system is full characters. They are fully functioning parts of language that can be used to form words or as a grammatical part of sentence. Full characters are formed in six ways: pictographic characters 象形 (describe the shape of things to express the meaning of words.); self-explanatory characters 指事 (uses symbols or hints on top of pictographs to indicate the meaning of a word); associative compounds 会意 (the use of two or more parts to form a word, and the combination of the meanings of these parts to form the meaning of the new word); pictophonetic characters 形声 (with one element indicating meaning and the other sound); transfer characters 转注 (characters with meanings influenced by other words); phonetic loan characters 假借 (character with a different meaning, borrowed from an existing word with a similar form or sound). The formation of the character also follows strict structure rules, as there are 8 possible character structures: left to right characters (左右结构 ⿰), top to bottom characters (上下结构 ⿱), left-middle-right characters (左中右结构 ⿲), top-middle-bottom characters (上中下结构 ⿳), semi-enclosed characters (半包围结构), full-enclosed characters (全包围结构 ⿴), and inlay characters (镶嵌结构 ⿻).

The mathematical combinatorial potential of the Chinese character construction system only with use of 32 strokes, and the maximum limit of the used strokes of 36 strokes equals to 2,53368e+19[1] where only two possible single-stroke compounds/characters, 528 two-stroke compounds/characters, 5984 three-stroke compounds/characters, etc. The real number of characters in the modern Chinese language shows rather modest results of 105.203 characters in Chinese character's dictionary (李圃, 1997), which includes 785 characters that are nine-stroke characters, and it is being the largest

[1]
$$C_n^m = \frac{n!}{m!(n-m)!}$$ - the formula to calculate the possible amount of strokes combinations to form components and characters.

number of characters among having more or less stokes characters (现代汉语通用字表).

Educational process of teaching Chinese characters

Teaching Chinese characters, as any other form of written language, focuses on two main goals: develop learners' ability to recognise a character/symbol; develop learners' ability to reproduce a character/symbol (王宁, 2019). Despite the variety of methodologies of teaching Chinese, most of them are based on the consecutive learning of strokes, components and characters, in the way, when the amount of the learned strokes is enough to compound an unknown radical, and the number of radicals is enough to compound an unknown full character, so they can be learned, and therefore be recognised and reproduced.

The combination of only two strokes (straight-horizontal横 and straight-vertical竖) allows to create at least 14 characters with meaning: 二, 三, 十, 土, 士, 上, 工, 干, 王, 丰, 止, 正, 圭, 耳. The process of creating these characters can be repeated during the process of studying Chinese with the possibility of developing student's creativity ability.

Problems during the process of learning Chinese characters

When L2 students first encounter Chinese characters, they may think that they are made up of complicated and unrelated symbols. (Xiao, 2022). Despite the fact of consecutive learning of strokes, components, and characters, the more complex characters become, the more mistakes the students make during the process of recognition or reproduction of the symbol (肖奚强, 2002). The longer the period between students engage the process of the recognition or reproduction of the symbol, more inaccurate the processes become (Huang, Zhou, Du, Wang, Cai, 2021). Not only complexity, but similarity of the characters influences the process of the recognition or reproduction of the symbol during periods of non-use of characters (e.g., 手 and 毛).

The methodology of teaching the Chinese language's words, grammar, stylistics, etc., interferes with the consecutive process of teaching characters. The students have to learn complex characters (e.g., 你, 好, 我, 是 etc.) because they have the highest rate of use according to the Chinese corpus (桂诗春, 冯志伟, 杨惠中, 何安平, 卫乃兴, 李文中, 梁茂成, 2010) and are used in the most common

ways of expressing basic ideas. At the same time, as there is no possible way to include every learned character in every part of the educational process, the gap of occurring studied characters will increase over time and number of learned characters, while Indo-European languages' letters are used constantly and occur in every part of the studying process after completion of their study. The study of memory ability and the loss of information over periods of time, conducted by Hermann Ebbinghaus, shows that a student without recalling the studied information would recall rather small amounts of it after some time (Ebbinghaus, 1885), which means that a learner will forget a number of learned characters over time.

Time periods	Memory capacity
Just finished memorizing	100%
20 minutes later	58.2%
1 hour later	44.2%
8-9 hours later	35.8%
1 day later	33.7%
2 days later	27.8%
6 days later	25.4%
1 month later	20%

Table 1. Ebbinghaus's relationship between memory and forgetting.

Context becomes rather important in the process of reproducing the character, relying only on the oral pronunciation, due to the fact of high number of homophones. The learning could receive extra oral instruction that would contain the name of components, their amounts, and their positions relative to each other. Such solution to the high amount of homophones in Chinese has been used in the traditional Chinese dictionary 《说文解词》 (e.g., the form of the character 初 is explained as "从刀从衣" from knife to cloth) (朱志平, 2002).

Conclusion

The current study describes the structure of Chinese characters and some problems that occur in the process of learning, recognizing, and reproducing the idiomatic symbols of different complexity over time in the process of teaching and learning them as L2. The multifaceted nature of the Chinese written system shows great possibilities to expand the use of characters in different scenarios.

One such possibility is the use of characters as a metric to measure people's creativity. The modern computer technology allows us to

visualize all possible combinations of characters and use them as a data base to compare results of people in the process of creating characters independently. Same as other researchers' tests, the more divergent way the character is created, the more creative the person is (Ivancovsky, Shamay-Tsoory, Lee, Morio, Kurman, 2021). The collected information on the created characters for further possible research would help increase the accuracy of measuring people's creativity using Chinese characters as metrics.

Another possibility is the use of characters to develop students' creativity ability by learning characters. The process of learning characters to develop creativity in a short period of time, should be detached from the necessity of learning characters to form the most popular words. In such case, a specific programme to develop creativity through learning Chinese characters should be designed.

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CREATIVITY AND CONFLICT MANAGEMENT FROM THEORY TO PRACTICE

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Abstract. Conflict, a pervasive aspect of organizational and social structures, can be transformed into a conduit for innovation and creativity through strategic management. This paper elucidates the characteristics and implementation of productive conflict management. It emphasizes that productive conflicts are problem-focused, fact-based, and involve balanced power and multiple solutions. Essential to this process is understanding perceptions, acknowledging needs, and setting mutual expectations. Implementing creative conflict management necessitates an environment that promotes cooperation and collaboration, often facilitated by a mediator. The process is deeply rooted in emotional intelligence, allowing participants to recognize emotional dynamics and engage in effective negotiation. Creativity is central, fostering innovative solutions that benefit all parties involved. The paper ultimately portrays creative conflict management as not just a resolution strategy but as a transformative approach for relationships, cultivating a culture of peace and mutual respect.

Introduction

We live in an age where conflict echoes resonate across every facet of society and organizational structures. The word 'conflict' often takes centre stage in our daily narratives, underscoring its pervasive nature in today's world. Yet, managing these clashes goes beyond simple arbitration; it's a delicate dance of strategy interlaced with inventive problem-solving.

This piece endeavours to guide you from the abstract principles of conflict management to tangible implementations, intertwining concepts of emotional intelligence, tactical negotiations, and the indomitable spirit of creativity in conflict resolution.

Conflict, while an integral aspect of any organization, need not always carry a negative connotation. If harnessed correctly, conflicts can metamorphose into catalysts for creativity and innovation. Organizations ought to foster a culture that celebrates risk-taking and

connectivity for this alchemy to occur. That means distinguishing the individual from the underlying issue, introducing levity into decision-making processes, and establishing proactive and reactive measures to address conflicts. Through steadfast leadership and adept communication, organizations can cultivate an environment where conflict paves the way for collaboration and revolutionary ideas.

Human interactions invariably come with their fair share of conflicts, spanning the spectrum from trivial disagreements to monumental international standoffs. In the book, *Working with Emotional Intelligence* (1998), Daniel Goleman illuminates the qualities inherent to those proficient in conflict management. These individuals deftly navigate challenging scenarios and individuals with finesse, unearthing underlying disagreements, championing an atmosphere ripe for candid discussions, and tirelessly pursuing resolutions that find common ground among all parties.

Deciphering emotions: the keystone of conflict management

Recognizing and decoding emotional cues is pivotal in managing conflicts. The art of negotiation hinges on one's adeptness at gauging the other party's emotions. Agreements are more emotional than literal; it is less about the words spoken and more about the sentiments and perceptions of those involved. This sentiment amplifies the indispensable role of empathy and emotional intelligence in conflict resolution (Santos, Uitdewilligen, & Passos, 2015).

However, it is paramount to understand that effective conflict management isn't a one-off endeavour but a continuous commitment. Organizations should periodically evaluate their conflict resolution techniques, tweaking them when necessary. Moreover, it's vital to equip team members with consistent training and tools, fortifying their skills in this domain.

To approach conflict constructively, one must first recognize the hallmarks of beneficial disagreement. As cited in the provided research, the essence of a productive conflict is that it targets the issue, not the individual. It is grounded in objective facts, devoid of emotional entanglements or prejudices. Such conflicts entertain diverse solutions and ensure an equitable distribution of influence among participants.

For organizations to harvest the fruits of positive conflict, they should champion a culture that lauds risk-taking and interconnectedness. That involves emboldening team members to voice their distinct perspectives and nurturing an ambience where peers can critically evaluate and debate ideas without fear.

Separating the issue from the individual is another cardinal tactic. This approach emphasizes addressing the core problem without personalizing the conflict or resorting to ad hominem attacks. The emphasis should always be on constructive dialogue and solution-seeking.

The nuanced use of humour can be an ace up one's sleeve in diffusing tense situations. While humour can lighten the mood and foster camaraderie, ensuring that it is never at someone's expense or inappropriately timed is crucial.

Organizations should also curate a two-pronged conflict management system: one that preaches team members to deal with disagreements before they amplify, and another reactive, offering mechanisms like mediation when disputes emerge.

In order to bring these strategies to fruition, the mantle rests on leadership. Leaders should exemplify the conflict resolution behaviours they wish to see, promoting transparent communication and fostering an environment where all voices find an avenue for expression.

The art of conflict resolution in leadership

Effective conflict resolution is integral to adept leadership and the backbone of organizational triumphs. Organizations can transform disputes into constructive dialogues by embracing conflicts and skillfully navigating the emotional landscape, elevating the team's collective progress. The journey to a conflict-resilient environment hinges on strategic foresight, unwavering dedication, and the continuous evolution of conflict management tactics.

At the helm of this transformation stands the Leader. Their pivotal role encompasses cultivating a culture where conflict is valued as a catalyst for growth and where spirited debates are the norm. The Leader sets the tone by embodying the desired behaviours and offering lucid guidelines on adept conflict management. They are tasked with the anticipation of brewing conflicts, ensuring team members are equipped with the requisite tools and training to manage disputes dexterously. Moreover, leaders play the mediator's role, forging a sanctuary where concerns are aired without apprehension.

In fostering such a nurturing environment, leaders accentuate open, candid dialogues, championing the richness of varied viewpoints. Leaders embolden their teams to critically assess and constructively engage with differing opinions by celebrating intellectual diversity. The Leader's mission is clear: to usher in an atmosphere where conflicts become springboards for collaborative innovation instead of causing ruptures.

However, for a leader to masterfully steer this ship, specific quintessential skills and traits are non-negotiable:

1) Robust communication: the Leader must excel in articulation and active listening, ensuring ideas flow seamlessly and feedback is constructive and transparent.

2) Equanimity in adversity: a leader's composure is tested in the throes of conflict. Remaining level-headed, devoid of personal biases, and focusing solely on the crux of the issue paves the way for balanced resolutions.

3) Creative prowess: an innovative mindset, receptive to fresh perspectives, ensures that the Leader can envisage out-of-the-box solutions, driving the team towards consensus.

4) Relationship Building: approachability, coupled with genuine empathy, allows the Leader to establish deep-rooted trust, ensuring team members feel valued and understood.

5) Direction and clarity: a leader should exude clarity, setting forth unambiguous behaviour and conflict management expectations. That includes provisioning resources that fortify the team's conflict resolution arsenal. Endowed with these attributes, leaders are not merely managing conflicts but orchestrating symphonies of collaboration and innovation, propelling the team towards its zenith.

Embracing creativity in conflict resolution

At the core of successful negotiations lie three dominant strategies:

1) Collaborative Resolution. A partnership approach where both entities seek a win-win outcome.

2) Compromise. A middle ground where each side yields something.

3) Imposition. A dominant play where one entity imposes its will over the other. While these approaches each offer unique ways to tackle conflicts, the magic of creative conflict resolution truly shines. Linda Lantieri eloquently underscores that creativity serves as the foundation of conflict resolution. But what encapsulates creativity in this realm? Stemming from the Latin "creō," it signifies the birth of something novel and invaluable. Creativity means elevating typical human interactions from potential conflict zones to dialogues anchored in dignity, mutual esteem, and amicable ties when applied to conflict resolution.

John Paul Lederach, renowned for his peacebuilding initiatives, champions the idea that creativity can reshape our outlook and world. This transformative force enables us to dream of futures unfettered by the scars of bygone conflicts. This vision, however, demands a

paradigm shift – to genuinely believe in peace, even when circumstances seem mired in hostility (Lederach, 1995).

Yet, invoking such creativity has its challenges. It often calls for a profound journey inward, rife with self-reflection, discovery, and a willingness to challenge pre-existing notions. Creativity thrives when we successfully navigate this introspective path, laying the groundwork for innovative perspectives and reshaped realities.

Leaders adorned with emotional intelligence wield the prowess to comprehend and regulate their emotions and the emotions of those around them. Their composure amidst tumultuous conflicts and their ability to empathize positions them to devise solutions that resonate with all stakeholders.

Such leaders leverage their emotional intelligence to convert conflicts into avenues of creativity and progress. By valuing disagreements as growth catalysts, they maintain a conflict-centric focus on constructive outcomes. Moreover, their ability to foster meaningful relationships with their teams, champion diverse thought, and endorse healthy, constructive debates makes them quintessential for organizational success.

Diplomacy and conflict management

Conflict management skills hold paramount importance in diplomacy – the realm where conflicts between nations or diverse groups are navigated and neutralized. Effective conflict management ensures diplomats communicate impeccably, preventing potential misinterpretations that could spark disputes. As highlighted by Westermann-Behaylo, Rehbein, and Fort (2015), corporate diplomacy, which can be seen as a microcosm of international diplomacy, emphasizes the importance of communication processes in navigating challenging political and social environments.

Skilled diplomats in conflict management promote teamwork by identifying common objectives and jointly crafting solutions. Their ability to innovate and creative conflict-resolution skills enable them to uncover unprecedented cooperation avenues. Most crucially, their empathetic approach builds mutual trust, paving the way for sustained peace and cooperation between diverse entities. This is in line with the findings of Sapaty (2019), who underscores the need for novel organizational and security approaches in the post-liberal world, emphasizing the role of communication in addressing social issues and governance gaps.

In summation, conflict management, when imbued with creativity and executed with emotional intelligence, becomes a potent force in

diplomacy, steering nations towards collaborative peace and mutual growth. Meierová (2020) further elaborates on the importance of communication in conflict situations, especially in the context of conservation. The study suggests that building a constructive dialogue and developing cooperation between various groups can help overcome disagreements and foster partnership. This principle can be extrapolated to the realm of diplomacy, where nations or groups with differing interests can find common ground through effective communication and collaboration.

Integrating these perspectives from scholarly research, it becomes evident that diplomacy, at its core, is about understanding, communication, and collaboration. By drawing on principles from various fields and contexts, diplomats can enhance their conflict management skills, ensuring that they navigate international relations with finesse and effectiveness.

Mastering leadership in a creative way

In the realm of leadership, the art of creatively mastering one's role is paramount. The confluence of creativity, emotional intelligence, and adept conflict management is instrumental in sculpting the leaders of the future. This article presents a detailed methodology that intricately weaves these elements together, directing leaders towards solutions that are not only innovative but also emotionally cognizant and constructive.

To refine leadership capabilities through the lens of creativity and emotional intelligence, it is imperative to commence with a thorough assessment of a leader's current abilities in handling conflicts. This evaluation can be achieved through various means, including self-assessment, feedback from peers and subordinates, or through specialized assessment tools. Following this, there is a pressing need to nurture emotional intelligence, with a particular emphasis on facets such as self-awareness, self-regulation, intrinsic motivation, empathy, and adept interpersonal skills.

Furthermore, to truly harness the power of creativity, leaders must be encouraged to engage in brainstorming sessions, ideation processes, and adopt innovative techniques for problem-solving. Concurrently, there is a necessity to bolster conflict management skills. This involves honing abilities such as active listening, clear and effective communication, skilled negotiation, mediation, and the development of resolutions that cater to all involved parties.

Once these skills have been cultivated, the next step is to amalgamate them into a cohesive strategy for managing conflicts. This strate-

gy should be a comprehensive plan that seamlessly integrates emotional intelligence, innovative thinking, and effective conflict resolution techniques. Such a model is versatile and can be incorporated into various leadership development programs, team-building exercises, or specialized training modules tailored for conflict resolution. Its adaptability ensures its relevance across a spectrum of sectors, be it corporate, governmental, or nonprofit.

Delving deeper into the nuances of conflict resolution, it becomes evident that fear management is a cornerstone. Fear, whether stemming from the conflict itself, uncertainties surrounding it, or perceived personal inadequacies in addressing the issue, often poses a significant challenge. To ensure that creativity thrives even in the face of conflict, it is essential to address these fears with empathy, understanding, and without judgment. When individuals feel genuinely heard and their concerns acknowledged, the shadows of fear begin to recede.

Moreover, at the heart of resolving conflicts is the restoration of individual dignity and self-worth. This necessitates a profound exploration of one's emotional and physiological needs. Mediators can unlock a wealth of creativity by assisting individuals in this introspective journey. This sentiment finds resonance in Marshall Rosenberg's Nonviolent Communication approach, which underscores the importance of understanding needs as the foundation for fostering creativity.

Several key insights emerge from this discussion:

1) Emotions, if not managed with emotional intelligence, can act as catalysts, exacerbating conflicts. Leaders equipped with emotional intelligence can adeptly steer through these turbulent situations, ensuring that conflicts are resolved without escalation and that solutions are always within reach.

2) Creativity plays a transformative role in conflict resolution. When disagreements arise from differing perspectives, a creative approach can reveal collaborative solutions that might have been previously overlooked, ensuring mutually beneficial outcomes.

3) Mastery in conflict management is crucial. Often, conflicts arise from misunderstandings or miscommunications. Leaders proficient in conflict management can sidestep these issues, creating an environment where all parties collaboratively work towards resolutions.

Therefore, the leaders of tomorrow require a sophisticated approach that seamlessly blends emotional intelligence, creativity, and expert conflict management. This holistic framework ensures that teams remain united, efficient, and innovative, even in the face of challenges. By emphasizing the importance of understanding conflicts, adept-

ly managing emotions, and promoting adaptability, leaders can turn potential disputes into opportunities for collective advancement and mutual benefit.

Mediation: a human-centric pathway to conflict resolution

In the intricate tapestry of our globalized society, disagreements and conflicts are inevitable occurrences. The essence of effective conflict resolution, particularly within organizational contexts, hinges upon a fundamental principle: the rehumanization of all parties involved. Mediation emerges as a pivotal tool in this context, serving as a beacon for individuals to reconnect with foundational human values and carve out avenues for mutual understanding and reconciliation. The potency of mediation lies in its capacity to enhance self-confidence, validate individual identities, and create an environment conducive to personal growth and transformation.

Mediation is not merely an extension of negotiation; it represents a nuanced interplay of acknowledging and rejuvenating the inherent humanity of its participants. When individuals are anchored in their authentic selves, they become more receptive to introspection and personal development. If the mediation process fortifies their sense of self, these individuals become increasingly open to alternative perspectives and solutions. The overarching objective of mediation is to empower individuals, for it is only the empowered who possess the courage to explore unfamiliar territories and reconfigure their self-perceptions and interpersonal dynamics.

Transitioning from deeply rooted disagreements to harmonious resolutions often commences with an open and sincere dialogue. Such dialogues serve as the nexus where individual perceptions, expectations, and collaborative gestures converge. For these conversations to be fruitful, they must be underpinned by genuine intent and guided by expertise in conflict resolution.

