

## **Six colours for inclusion: results of an explorative activity in a simplicity approach**

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### ***Abstract***

*Schools and teachers are called upon, in the age of complexity, to control a plurality of problems related to the numerous stimuli arising from the personal and environmental influences of students. This implies a new way of working in the direction of creativity, which therefore becomes a teaching tool as well as a human process. This paper presents the results of an exploratory activity, conducted on 657 teachers, as part of the training activities for teaching support to pupils with special educational needs at the University of Salerno. The aim was to investigate whether teachers in training can develop lateral thinking, based on suggestions derived from de Bono's (2015) studies and, specifically, his "Six Hats for Thinking" theory, highlighting points of agreement with the simplicity theory proposed by Berthoz (2011). This represents a different way of using colour to think, act and include.*

**Keywords:** *Inclusion; lateral thinking; divergent thinking; simplicity; creativity.*

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## **1. Introduction**

The school, in the age of *complexity*, due to the presence of a plurality of stimuli, of innovations. In this context the teacher must support the students to *decipher* of all the stimuli and problems, as well as search for strategies to deal with them (Sibilio, 2020), trying to find innovative and *non-linear* strategies (Sibilio, 2012; Sibilio & Zollo, 2016), which are on the great line of *creativity* (de Bono, 2015a). In this sense the logic of creative thinking, if declined in educational experiences included in the construction of the teacher's competences, could prove to be an interesting strategy for the resolution of problematic situations.

In this regard, it is possible to find elements of commonality with the scientific reflections of Alain Berthoz, a physiologist of perception and action who, in his theory of simplicity (Berthoz, 2011), hypothesises that the solutions devised by living organisms to decipher and deal with complexity can be considered valid and applicable to the entire class of *adaptive complex systems*. One of the principles of simplicity described by Berthoz is *deviation*, i.e. a rule that attempts to solve the problem, but in an original way, and by using, and experimenting with, a plurality of trajectories, perhaps even unknown ones, to arrive at the resolution of the problem itself. The prerequisite for the use of deviation in education can be identified in the subject's ability to deal with the complexity of problematic situations through the use of *creativity* (Goleman et al., 2017), *divergent thinking* (Guilford, 1950) and *lateral thinking* (de Bono 2015; 2015a), which have shown interesting educational implications and are corroborated by a rich scientific literature. In the present study, we will show precisely the results of an exploratory survey conducted on a sample of 657 students, attending the training courses for the support qualification for Secondary School at the University of Salerno, in order to identify whether in the course of their action they are able to exercise lateral thinking, thus maturing transversally innovative competences for problem solving and for the development of inclusive operational trajectories, using de Bono's (2015) "*Six Hats for Thinking*" as a tool for action, according with Berthoz's (2011) *simplicity detour*.

## **2. Colours, divergence and inclusion**

The first theory on the concept of divergent thinking dates back to the American psychologist Guilford, who open to new solutions and capable of giving rise to a new associative mode of elements to achieve objectives, placing it alongside the convergent thinking that had characterised scientific research up to that time. According to the scholar's perspective, therefore, *convergent thinking* operates within established schemes, tackles the problem with a given method and, through the latter, finds the only possible solution; *divergent thinking*, on the other hand, acting outside the established schemes, allows one to approach the problem with a new approach, arriving at original *solutions* and identifying the creative process with

the typical dynamics of problem solving (Zollo, Kourkoutas & Sibilio, 2015). Creativity is an exclusive characteristic of a few exceptional minds and becomes the hallmark of human thought, the natural expression of the individual's inner self. A further theorist, who made creativity the cornerstone of human action, was de Bono (2015). The Maltese psychologist and physician, in fact, applying creativity to the world of business and linking it to corporate competitiveness, defines it as "*the ability to think and act differently that can be developed in a systematic and deliberate way by anyone willing to put the principles of lateral thinking into practice*" (de Bono, 2015a, p. 28). An application of creativity for the development of problem solving skills. A scholar, through the metaphor of hats, learns how to approach problems by assuming different points of view and proposes six different perspectives from which an idea can be generated. This premise is useful to understand how through the creative and divergent process one can also produce results in the recognition of the other from oneself, in the awareness that the hat worn by the other from oneself represents his personal mode of expression, his value to be recognised, accepted and supported, in a suitably inclusive vision.