To ensure that all parties involved in a dispute are genuinely committed to the resolution, a structured approach is essential. This approach begins with an exchange of perceptions, encompassing an external perspective on how one party perceives the other, an introspective reflection on how one believes they are perceived by the other, and a self-assessment that delves into individual strengths, vulnerabilities, and interaction dynamics. Following this exchange, it is crucial to delineate mutual expectations, identifying potential changes that could foster a more harmonious relationship. This might involve adopting certain behaviors, discarding unproductive habits, or initiating collaborative efforts to solidify the relationship. The culmination

of this process requires tangible commitments from all parties, detailing specific actions, resource allocations, and behavioral modifications to strengthen the bond.

Once the involved teams or individuals have meticulously documented their insights, a collaborative session is convened to share and discuss these perspectives. While the initial perceptions are solely for understanding and should not be contested, the feedback from the subsequent stages warrants comprehensive analysis. This evaluation subsequently forms the bedrock for actionable changes, potentially leading to the formation of dedicated teams responsible for their implementation or further exploration. The significance of mutual adjustments in this process is paramount; without them, genuine conflict resolution remains elusive.

While the mediation process might appear linear and succinct on the surface, its implications are deep-seated and enduring. For mediation to yield positive outcomes, the discourse must be anchored in mutual respect, proactive engagement, and an unwavering commitment to uphold the values of mutual respect and collaboration. When rooted in our shared human essence and guided by structured dialogue, mediation possesses the potential for transformative change. It transcends being a mere procedural tool and evolves into the art of fostering harmony in the face of discord. Mediation reinforces the belief that reconciliation, whether in interpersonal relationships or within organizational frameworks, is achievable, provided there exists a genuine desire and commitment to engage in meaningful dialogue.

In the pursuit of innovative conflict resolution, it is imperative for stakeholders to delve deeply into perceptions, needs, and aspirations. The approach should inspire participants to critically examine their perceptions of one another, their self-perceptions, and the potential shifts in their relationships. In an atmosphere of solidarity and collaboration, enhanced by the mediator's expertise, innovative solutions that cater to mutual interests can emerge.

Conclusion

Creative conflict management is not just about quelling disputes; it is a journey towards reshaping connections and cultivating a milieu of harmony and mutual esteem. This transformation hinges on deciphering emotional intricacies, mastering the nuances of negotiation, and recognizing creativity's pivotal part in devising pioneering answers. With emotional intelligence and ingenuity at its helm, conflict

management can emerge as a beacon for ushering societal shifts towards positivity.

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THE RETURN OF CREATIVITY IN POSTMODERN SPORT

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Abstract. It is well known that sport emerges as a specifically human form of expression linked to creativity. This creativity is a human faculty that allows us to go beyond the here and now, imagining new forms and models of coexistence. The very establishment of the different sports throughout the history of mankind, as well as their evolution, are indebted to this intrinsic and human capacity to create that we call creativity, understood as the capacity or facility to invent or create. Games themselves, as well as sports, stimulate this capacity. But society, understood as the bowl that collects and gathers all that man creates within it, limits, while at the same time making possible any action undertaken within it. And this is how the regulating social norms end up suffocating the creative capacity of the human being himself. The aim of this paper is to analyse the evolution of sport under the prism of the consideration of postmodern sports as spaces of creativity beyond the limitations imposed by modern sport.

Keywords: creativity, postmodern sport, humanization.

Introduction

It is common knowledge that sport emerges as a specifically human form of expression linked to creativity. This creativity is a human faculty that allows us to go beyond the here and now, imagining new forms and models of coexistence. The very establishment of different sports throughout the history of mankind, as well as their evolution, are indebted to this intrinsic and human capacity to create which we call creativity, understood as the capacity or facility to invent or create. Games themselves, as well as sports, stimulate this capacity. But society, understood as the bowl that collects and gathers all that man creates within itself, limits, as well as makes possible, any action undertaken within it. And this is how social regulatory norms end up suffocating the creative capacity of human beings themselves. The aim of this paper is to analyse the evolution of sport through the prism of considering postmodern sports as spaces of creativity beyond the limitations imposed by modern sport.

Creativity in sport

We could think that creativity is a characteristic or property of sport, inseparable or inherent to it. This is because we assume that sports allow, if not incite, continuous innovation or the search for perfection in sporting gestures that somehow lead us "further, higher and therefore stronger" (the Olympic motto of Father Henri Didon).

However, the historical origin of sports, as we know, is less glamorous than we might imagine at first glance. Sport, sports, in most cases, in their historical origin, arise as an evolution or preparation for work or war activities, as simple skills necessary for survival (hunting, fishing, fighting, escape, etc.), or as rituals linked to an emerging transcendent thought -imagination- in primitive man. Underlying all these cultural and sporting manifestations is creativity, understood as the human capacity to create something new.

Certain games, some of them very popular, are quite different, and are the result of the creative, intellectual or practical effort of visionaries who astonished us with diverse forms of leisure, embodied in activities as varied as chess, draughts, Parcheesi, card games, etc., whose social and, let us say, evolutionary function is far from being as radical for survival as that of those other original sports. Entertainment, the occupation of free time, beyond the urgencies of life and the struggle for survival, were very important in the evolution of man, from his proto-human ape relatives, when it came to configuring groups and differentiating them into tribes, bands or small communities of hominids. But the original sporting activities, understood as preparation -training- to improve the skills necessary for survival, such as hunting, fishing, fighting, running, transport, etc., did not have the basic mission of entertainment, but were simply a propaedeutic, a work or war preparation.

Of course, with the passage of time, these activities lost their use and acquired another meaning, becoming sports, the paradigmatic model of which is represented by the English sport that emerged in England in the 19th century and which configures the so-called "modern sport". A sport that was closed to the point of limiting, of castrating a good part of that human inventiveness or creativity embodied in the playful instinct that we share with animals, as Carl Diem rightly asserted.

Since then, everyday sport has not been characterised by the promotion of such creativity. Sport today, and especially since and due to the industrial revolution, is based on the training necessary to achieve a high level of performance during competition; this is the very essence of sport, even though sport includes not only training

and competition, but a whole socio-cultural framework which makes it an essential socialising institution.

It is precisely the repetition of the sporting gesture ad nauseam that generates in the athlete not only the habit, but also the mastery of the techniques and their execution in order to achieve maximum performance. There is no room for creativity or innovation here, since the very principle of acquiring new skills and abilities requires maximum specialisation in order to achieve the maximum, through the continuous application of assimilation exercises and the application of the correct technique. The space for creativity is reserved for the methods to achieve the ends, allowing these methods to evolve continuously and to make use of the advances of science and technique in the pursuit of a more perfect realisation, in the interest of breaking the limits imposed by nature; that is: to the improvement of human performance in sport.

The most common way of understanding creativity in sport is in the way of solving game situations by means of previously trained skills. It is precisely this training that enables, but also limits, these possibilities. The limit is always set by the rules. Therein lies the essence of modern sport: in the setting of limits, standards and rules; in the process of transforming pre-industrial pastimes into fully standardised, standardised and reproducible sports. Basically, through the limitation of space, time and materials, as Richard Mandell established in his *Cultural History of Sport*. And these limits are also limits for creativity and innovation. There are many examples where a new innovative technique was discarded or limited by "supposed" dangers, as happened with the rotational technique in the javelin throw (by Miguel de la Quadra-Salcedo, using a technique adapted from the Basque bar throw), the backstroke in the shot put, the limitation of the diving distance in the starts or turns of some swimming events, etc. The rules, in all these cases, set themselves up as the guarantor of the spirit of the sport in question, limiting the creativity underlying these innovative techniques.

In other cases, there was room for innovation, revolutionising not only technique, but also proposing and imposing a new, more efficient or more effective model (if we do not take into account the risks of injury), such as the "Fosbury flop" in high jump, the rotary style (Baryshnikov) in shot put, or Olga Korbut's "*Korbut Flip*" which revolutionised gymnastics. But once a new model is imposed, once the fashion is established, everything that deviates from the biomechanical model considered correct is discarded, or remains a mere "*survival*" (in the functionalist sense) useful for initiation (as is the case with the high jump techniques or styles "*scissors*" and "*ven-*

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tral roll", which were banished when the technical and biomechanical advantage of the "Fosbury flop" style was demonstrated, becoming mere skills to be used in training). In these cases, sport undergoes a process similar to scientific revolutions, or paradigm shifts, explained by Thomas Kuhn in his *Structure of Scientific Revolutions*, defining scientific revolutions as the irruption of a new phenomenon that causes an alteration in the normal period of science. An analogy that would be interesting to analyse, but which is beyond the scope of this paper.

Although the most common is the use of the rules in the sense of limiting actions that may endanger the principle of equality in the contest, endanger the health and integrity of the athlete, or lose the thrill of the uncertainty of the outcome. Those who contravene the rules are "expelled" from the sporting discipline (the term honours its meaning as the instruction of a person, as well as an art, faculty or science), and must look for another place to develop new skills.

Modern sport as a limit to creativity

In this scenario, modern sport rules with an iron fist over any possible deviation from the values that are proper to it and that brought it to a privileged social position. Sport educates, socialises, and does so precisely because it "*imposes*" discipline in its training and in competition.

These values, a transcript of the educational values inherent to any social institution, must be and remain coherent with the prevailing "*fashions*" of the present time. In the case of modern sport, heir to Thomas Arnold's programme at the *Rugby Public school*, it is a closed, stereotyped sport, where the rules cannot a priori be modified.

First, sport is offered to the new generations as a space for creativity and freedom, through the forms of play and pre-sports during the initiation phase or the approach to these sports in the "street", where the rules are changed at the whim of the players in order to ensure fun. But little by little, the rules are gradually being closed and fixed to the forms of play, techniques and tactics that are considered to be proper and effective. Technical models are taught and repeated ad nauseam as immovable patterns or routines. Only those who quickly assimilate technique and tactics progress in an adequate way and exhibit what sport scholars consider to be pure forms of winning.

Gradually, the routine of training reduces the desire to experiment with new ways of playing, to reinterpret a sporting gesture, to venture a different way of playing, to submit to the pre-established mod-

el. Those who do not adapt to the system of play, for example, because they come from a different culture (e.g., some Brazilians in Europe), lose value and end up being excluded.

The long process of training and body training includes continuous formulas such as: "that's not how it is", "don't hit like that", "correct that gesture", "raise your knees more", "hit with the inside", etc., etc., etc. This allows us to judge when an athlete has a good technique or is technically very good (also in the tactical, conditional, creative, etc.).

Of course, there are exceptions when an athlete, usually unique and extraordinary, without fitting into the established patterns, achieves astonishing results, overturning the prevailing models. This was the case with the sprinter Michael Johnson, who was said to "run like a duck"; the jumper Yulimar Rojas, "too lanky" for the triple jump; Abebe Bikila, who won the marathon barefoot, etc. Later, science explains that these particular "styles", although not generalisable, are an individual way of interpreting the correct technique according to personal characteristics (this is the difference between technique, which is a general model, and style, which is individual).

This process of standardisation occurs in all sports, because where this does not happen, we are not talking about sport, but about a game, a party, an art or something else. Therein lies the difference between the ludic forms considered sports -modern- and others that strive to break new ground and do not manage to do so, until a moment comes when the impulse generated by the changes in values in society leaves room for minorities to propose new ways of expressing the human ludic instinct: this is what has happened with "postmodern sport".

Postmodern sport and the quest for freedom

The phenomenon of postmodern sport is recent and is linked to the change in values brought about by postmodernity. Modernity brought with it values linked to the industrial revolution within a social and political process of civilisation linked to a parallel process of "sportivisation", embodied in the transformation of pre-industrial pastimes into the modern sports we know today.

This process was linked to a profound regulation of daily activities, productive and unproductive, the consequence of which was well described by early sociologists at the birth of sociology. It is no coincidence that modern sport arose at the same time as modernity and the birth of sociology as a science, i.e., within a broader movement represented by positivism. What until then had been traditional practic-

es, unstructured, open and with little or no regulation, became what the English called sport, with the consequent measurement, control and standardisation of space, time and materials.

These activities went from being a sort of carnival (carnival football, or medieval English football) to something structured, strongly regulated and, therefore, socialising and, therefore, educational. A model that lasted and lasts as long as modernity lasted and lasts.

But nowadays, despite the fact that this model is still very much alive, new values are emerging with great force that are more linked to individualism, the rejection of authoritarianism, the enjoyment of the moment, immediacy, experience, etc. And those people who embrace these new values, within a less rigid society, are looking for open activities, which flee from the traditional training-competition model. These are new sports, new activities that emerge as a purer manifestation of the playful instinct that, it seems, modernity has silenced, subdued, sublimated and, with it, the freedom to innovate and seek new paths.

The spirit of the game that sport killed with too rigid rules, with a format that prevented the development of creativity, returns, in a way, carnival football returns. Thus, with modernity, the freedom for young people to move around cities, running and jumping, was confined to sporting spaces such as pavilions and tracks created for this purpose. Today we are witnessing the reconquest of cities through parkour, and with it, many of the postmodern sports as a space for creativity in nature (paragliding, paragliding, rafting, trekking, etc.) as opposed to the closed, stereotyped, standardised spaces that sport created to produce a fair, measurable, reproducible and universalizable competition.

We could say that many of the so-called post-modern sports are a cry or hymn to freedom, a call for attention to playfulness as opposed to performance and results, to enjoyment as opposed to sacrifice, to emotion as opposed to reason. However, it is difficult to find the same educational load, that is, socialising, of assumption and internalisation of rules, in these new activities as there was - and still is - in modern sport.

Innovation and technique

The relationship between sport and technology deserves a separate chapter, as an example of innovation and the fruit of creativity. Undoubtedly, the use and development of technology is part of the very essence of man, as Heidegger affirmed in *The Question of Technology*, with the caution that he himself warned us of the danger of being

uncritically subjected to its will to dominate, instead of having an awakened and reflective attitude that allows us to recover our proximity to things.

It is in sport that we can best appreciate the evolution of bodily practices mediated by technique and the technological developments linked to it. Some of these developments are entirely indebted to machines, inventions and new technologies applied to sporting performance: cycling, motor sports, sailing, gliding... electronics. Without all the technical and technological advances, these practices and the records and results associated with them would not have evolved. There is no need to insist on how sports have been evolving in line with the evolution of science and technology, in every sense. The latest milestone in this regard is the use of artificial intelligence applied to training, competition, player value, sports results, etc.

But all these undoubted and obvious advances do not essentially change the established model of modern sport in terms of limiting creativity. On the contrary, the more mechanised sport is, the less capacity there is for human expressiveness and creativity in sport.

Therefore, postmodern sports do not want to be subjected to the closed models of modernity, but to open up to the imagination, creativity, risk and singularity of new sports such as parkour, extreme skiing, mountain biking, bungee jumping, etc. A whole series of sports that try to escape from the closed and stereotyped model of standardised, measurable, and reproducible sport and competition, packaged to be sold and consumed as the spectacle of modern sport.

Epilogue

After having reviewed the weight of creativity in sport, hinting at its chiaroscuros, we wonder to what extent we can maintain the thesis that post-modernity represents the return of creativity to sport.

Evidently, throughout time, human beings have used games and sports as a tool that has allowed them to relate to the surrounding world, as a manifestation of their humanity, as a cultural expression and embodiment of the inherent, transcendent or immanent values of each era.

But this process reaches its peak in the history of the West (initiated in the late Middle Ages with the transformation of medieval duels into "courtly duels", and continued in the Renaissance, the Baroque and the Enlightenment, well into modernity)

with the culmination of the process of regulation of pre-industrial sports and pastimes.

Sport came to occupy a key space in the whole process of socialisation and western civilisation, contributing to the assumption of the values of the French revolution, the industrial revolution and favoured by colonialism and the subsequent loss of the colonies by the main metropolises.

The unstoppable movement of the dissemination of sports throughout the world has turned it into a total fact, a mass phenomenon and a universal of human culture. But this process of globalisation, in which sport and consumer capitalism have been fundamental, has silenced many other radically creative new or traditional proposals (read traditional games and sports) until the advent of post-modernity.

Leisure time has been filled with closed, stereotyped, standardised, federated, regulated activities, i.e., sports, but with little room for new forms. It was the change in values inherent to postmodernity that prompted the emergence of new sports that are vying to occupy the space of the all-powerful football, basketball, cycling, swimming, etc. These are new experiences such as: parkour, which is making its way in dehumanised cities where sport had been reduced to closed or limited spaces; the old calisthenics, which is recovering the parks where children no longer played, now immersed in video games; adventure sports, extreme sports, endurance and ultra-endurance racing challenges... Great deeds, goals and feats that give meaning to lives that are perhaps empty, and which modern sport had drowned out as just another form of socialisation and almost imposed standardisation.

This is where and when the true creative, unique geniuses emerge, the new idols, the "*Red Bull*" athletes, who do not allow themselves to be pigeonholed in modern sport, which they find uninspiring.

But modern sport continues to be the model to follow, although not the only one, and it becomes a propaedeutic for many sportsmen and women who, having already reached the mastery of their initial sports, develop new forms that are increasingly more extreme, risky, extreme... Creativity, going beyond the conventional, these are the new soft rules that make these new forms of sport progress at great speed, change and spread among young people faster than modern sport did in the 20th century. Because social media is more powerful than print, radio and television, which, although they were instru-

mental in the spread of modern sport, do not now appeal to young people.

It is difficult to predict what the next turn of the screw will be, what the leisure and free time sporting pastimes of the next generations will be like, but one thing seems clear, creativity has once again inspired sport as it has always done the game, modifying and adapting the rules according to convenience, and always to give response and expression to the prevailing values of each era.

THE ROLE OF CREATIVITY IN SPORTS EDUCATORS' TRAINING

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Abstract. Sport can make a valuable contribution to the education of all, including people with disabilities. In this direction, the Special Pedagogy of Sport is primarily concerned with advancing universally accessible operational proposals capable of meeting the challenge of education and inclusion of all in sport. Since human beings are all different, the application of the principles of accessibility and inclusion in sports requires the ability of sport educators to modify existing activities and create new ones to meet the special needs of each individual. In this sense, the role of creativity emerges and the importance of implementing training courses so that sport educators are capable of creative thinking.

Introduction

To address the issue of the need to develop creativity for appropriate inclusive sport design, it is necessary to clarify the underlying epistemological framework from which this essay originates: what is the Special Pedagogy of Sport? What does it deal with? Starting from this clarification implies tracing those paths that allow us to understand the needs of students and to develop educational responses to meet their needs (Canevaro, 2006). Special Pedagogy was born precisely to respond to the 'needs' of individuals in difficulty, who during their growth and development require adequate responses so as not to be left behind, excluded, or isolated. The specificity of Special Pedagogy consists precisely in "identifying functional solutions and answers to special educational needs in the concrete situations in which they arise, not providing standardized answers using pre-established historical categories" (Gaspari, 2012, p. 12). Special Pedagogy studies, in this direction, concrete didactic and educational solutions, implements functional educational paths with the twofold objective of overturning the stigma of diversity on the one hand and, on the other, concretizing an education for all, taking into consideration the uniqueness of the person (Gaspari, 2023). The research of Special

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Pedagogy has, in fact, as its objective the promotion and full realization of human dignity. It is not only a matter of implementing effective interventions, but also of constantly reflecting on the pedagogical and theoretical reasons for educational practice oriented towards inclusion and diversity.

In recent years sport has increasingly become the object of attention of Italian Special Pedagogy (Moliterni, 2003; Magnanini, 2018, Casolo, 2019, Visentin, Benetton, 2021) as it represents an important 'node' in the lives of people with disabilities, a ground in which to build skills, autonomy, meaningful moments of participation in life. The Special Pedagogy of Sport is characterized precisely in this direction, defining itself as that research track of Special Pedagogy that develops effective educational solutions to make sport open, educational and inclusive. To enable this educational design, it is useful for university courses for future sports practitioners to allow for a pedagogical reading of sport, which cannot disregard certain basic elements that characterize sport in an educational sense. These elements are the educational intentionality connected to the sport's proposal (Farne, 2008) and the pedagogical devices underlying sport (limit, interdependence, sense of one's own body, encounter with the other, resilience, sacrifice, management of victory and defeat) (Mantegazza, 1999; Gamelli, 2006).

These elements contribute to playing sports not a therapeutic or socially useful activity, but a tool available to the educator/teacher/coach to achieve precisely through sport the person's growth objectives. The educator/teacher/coach uses sport, in other words, as one of the moments in the life of the person with disabilities to contribute to a development, ethically founded, that allows them to have more opportunities to participate in life situations, to feel welcomed and valued, being able to perform more and more social functions and roles. Along these lines, the Special Pedagogy of Sport course leads students to know how to design inclusive sports activities intentionally and consciously, i.e., open to all, with the awareness that pursuing inclusion means knowing how to design activities from the foundations, recovering the sense of inclusion in the educational sphere, as the Salamanca Declaration (Unesco, 1994) made clear in 1994. That declaration brought attention back to diversity as a value in itself and to its recognition in a school for all, indicating as a priority objective the accessibility and participation of all children, regardless of the severity of the social disadvantage or deficit situation in which they find themselves, in the common school, and it is precisely on this thrust that Special Pedagogy intervenes in sport to architect it in a 'common' sense, or as the UN Convention on

Disabled Persons states, 'ordinary' (UN, 2006). Through its language, through its epistemological domain, and its research, the Special Pedagogy of Sport develops the framework through which to construct sports activities for all (Bodini, Capellini, Magnanini, 2010). The Kazan Plan, in this direction, in connection with the goals of the 2030 Agenda, proposes sport as an essential element of the educational and inclusive process: "High-quality physical education, sport values education, skills development, physical activity and sport learning environments can also contribute to broader education outcomes (SDG 8.7): they promote transferable soft-skills such as team-building, leadership and increased discipline, empathy and respect that assist with the transition from youth to adulthood and help to improve school attendance.

They can also provide experiential and empowering education that can promote the engagement of a diverse range of students, irrespective of their background, including those less suited to formal education settings (SDG 4.5 and 5.1). The inclusive and equitable delivery of physical education, sport values education, physical activity and sport at all levels of education will contribute to eliminating gender disparities (SDG 4.5). It can also promote holistic development and lifelong learning, providing a platform well-suited to developing the knowledge and leadership skills needed to promote sustainable development" (UNESCO, 2017, pp. 9-10). The Kazan Plan also emphasizes that sport must implement participation for all. "Inclusive participation means opportunities at all participatory levels, regardless of ability, impairment, ethnicity, gender, language, religion, political or other opinion, national or social origin, property, birth or other status. This approach necessarily includes migrants and other special groups. Accordingly, participation in respective programs and activities has a cross-cutting impact on many development goals and targets impacting upon learning, health and well-being of individuals. Inclusion is not only a challenge to be overcome but, moreover, a call to action to purposefully pursue and embrace diversity as an enhancer to common practice" (UNESCO, 2017, p. 8). Based on the above considerations, sport represents an interesting link between inclusion and participation and becomes a fundamental moment in the construction of an educationally grounded life project.

The special pedagogy of sport in action

In this theoretical background, the Special Pedagogy of Sport Course at the University of Rome "Foro Italico", based on the Dublin descriptors on learning expectations at the end of each course, aims

to accompany the student to be able to generalize the strategies learned; to transfer the learnings into the professional context for the application of educational strategies and tools in the sports field; to create hypotheses and give rise to possible experimentation in the sports field on an educational and inclusive basis. To achieve this objective, the course presents the essential elements of the UN Convention on the Rights of Persons with Disabilities, referring to Article 30 on "Participation in cultural life, recreation, leisure and sport". The Convention acts as a link between the theoretical and project part as it contains the essential elements through which students are led to combine knowledge, understanding, skills and the development of innovative and creative solutions. Specifically, Article 30(5)(a) emphasizes that every State shall "encourage and promote the widest possible participation of persons with disabilities in ordinary sports activities at all levels" (UN, 2006, p. 21).

The term ordinary, as argued earlier, does not refer to 'separate' or special activities, but calls for the organization and development of activities that are accessible and open to all. The Convention also provides the cultural and operational background within which to steer. Article 2(4) and (5) introduces the definitions of Reasonable Accommodation and Universal Design that serve as the Convention's guiding thread and have become fundamental elements of international special education research. A reasonable accommodation is defined as: "necessary and appropriate modifications and adaptations that do not impose a disproportionate or excessive burden, where this is necessary in particular cases, to ensure that persons with disabilities can enjoy and exercise, on an equal basis with others, all their human rights and fundamental freedoms" (Ibid., p. 6) and Universal Design is defined as "the necessary and appropriate modifications and adaptations that do not impose a disproportionate or excessive burden, where this is necessary in particular cases, to ensure that persons with disabilities can enjoy and exercise, on an equal basis with others, all their human rights and fundamental freedoms" (Ibid., p. 6). 6) and Universal Design "the design (and implementation) of products, environments, programs and services that can be used by all persons, to the greatest extent possible, without the need for adaptation or specialized design. Universal design does not exclude assistive devices for particular groups of people with disabilities where they are needed. The two concepts complement each other and must be able to guide the construction of inclusive services, products and activities (Ibid., p. 6). Reasonable accommodation and Universal design find their rationale in the construct of Accessibility, which is the subject of Article 9 of the same Convention. The philosophy of Uni-

versal design traces the concept of accessibility as the elimination of all forms of depriving barriers that preclude the independence and participation of persons with disabilities. From this derives an extension of the concept of accessibility not as a protective and categorical norm, referring only to conditions of disadvantage, but as a right of Universal interest (Ainscow, 1991). It is a concept that correlates living conditions connected to the physical environment of the building, but also to every form of inclusive development of relationality, in its informational, communicative, but also technological and productive aspects (Mace, 1998).

Accessibility becomes an unavoidable condition of Universal design, so much so that Canevaro argues "the person with a disability must not have extraordinary access routes but must be part of a broad design of a 'reclaimed' environment, where constancy of accessibility is the characteristic and, therefore, there are only structural solutions" (2006, p. 128). Iwarsson and Ståhl further state that Accessibility is a relative concept, which implies that accessibility problems should be expressed as a person-environment relationship. In other words, accessibility is the encounter between the functional capacity of the person or group and the design and requirements of the physical environment. Accessibility refers to compliance with official norms and standards, thus being primarily objective in nature. Whenever the concept of accessibility is used, statements must be based on valid and reliable information gathered in three stages: 1) The personal component (description of the functional capacity of the individual or target group, based on knowledge of human functioning) 2) The environmental component (description of barriers in the target environment, about available norms and standards). 3) An analysis of the relationship between the personal component and the environmental component (description of accessibility problems) (2003).

This definition shows how the context can only become an integral part of an inclusive process if it is designed for everyone, no one excluded. The concept of accessibility, therefore, is subsumed within a broader view, which can be linked to the bio-psycho-social approach of the ICF (WHO, 2001). Special Pedagogy of Sport adopts these indications to Universally Design sport (Magnanini, Epinosa, 2016). A Universally designed sport becomes a sport that is open and accessible to all. Universal Design takes into account all people of diverse abilities. Products, services and environments that have been designed in this way are highly marketable, inclusive and can be used by everyone, to the fullest extent.

Universal Design makes it possible to transform and architect an inclusive sport through the application of the 7 guiding principles.

The 7 Principles of Universal Design were developed in 1997 by a working group of architects, product designers, engineers, and environmental design researchers, led by the late Ronald Mace in North Carolina State University (Null, 2014). The purpose of the principles is to guide the design of environments, products and communications. The Principles of Universal Design guide a wide range of design disciplines including environments, products, and communications (Burgstahler. 2009). These seven principles may be applied to evaluate existing designs, guide the design process, and educate both designers and consumers about the characteristics of more usable products and environments. This applies to the design of sport equipment, activities, and environments.

PRINCIPLE ONE: Equitable Use - The design is useful and marketable to people with diverse abilities. Possible suggestions: Provide the same means of use for all users: identical whenever possible; equivalent when not; Avoid segregating or stigmatizing any users; Provisions for privacy, security, and safety should be equally available to all users; Make the design appealing to all users. PRINCIPLE TWO: Flexibility in Use - The design accommodates a wide range of individual preferences and abilities. Possible suggestions; Provide choice in methods of use; Accommodate right- or left-handed access and use; Facilitate the user's accuracy and precision; Provide adaptability to the user's pace. PRINCIPLE THREE: Simple and Intuitive Use - The use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level. Possible suggestions: Eliminate unnecessary complexity; Be consistent with user expectations and intuition; Accommodate a wide range of literacy and language skills; Arrange information consistent with its importance; Provide effective prompting and feedback during and after task completion. PRINCIPLE FOUR: Perceptible Information - The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities Possible suggestions: Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information; Provide adequate contrast between essential information and its surroundings; Maximise "legibility" of essential information; Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions); Provide compatibility with a variety of techniques or devices used by people with sensory limitations. PRINCIPLE FIVE: Tolerance for Error - The design minimizes hazards and the adverse consequences of accidental or unintended actions. Possible suggestions: Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements;

eliminated, isolated, or shielded; Provide warnings of hazards and errors; Provide fail-safe features; Discourage unconscious action in tasks that require vigilance. PRINCIPLE SIX: Low Physical Effort - The design can be used efficiently and comfortably and with a minimum of fatigue. Possible suggestions: Allow the user to maintain a neutral body position; Use reasonable operating forces; Minimize repetitive actions; Minimize sustained physical effort. PRINCIPLE SEVEN: Size and Space for Approach and Use - Appropriate size and space are provided for approach, reach, manipulation, and use regardless of the user's body size, posture, or mobility. Possible suggestions: Provide a clear line of sight to important elements for any seated or standing user; Make reach to all components comfortable for any seated or standing user; Accommodate variations in hand and grip size; Provide adequate space for the use of assistive devices or personal assistance.

The importance of creativity

As has been discussed in the previous sections, the inclusion of persons with disabilities in sport can be achieved through activities developed according to the principle of Universal Design, which promotes the accessibility of environments, activities and services to as many people as possible.

However, as human beings are all different in many ways, including their ability to take part in sport activities, Universal Design is an ideal goal to strive towards but is destined to remain an unattainable chimera. In practice, to ensure the inclusion of all, it is always necessary to consider the unique characteristics of the person. Therefore, a retrospective adaptation of existing sport activities, according to the principle of reasonable accommodation, is the most common practice that together with Universal Design guarantees the inclusion of all in integrated sport.

In any case, to respond to the specific needs of people with disabilities and to enable them to participate in activities together with their peers without disabilities, it is necessary to modify, transform and/or adapt the constituent elements of the sport activities themselves, in particular the playing space, the materials used, the roles and the rules, which together constitute the so-called universals of game, i.e. the elements that represent the framework of any sporting activity and determine its internal logic (Parlebas, 1997).

In this sense, inclusion in sport activities implies the ability to generate new ways of organizing the universals of games, new associations between already existing modes, and/or their transformation

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and concretization into a new and original product to find innovative solutions to the problems associated with accessibility in sport. The application of the principles of reasonable accommodation and Universal Design to the universals of the game implies, in other words, the bringing into play of creativity, as it has been described and defined by authors such as Mednick (1962) and Guilford (1975). In particular, for Guilford, creativity (or divergent thinking) is a process involving the creation of new ideas and new concepts, or new associations between already existing ideas and concepts and their transformation and concretization into a new and original product.

By its complex and multidimensional nature, creativity is a construct difficult to define and analyze univocally. Suffice it to say that analyzing the scientific literature in this field, Reffinger (1996) identified more than 100 different definitions for this concept. Referring to the well-known 4p model (Rhodes, 1961), it is possible to state that in general, definitions of creativity typically reflect at least one of four different perspectives: cognitive processes associated with creativity; personal characteristics of creative individuals; creative products or outcomes, and the interaction between the creative individual and the context or environment (Figure 1).

The 4P model emphasizes that creativity is not solely determined by the individual's traits but is a complex interplay between the person, the processes they engage in, the surrounding environment, and the resulting product. It can be used as a useful conceptual framework to clarify and define more precisely what we mean by creativity in this context: it is indeed possible to state that adapted sport activities (in the sense of modified based on the special needs of the person with disabilities) represent innovative products useful to society that are the result of a creative cognitive process.

In this sense, the development of creative thinking is a fundamental ingredient in the training of future sports educators. Only by developing creative thinking can they be truly capable of guaranteeing inclusion in sports activities for all.
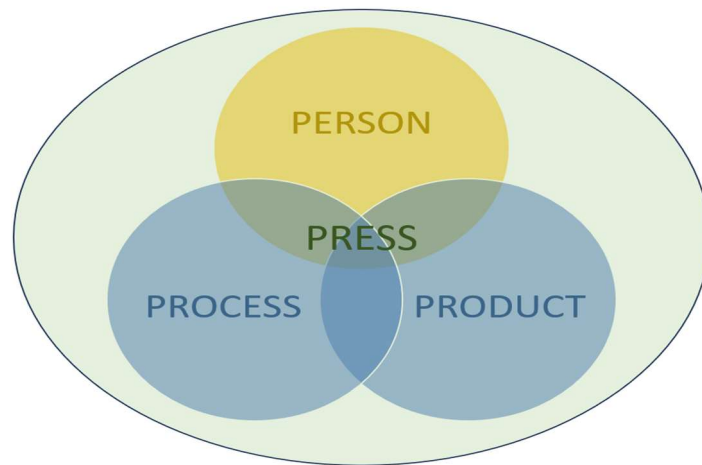
Figure 1. The 4Ps Model of Creativity (Rhodes, 1961)

Starting from these premises, the chair of Special Pedagogy at the University of Rome 'Foro Italico' has for over a decade fielded teaching programs that integrate the theoretical part on the principles underlying inclusion with a workshop part aimed at developing creative thinking (de Anna, 2009).

Using didactic strategies such as cooperative learning and problem-solving (Cottini, 2017), pupils are initially divided into groups of 5 and each group is asked to adapt an existing sport (e.g. volleyball), thinking about the special needs of a person with a certain type of disability (e.g. physical), so that they can play together with people without disabilities. This is followed by a debriefing phase, in which the different groups discuss the products created, and an active experimentation phase, in which the products created are tested in the field.

In this way, the students are stimulated to find innovative solutions to the problem of accessibility in sport, to exchange ideas on possible ways of adaptation in relation to the special needs of people with disabilities, and to actively test the solutions identified to verify their actual applicability.

As an example, in a lesson focused on volleyball, a new sports discipline was created and tested, iconically renamed "volley-all", in which everyone can take part, including people with disabilities. Specifically, the students agreed on the need to intervene in the architecture of the game by modifying the following universals of the game:

Spaces: there is also a lower net used only by people who do not have enough strength to hit the ball over the official net

Equipment: a sound and lighter ball for the blind and other types of disabilities is used

Rule 1: the ball must be passed to a person with a disability before it is sent into the opponent's half-court, in order di promote cooperation between athletes with and without disabilities.

Rule 2: the person with a disability can hold and throw the ball without committing a blocking fault.

Conclusions

The Special Pedagogy of Sport is primarily concerned with advancing universally accessible operational proposals, capable of meeting the challenge of education and inclusion of all in sport. Nowadays there are many models based on the transformation of universals of the game which are useful to enrich the baggage of sports educators from an inclusive perspective, such as the STEP model (Space, Task, Equipment, People), the TREE model (Teaching or Coaching style, Rules and regulations, Environment, Equipment) (Kiuppis, 2016) or the 5-step pedagogical model (Magnanini, 2015), or draw on established integrated sports disciplines such as Baskin and Integrated Football.

Since human beings are all different, sports educators are required to have the ability to act creatively to meet the specific needs of the individual, and therefore, universities and other institutions that train future sports educators have the fundamental task of promoting not only specific technical knowledge and skills, but also the development of creative thinking.

Moreover, we would like to emphasize, more creative educators could benefit everyone, not just people with disabilities. A more creative sports educator is better able to adapt sports activities based on disabilities but also based on the many individual differences that characterize people regardless of their disability condition, enhancing the abilities of each and every one.

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THE DEVELOPMENT OF CREATIVITY THROUGH SPORT QUALITATIVE RESEARCH INTO THE GAME OF FOOTBALL

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Abstract: Creativity in sport is declined as motor creativity and is closely linked to originality in solving a motor or technical-tactical problem through the ability to combine forms of movement. A number of studies agree that the genetic dispositions of athletes are predictors of the development of talent and tactical creativity in sport, just as it is emphasised that a predominantly performance-oriented view of creativity dominates in sport and that it represents a fundamental skill in team sports with the ball. The present work aimed to explore, through qualitative research, creativity in sport and specifically in football in order to understand how it is conceived and trained and whether it is understood as a resource to be developed with a view to the overall growth of the person or merely for the purpose of achieving better performance.

Keywords: Creativity, sport, football

Introduction

Creativity in sport is declined as motor creativity and it is closely related to 'the ability to solve any motor problem in an original and creative way, but also to vary, combine or reproduce forms of movement' (Sibilio, 2002, p.194). Peluso Cassese (2013) defines it as 'the ability to perform actions that go beyond the usual ways of behaving and interacting with the surrounding environment. It implies the tendency to free oneself from cultural conditioning and from the habit of using known and consolidated patterns of action, in order to push towards the new and the original, finding alternative solutions to which one had never previously thought [...] a natural impulse of the human being that manifests itself from the first months of life, but which requires a family environment and, subsequently, a school and sporting environment, which offers the child an adequate, receptive and welcoming context towards its needs, favouring the free expression of individual creative potential" (p.86). Memmert (2011) in

this regard points out that some studies, although preliminary, show that the genetic dispositions of athletes are valid predictors of the development of talent and tactical creativity in sport, thus considering creativity an innate quality. A divergent intellectual activity that allows one to use one's technical, cognitive and expressive resources, and coordinative skills in a personal, original and creative way, to solve motor, technical and tactical problems, outside of rigid imitative schemes.

As noted by Rasmussen, Østergaard & Glăveanu (2017) a performance-oriented, competition/match-oriented view of creativity often dominates in sport, that is, it is often perceived and treated as an aim, a goal to be achieved in competition (Aggerholm et al, 2011; Campos, 2014; Furley & Memmert, 2015; Leso, Dias, Ferreira, Gama, & Couceiro, 2017; Memmert, 2011; Memmert et al, 2010; Memmert, Hüttermann, & Orliczek, 2013; Santos, Jiménez, Sampaio, & Leite, 2017). A performative view also appears in Lacerda and Mumford (2010), who define intuitive creativity as a hallmark of sporting genius. In a result-oriented view, the risk is to consider a creative action only when it provides an advantage related to sporting success and not recognising it as a means and a process for developing an important dimension of the player/athlete's personality first and foremost as a person. From a Deweyan perspective, as Rasmussen et. al (2017) emphasise, the mind, the body, knowledge, the situation, the other and the world are mutually interacting parts of a dynamic and intertwined whole.

The interaction between these 'elements' finds its expression in human action. Creativity inevitably implies an action and thus an actor, situated in a social and material context (Glăveanu 2012). Creative actions emerge from the moment-by-moment interaction between the player and the specific situation; therefore, creativity also concerns the modification or redefinition of the situation.

In football, creativity is an essential psychological variable (Morris, 2000; Vestberg et al., 2012), precisely because it is a situational sporting game, in which uncertainty and unpredictability reign, making it impossible to determine with certainty which behaviours, actions and schemes your teammates and/or opponents will implement. To such unpredictability, to the new scenarios that the development of the game continually creates, it is necessary to adapt and re-adapt, to constantly coordinate in order to disorganise the opponents' scheme of action, coping with spatial uncertainty, responding quickly to new situations that arise in the ninety minutes (Maulini & Tafuri, 2022). This is why it is a sport in which the tactical aspect, in other words, the 'creative and appropriate selection and application of

means, methods and forms' (Zhelyazkov, 2001, p. 295), is very important because it allows one to respond effectively to variations in the competition environment availing oneself of all individual motor, cognitive and emotional capacities (D'Ottavio, 2006).