Edward de Bono's reflection starts from the way we approach problematic situations, considering in many cases only one point of view and thus reducing the possible solutions. According to the scholar, each way of solving a problematic situation can be compared to a hat that not only defines a certain type of thinking, but also has its own colour (de Bono, 2015); therefore, instead of trying to cover all aspects with thinking, it is possible to separate the various types of thinking and carry them out distinctly. The colour that distinguishes hats (white, black, green, red, blue, yellow) represents a much broader mode of expression; it takes on a symbolic significance. It becomes, in fact, a means of guiding the individual to activate mechanisms of *perception of diversity*, of different ways of facing reality, using colour as an interpretative key, as a tool for accepting the different way of looking at the world, as a different method of valuing diversity, adapting to a thought that is not lateral, but inclusive, respectful of *all* and *each one*. Von Goethe (1970) himself considered colour as the actions of light capable of *expressing passions and actions*. Colour, therefore, is a representation of oneself that only finds meaning in the relationship with the other, in the awareness that with the other the total process of recognition of belonging to a nature is realised. Colour, therefore, expresses the sensitivity of the individual, strong feelings, both positive and negative, capable of providing insight into us and others (Carluccio, 2008). Kandinsky himself in "*The Spiritual of Art*" (1989) explains the semanticity of colour, according to which black is synonymous with despair, meaning and the end, from which other colours unravel, a symbol of *re-birth* and continuation, the beginning of new worlds to explore. Colour, consequently, is an expression of conditions, of experiences, of personal and shared experiences, a means of *re-encountering* and integrating different colours which, in union, in each case give rise to chromatic balance. Declined in the educational field, the exercise of lateral thinking theorised by de Bono would require experiential itineraries for

the construction of the teacher's professional skills, to be carried out through activities that introduce the subject's ability to exercise flexibility and detour in didactic transposition. This finds points of contact with Berthoz's theory of simplicity (2011).

### **3. Creativity in a simplicity perspective**

From the descriptions conducted so far on the concepts of creativity, divergent thinking and lateral thinking, interesting points of reflection emerge on possible didactic declinations of these theories in the perspective of a simplicity didactic, i.e., a teaching method capable of *deciphering* and *coping* with the complexity of training processes and educational contexts. Simplicity starts from the assumption that human organisms can flexibly adapt to problematic situations, using operational *patterns* and *rules* of use. If we want to connect simplicity with lateral thinking and, consequently, creativity, it is possible to identify significant analogies (Guilford, 1967; Goleman et al., 2017). Among the distinctive traits of creative, divergent, lateral thinking as analysed are *flexibility*, *reliability*, and *detour*, identified by Berthoz as properties and rules of simplicity, i.e., simplicity tools and rules that enable deciphering and coping with complexity, including *educational complexity*. *Flexibility* and *reliability* to change are, in fact, configured as simplicity properties of the didactic system and of didactic and inclusive action, which must "*be capable of perceiving, capturing, deciding or acting in many ways (vicariousness) depending on the context, compensating for deficits, coping with new situations*" (Berthoz, 2011, p. 9). These are, therefore, tools that allow one to disentangle oneself from the protean difficulties of the learning experience, seizing precisely from the problematic situation the opportunity to broaden knowledge through action. In a similar vein, de Bono (2016) proposes using thought not to solve individual problems, but to grasp new interpretations of reality.

The search for different adaptive solutions and alternatives to usual situations constitutes, in this sense, the expression of a freedom of choice in the broad repertoire of possible solutions to avoid getting lost in complexity. Berthoz precisely sees this as the rule of simplicity, grafted onto the search for exactly this plurality of original solutions to problems (Zollo, Kourkoutas & Sibilio, 2015). In this sense, further simplicity rules such as *inhibition*, the rule of refusal and the principle of detour appear useful to bring out the potential of creative thinking, which precisely requires the ability to inhibit and reject automatic and immediate solutions, identifying flexible operational strategies that, through ancillary complexity, bring out new modes of didactic action capable of favouring the learning process. Such didactic actions are also suitable for favouring inclusive pathways (Sibilio, 2013; 2015). In the light of these reflections and considering the systemic perspective outlined, the acquisition of *creative thinking skills*, consistently with a simple vision of didactics, could be a valid strategy to promote training interventions aimed at deciphering complexity, favouring effective and inclusive courses of action.