This, as highlighted by Ferrante and Mattiaccia (2015), requires of its players an attitude capable of giving appropriate and effective responses to the constant and diverse changes that are created in the context of the game that is highly unpredictable, acting as a stimulus for the development of creative capacity. It is therefore fundamental that the person practising this sport be trained in team play and tactical-cognitive organisation, and that the development of the ability to interpret and continuously and rapidly seek solutions to the various game situations, which always have a problematic and contextual nature, be promoted.

This can be understood as the result of all the coordinative capacities owned, which are expressed thanks to a divergent intellectual activity that allows one to use one's technical, cognitive and expressive resources in a personal, original and creative way, to solve motor, technical and tactical problems, outside of rigid imitative schemes, elaborating individual strategies that derive from the ability to activate multiple cognitive functions. Associated with this aspect in football is the development of the ability to anticipate, that is, to foresee the course and outcome of an action (when, how and where a motor action will take place) and to plan the consequent motor responses. This is evidently a capacity that implies cognitive operations and psychomotor preconditions such as to be able to react appropriately. This capacity is stimulated and applied in any sporting game that foresees, as situations change, the need to prevent the opponent's actions or to foresee them in order to prepare the most appropriate response (Sibilio, 2002, pp.193-194).

All this must take place with very short reaction times. Recent theories on motor learning highlight how this can be effectively promoted through varied and complex motor experiences, didactic strategies aimed at favouring exploration, discovery and active solution-seeking processes, reducing as much as possible information and feedback from the coach, offering players orientations, references, so that they can solve the training objectives on their own, avoiding that it is the coaches who give the solutions (Chow, Davids, Button, & Renshaw, 2015).

This is important because of the very nature of motor creativity, which concerns the ability to perform actions that go beyond the usual ways of behaving and interacting with one's surroundings. In the literature, however, we find what is referred to as the motor creativity

paradox, as there are general principles that to improve the performance of any motor task, the use of constraints to free degrees of freedom is effective. In motor control theories, constraints are considered limits or boundaries that limit the degrees of freedom of the system that produces a functional movement. Constraints have been recognised as aiding the development of the creative process and this seems to be at odds with creativity, which is classically associated with freedom, autonomy, weak rules, and few limits (Caniëls & Rietzschel, 2015; Stokes, 2008, 2009).

Dynamic Systems Theory (DST) provides useful concepts and principles for understanding the processuality of creative behaviour, whose distinctive traits of creativity, such as fluidity, flexibility, and originality of behavioural solutions, have been conceptualised and operationalised within the theoretical framework of ecological dynamics (Araújo et al., 2006). Central to this approach is the study of how different types of constraints (personal, environmental and task) contribute to the realisation of new affordances. In other words, it is the exploration, invention and reinvention of constraint-induced action possibilities and their role in modifying the fluidity and flexibility (i.e., diversity) of actions at the individual, dyadic and collective levels of behaviour. It is therefore the relationship between different types of constraints and behavioural variables that is the focus of this approach.

The aim of this study is to explore through qualitative research the opinion of football coaches on the topic of creativity in sport and specifically the game of football in order to understand how they conceive and train it and whether they understand it as a resource to be developed with a perspective of the holistic growth of the person or merely for the purpose of achieving better performance.

Methodology

To achieve the objective of this study, aiming at a deeper understanding of the participants' point of view (Mortari, 2007), a qualitative methodology was used.

The technique used was the focus group carried out with a group of 15 participants (14 males and 1 female) selected according to strategic and personal criteria, respecting both the criterion of relevance, being all football coaches, and that of heterogeneity, operating in different football sectors (professional 46.7%, amateur 40%, youth and school 13.3%).

The focus group was recorded with an audio device and subsequently transcribed. The content analysis, using the paragraph as the textual unit, was carried out starting from a general theoretical categorisation, named "creativity and the game of football", declined into subcategories and indicators that emerged from the analysis of the reference literature and the participants' discussion (table 1).

The sub-category "creativity and sport" investigated the coaches' perceptions of the general concept of creativity in sporting activity, articulating into the following indicators: creative problem solving; freedom; creative thinking; effectiveness; solutions vs. obstacles.

A second sub-category, "origins of creativity" aimed to analyse the participants' opinion with regard to the origin of creativity as an innate or learned capacity, thus dividing the indicators into innatism and empiricism.

The sub-category "creativity in football" investigated the participants' opinion regarding the creative capacity in the specific case of football. Within this category, the following indicators emerged: tactical skills; technical skills; anticipatory skills and reaction time.

The sub-category "creativity and determinants" analyses the factors that can determine the development of this capacity and includes the following indicators: gender, age, personality, sporting context.

The subcategory "creativity and training" presents the methodologies that, in the opinion of coaches, foster the development of creativity. This category is divided into the following indicators: open activities, curiosity/motivation, playful-motor activities.

The sub-category "creativity and educational relationship" aims to deepen the participants' thinking regarding the importance of the educational relationship between coach and athlete and is divided into the following indicators: positive climate, error as a learning opportunity, self-awareness and self-perception.

Finally, the sub-category "life skill creativity" examines the participants' opinion regarding the possibility that creativity as a sports skill can be transferred to the broader context of life. The indicators that emerged are transferability and non-transferability.

Theoretical general category: creativity and the game of football

Subcategories	Markers
creativity and sport	- creative problem solving - freedom - creative thinking - efficacy - solutions vs obstacles
origins of creativity	- innatism - empiricism
creativity in football	- tactical skills - technical skills - anticipation capacity and reaction time
creativity and determining factors	- age - personality - sporting environment - coach - training methodology - gender
creativity and training	- open tasks - curiosity/motivation - leisure motor activities
creativity and educational relationship	- positive environment - mistake as a learning opportunity - selfawareness
life skill and creativity	- transferability - non-transferability

Table 1. Categories, subcategories content analysis indicators of the qualitative survey "Creativity and the game of football"

Results

After structuring and examining the textual units and carrying out the content analysis starting from the general theoretical category: "creativity and the game of football" and the sub-categories identified, it was possible to trace the results of the study.

Specifically, with respect to the sub-category "creativity and sport", a view of creativity as the ability to find new ideas or solutions, the ability to solve problems in an original way, the ability to achieve something new and effective emerges from the words of the coaches:

Creativity means open-mindedness, the will to go beyond momentary difficulties, the desire to create something different, but effective and appreciable. Magic, beauty, joy. Seeking and employing solutions where others see obstacles.

Creativity is the ability to solve situations in a personal, original, unconventional and positive way.

From the analysis of the sub-category "origins of creativity", two indicators emerge, innatism and empiricism, for although most of the coaches recognise the importance of the function of training in the development of creativity, they nevertheless believe in the predominantly innate origin of creativity, as reflected in the participants' statements:

I believe that creativity is basically innate, but it can certainly be developed over the years and with training.

The creative nature is certainly partly innate because it is part of a person's character, but it can be developed and stimulated through training.

Training, especially at certain stages of development, can certainly help, but I think a big component is determined by the player's DNA, personality, and environment.

Only three of the coaches give an answer that emphasises environmental rather than innate factors:

Creativity absolutely can be trained by providing knowledge and thereby creating more possible choices.

I believe that creativity is not innate, but that the life path of a child facilitates or precludes the development of creativity.

The training should foster the development and expression of each individual's creativity.

In the specific case of football, the participants described creativity as the ability to perform motor and technical actions that go beyond the usual ways of acting and interacting with the surrounding environment, pushing towards new and original gestures, finding alternative and unexpected solutions. But originality is not sufficient to define a creative gesture: it is only so if it is effective, if it leads to advantages in play. In fact, the majority of coaches consider a footballer to be creative when he makes an effective impact on the game, when he 'determines the game' by 'giving space to his own abilities', when he expresses 'a stroke of genius', as emerges from their testimonies:

Creativity is the ability to realise non-canonical - technical - motor solutions in a given game context without reducing the effectiveness of the action itself.

Unpredictable and unexpected passing lines. Fast and effective technical gestures that are always unpredictable. Accelerations and gestures in spaces where most would find difficulty. Exploitation of spaces and times so that adversaries would find it difficult.

A footballer is creative when he can find a solution that can solve a situation in a short time. He immediately recognises the scenario and with a pass or a shot, gets out of a pressure or scores a goal.

Some coaches emphasise that creativity is linked to tactical aspects such as dribbling, performing a feint, quickly discarding the adversary, boldness and the courage to consciously manage risks as a regulating ability. This is combined with intuition and instinct.

Creativity is dribbling, instinct, risk-taking, intuition in team movements.

Creativity is when through a play the footballer is able to create numerical superiority in some area of the field, or with a dribble he forces the adversary to change defensive strategy.

An example of a creative action is making a 'veil' when the adversary is expecting a conclusion.

It also reveals the close relationship between creativity and the athlete's technical skills, the latter being indispensable for the expression of creativity.

A player is creative when he demonstrates mainly technical, non-standardised, non-predictable but yet effective skills.

In my opinion, the creative execution choices of the players depend crucially on the technical-tactical aspects.

I think that for a player to bring out his creativity to the best of his ability, he must also possess strong technical skills.

The majority of participants underline the close correlation between anticipatory skills and reaction time, highlighting how creativity in football is closely linked to the ability to anticipate the opponent's actions, to foresee them in order to prepare more effective and unexpected responses. One of the participants emphasises that it is precisely the anticipatory capacity that facilitates the expression of creativity as the player who is able to anticipate the game has more time to construct an unconventional action.

The anticipatory skill and reaction time are a natural expression of creativity, and as these characteristics are extremely important in today's football, they should be fostered in every proposal on a daily basis.

Certainly creativity, anticipatory capacity and reaction time have a strong connection. A strong cognitive ability I believe is essential to be creative.

A very pronounced anticipatory skill allows the player more time to propose a different, non-canonical, non-universal play.

Analysing the sub-category "creativity and determinants", multiple factors of influence and possibilities for the development of creativity in football emerge, such as the personality and age of the player, the coach, the training methodology, the context.

Age, coach and training. Being free to play without pressure can help the footballer to play more freely by giving space for creativity.

Coach definitely; training methodology; environment; personality.

Age, individual characteristics, personality and above all the context in which the training takes place.

Finally, with respect to this category, all coaches do not believe that gender influences the creativity of the athlete, as can be understood from the following claims:

I absolutely do not believe that there is any difference in creativity between the male and female gender.

There is no difference between males and females. Perhaps in girls there is a greater desire to question themselves and so they are willing to experiment.

With regard to the subcategory "creativity and training", the coaches emphasised the need to use specific methodologies to develop creativity, especially in the youth sector.

In particular, they emphasised the importance of encouraging curiosity and motivation in players by varying proposals within a playful environment in which to propose activities open to multiple solutions, setting a goal and leaving athletes free to choose how to achieve it.

For the development of creativity, proposals are needed in which there is always the opportunity for choices and variations of situations and moments in which the players must continually adapt and experiment. Duels in which there are few rules but many difficulties, perhaps spatial and temporal. Numerical inferiority/superiority, permanent or momentary. Continuous and unpredictable variations of space and time.

To train creativity I encourage the development of creativity by highlighting improvements or original solutions that are found by the children.

To improve creativity during purely technical training I provide basic solutions but then in the course of the work and based on the concepts provided I let them choose the different sequences to execute.

Train creativity by proposing open exercises that players are invited to solve based on their own experience and skills, especially in the youth sectors.

Training can provide important stimuli for developing creativity. So type of training, but not only that, the environment and the ludic aspect also sets the boy or girl free to experiment with their creativity.

The analysis of training methodologies confirms the view of creativity as a skill aimed at competition performance, as revealed by the following testimonies:

Focused training with situations that are very close to the reality of the competition, not conditioning the players with touch restrictions, because this conditions the dribbling that is the basis of creativity.

Propose situational games, which are closer to the competition. Then clear and simple rules so that each player has the freedom to find innovative solutions.

Simple game situations with low numbers and complex ones with high numbers in various areas of the field, reproducing on several fronts the situations we will find in the competition.

It also emerges, in the opinion of the participants the importance for the development of creativity, of the educational relationship between coach and athlete and the context in which this relationship is established. Such a context must be characterised by a positive climate and confidence in the players' possibilities, in which error represents a learning opportunity and original solutions are valued along with self-awareness and self-perception, as emerges from the following expressions:

The first and most important rule is to show the athlete that you have confidence in him/her. This creates an environment where even mistakes are allowed.

Creative development takes place in the age group of the football school and must be constantly coached in the competitive categories with targeted training and freedom to try (even making mistakes).

The important thing is to make the player aware of everything that is happening, precisely to increase self-perception.

The last indicator "creativity and life skills" reveals the coaches' opinion on the possibility of transferring the creativity acquired through sport to other contexts in a person's life.

The majority of participants believe that transfer is possible as the development of creativity involves the development of cognitive skills that are indispensable in sport as well as in life. Creativity means open-mindedness, the desire to create something new, motivation to deal with life's difficulties; the impulse to create new ideas, to formulate original thoughts and to be critical in analysing situations.

I believe that being creative also requires cognitive skills that are useful in all areas of life.

If creativity means open-mindedness, a willingness to go beyond momentary difficulties, a desire to create something different, but effective and appreciable, transferred into everyday life, it can only be a very important added value.

A skill such as being creative can stimulate the creation of new ideas and concepts. It can transform and materialise new and original thinking. It can nurture the critical spirit to be able to better analyse, in a free way, any problem.

The creative ability to solve situations or create an action out of nothing can certainly stimulate a person to continuous training in thinking, so as to help cope with life's situations.

The creative capacity developed in sport becomes part of the person.

After the presentation of the results, we proceed to the discussion of the results in the following section.

Discussion

The results show, with respect to the category "creativity and sport", a conception of creativity as the ability to perform actions that go beyond known and established patterns of action, the ability to come up with new ideas or solutions, the ability to solve problems in an original way by freeing oneself from cultural conditioning, in line with Sibilio (2002) and Peluso Cassese (2013). It also turns out, consistent with findings in the literature (Aggerholm et al, 2011; Campos, 2014; Furley & Memmert, 2015; Leso, Dias, Ferreira, Gama, & Couceiro, 2017; Memmert, 2011; Memmert et al, 2010; Memmert,

Hüttermann, & Orliczek, 2013; Santos, Jiménez, Sampaio, & Leite, 2017), a performance-oriented view of creativity, as the goal to be achieved in competition rather than as the means, the process to achieve it; ability to make unusual, original and flexible decisions that prove decisive in competition, effective actions that lead to the result, capabilities, in fact, distinctive of sporting talent, in agreement with Memmert and Roth (2007) and Lacerda and Mumford (2010).

Many of the participants believe that creativity has innate origins, a natural impulse of the human being that is expressed from the first months of life, in agreement with Memmert (2011), recognising however the need for a favourable context for its growth, as argued by Peluso Cassese (2013). In particular, the coaches interviewed, while supporting the innate origins of creativity, identify some elements that influence its development and expression, such as the player's personality and age and, in particular, recognise the important contribution of the sporting context in fostering the free expression of the subject's creativity. In fact, they affirm the decisive/essential function of the coach and the coaching process.

The results also show that creativity in football is a resource that requires well-developed technical skills, therefore, especially technically competent players are able to identify and exploit opportunities quickly and effectively.

In addition to technical skills, participants noted the relationship between creativity and tactical skills that aim to achieve optimal racing behaviour through the utilisation of individual cognitive, technical and psychophysical skills (Weinek, 2009). Tactical aspects are combined with intuition, instinct, risk-taking, daring/courage regulation, and the ability to consciously manage risks and overcome fears (Ibid.).

Some coaches point out that creativity is linked to tactical aspects such as dribbling, performing a feint, quickly discarding the opponent, boldness, and courage to make decisions and consciously manage risks as regulation skills (Memmert, 2015; Memmert, & Roca, 2019). This is closely related according to our interviewees, also to the player's personality and age, context and training, as also indicated in the work of Jaquess (2012).

With regard to training methodologies aimed at developing and enhancing creativity, the football coaches participating in the research highlighted the importance of varying the proposals, of preferring open activities that offer multiple solutions, of setting a goal while leaving the athletes free to choose how to reach it, of rewarding original solutions, of stimulating the athletes' curiosity, of enhancing awareness of what is happening around the athlete, self-perception,

self-esteem, of building a trusting relationship with the coach, of fostering a serene environment in which mistakes are allowed and in which one can have fun (Rasmussen, Østergaard, & Glăveanu, 2019). Several investigations confirm the validity of such methodologies for fostering creativity enhancement over the prescriptive approaches of coaches, steeped in authority and control that limit the possibility to explore unusual action (Ford, Yates, & Williams, 2010; Partington & Cushion, 2013; Cushion & Jones, 2014). The same focus on the outcome risks limiting open-mindedness, originality, and the search for new actions. The intention to win at all costs, gratify others and avoid mistakes could lead the athlete not to take risks by renouncing unusual actions.

The mechanical routines and repetitions considered indispensable to consolidate the habit of the action (motor gesture, sport-specific technical gesture or motor action) result in a closure of the environment on the growth of the athlete (Dewey, 1916, p. 49). In contrast, open activities allow the "expansion of horizons and the consequent formation of new purposes and new responses" (Dewey, 1916, p. 175) to cope with the environment. Curiosity, the intention to learn new things, to try out new ideas, stimulate the exploration of new alternatives. In this regard, Rasmussen and Østergaard (2016) demonstrated that creative activities meet the needs for autonomy, competence and relationships, of young footballers (U15), while Carbonneau, Vallerand and Lafrenière (2012) showed that exploratory and open activities increase motivation to play sports.

In this regard, the participants emphasise, in agreement with Dewey (1913), the importance of play. According to Dewey (1913), playful actions are inherently "pleasurable in their very execution" (p. 725) therefore, they allow one to experience satisfaction by performing actions without theoretical or practical utility; they allow the mind "to play freely with the subject" (p. 726) without reference to ulterior aims, consequences or results (Dewey, 1913); the athlete in play is free from environmental conditioning, the tension of the competition and the result, the expectations of the coach, the judgement of the fans, and this allows him to explore and experiment with a wide range of actions and possibilities. Play is accompanied by an attitude of open-mindedness and is a decisive element in fostering exploratory processes and, therefore, the development of creativity.

Finally, the sub-category "creativity and life skills" revealed the coaches' belief that it is possible to transfer the creativity acquired through sport to other contexts in a person's life. The majority of participants believe that the development of cognitive skills, which ac-

companies the development of creativity, is indispensable in sport, as well as in life.

Not only that, but creativity is also synonymous with open-mindedness, the urge to carry out new actions, original ideas, to seek solutions to life's difficulties, to find alternatives; creativity is synonymous with curiosity, a variety of interests, authority and personality. Creativity in sport thus becomes an approach to life, creative thinking and problem-solving skills. In fact, confirming the opinion of coaches, creative thinking is part of the so-called life skills, which are those «skills necessary for adaptive and positive behaviour that enable individuals to cope effectively with the demands and challenges of everyday life» (World Health Organisation, 1993, p. 5).

Conclusion

The results of the study highlight a performative view of creativity in football understood as a fundamental competence for the achievement of an effective performance in the game, rather than as a training tool/means for the development of the athlete's and the person's sporting but also cognitive performance, demonstrating how the possibilities of an approach to creativity as a means have yet to be fully appreciated and applied in the sporting context. This runs the risk of reducing the developmental and experiential benefits that creative activities can produce and, on the other hand, of reserving such activities only for those players deemed to be the best. There is also a risk that creative actions and experiences rarely occur during training sessions. As a result, many players may miss out on the developmental benefits of creativity. It is therefore necessary to ensure that coaches come to consider creativity as a resource for all players and crucial to the development of learning, motivation and enjoyment (the growth and development of players' performance), and thus to experiment with training strategies aimed at enhancing the exploration and di
  covery of original and meaningful game actions.
Coaching through creativity requires not only the application of new methodologies but also the development of a positive climate in which they can be applied within a coach-player relationship that is primarily educational, not only aimed at the emancipation and autonomy of the player but, through the transferability of the skills constitutive of creativity, at the same time intended to foster the player's growth first and foremost as a person.

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CREATIVE APPROACHES TO FOOTBALL ANALYZING THE INITIATIVES THAT AIM TO FOSTER MORAL DEVELOPMENT

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Abstract. Over the last decades, there has seen a significant expansion of creative initiatives that use sports as a tool for initiating and facilitating social development. Football[1] has been no exception, and non-governmental organizations, as well as national football federations, have developed initiatives to change the game for "good." These have opted to modify the rules or add elements to the game aiming to foster social and developmental goals such as gender equality, social inclusion, and fair play. The initiatives these organizations have created and implemented are various, yet the paper will examine two: rule modification, and symbolic rewards for ethical behaviors. The paper will briefly present how these organizations have come to understand football. Later, the initiatives will be presented and analyzed. The paper will conclude that although the "creative" pedagogical ideas behind these initiatives are noble, they can be wrongheaded since by modifying the rules or adding elements to the game, the sport risks losing its constitutive structure and the fundamentals that give football power for social development.

Keywords: Football3, creativity, gender equality, Fairplay

Introduction

In the last few decades, non-governmental organizations (NGOs) and some national football federations (NFFs) have opted to be creative and developed initiatives aiming to transform the game of football for "good," and make it a vehicle for social and moral development. NGOs have opted to address social issues such as social inclusion and gender equality, directly *within* the football match by modifying the rules of the game; also, some NFFs are trying to foster "good behaviors" by adding elements to the sport. Although the ideas of these organizations are noble, the paper will argue that these "creative" initiatives must be put under further scrutiny since by implementing them, football risks losing the fundamentals that make it a practice for social and moral development.

Football from two perspectives

Lately, numerous NGOs have taken as their main model the Football3 methodology in order to create spaces for social integration, pacification, and social transformation for the youth.[2] Football3 was developed around three spheres: dialogue for conflict resolution, promotion of values for peaceful coexistence, and women's inclusion (Islas, 2018: 73). Indeed, scholars point out that Football3 falls in the category of *sport-for-development and peace* (SDP) initiatives since its central idea is to raise awareness or even tackle social issues such as gender equality, peacebuilding, social inclusion, etc., through sports. However, as opposed to regular SDPs,[3] Football3's innovation is that it aims at addressing these issues directly *within* the match by changing traditional rules and formats and is likely to be the most used SDP methodology globally[4] (Gannett et al. 2014; Moustakas and Kalina 2002, 3).

On the other hand, some NFFs have also tried to implement initiatives at their amateur levels to foster fair-play and reorient football away from its overcompetitive aspects. Torres and Hager (2007) have referred to these kinds of initiatives as the "reformist movement" and say that these arise when sports are erroneously understood from a zero-sum perspective.

The zero-sum perspective understands sport through a binary logic – winning and losing – where victory is all that matters, and opponents are seen as obstacles to be conquered, dominated, or even humiliated (205). Although Hyland (1984: 63) disagrees with this view, he notes that the intense involvement and passion in which participants play seem to suggest that it can evolve into violence, leading many to think that this is part of the "sporting life." Thus, from the zero-sum perspective – Torres and Hager (2007: 194) note - the reformist movement believes that youth sports programs disconnect contestants and advocate for organizations to design reforms that foster healthy environments by emphasizing values such as fair-play.

It can be noted that NGOs and NFFs understand football differently. One sees it as a space to address social issues, whereas the other one is a space that can generate violence. However, both agree that football must change and evolve. In what follows, first, I will analyze how NGOs aim to progress gender equality by modifying the rules of the game, and second, how three NFFs are trying to foster "good behaviors" by adding elements to the sport.

Rule modification

The first initiative to be examined is part of the Football3 methodology which aims at harnessing the educational potential of football by ensuring that dialogue, inclusion, and a friendly environment are integral parts of the game.[5] Football3 derives its name from the incorporation of "three halves": pre-match discussion, football match, and post-match discussion, it is always done in mixed-gender teams and without a referee. In the first half, both teams agree on the rules they want to change, eliminate or add to the game; the second half is where the actual match happens; and, in the post-match discussion players reflect on their personal behaviors, as well as if they comply with the established rules. The methodology is worth analyzing; however, I will focus on how these organizations modify the rules of the game aiming at progressing gender equality. I argue that altering the rules of football towards gender equality the way these organizations suggest, can work against the fairness of the game and be counterproductive to their objectives.

The "first half" is where players reach a consensus and define the rules of how the game will be played. The pedagogical ideas behind the pre-match discussion are to facilitate dialogue among players, encourage individuals to participate in decision-making processes, encourage creativity, and respect the opinions of others. Football3 has two kinds of rules, fixed and open.[6] The difference between these two is that fixed rules are established before the pre-match discussion, whereas open rules are to be discussed and negotiated among players. However, for more systematic clarity, I will reproduce below each of the fixed and open rules exactly as seen in the Football3 handbook and identify them in the language of the philosophy of sport as constitutive rules, regulative rules, or peripheral concerns. The constitutive rules are those that define the very essence of the game, as well as the contest area, duration, and equipment (Morgan 1987). The regulative rules support the constitutive rules by aiding and restoring the game from any deviations, or by punishing constitutive rule violations, doping, or verbal abuse (Gleaves 2014, 368). And the peripheral concerns are modes of behavior that add color and significance to the sport but are not part of the essence of the game (Meier 1988, 15).

Fixed rules

Constitutive rules	• Matches are 12 minutes long • No breaks • No change of ends • Five-a-side matches • No offsides • All free kicks are indirect
Regulative rule	• Unlimited substitutions
Peripheral concern	• If a player goes to ground, the opposing player should give them a hand up

Open rules

Constitutive rules	a) Assists must come from a player of the opposite gender for a goal to count b) All players must pass the ball at least once during the match c) The ball cannot be played above waist height d) Each consecutive goal scored by a team must alternate between a girl player and a boy player
Constitutive gender-oriented rule	e) A girl must score first for the other goals to count f) Girl's goals count double
Regulative rule	g) Throw-in, kick-in, or roll-in to restart the play when the ball goes out
Peripheral concern	h) Goalkeepers are rotated after each goal received i) Special joint celebration or ritual after the completion of the match j) Both teams celebrate the goals, regardless of who scored k) Teams enter and exit the pitch holding hands

The fixed and open rules present in the Football3 handbook can fit – through the lens of the philosophy of sport - as constitutive or regulative rules, as well as peripheral concerns. The peripheral concerns – both in the fixed and open rules - for this methodology are fostered mainly to promote a friendly environment. Indeed, neither the constitutive nor regulative rules identified in the fixed rules change the game, they just represent the conduct of street football.

On the other hand, the open rules do change the constitutive nature of football. For instance, open rules a through d do it in the Suitsian sense, that is, they prohibit the use of more efficient in favor of less efficient means (Suits 1978). Actually, modifying the rules in this way seems to reflect what Reid (2018) called the "spirit of sport" because banning efficiencies in sports enhances the development of internal values as well as virtues. However, I want to focus on open rules e and f since it is evident that these two point their objectives at progressing gender equality. I have called these two, *constitutive gender-oriented rules* because they change the nature of football, but they also emphasize the gender to whom these rules are directed.

Indeed, recent initiatives have challenged binary gender formats in different sports events by adding mixed-gender competitions. Different scholars, in fact, note that encouraging sports organizations to

develop spaces where boys and girls play together can empower girls and is a powerful way to alter gender stereotypes (Read and Bingham 2009). However, mixed-gender initiatives generally have not changed the rules in favor of one gender. It can be argued that rules e and f in the Football3 handbook attempt against the democratic structure of sports. Reid (2010), Frias and Isidori (2018) have stated that sport has a democratic structure because it is based on three main principles: Equality before the law (*isonomia*), equal access or opportunity to participate (*isegoria*), as well as the principle of equality of possibilities (*isokratia*). For them, these principles are not only part of the constitutive structure of sport but inspired democracy to be born in ancient Greece. Having these three principles as the basis of the structure of sports, turn the practice into a place where all participants - in theory – are equals, and these must be maintained and fostered by institutions.

Rules e and f modify the constitutive structure of football in a way that does not foster the "spirit of sport," and work against its democratic nature because they state that girls are unequal to boys and deserve to be treated differently as competitors.

This different treatment can be justified, however, if one applies John Rawls' thoughts to the Football3 methodology. Rawls (1971) was concerned about distributive justice and said that all social values, as well as income, and wealth, must be equally distributed unless inequality makes all members of a society advance. Inequalities – for him - can be just when they aim to improve the situation of those disadvantaged. In other words, Rawls is in favor of benefiting those disadvantaged to attain equality and make societies fairer. In the context of Football3, it can be argued that this rule is made not only to include girls in football but to ensure that they are constant participants during the game, that is, to touch the ball, to score, and to encourage boys to pass the ball to girls, in short, to eliminate stigmas about female inferiority in football.

But this argument is unsustainable, since nowadays, due to the increasing participation of girls in football and the growing numbers of football women's leagues at the amateur and professional levels all around the world, girls can play at the same or better levels than boys. In any case, Rawls' thoughts can be applied if there are significant differences in athletic skills, ability, age, or strength but not in terms of gender.

Indeed, these "positive discriminatory" rules can fit into what English (2017, 3) called 'orthodox masculinities' since organizers hold sexist beliefs and attitudes [e.g., women are athletically inferior or powerless]. That is, these rules suggest that domination persists be-

tween the sexes and assume that there's something natural or true about gender such as men play better than women, women need help, or women cannot be as good as men. In contrast, and to avoid "positive discriminatory" rules, one can think to promote more rules like rule a which fosters the "spirit of sport," work in favor of the democratic structure of sports and promote balance without treating females differently.

In sum, the *constitutive gender-oriented rules* identified in the Football3 handbook, do not enhance the "spirit of sport", attempt against the democratic structure, and cannot be defended from Rawls' idea of fairness since they would reinforce the idea that women are inferior to men in football, thus being counterproductive to its objective.

Symbolic reward for ethical behavior

The second initiative has been implemented by three NFFs to combat the climate of "football violence" in their countries. The Argentinian, Italian, and Portuguese football Federations[7] in collaboration with their respective referees' associations have opted to create and apply in their amateur leagues a "green card" in Argentina and Italy, and a "white card" in Portugal. As opposed to the traditional red and yellow cards whose character is punitive, these cards hold an educational rationale since they intend to foster attitudes of "good conduct" or fair play by recognizing ethically relevant behaviors (Scialò 2015). Referees show the card to those players who, for example, help an injured opponent, acknowledge a referee's mistake (that benefited their team), avoid protests, use respectful language with teammates and opponents, congratulate the opponent after a good play, or help opponents in a situation where they need it (Torres and Frías 2018; FPF, 2021).

Although the cards do not have an impact on the game, they symbolically reward players who display virtuous behavior. Indeed, fostering ethical behaviors seems a plausible initiative, however, rewarding players with these cards through the criteria delineated above can turn expectations for ethical behavior into commands.

Fry (2012) made the case about what would happen if medals were given not only for athletic excellence but also for virtuous behavior in the Olympic Games. For him – through the lens of Kant – participants must not be encouraged to perform moral actions by rewarding them, but by inculcating a sense of duty. The issue of motive – for Kant - was of main importance for moral action to hold genuine moral worth. Indeed, one could paraphrase Kant's (1959) second

formulation of his categorical imperative and apply it in this context, *"perform fair-play behaviors always as an end and never merely as a means for achieving ethical rewards"* [i.e., green card].

Fry wonders if participants would still behave virtuously in the absence of rewards, or if they would perform that action only as a means of public recognition. Indeed, these cards aim at fostering individuals to perform actions that reflect fair-play, however, if individuals are moved by the desire of achieving rewards rather than from the motive of duty, then – in Kantian ethics - it would not hold moral worth, and fair-play behaviors would turn into obligations or commands that aim at external rewards (e.g., public recognition). Thus, it follows that if individuals are moved by the desire for external rewards or public recognition, they can also display unethical behaviors. Similarly, Russell (2014, 230) reminded us that in *The Republic*, Glaucon argues that unjust individuals may cooperate with others, but only when doing so will benefit them personally.

Along the same line, Reid (2014) said that to promote ethical behaviors, institutions must encourage a disposition that values goodness and beauty intrinsically. She has approached Olympic ethics through the ancient Greek concept of *Kalokagathia*, which unites the concepts of beauty and goodness. Mainly discussed by Aristotle, the morally good and beautiful person – the *Kalos k'agathos* - would be the one that performs his or her actions in an autotelic manner, that is, to act for the sake of acting in such a way and not for instrumental reasons. Here, Reid would scrutinize if those moral actions these cards want to foster are indeed performed for their own sake rather than public recognition.

Again, the motive for Reid – through the lens of Aristotle - is significant since individuals might perform virtuously but not out of virtue if they do it for the sake of external rewards. For Reid (2022, 127) the morally good and beautiful person is a product of "education based on discernment and not social status focused on appearance." The *Kalos k'agathos* is motivated by goodness and beauty because he or she feels attracted to these two automatically, rather than by profit, honor, or social recognition (Reid 2022).

The point here is that actions that reflect cooperation or fair-play are not necessarily evidence of moral virtue. In fact, under the views of these scholars, we can say that performing actions that reflect virtuous behaviors is the actual reward. It has not been said, however, that moral actions should not be fostered, but rather to question if moral actions deserve to be rewarded externally.

Conclusion

Torres and Hager (2007) note that sports seen from a zero-sum perspective have led many to think that sports need to be reformed. Indeed, sports pedagogues understand that sport is an educational enterprise, but also see that it must be flexible and open to innovations. For them, innovation means changing the traditions and rules of football so valuable behaviors for societies can emerge (Pantanella 2019, 28). In this paper, I have examined two initiatives that NGOs and NFFs have taken to reorient football toward positive social outcomes. I have sought to demonstrate that although the motivations behind these initiatives are noble, if organizations create new approaches to by football by changing its nature, the sport risks losing the fundamentals that make it a valuable enterprise for societies.

First, the *constitutive gender-oriented* rules suggested by the Football3 methodology do not enhance the "spirit of sport," work against the democratic structure of sport, and reinforce the idea that women are inferior to men in football. Also, it has been stated that actions that reflect "good conduct" or the spirit of fair-play should be fostered, but not necessarily rewarded externally. By drawing on the works of different scholars, it has been stated that performing virtuously is the reward. In this essay, it has not been stated that the pedagogical objectives behind these initiatives should be ignored, but rather pedagogical innovations in sports must be critically examined since it's football's constitutive structure and elements that give its power social development, and thus must not be rejected.

Endnotes

1. I decided to use the term football and not soccer since soccer is only used in the USA.
2. The Football3 methodology emerged in Colombia in the 1990s as a response to the climate of violence the country was going through. It was first developed by *Fútbol por la Paz* (football for peace) then it was promoted by the Street Football World (SFW) Network now called Common Goal (Islas, 2018).
3. The SFD initiatives are seen from two different standpoints, *sport plus* and *plus sports* programs, the difference being that the former place emphasis on sporting outcomes, whereas the latter is concerned with social development (Coalter 2008). The *sports plus* programs are those that aim to develop sustainable sports organizations and to deliver sporting objectives such as removing barriers to sport participation, developing basic sporting skills, and training and support for leaders and coaches. The *plus sports* programs are characterized by emphasiz-

ing social goals and using sports to attract and bring large numbers of young people together to later educate them on broader social issues unrelated to sports.

4. Moustakas and Kalina note that as of 2016, been used by 89 of its 119 members that generally operate in unprivileged areas all across the globe.

5. For more, check Football3 Handbook https://ec.europa.eu/programmes/erasmus-plus/project-result-content/09d9b288-9697-44aa-95fa-43ebf540b9fd/f3r%20Original%20football3%20handbook%20Docs%20Compiled.pdf

6. Ibid, 13

7. The Portuguese Football Federation has also stated that the white card can be presented to team officials (coaches, trainers, doctors, etc.) or supporters. But these two figures are out of the scope of this paper.

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ENHANCING MOTOR CREATIVITY FROM CHILDHOOD TO ELDERLY TOWARDS ADAPTABILITY AND INNOVATION

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Abstract. Creativity is the ability to generate new ideas or appropriate outputs in response to problems and it supports adaptability, health, and actualization (Richard, Holder, and Cairney, 2021). In motor domain, creativity is still scarcely investigated; however, some authors have demonstrated that the expression of original and functional motor actions (e.g., motor creativity) is associated to adaptability, well-being, and self-efficacy. These findings support the evidence of the need for developing an educational approach to support child, young athletes, or elderly in enhancing original and useful movement solutions. In line with the embodied cognition approach to creativity and non-linear pedagogy framework, this methodological approach could represent a pathway linking theory to practice enhancing motor creativity.

Keywords: creativity, motor creativity, divergent discovery style, constraints.

Introduction

Creativity refers to novel and useful solutions to open- ended problems that people encounter in their daily life (Runco, 2014). In the last decades, the interest in educational aspects of creativity has grown exponentially in response to the postulation that creativity is a fundamental skill to adapt in an increasingly complex, uncertain, and changing world (Hernandez-Torrano, and Ibrayeva, 2019). In this view, the educational contexts are suitable environments for promoting creative behaviours. Beyond the association with adaptability, creativity has been considered as an instrumental for human actualization, self-expression, and health (Richard, Holder, and Cairney, 2021).

Creativity requires both originality and effectiveness, because ideas and products that are only original might be not so fruitful. It is important to note that such elements (originality and useful) can be oc-

cur at different individual's levels, in various contexts in which individuals grapple with solving open-ended or ill-structured problems (lack of clear path to a solution; unknown problem elements; multiple solutions).

As regard to the educational aspects, in the last decades scholars' interest is growing especially in the most common levels of creativity which can improved through specific methodological models throughout the lifespan. Kaufman and Beghetto (2009) proposed a creativity framework, (the four C model), that differentiate between levels of creative ability. *Big-C* represents examples of creative products that have a significant impact on society and/or in a specific knowledge domain (e.g., Fosbury's flop). *Pro-c* is related to professional creativity and regards creative expressions of experts or experienced people that influence a specific domain (e.g., a new methodological approach to develop musical creativity). *Little-c* or everyday creativity helps underscore the essential role that creativity plays in everyday life and points to the importance of identifying and nurturing creativity in everyday settings such as schools and classrooms, workplace, and home and social settings (Kaufman and Beghetto,2009). *Little*-c refers to such as those creative actions in which the nonexpert may participate each day (e.g., children that make a ball with plastic bags and a little rope to play football). The last category, *Mini-c*, is defined as the novel and personally meaningful interpretation of experiences, actions, and events (Beghetto and Kaufman, 2007).

At this level, what an individual creates it is new, useful, and meaningful to him (e.g., an elderly man who fell to the ground solve the problem to stand up again imagining to be a long worm, shrinking, and extending his body, to reach a stable support). Mini-c is a transformative process which refers to the creative attempts that everyone can explore at different ages.

Little-c and Mini-c of creativity highlights the salient relationship between learning and creativity.

In this regard scholars have not yet clearly identified which pedagogical practices lead to creative potential enhancement (Richard, Holder, and Cairney, 2021). For better understanding the intertwined between creativity and learning, recently a growing number of studies are exploring creativity concept through the lens of embodied cognition. The new conceptualization of creativity shifts from a cognitive model, where creativity happens in the mind firstly and then it is transformed in behaviours, to an intertwined connection between the body, the mind, and the environment that becomes critical in developing of enhancement creativity interventions (Malinin,2019).

This embodied approach to creativity points out the significant role of the body and the physical context in most creativity enhancement interventions, that in previous cognitive model had not been considered (Malinin, 2019).

Following this approach, creativity enhancement interventions represent a way to expand how "people relate to the world, to others, and to themselves, making them more flexible and more open to the new" (Glˇaveanu et al., 2020, p.743).

In line with Richard and colleagues (2021), creativity in motion or motor creativity, when thoughtfully designed with appropriate movement activities, can help people to explore, to unfold, and to better exploit their creative potential at the everyday level for reaching higher wellbeing.