## **4. Description of an exploratory survey: methodology**

### **4.1. Research question and objective**

On the basis of the theoretical premises presented, a research investigation was carried out, initiated on the basis of the question: *Is the teacher, both in training and working at school, able to exercise lateral thinking, which is also important for the maturation of creative thinking and useful for applying it during the teaching phases in order to guide the pupil to the development of problem solving?* The question was therefore posed as an objective to investigate whether teachers in training, in the process of obtaining the qualification to teach support aimed at the Secondary School, are able to recognise creative thinking in themselves, understood as *"the set of attitudes, expressions and techniques that allows one to transversally cut through the schemes of an asymmetrical self-organised system to generate new conceptions and perceptions"* (de Bono, 2015a, p. 201) and are predisposed to use it.

### **4.2. Participants and instrument**

The research, eminently exploratory in nature, was conducted with a sample of 657 students, without a purposive selection, who from September 2022 to July 2023 are following as part of the Enabling Pathways on support for Secondary School at the University of Salerno, characterised by both a general and special pedagogical-methodological-didactic framework (General Didactics, Special Didactics, Special Pedagogy, Methodology and Educational Design). For data collection, a Google form has been prepared, structured in two parts. The first part surveyed the age of the participants and their gender, in order to identify the gender variable with respect to the answers provided. A second section of the questionnaire asked, instead, to self-attribute one of the six hats described by De Bono, on the basis of the characteristics of the hat that seemed more representative.

### **4.3. Research phases**

The activity proposed to the teachers in the four training groups was divided into three phases. In the initial phase of the course, were explained the main studies on creativity and divergent thinking, focusing in detail on Edward de Bono's theories of lateral thinking and presenting the 'Six Hats for Thinking' method as a tool for exercising creative thinking. Subsequently, was illustrated Alain Berthoz's theory of simplicity. The first phase, characterised above all by theoretical reflections on the subject, was followed by a practical-operational moment: the teachers, in fact, already previously involved in group activities of various types, were proposed an exercise aimed at exercising *lateral thinking* and, therefore, *creative thinking*, centred on the declination of the properties and rules of simplicity in general didactics, in disciplinary didactics and in special didactics. In the third phase, after providing the theoretical foundations with regard to creativity, were carried out a series of group training experiences that, through discussion, highlighted the importance of awareness of *diversity*

and perceptual plurality in teaching. Subsequently, teachers were asked, based on Edward de Bono's (2015) "*Six Hats for Thinking*" method, to indicate on a pre-filled table using the integrated *Google Forms* function, the colour of the hat that best described their personal characteristics in the problem-solving phase, specifying, through the indication of the colour, the approach considered prevalent with respect to the others.

## **5. Data analysis**

The analysis of the data, conducted using the method of descriptive statistics, made it possible, first, to detect how the teachers in training within the framework of the Enabling Pathways on support for Secondary School have different perceptions of their own approach to solving problematic situations. Being an experience aimed at understanding the teachers' tendency to use creativity for a lateral approach to *metacognitive* and *inclusive* didactics, to overcome the rigidity of logical models linked to vertical thinking very often used, specific attention was paid to the colour of the hats that fully represent the two types of thinking: *white* (vertical thinking) and *green* (lateral thinking).

## **6. Results and discussion**

Regarding the data about the age of participants, it should be stressed that the 76% of total participants of four groups has an age between 31 and 50 years, versus 24% that has an age between 25 and 30 years. In addition, the data about the gender of participants shows that 82% of participants was female, versus 18% of male gender.