Motor creativity

Motor creativity reflects an individual's ability to perform a variety of functional and original movement solutions to achieve a task goal (Orth et al., 2017), and refers the potential that enables developing new motor patterns for either a solution to a pre-established problem or it is a bodily expression of an idea or an emotion (Wyrick, 1968). In line with the ecological approach on learning and motor control, this ability is defined as new way of acting adaptive in new situations (Hristovski, Davids, and Araujo,2011). Creative motor actions are the result of a synergy between the individual task and environment, following a non-linear process (Lee, Iodice and Komar,2023).

According to ecological-dynamic approach (Chow et al., 2020), recent studies suggest relevance of using enriched movement activities to realize an individual's creative potential (Richard, Holder, and Cairney, 2021; Scibinetti, 2019; Tocci et al., 2022). In early childhood education, movement-based creativity programs have been employed to foster not so much motor creativity per se, but creative behavior in the embodied and kinesthetic way that characterizes discovery learning and cognitive development in children (Grammatikopoulos, Gregoriadis, and Zachopoulou, 2012). In the early years, motor creativity has also been positively associated with psychological well-being factors (Theodorakou and Zervas, 2003; Bournelli, Makri, and Mylonas, 2009). Fostering creative movements in children increase general self-esteem and led to more positive perceptions of scholastic, social, and athletic competences (Theodorakou and Zervas, 2003). Few movement creativity interventions in elderly have shown significant effects in cognitive flexibility (Coubard

et al, 2011) and in proprioception (Marmeleira, Godinho and Fernandes 2009).

Non-linear pedagogy and Divergent discovery style

A methodological approach to develop motor creativity shifts the point of view from a linear model of motor learning, which follows a predefined and sequential path, to a non-linear pedagogical framework (Chow,2013). As there is an infinite number of individual dynamical systems, it does not seem to be functional to establish a universal motor learning development pathway to which all learners must adhere (Philips et al,2010). The non- linear pedagogical approach to motor learning relies on the interactions between activity, environment and individual that generate the variability of the motor proposal.

Non-linear learning is the more suitable approach in motor creativity development for both the autonomy in the choice of executive variants and motor responses and for the inclusion because each child produces new motor solutions starting from his own level of motor performance. The practical implications deriving from a non-linear learning start from the identification of an appropriate teaching style in which the roles of the teacher and the of students focus on the goal of improving the production of new and adaptive motor behaviours. Within the Mosstom's Spectrum of *productive* teaching styles (Mosston, & Ashworth,2008), the *Divergent Discovery style* is the most suitable one to engage the learner to produce different solutions within a specific motor task: this style promotes the discovery of multiple responses to a given task or situation.

Teacher makes decisions on the theme or topic proposed and creates the space for solving the problem, allowing students time to explore, and suspending judgement. The role of the student is to discover more solutions/answers to a specific question. The implementation of these behaviours generates the possibility of achieving goals that concerns learning how to produce multiple solutions to a given problem such as to explore and to discover alternatives in any content. This style leads students to accept the risk of alternative ideas and eventualities that an individual can approach problems in unusual ways; they learn to tolerate the ideas of others (Mosston and Ashworth, 2008). The task should be planned to support new ways of moving starting from the elaboration of the well-known motor behaviours and from the discovery of unknown motor behaviours.

Semi-defined task and manipulation of constraints

The implementation of the style can be accomplished through designing the *semi-defined tasks* (Bertsch,1983). The main trait of this type of task is the clarity of the goal to be achieved, with verbal instructions minimal and not prescriptive. On the contrary of open task, the semi-defined task involves the creative process because there are constraints (task- constraints and or environmental) which limit the degree of freedom of the system producing creative movement solutions (e.g. You have to go from one part of the bench and back, keeping a part of your body always in contact with the bench). The Constraints-Led Approach (CLA) is an important teaching methodology built upon the foundations of dynamical systems theory and ecological psychology. With this methodology, teachers can support performers in adapting their movements to the tasks and environments they are performing (Davids, Button and Bennett, 2008). Thus, it seems to be contradictory to creativity, which is classically associated with freedom, autonomy, weak rules, and few boundaries (Torrents, Balagué, and Hristovski, 2020). On the contrary, goals which are associated with creative actions need constrains, which define the space for movement system action (Orth et al,2017). Manipulating task constraints can be a powerful pedagogical tool to support the exploratory activity of learners at all levels of skill and experience. (Rudd et al, 2021).

Motor creativity activities

In motor learning process, *awareness of body and space*, *relationship with objects and other people* are topics that should be always enhanced not only in schools' programs but also in various motor activities. In fact, from childhood to ageing body changes and the environment as well as motor activity with the other people, provide new or different affordances to move in original and useful way to adapt motor solutions to the changing problems. In planning motor creativity activities, the role of group activity and of the music have been carefully considered too. Creative activities are often offering in small groups (or in couple). When a group works to produce a solution, social, emotional, and cognitive domains interact significantly.
This interactive process involves for example the opportunity for everyone to suggest a solution; the opportunity to try anyone's solution and tolerance to accept the solutions of others; working together in a climate of inclusion. Finally, the exploratory behaviors can be encouraged through specific environmental characteristics: music

seems be a useful tool to favor the emergence of creative potential through movement. Musical interventions enriched with a variety of improvisatory activities, revealed that improvisation significantly affects the development of creative thinking; in particular, it promotes musical flexibility and originality, in children's music-making (Koutsoupidou and Hargreaves 2009).

Listening to specific types of music compared to a silence control condition, facilitates divergent creativity (Ritter and Ferguson 2017). A recent study (Trecroci et al.2023) showed that a music-oriented education plan fostered the ability to enhance motor creativity in elementary and middle school students compared to the conventional plan. For this reason, activities are often designed with adequate music which can helps the association with metaphorical imagine and establishing of discovery climate. For example, manipulation of constraints and metaphoric imagery, have been designed to enhance body awareness and relation with object through a semi-defined task (Scibinetti,2019).

Body awareness

"Magnets and mechanisms" activity concerning the use of the body (e.g., involving different body parts, changing sensory feedback), is an example of constraint-led approach and non-linear pedagogy to foster the search for solutions to satisfy constraints with a focus on cooperation and cooperative creativity.

Activity: Magnet and mechanisms

Children move and run in the space. When the teacher names a body part, they stop and move in couple in contact with only the body part named by the teacher (as a magnet).

Manipulations of constraints

- Different posture: children move in couple with the named body part only on the floor.
- Groups: children move in small groups in contact with the named body part (as a mechanism).
- Different posture in groups: children move in small groups in contact with the named body part only on the floor (as a mechanism).
- Number of body parts: teacher names two body parts (e.g., back and elbow; belly and forehead) which are in contact while children are moving.

Relation with objects

The activity "Butterfly" is an example of environmental constraints in which, starting from the metaphorical imagine of the butterfly, children or adults can explore different solutions to move the newspaper (e.g., butterfly) on the different body parts, promoting the perception and utilization of new affordances. Moving with a newspaper involves not only the creative process, but the kinaesthetic differentiation because the lightness of the newspaper.

Activity: Butterfly
Children are moving with a sheet of newspaper, resting it on different body parts, to explore new movement solutions, as if the sheet of newspaper was a butterfly. They will have to change posture and movement to follow the trajectory of the butterfly. They don't have to tighten the newspaper, if it falls, they can take up again and move on the space.

Manipulations of constraints
- In pairs with only one sheet of newspaper: who has the "butterfly" continues to move exploring different solutions while the partner will have to follow him/her to be ready to receive the sheet of newspaper when the other leaves it.
- In small groups on the floor with only one sheet of newspaper: you are flowers, and the butterfly moves from one flower to another touching different body parts.

Conclusions

More recent approaches to learning and human development have re-considered the role of the body and of the movement in individual development, particularly in cognitive and affective acquisitions and in changes through the life span (Marmeleira & Santos,2019). From this viewpoint, therefore, movement experience shapes our competences and our environmental interactions in unusual ways. Following this novel approach, creative ability is not only in our mind, but it is influenced by the interaction between perception, mind, and action. Thus, pointing out the significant role played by creativity in adapting and solving ill-structured problems, from everyday questions to social issues, methodological perspectives to enhance individual creative potential should more examine creative movement value. The proposed model offers a methodological pathway to en-

hance motor creativity starting from children throughout the life span.

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CREATIVITY THROUGH ART IN EDUCATION: A CHANCE TO LOOK AT THE WORLD

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Abstract. This contribution wants to underline that pedagogy feeds on art not only to know how to do, but to learn how taking care of the person, providing not only an awareness of unity between image and concept, between sensation and thought, but also a knowledge which binds it to the universe in harmony with nature (Read, 1980). In particular, the analysis wants to focus on the importance of creative action through art, to develop a divergent thought that is an integral part of the educational process. Educating creativity means teaching to express oneself, to communicate, to respect diversity, to encourage thought to go beyond habits, to seek new solutions, to formulate new questions, to overturn consolidated processes, to look at the world from multiple points of view.

Keywords: creativity, art, pedagogy, education, expression

Introduction

Creativity is something that goes beyond rational thought, beyond imagination, creating a bridge, a connection between these apparently opposite terms, which characterize the cognitive activity of each individual.

In fact, Petter (2010, p.68) writes that creativity is "a particular way of manifesting rationality and imagination, characterized by a fully autonomous process of thought which [...] finally comes to produce something new and original". While fantasy can be associated with the age of childhood, the age of reason, of rational thought, is considered the adult age.

In the school system, the development of rational thought is often privileged, as fantasy, in turn associated with spontaneity and improvisation, it is a concept semantically distant from the common teaching method (Petter, 2010): in reality - differently from what one might think - imagination and rationality do not refer to constructs that contradict each other. The creative work invests the various fields of human activity placing itself as a structural dimension of thought, creating that bridge between art and science, between expression and cognitive thought, between body and mind, between

feelings and affections. In fact, educating to creativity means educating to express oneself, to imagine, to learn to communicate, to have flexible thinking and to respect differences in order to have an ecological and supportive vision of the world in connection with living beings and with nature. Creativity produces changes to the symbolic mind, traces elements of transformation of rational thought, of the emotional aspect, of our being and of the world in which we live.

Creativity in art as a transformative educational element

Paulo Freire (1983) said that education cannot fail to be ideological, it cannot fail to have a vision of the world, of the society to be built. But what kind of society do you have in mind, and what school vision do you want to achieve? An idea of school, as Lamberto Borghi (2008) suggests, as a community of free doubters could lead to rediscover a commitment to creatively design a world, perhaps reinvent it as Heinz von Foerster (2001) would say. The school, still for the most part, refers to a fragmentary and reductive transmission of knowledge, dividing body from mind, rationality from emotional or sensory aspect, and Morin himself (2000, p.7) writes in this regard that they teach us, starting from elementary school, to "isolate objects (from their environment), to separate disciplines (rather than to recognize their solidarity)", to distinguish problems, instead of teaching to integrate and to connect, to "separate what is connected, to eliminate everything that brings disorder or contradiction in our intellect". A model far from John Dewey's pedagogical activism, an active didactic model that considers all the aspects that characterize the human being: cognitive, emotional, and bodily, renewing that unity between mind and body, "which is the only source of social harmony and individual happiness" (Read, 1980, p. 93).

To overturn this modus operandi, it is essential to invest in the construction of an educational process that forms a critical and democratic spirit that cannot continue to be nourished only by knowledge linked to abstract thought, to the cognitive aspect that is at the top of the hierarchy of knowledge, to the detriment of equally important aspects such as the emotional and physical ones. A cultural perspective that still binds various schools and universities to conceive educational projects linked to a paradigm of separation between body and mind, an inheritance of conceptions that "can be traced in Platonic dualism, in the Judeo-Christian tradition and in scientific thought of Cartesian matrix" (Mignosi, 2016, p.6). It is necessary to review and re-read didactic and educational approaches with a perspective of "holistic, ecological, systemic, complex" vision of man (op. cit., p.1).

This contribution wants to underline that pedagogy feeds on art not only to know how to do, but to learn how taking care of the person, providing not only an awareness of unity between image and concept, between sensation and thought, but also a knowledge which binds it to the universe in harmony with nature (Read, 1980). That aspect which allows us to "feel part of that 'dancing part' of the structure that connects", to use the words of Sergio Manghi (2004) about Gregory Bateson, where each polarity reproduces with the other in a circular way. We therefore share Arnheim's thought when he writes that art begins to assume its meaning when it is understood as the most radical attempt to understand the "meaning of our existence through shapes, colors and movements that the sense of sight captures and interprets" (Arnheim, 1969, pp. 184-185).

In particular, the analysis wants to focus on the importance of creative action through art, to develop a divergent thought that is an integral part of the educational process. Educating creativity means teaching to express oneself, to communicate, to respect diversity, to encourage thought to go beyond habits, to seek new solutions, to formulate new questions, to overturn consolidated processes, to look at the world from multiple points of view.

We want, here, to question the sense of the body as a language of art in education. In this regard Burnard, Mackinlay and Powell (2016) write that as a practice, the arts exist on the border among performative bodies, bodies of knowledge and bodies of culture, a body therefore is considered as a mediator of intersubjective relationships and, in educational field, it becomes necessary to create an adequate space where it is possible to cultivate an *embodied educational relationship*, a space that is still little considered, in which the educational intervention is enriched not only with minds, but with thinking bodies, *body thinking* as suggested by Burkitt (1999), which can define their identity in a collective dimension, a common ground where, as Iori (2002, p.15) suggests, one can "start building a life project including one's own corporeity". A body therefore is experienced as a transmission of knowledge, putting the subject at the centre, no longer as an individuality but open to perspectives of exchange and knowledge, oriented towards new visions and as a fundamental part of educational processes. Fabio Dovigo (2008) writes about art that it is "something that is done with the body, not with the mind", which doesn't mean generalized instinctivity, but enter into that *embodied dimension* of feeling, embodied body and mind.

Speaking of corporeity in education and of connections with ontology and culture, Riccardo Massa (1986, p. 472) believes that corporeity constitutes the device that makes possible "the historicizing *in-*

terpenetration of organism, personality, culture, society" through the learning and educational processes. Therefore, according to the pedagogist, it is necessary to identify a perspective that takes on the body and the artistic disciplines that use the body in its expressive-communicative-social dimension, as a pedagogical object and not just as an educational intervention sector. All this can be allowed through the use of gestures or words that take the form of narration, body, poetry, graphic sign or sound.

Action and art, therefore, cannot be reduced to just one material, a discipline to be deepened, moreover only in some fields of study in high schools. It is about of creating ways, steps to form a scenario, which is the foundation on which to sew an interdisciplinary network. This does not mean depriving the teacher of his role of educator of the person, but as Eisner (2005) also underlines, it constitutes a commitment of educator to give space to integrated paths that can define art-based educational objectives.

Giving voice to expressive artistic languages, it means defining interactive methods among verbal expression and language of the body, theatre, graphic-pictorial arts, music and cinema. Training is defined by enhancing creative-expressive activities in a non-hierarchical context of skills, to move towards growth and exploration of artistic means in an interdisciplinary sense, giving life to integrated paths that can favor a methodology which focuses on the subject's operations and on its potential to express different intelligences and abilities.

It becomes necessary to follow an educational path that considers artistic-creative tools in the curriculum which can activate transformations in looking at reality and cross borders, becoming a device for activating new projects and new visions.

Martha Nussbaum (2010, p. 96) suggests that "humanities and arts need to play a central role in the curriculum, cultivating a type of participatory education that activates and perfects the ability to see the world through the eyes of another person", therefore art seen as a language that builds bridges among diversities and as an opportunity for the creation of divergent thinking.

The use of the body, of dance in the educational field allows to produce a bridge between thought and action, to learn through the experience of doing, of movement, imitating some gestures by observing the companions, and creating others, thus becoming an interpreter and creator at the same time. Using dance in education, or dance movement therapy in the sense of taking care in the educational field, means facilitating the transition of the rules of the relationship through the creation of a play space to experiment in a protected

space where the bodies, constituting the social body, can moving and dancing within a ritualized space, mirroring and acting on traces of choreography that can contaminate each other, where cultures can cross, coexist, play and create new ones.

Dance can have the function of "educating, in the sense that it is taught to achieve specific educational purposes within a given society like music, art and theater" (Kraus R., Chapman Hilsendager et al., 1991, p. 22). It is an art that concerns and belongs to everyone and is an artistic and cultural expression, an expression of one's being in the world: a dance not only for someone because they are gifted or able to "perform" choreographies, but a dance in which everyone can log into. To dance you don't need to know how to dance. Adopting an artistic language in educational field, such as dance or theater or music, don't have to be a possibility but it should be a point of view from which to start, a code with which to be able to open the doors of life, where everyone's creativity is valued on the basis of different skills available, giving everyone the opportunity to express themselves.

Bruno Munari, one of the greatest and most ingenious protagonists of the world of art, design and graphics throughout the 20th century, proposes an idea of education that follows John Dewey's thought of democratic education, an education that doesn't separate the individual from society, but that knows how to create connections with it, stimulating the use of creativity which requires the use of a mind free from preconceptions and ready to change one's thought when it recognizes a more correct one; "A creative person continuously takes and gives culture to the community, grows with the community […] Developing each personality so that it can help the collective growth" (Munari, 1977, pp. 121-122).

The task is to suggest a road, a path with consequent branches and possible choices that allows to transform one's thoughts, one's emotions, one's actions, which allows to transform the world in which we live. Therefore, in order to develop a transformative action, a responsible training planning is necessary, which knows how to place creativity at the center of the educational process, enriching it with ways from which to draw ideas and visions for the training of citizens of the world.

Towards a pedagogy of art

The use of art allows us to open the doors to creativity, consenting us to imagine a reform of thought capable of decentralizing the linguistic and symbolic networks of the culture to which we belong and

rediscover the sense of an intercultural school-laboratory of Dew-
eyan or other origins, Artists or educators have indicated the artistic
approach as the way to knowledge, such as Loris Malaguzzi, who
worked in the conviction of doing to learn and to grow, to share the
vision of the world and increase it with other points of view; or again
in the work of Maria Montessori who had inserted the sensorial
method in her idea of educational system, which inspired Bruno Mu-
nari's "Playing with art" method that we remember with the apho-
rism of Confucius with which he identified "if I listen I forget, if I
see I remember, if I do I understand".

John Dewey assigns creativity through the use of art to action as
fundamental in the construction of human formation and marks that
pedagogical character who outdistances itself from aesthetics as a
transcendent assumption that places human experience within a spir-
itual dimension so much that he declares: "My purpose is to indicate
that theories which isolate art and its appreciation, placing them in a
realm of their own, detached from other modes of experience, have
no adherence to the artistic matter" (Dewey , 1967) .

It is about of thinking and creating concrete opportunities to decon-
struct cognitive structures, of identity and self-centered rigidity, and
to use artistic languages, divergent thinking, in order to build a con-
cept and a process of intercultural education based on a plural identi-
ty. It becomes necessary to share and experiment with new models of
coexistence, to bring out needs and requirements that are also ex-
pressed using artistic codes for the construction of dialogic process-
es, which translate into those paths that link the educational practices
promoted by the educational institutions of a society and the con-
struction of a model of democratic citizenship. Sharing, that is, shar-
ing something together, but also putting together common visions,
forming a picture that is enriched by what each of us sees. Art offers
us the possibility of transcending belonging, origins, which should
not be forgotten, but allowed to emerge in the artistic act, beyond the
prescriptions.

The pedagogy of art allows, in fact, to be able to invent places of
meeting, creative action, exploration and exchange within the educat-
ing community and in the territorial community where it is possible
to think about the construction of a community of communities. Us-
ing artistic and creative languages often means placing oneself on the
margins of traditional teaching, of the codified imagination of
thoughts and knowledge. But it also means contributing to the pro-
duction of an alternative narrative that feeds on the great wealth of
words, gestures, graphic signs, the expression of a divergent thought,
of other textual, bodily and sound textures. Other possible images or

imaginaries are solicited by inner movements and made explicit by the use of Howard Gardner's multiple intelligences in a space of recognition (2005), which becomes, following bell hooks's words "space of resistance [...] a place capable of offering us the possibility of a radical perspective from which to look at, create, imagine alternatives and new worlds"(1998, p.68).

Making art, writing, living, exercising one's creativity means moving from one island to another in an archipelago. Human truth doesn't exist in absolute terms but is given by the relationship. Each identity exists in the relationship (Glissard 2007). To do this, it is necessary to invest in a school that must have the ability to interpret itself as a permanent intercultural laboratory, a lifelong *learning,* to be able to create a new culture that has diversity as a paradigm and a dynamic conception of the culture itself, capable of crossing different knowledge and having the characteristic of transculturality. Another effective synthesis by Massimiliano Fiorucci (2020) which focuses on simplifying the transition from a situation of simple coexistence among different cultures, to a real situation of inte(g)ration, acceptance and exchange, the school must promote the meeting and encouraging situations of acquaintance with others.

It is necessary to promote the ability to expand one's perception to include other perceptions and ways of thinking. A place where the teacher, facilitator of the processes of realization of knowledge, uses means and *expressive educational objectives* (Eisner, 2005) to foster a meta-knowledge, "knowledge of the true nature of knowing and the act of knowing" (Novac, Gowin, 1989, p. 24). Eisner indicates two different objectives that teachers can pursue: didactic objectives and educational objectives. The learning objectives are used in a predictive model of curriculum development. A predictive model is where goals are formulated and activities are selected, where are considered helpful in achieving "the specific behavior embodied in the goal" (Eisner, 2005 p. 34). In this model, the evaluation aims to determine to what extent the objective has been achieved.

The teacher, in this case, knows what to look for as an indicator of academic success as the goal clearly defines the behavior. An expressive/creative goal, in contrast, doesn't specify the behavior, skill or competence that the learner is to acquire after engaging in one or more learning activities. An expressive/creative goal describes an educational encounter: it identifies a situation to think about and to try their hand at, a problem they have to face, a task they have to engage in; but it doesn't specify what they are going to learn from that encounter, situation, problem, or task. An expressive/creative focus

provides both teacher and student with an invitation to explore, defer, or focus on issues that are of particular interest.

An expressive/creative goal is evocative rather than prescriptive, it is understood as a theme around which previously learned skills and knowledge can be put into practice, but "through which such skills and understandings can be expanded, elaborated and made idiosyncratic" (p.34). With an expressive/creative focus the goal is not homogeneity of response among students but diversity. In the expressive context, the teacher aims to provide a situation in which meanings are personalized and in which products, both theoretical and qualitative, as different as themselves are produced.

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EFFECTS OF AEROBIC EXERCISE ON COGNITIVE FUNCTIONS: A 5-YEAR REVIEW

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Abstract. Authors discussed overarching issues in the study of cognition using available evidence on the role which exercise can play to improve cognitive abilities. 198,803,397 studies were sighted through Litmap, 25 studies met the inclusion of 5years and were in English. Data were charted and extracted manually on excel sheet based on study type, country, cognitive process studied, outcome measure used, level of claim and method of analysis among others to create research gap. Findings revealed mixed outcome as physiological effect of exercise on human brain is not easy to quantify. Cognitive task is a key component of moderator of exercise benefit among many others. Epigenetic mechanism of exercise was explained and recommendation on more empirical studies for diverse population.
Key words: cognition, aerobic exercise, physical activity, neurogenesis, EEG.

Keywords: creativity, aerobic exercise, brain, cognitive functions.

Introduction

The mental process of learning and comprehending through thought, experience, and the senses is known as cognition (Cambridge. 2015). Understanding inner mental processes which are attention, language use, memory, perception, learning, thinking, and reasoning has been on for a long time with the use of observation, traditional means to track changes. Today, sequel to advances in science and technology, a range of both traditional and imaging techniques are combined to fully track the relationship between the mind and the brain. This enables researchers to view cognitive science as the engine of innovation beyond human-computer interaction. There is a paradigm shift in view as more studies are coming in from philosophy, psychology, neuroscience, linguistic, artificial intelligence and anthropology making the study of relationship between the mind and environment an interdisciplinary focus. Consciously or unconsciously man is moved by her senses, seeing movement as "life" in its entity; the use of aerobic exercise is a planned, repetitive, structured physical activity that requires the body's metabolic system to use oxygen to produce energy as a pointer to healthy living. Exercise im-

pact has been studied to be vital to promote body functions in disease and non-disease condition.

In "Effect of three minutes step test on cognition among medical students", Manadher etal (2021) assess if 3 minutes of acute exposure to aerobic exercise will affect changes in cognitive function among 24 healthy third year male medical students, aged range 17-30 years. Authors computed computer based online version of Stroop test in sitting position, cognitive processes of interest are selective attention and cognitive processing ability (speed). Female students were excluded sequel to menstrual cycle that could preclude cognitive function, in same vein cardiac cycle was not recorded alongside the exercise. The report shows significant reduction in reaction time without corresponding significant difference in the number of correct responses before and after the exercise.

Ortega et al (2022) explores the effects of exercise in improving brain health indicators, brain outcome as well as its main effect on potential mediators and moderators in children with overweight/obesity. 109 children aged 8-11years in an experimental control trial were divided into control and experimental group 52 and 57 respectively. Cognitive fluid intelligence Spanish version of Kaufman brief intelligence test, cognitive flexibility, design fluency test and trail making test. Modified delayed non-match to a simple computerized task tracked the cognitive memory, while Woodcock-Johnson II test of achievement measured academic performance in reading, mathematics, writing and fluency. The result showed that exercise has positive effect on cognitive flexibility, while small magnitude of exercise was felt on total academic performance. Exercise increases cardiopulmonary fitness performance, and its effect was consistent across moderators, but boys have larger improvement than girls. The study limitation was seen in its shorter duration making it non-applicable to larger population; the bias was that some staffs were not blinded to group allocation.

In "Effect of a 5-year randomized control moderate-to-high exercise intervention on cognitive function" Zotcheva etal (2022) assess relationship between peak oxygen uptakes (VO$_2$max) with cognition. 945 Norwegians participants; 48% were female with 78.2 years as the mean age, participants are from generation 100 study randomized into 3 groups-control, moderate and high intensity interval aerobic training for 2/7 for 5 years. Short term memory, Visio-spatial ability, executive function, orientation to time and space with their total scores were calculated from the Norwegian version of the Montreal cognitive assessment (MoCA). Difference in mean score analyses for significance or not using linear modeling; sex, age at baseline and

cohabitation status as covariates. Linear regression as well as quadratic relationship with SPSS version 26 at p value of less than 0.05. Authors reported no significant difference in cognitive scores of the intervention group and control group; men in exercise COMB group had higher MoCA than women. Total sample IMET equivalent increases VO₂max. Conclusion was drawn that exercise though with no significance association with cognition, yet it increases VO₂max which indirectly benefit cognition.

Checko, et al. (2020) looked at the neurobehavioral aspects of proactive and reactive neurocognitive functions and the acute effect of vigorous-intensity aerobic exercise (VIAE). 15 subjects (7F, 8M) age 26.8±5.1, young healthy participated in 2 separate experimental session (exercise & control). 30' of VIAE (bicycle ergometer) and 30' of internet browsing. To counterbalance the control of order effect, both has pre- and post intermediate cognitive testing comprise DRT with simultaneous EEG data acquisition interval between the 2 sessions2-3 days. Training HR 65-70%HRR. 32-channel brain amplifier in a 10-10 system and 64 Ag/Agcl non-polarized electrodes was set up. Resting Heart rate for 30' then 30' pre-cognitive test then 30' VIAE/internet browsing followed by 30' post-cognitive test in that order. The result shows that a single bout of VIAE does not have an acute effect on proactive brain activity in the premotor and prefrontal area but has acute modulatory effect on reactive cognitive brain activity.

In the study of cognition, various authors look beyond motor or sensory gain of physical activity but research into neurophysiological benefit of exercise on mental process. Perusing through evidence, there is a mixed outcome on the impact of exercise on human cognition due to the study types, methodology, outcome of interest, a level of claim and analysis employed. In this paper, authors discussed the overarching issues in the study of cognition using available evidence. Specific objective is to look at the roles of aerobic exercise in cognitive functions in the light of conflicting reports from experts in the field. Further, discuss is on the epigenetics of exercise mechanism of exercise.

Methodology. Report of this systematic review follows four main part- search strategies, selection criteria, quality assessment and data extraction. For this review, authors develop search strategy using the topic under investigation inserted into Litmaps, which bring 198,803,397 studies. The selection criteria were based on the PRISMA statement (Moher etal 2009). The search mainly focuses on mapping existing literature on effect of aerobic exercise on cognition.

The search then narrowed down to 5-year review on methods used to measure cognition, types and forms of exercise, methods of analysis, cognitive area explored among others. Other inclusive criteria are studies must be in English and from any counties of the world. A total of 25 articles were included while the remains two on EEG of interest were handpicked though below the year under review after further filtration. Final in literature preliminary review was done and view on Cite space, where a domain mapping is done involving mining, analyzing, charting and visualizing according to research objectives (fig. 1). Data were charted and extracted manually into Excel sheet based on study type, country, cognitive process studied, outcome measure used, level of claim and method of analysis among others to create research gap.

Descriptive analysis was done showing records of distribution over the years, country wise distribution, most cited record and journals. Mendeley web importer as a tool has proven efficient to recall articles and manage references.
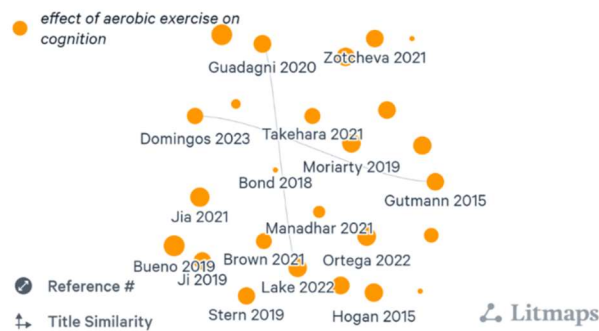

Fig. 1 showing Lit maps of authors cited on effect of exercise on cognition.

Result: Table 1 showing the year and number of article(s)

Year	Tally	Number of articles
2019	IIIII II	7
2020	IIII	4
2021	IIIII II	7
2022	IIII	4
2023	I	1
2015 (special on EEG)	II	2
Total		25

Table 2: Result of individual source of evidence, three were shown here.

Source	Goal of the study	country	Sample structure	Method to estimate cognition	Cognitive processes studied	Main result	Statistical tool
Vernonet et al. (2018)	a prospective study with-subject investigate the effects of aerobic exercise on mood and frontal EEG asymmetry	USA	20 young African- American participated with 10F 10M, four drop out because of exercise tolerance, failure to complete VO2max test or excessive number of ECG artifacts. Data was collected in 6 weeks interval of 3 weeks with random assignment.	Profile of Mood state (POMS) questionnaire,	VO2max test (peak), delta, theta, alpha and beta wave	Result shows improvement in mood and changes in pre-frontal and inferior frontal brain wake symmetry after exercise and appears to be gender specific.	data analyze comparing changes in post control vs post exercise pre-frontal, inferior frontal asymmetry coherence and mood using t-test at 0.05, mean and SD, correlation between each mood parameter and brain frontal activity in 4 EEG band with delta, theta, alpha and beta.
Checko, et al. (2020)	Investigated the acute effect of vigorous-intensity aerobic exercise (VIAE) on neurobehavioral correlates of proactive and reactive neurocognitive functions.	Italy	15 subjects (7F, 8M) age 26.8±5.1, young healthy participated in 2 separate experimental session (exercise & control). 30' of VIAE (bicycle ergometer) and 30' of internet browsing.	EEG	proactive and reactive neurocognitive functions	The result shows that a single bout of VIAE do not has an acute effect on proactive brain activity in the pre-motor and pre-frontal area but has acute modulatory effect on reactive cognitive brain activity.	Behavioural performance and ERP

Amjad et al. (2019)	Evaluate the effect of aerobic exercise on EEG parameters and higher cognitive functions in mild cognitive patients in RCT with 40 patients	Pakistan	with 40 patients. Two groups aerobic exercise (n=21, no-exercise control group (n=19). Mean age for AE and no-AE are 58.23±2.31 and 59.56±2.65, respectively. Short-term measurement is done after exercise, while the long-term effect was measured after 6 weeks.	Mini-mental state examination (MMSE), EEG, Montreal cognitive assessment (MoCA) and trail making test A and B., EEG	Cognition. EEG parameters measured slowness and complexity in delta, theta, alpha 1 and 2 and beta 1 and 2.	Result obtained after 1 session of aerobic exercise shows that there was significant improvement in slowness as seen in delta wave and complexity in AE treated group as compared to no-aerobic exercise group. After six weeks same result as after 1st week; significant improvements were observed in the MMSE in aerobic exercise group compared to no-aerobic group.	Analysis for EEG validation done with paired t-test while 2-way ANOVA, Scheffe post-hoc test, and independent t-test to determine the difference for cognitive test between AE and no-AE.

Discussion

More studies reiterate positive response to cognition, sequel to increase in duration (Amaya, 2021) and the need to increase the sample size to be able to effect appreciable changes in cognitive function. Dosage of exercise intensity on cardiopulmonary fitness received attention by Brown (2021) with the use of Montreal cognitive Wechsler adult and Flanker test for those with high intensity gives greater increase in fitness, yet sampling bias with inactive group. Zenebe (2019) suggested the use of diet in further study as an independent variable when handling students with intellectual disabilities, this may be a factor to consider along with exercise. Lack of control group in Maung (2022) study on the use of aerobic exercise and strengthening exercise is a threat to result obtained, though exercise was found to improve mental health and quality of life. Eye tracking as an intervention is receiving attention in measuring cognition and ongoing research in calibration is in course to meet up with each disease condition (Bueno, Sato & Hunbeger, 2019).

Modern neuroimaging tools gave clues on how brain processes information and how abnormal/atypical process can look in neurological and psychological conditions. EEG study on Evoke response potential (ERP) helps our understanding of how the brain implements

the mind with a view to making specific diagnosis in medicine or psychology (Picton etal, 2000). EEG studies by Gutman and co-authors reveals that strenuous exercise is the active mechanics in the brain that facilitate information processing; alpha peak frequency (APF) is a putative marker of individuals' state of arousal and attention. iAPF is correlated to cognitive performance. There is need to use diverse population such as healthy/diseased, male/female, and young and old to substantiate findings. Chuang and Chuang (2013) suggestion are ideal on the use of other psychophysiological affect such as mental fatigue, stress, distraction, mood, alcohol, caffeine and medication on EEG authentication to be certain of what it's producing the change and compare what time transition will bring on mental tasks.

Vigorous intensity aerobic exercise (VIAE) did not have acute effect on proactive brain activity in premotor and prefrontal areas but has an acute modulatory effect on reactive cognitive brain activity (Checka, 2020); this must be followed up with large sample size and robust protocol for scrutiny. (Domingo etal, 2023) stresses that EEG gives highly stable pattern of brain activity and can be used for longitudinal follow-up studies to track progress or efficacy of resistance training. Intervention on variability of EEG measurement was higher in delta and theta waves.

The choice of tools to track cognitive function depends on the variable of interest under consideration, most studies use EEG, and other traditional tools like Mini-mental state examination, Montreal cognitive assessment (MoCA), trail making test A and B, a Flanker test among others. There is need to develop and validates tools for more robust studies to meet the need of the twentieth century.

Changes in functionality of a specific brain region (the Hippocampus) are due to three basic factors- neurogenesis (increase secretion of neurotrophic substance), angiogenesis (increase vascularization) and synaptogenesis (increase in synaptic plasticity). Maturing brain is in more sensitive stages to environmental stimulation as the physical exercise provides the stimulus. Exercise produces positive effects on the regulation of the expression of neurochemical like lactate and cortisol, BDNF and IGF-1. Acute dose of exercise has a lower stress response than chronic exercise. High stress response is detrimental to cell.

Four moderators of exercise benefit surface from evidence, first is exercise dosage which has to do with intensity, duration and types of exercise; second is personal level of vascular physical condition, third is the cognitive task to develop or learn and finally is the temporal order in which the intervention occurs. Other key facts are

moderate intensity exercise produces greater benefits in cognitive dimension such as executive function, memory, or attention benefit from higher intensity exercises. Low intensity exercise has limited benefit on cognitive function. Too long exercise generates excess fatigue, excessive degree of dehydration and this resulted in negative effect on cognition. Short bout of exercise will not represent a sufficient stimulus to enhance cognition; the best result is in 11-21 minutes moderate intensity and 10-30 minutes when performing high intensity exercise.

In cognitive research as in other area of studies, association does not imply causation making investigator to misinterpret their findings. It is only when baseline performance is accounted for, then one can infer that baseline cardiorespiratory fitness is associated with poor cognitive performance. Although we have a number of studies supporting positive association between fitness and cognitive functions, caution should be taken in interpreting the findings because of non-robust of the design.

Conclusion

In the light of the above, more empirical studies need to be carried out across life span, baseline parameters must be taken into consideration, and validation process of instrument must be reported as well as investigation into other areas of disabilities is essential based on FITT (frequency, intensity, time, and task) exercise principle.

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POSTURAL AWARENESS OF PATIENTS WITH IDIOPATHIC SCOLIOSIS: A CREATIVE APPROACH USING PICTURES

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Abstract. Pictures are one of the most used methods of expression in recent years. As we can see, most of the population has a smartphone, and all these smartphones come with increasingly powerful cameras. 97% of the American population owns a cell phone, and 85% own a smartphone, so they can take pictures. Let's not forget mobile networks whose main purpose is to post pictures, which makes photography indispensable in our lives. The picture is a visual representation and can be used directly in the teaching process by providing visual feedback and motivating the learners. Picture can also be referred to as visual representation, graphic art, form of entertainment. Appropriate use of pictures can generally directly and positively influence children's attention and learning. Because physical therapy involves activities with a didactic element, such as: teaching, learning, assessment and because didactic principles are applied such as: from simple to complex, we must become creative enough to be able to support the children we work with. Postural assessment of people with idiopathic scoliosis is possible using pictures and can even help in the process of monitoring and treatment in physical therapy sessions. The question we ask is: how do we manage to explain to these children, that their physical appearance is affected, why they have to do physical therapy or why the brace is an accessory they will need?

Keywords: creativity, didactic, physiotherapy, creative pedagogy.

Introduction

Scoliosis is a general term used when discussing pathologies that consist of deformations of the position of the trunk, shoulders, and spine. This pathology is a 3D deformation of the spine with an incidence of 2-3% among people aged 10-18 years, more predominantly in women (Negrini S. D., 2018) (Dunn J., 2018). The diagnosis of juvenile idiopathic scoliosis is established only if the scoliosis has more than 10 degrees Cobb angle. Measuring the Cobb angle in scoliosis is the internationally accepted standard method. The most common is adolescent idiopathic scoliosis, and a very important as-

pect is that it affects from an aesthetic point of view (Negrini S., 2021).

With the rapid growth of children before the age of 10 years and before the Risser score reaches 2, the risk of worsening of the Cobb angle of the spinal curves increases (Di Felice, 2018). During growth, idiopathic scoliosis tends to worsen in most cases, the rate of progression depends on factors such as: age, Risser score, Cobb grade and very importantly the age at which it was diagnosed (Di Felice, 2018).

The conservative treatment of idiopathic scoliosis involves brace wearing and scoliosis-specific exercises, which manage to slow down and even stop the evolution of scoliosis (Dunn J., 2018). It has been shown that wearing a brace is an effective method in slowing down the progress of scoliosis in situations where surgical intervention has been avoided (Weinstein, 2013), with a yield varying from ineffective to very effective (Helfenstein A., 2006). This difference in efficiency may be due to patient compliance, the type of brace, its manufacturing method, the expertise of the medical team managing the case (Weinstein, 2013) (Dunn J., 2018).

The side effects of wearing a brace are psychologically impactful (Negrini et al., 2022), and has a direct impact on quality of life and mental health (Wang H., 2021). Given that there is a direct correlation between children's compliance with treatment and their quality of life, improving quality of life must be a priority.