About the data from the first group, it should be noted that the highest prevalence was attributed to the red hat (29%), and the yellow hat (21%). The blue hat also found a good percentage of attribution (18%). The last two hats identified as their own were green (13%) and white (13%). As far as the second group is concerned, a prevalence of the red hat (29%), followed by the blue hat (23%) should also be noted. An almost equal percentage emerges between the yellow (15%) and black (14%) hats. Here too, the white hat (10%) and the green hat (9%) are in the minority in terms of self-attribution compared to the others. As far as the results of the third group are concerned, there was again a prevalence of the red hat (25%), followed by an equal percentage of 17% of yellow and white hats. This was followed by a 17% attribution of blue hats. The lower attribution of the black (14%) and green (12%) hats, representative of lateral thinking, should be highlighted. As far as the last group is concerned, it should be noted that the red hat (31%) is the predominant one, followed by the blue hat (25%). Then comes the white hat (16%), followed in the last positions by the green hat (13%), yellow (10%) and black (5%).

From the analysis of the data, it emerges that the way of acting, reflecting, of the teachers is aimed at a prevalence of *emotions*, the red hat being the prevalent one in all four groups. It also emerges that the vertical thinking hat, i.e. white, does not turn out to be one of those most attributed, a sign that the teachers are attempting a change of course in the way of acting and operating, attempting to overcome a vertical tendency in the way of approaching the problem, highlighting an initial form of *non-linearity* (Sibilio, 2012; Sibilio & Zollo, 2016) through recourse to emotions, to positivity, also experimenting with a possible interconnection of the six hats through organisation, highlighted with the choice of the blue hat. However, the road to be taken so that the green hat, i.e., that of *lateral thinking*, is preponderant, is still uphill, as the teachers do not show, for all four groups, a general tendency to wear such a hat, which is useful for exercising creativity, while also respecting the *detour* from operational standardisation.

It is also to be hoped that black can increase its percentage. The hypothesis of the rejection of the black hat is its association with negativity. In truth, the black hat requires that a person, in each problematic situation, is also able to foresee weaknesses in order to construct suitable paths to intervene and avoid them, even then by resorting to creativity. This kind of aspect is necessary for those who, working in the world of Special Educational Needs, can identify the elements of weakness in the pupil, highlighting their strengths as a tool for building a good inclusive curriculum. In relation to sociodemographic analysis emerged that in the first group it was also highlighted that the female participants had a convergence towards the choice of hats associated with creativity (60%), with a positive outlook on life, while the male participants attributed to themselves hats relating to the sphere of rationality and order (40%). A similar process also occurred in the other groups, where it emerged that 70% of the participants converged towards the red hat, an indication of how the participants see themselves as inclined towards emotion compared to the male participants. The results that emerged for the other two groups were not very dissimilar. From this we denote that there is still a perspective according to which girls are generally associated with emotion, with creative action, while men instead with a more rational and linear action.

## 7. Conclusions

In the situation of complexity, dynamism and plurality that characterises today's educational contexts, the exercise of *creative thinking* could represent a valid *problem-solving strategy*. The production of new and alternative ideas, the ability to approach problems in an innovative way, *flexibility*, *adaptation to change* and *detour* are not only the peculiar characteristics of *creativity*, but also fit coherently into the perspective of inclusion and in the perspective of a simplified didactics. The results of the training activity carried out with the teachers within the framework of the Enabling Pathways have, however, highlighted, through the research carried out, which was exploratory in nature, a low predisposition on the part of

the teachers to exercise creative thinking and to use *flexibility, adaptation to change and detour* in the teaching field. In the light of this scenario, starting from the awareness of the importance, in teacher training, of *creative thinking*, which, as emerges also from the *Profile of Inclusive Teachers* (2012), allows for the development of effective and flexible strategies, and due to the various cognitive styles of learners, it would be appropriate to work more on creativity (Zollo, Kourkoutas & Sibilio, 2015).

In conclusion, the results presented if, on the one hand, they solicit further and broader studies, on the other hand, they encourage, on the basis of the critical issues that emerged, scientific reflection on the necessary and possible planning of specific training itineraries aimed at the acquisition, by teachers, of didactic detour skills and the identification of flexible and alternative strategies that can be capitalised on in the activity of coping with the educational complexity in the educational environment.

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