Problem statement

Idiopathic scoliosis creates an aesthetic change in the body of those diagnosed. There has always been a problem in explaining to children what is wrong with their backs, especially since they cannot see their backs. The question we asked ourselves is: How do we manage to explain to these children, in what way their physical appearance is affected, why they must do physical therapy or why the corset is an accessory they will need? According to (Fortin C., 2012) the postural assessment of people with idiopathic scoliosis is possible using pictures and can even help in the process of monitoring and treatment in physical therapy sessions (Pew Research Center, 2022). Because it has been shown that pictures can be used in the assessment, monitoring and even in the treatment of scoliosis, we believe that they could also be used in the explanations given to these patients and to individualize the explanations and the treatment the pictures must be taken for each one separately (Menger, 2018).

Because physical therapy involves activities with a didactic element, such as: teaching, learning, assessment and because certain didactic principles are applied such as: from simple to complex, we must become creative enough to be able to support the children or adolescent we work with.

Pictures are one of the most used methods of expression in recent years. As we can see, most of the population has a smartphone, and all these smartphones come with increasingly powerful cameras. According to (Pew Research Center, 2022) 97% of the American population owns a cell phone, and 85% own a smartphone, so they can take pictures. Let us not forget mobile networks whose main purpose is to post pictures, which makes photography indispensable in our lives.

The picture is a visual representation and can be used directly in the teaching process, by providing visual feedback and by motivating the learners. Picture can also be referred to as visual representation, graphic art, form of entertainment (Sakkir, 2020). Appropriate use of pictures can generally directly and positively influence children's attention and learning (Wilson, 2020). However, we must be careful because all the yield we want to obtain by using pictures can decrease if educators do not use them in ideal parameters.

Research method

15 patients were questioned by means of a simple questionnaire containing four questions, two of which are closed and one open if the answer is positive.

The questions were as follows:
1) Have you tried to see what your back looks like with the diagnosis of scoliosis?
2) Did you achieve this? If so, please specify how.
3) Did it help you to see pictures of your back alongside the explanations received from the physiotherapist?

The questionnaires were created and applied using GoogleForms, to be a method that is more easily accepted by teenagers and to be easier to administer, centralized and because it has facilities for creating basic statistics. They were distributed through the WhatsApp platform to be completed in the absence of external factors and at a time when the subjects are relaxed, without feeling pressure from a stranger, such as the therapist they are working with. All subjects have a diagnosis of scoliosis established by a pediatrician and they all take part in recovery sessions to improve their health.

The age of those who completed the questionnaire was between 10 and 17 years, the average 15.8 years, both female (10 subjects) and male (5 subjects).

As seen in graph number 1, once children learn of the diagnosis of scoliosis, they begin to become interested in what is happening to their bodies. In the second graph we have a fairly large percentage of those who succeeded in this, 10 subjects, representing 73.3%. Following the open answers, they gave 7 of them used the word "pictures/photo", 2 were able to see by using mirrors and one person used the word x-ray.

The third question refers to the importance of the picture and the therapist providing time to discuss these pictures and the elements that should be followed. Graph 3 shows us that all participants in the experiment found such pictures and discussions. With the completion of this experiment, we realized how useful it can be to use an object that we use daily and which is otherwise part of our lives, such as the smartphone and especially its ability to allow us to take pictures at the press of a button a button. It is so simple to approach discussions with new patients using methods that are so relevant to them. Let's not forget that the average age was 15.8 years, which means teenagers, which means that physical appearance is most important, and they use pictures to get and attract attention in general. It is important to be able to approach teenagers with a language that they use and consider as part of their lives.
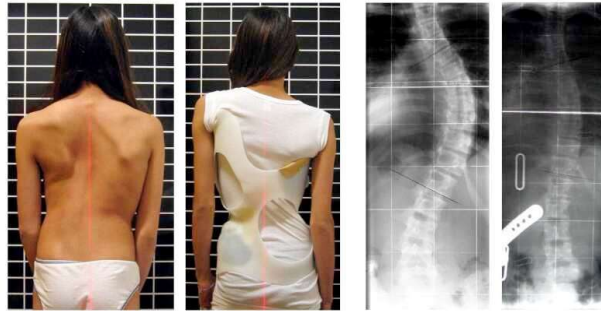
Figures

Figure 1. Scoliosis in female teenager and in brace X-ray (Weiss, 2007)
Charts

Chart 1. First question

Have you tried to see what your back looks like with the diagnosis of scoliosis?
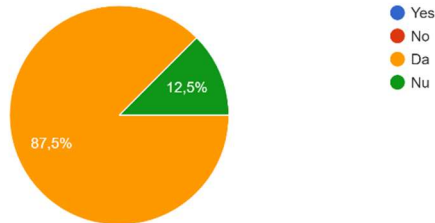
16 răspunsuri

- Yes
- No
- Da
- Nu

12,5%

87,5%

Chart 2. Second question

Did you achieve this? If so, please specify how
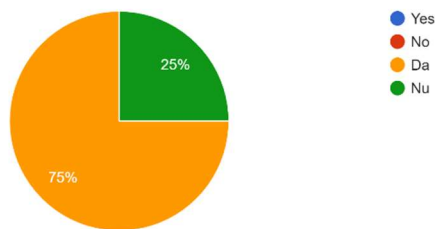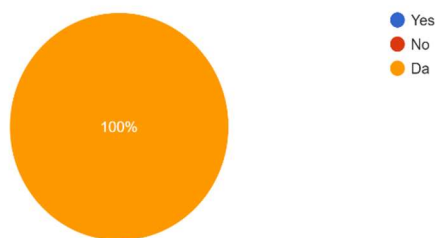
16 răspunsuri

- Yes
- No
- Da
- Nu

25%

75%

Chart 3 – Third question

Did it help you to see pictures of your back alongside the explanations received from the physiotherapist?

16 răspunsuri

- Yes
- No
- Da

100%

Discussion

Why do we consider that the way of approach and communication was a creative one? Teenagers need to be trusted and held accountable. They like to be listened to and to be included in decision-making

processes in which they are directly involved. So, each subject of this research went through a process where they were the ones who had the power to decide, where they were asked, listened to, given attention in explanations.

When they first came for an assessment or consultation, each of them was approached individually. Although the relative accompanied them, the discussion is always directed towards the teenager. He received questions such as: "What do you know about scoliosis?", "What bothers you, or what impact does this have on you?", "What do you want to get from the sessions and the time you invest in the prescribed treatment?". At the end of this first meeting, the teenager was given an assignment, namely, to come the next time with 3 questions about scoliosis. In this way, he feels even more involved in the decision-making process, which subsequently facilitates the relationship between the therapist and the patient, with the aim of improving the quality of life. At the same time, photographs of the subjects were taken from the frontal plane, both anteriorly and posteriorly, as well as from the sagittal plane. Picture use in these discussions help children and adolescent understand more about how their body looks like. And as we all know, aesthetics in adolescent is one of the most important things.

In each session when the experiment participants arrived at the clinic, they were asked about possible new questions, individually, because of the different background of each person, the same explanation and the same approach does not work. Every teenager should be approached in a way that they respond positively when their needs are addressed. Through such an approach, the feedback received from the patients was positive and as a result, they were much more engaged in the activity and much more aware that their actions are for their future and their health. Thus, we need to have a more individual approach and use personalized explanations using what they tell us about how these teenagers should learn, practice and practice the exercises. This requires a creativity that comes out of the patterns, that changes the pattern of thinking in which we are all the same. No, we are not all the same, everyone's life experiences are different. Let's not forget that creative teaching aims to teach using less conventional resources, such as: the information provided by the adolescent, his body language, the way he interacts with the therapist. All these discussions are based on the pictures taken in the first session. Why? Because pictures can be used as an objective method of evaluation. The pictures can reveal and demonstrate the exact areas where the teenager is affected by the spinal deformity. If we have a visual reference, it is much easier to explain why and how a

movement should be executed in such a way that it has high efficiency. The visual landmark and the explanations based on them, combined with the didactic creativity that a therapist has, can be a decisive factor in the explanation and approach of each case, respectively adolescent.

Although it does bring an interesting perspective on what creativity means in the process of learning exercises and explaining to these patients how and why it is important to take care of their bodies

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APPLYING PHYSICAL THERAPY TEACHING METHODS CREATIVELY IN MOTOR LEARNING PROCESS FOR CHILDREN WITH SPECIAL EDUCATIONAL NEEDS
BOCCIA SPORT CASE

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Abstract. Traditional teaching and learning methods cannot be applied to children with special education needs due to their cognitive and neuro-motor deficiencies. The educational process must be simplified and the learning units have to be adapted. To achieve optimal results, children with special educational needs must learn the segments of a motor action one by one, so that they could develop and practice independent movement as a functional or pleasant activity. Creativity in teaching and applying the proper methods to reach specific goals is the key to success in physical therapy teaching. We introduced Boccia sport in physiotherapy sessions as a different teaching method in motor learning to develop motor abilities.

Keywords: special educational needs, creativity, physiotherapy, Boccia

Introduction

For kids with multiple disabilities, playing sports can be challenging for both them and their teachers. Teaching sports to children with disabilities necessitates not only physical treatment plans that are currently focused on use-dependent and instructive motor learning, but also complex, innovative, and individualized strategies that encourage motor development. Playing sports is a therapeutic approach of physical development and a method of social integration for kids with special educational needs (SEN) (Schaillée, Haudenhuyse & Bradt, 2019). For instance, training is done gradually in sports that depend on the accuracy of a ball's throw toward a target. In order to throw the ball, the children must first learn how to grip, grab, identify the target, and calculate the trajectory. The goals of the learning stages that we implement during physiotherapy sessions include the development of arm and hand range of motion, muscle strength, and accuracy of movement.

Regardless of the setting in which they offer their services—clinics, schools, sports facilities, or fitness centers—teachers and physical therapists must be creative in their teaching process and efficient at applying the appropriate techniques to achieve a particular purpose. Specific movements should be performed as part of the chosen physical treatment program (Koch, et al., 2019) in order to stimulate and develop conditional aspects that are crucial for both functional ability of the individual and sports practice.

Methods and materials

Sports practice and sport competitions offer an opportunity for social integration. To fulfill this necessity of inclusion, we had to adapt a sport for SEN children with multiple disabilities from special schools from our county. Boccia game was introduced in the Special Schools Sports Competition Calendar of the county. SEN children from our school wish participate in this competition and this motivate them to be better learners and to improve their motor skills in order to be selected in the school team.

The Paralympic sport of boccia was first created for people with cerebral palsy (CP). Individuals with neurological and physical impairments can participate in this activity. Because Boccia is a low-cost, adapted sport, it gives an attractive option for kids with neuro-muscular and other neurological problems in our special school. It is accessible to people with a very wide variety of abilities and levels of disability and has a modality that is simple to organize. (Rimmer, 2012). Playing Boccia can be perceived as a recreational form of therapy by those who practice it (Molik et al., 2010). As this activity offers a method for identity, accomplishment, and control (Cunningham et al., 2012), it is anticipated that there will be a high degree of involvement.

Boccia can therefore be used as a physical rehabilitation technique for those who have severe mobility restrictions. Boccia is a precise ball activity that enables people with serious functional impairments to strengthen their weak or impaired muscles and motor abilities (Lapresa et al., 2017). Boccia players must use a variety of upper-limb motor abilities because the game's goal is to throw balls closer to the target than the opponent. This requires grasping, gripping, and releasing hand movements (Huang et al., 2014). Boccia is played with the therapeutic goal of improving hand muscle strength and upper limb range of motion, both of which are conditional aspects that are closely associated to the functional autonomy of SEN children. (Yozbatıran et al., 2006; Braendvik et al., 2010). According to Barak

et al, research on Boccia has mainly focused on biomechanical, learning and motivated aspects (Barak et al., 2016), although there isn't a significant amount of scientific data, this sport may help young kids with upper limb impairments. We applied physiotherapy methods and mechanism of motor learning including use-dependent, instructive, reinforcement, conductive education, and sensorimotor adaptation to improve motor skills of children with special education needs in order to be able to play Boccia as an adapted sport.

Motor learning mechanisms and methods of teaching are described in this paperwork to show the practical implications for physical therapist practice in motor education for children with special needs. Different motor learning mechanisms contribute in parallel or in isolation to produce desirable changes in motor skills. It also has the potential to facilitate the further development of new and more precise treatment approaches that physiotherapists can use to improve physical movement.

Methods used to teach Boccia to SEN children

Children with motor disabilities have a high level of psychological problems (Novak, Honan, 2019). Their capacity to learn will be impacted. Some of the causes of these learning issues include: a lack of typical childhood experiences, disturbances in attention and concentration; children's attention may focus on certain stimuli; they may struggle to select stimuli, which may affect their concentration; problems with perception; children may only see a fraction of a larger whole; reversal of how numbers and backgrounds are perceived; and disturbances in spatial orientation (Hyvärinen, 2019); secondary evidence includes anxiousness, tension, impatience, and restrained behavior; body schema and laterality, inadequate speech development (Mills et al., 2022).

Planning activities for children's development uses the principle of complexity. There is an interaction between different mental areas: spatial perception is influenced by motor development, visual perception is influenced by stereotypic experiences, and speech is influenced by cognitive processes (Leniv et al.,2022; Delenick, 2021).

The main goals for physiotherapy teaching methods that we aimed in this Boccia case were: fine motor manipulation, hand-eye coordination, body schema and image, coordination of personal space, perception, auditory distinction that were essential for the development of perceptions. Visual, auditory, kinesthetic and tactile senses are linked through the transformation and exchange of sensory infor-

mation reached by playing Boccia. In order to achieve these therapeutic goals, we have combined several motor learning methods.

Use-dependent motor learning is defined as a change in motor behavior that is driven by repeated task-specific practice. (Leech et al, 2022). In use-dependent learning, a new movement is repeatedly exercised, which makes following repetitions more comparable to the practiced action (Wolpaw, Thompson, 2021). This type of motor learning has undergone thorough research, and it is widely regarded as a potent therapeutic approach to encourage improvements in motor behavior (Suárez-Iglesias et al, 2020).

Instructive motor learning is defined as a change in motor behavior achieved using an intentional movement strategy (French, Morton, Reisman, 2021; Schween et al, 2020). When a student receives precise external input concerning a movement error or performance in relation to a task goal, this mechanism of motor learning is stimulated, leading to the development of a conscious, error-reducing movement strategy. The considerable practice that underlies use-dependent learning is probably required for the new movement to become automatic or habitual, even though movement techniques can be remembered and explicitly recalled in the future. (Roemmich, Bastian, 2018). In order to develop a new movement habit, the patient may need to practice using that movement approach in a variety of situations.

Reinforcement motor learning is defined as an improvement in motor behavior that is driven by binary outcome-based feedback. In other words, reinforcement learning depends on outside information regarding whether a movement succeeded or failed to achieve a task goal (Spampinato, Celnik, 2021). Within a session, reinforcement learning can result in sustained behavioral improvements. These advancements take longer to manifest than sensorimotor-based adaptation (Therrien, Wolpert, Bastian, 2016). Reinforcement is linked to prolonged retention of learned movements despite the apparent reduced rate of learning. (Abe et al., 2011) This feature of reinforcement learning is particularly attractive for designing interventions with long-lasting effects.

Sensorimotor adaptation-based motor learning (also termed sensorimotor adaptation) is characterized as a change in motor action brought on by errors in sensory prediction (Tseng et al, 2007). This most frequently happens when people come upon unexpected task requirements or changes in the environment that call for adjustments to the executed motor program.

Conductive education is a therapeutic educational programme adapted for people with neurological disabilities (O'Shea, Siconolfi-

Morris, 2020). This program works well because it consistently and creatively incorporates treatment and education into everyday activities, demands active engagement from the kid, and improves the whole personality of the person. This program actively encourages and supports rehabilitation-based reorientation (Reddihough, King e Coleman, 2008). According to motor learning theories, only active trials can result in improved performance, adaptability, and motor learning outcomes. In conductive learning, where the child is constantly engaged because he verbalizes his activities in response to the physiotherapist's requests, the concept of active learning (Ren, et al, 2021) is significant. The physiotherapist must watch over the child and participate in his movements by being present verbally and acoustically while allowing the youngster to physically realize the activity without directly assisting him. As a result, there is more independence and freedom in the decisions made before receiving directives.

Results

Integrating Boccia as part of a multidisciplinary rehabilitation program for children with severe movement limitations due to CP we reach practical result of physiotherapy the implementation in hand grip and grasp, strength, and range of motion of the upper limbs; played as team or individual sport in special schools Sports Competitions Boccia game, as any other sport has a great psychological, social impact on the players.

From motor learning perspective for SEN children that exhibits cognitive impairments, the physical therapist might structure the intervention to preferentially target motor learning mechanisms that require less cognitive processing. Physical therapists can carefully design teaching methods to target these learning mechanisms for SEN children who, for example, has a goal of improving their range of movement. To achieve this goal, in Boccia sport we had the child practice grasping and throwing while providing verbal and visual cues to determine the direction of action, in our case, to aim the jack in Boccia sport.

With this intervention, massed throwing practice will drive use-dependent motor learning, and the performance-based feedback from external cues about direction of arm movement will engage instructive motor learning. To increase the contribution of sensorimotor adaption, we had the CP child practice grabbing different types of balls (lighter or heavy, metal, sponge or light plastic balls) that would include sensorimotor prediction errors (the same propulsive hand

force movement would lead to different types of ball grasping relative to the initial practice conditions).

For spastic SEN children who has a goal to reach overhead without pain or to throw a classic bocce ball, a physical therapist has the child practice placing items of similar size but different weights onto an overhead shelf using a movement pattern that does not cause pain or stiffness in the range of motion. In order to improve the overall movement pattern of the ball throwing movement, this intervention structure includes three behavioral drivers that will encourage various motor learning mechanisms: first - use-dependent motor learning is supported by frequent reaching practice, second - reinforcement motor learning is motivated by adopting movement patterns that do not hurt the child if they perceive a good outcome as a pain-free arm stretch, and finally, practicing lifting and throwing bocce balls of the same size but different weights will induce sensorimotor prediction errors that drive sensorimotor adaptation to promote flexibility of the pain-free movement.

Physical results of Boccia sport applied to children with special educational needs were observed for every (Table 1).

Special educational needs Neuro-motor deficiencies	Physiotherapy goals (units of motor learning)	Positive results
Hemiplegia (cerebral palsy)	Develop range of movement Develop muscle flexibility Learn and develop motor skills Increase limbs range of movement	Increased stability Space orientation developed Increased posture control Increased coordination
Paraplegia (cerebral palsy)	Education of movement consciousness Muscle stretching	Space orientation developed Hand skills improvement Increased hand-eyes coordination
Tetraplegia (cerebral palsy)	Developing coordination in movement Autonomy in basic body postures	Direction in movement developed Increased stability Static / dynamic balance developed
Muscle hypotonia in different disabilities (Leg length discrepancy Spastic Diplegia, Down Syndrome)	Muscle strengthen Gross motor development Gait transfer in walking	Accuracy of movement improved Space orientation developed Increased mobility Developed balance control

ADHD (Attention deficit hyperactivity disorder)	Gross motor development Fine motor development	Self-presence/ action control improved Attention improved Increased coordination in active movement Increased special-temporal orientation
Autistic spectrum disorders	Gross motor development Fine motor development	Increased focus/ Awareness Increased attention. Increased coordination

Table 1. Results of Boccia sport practice applied as therapeutic method for children with SEN in Transilvania Baciu Special Middle School, Cluj, Romania

Conclusions

Boccia applied as a therapeutic method and motor learning mechanisms can occur in parallel as a new movement is being learned, and the relative contribution of each can be manipulated by incorporating their unique drivers into movement and sport practice.

Classic therapeutic and motor learning methods can be improved, developed and strategically designed and applied to achieve functionality and autonomy in movement for any special educational need of children with multiple disabilities.

Boccia allows the social integration of people with or without disabilities. It is a simple, playful and sociable way to practice a physical activity, which does not require specific motor skills, expensive equipment, specific locations and which encourages socialization, cooperation and group activities. It also has the power to unite generations, as it can be practiced throughout individuals' lives and is easily adaptable - thus, in modern society, Boccia is an excellent tool for promoting family activities, intergenerational activities, promoting quality of life and healthy lifestyle behaviors.

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