Implicit theories of creativity in schoolchildren
an exploratory study

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Abstract

A sample of 119 children attending primary (second and fourth grades) and secondary (last grade) schools were administered a brief story about the realization of a single drawing by two different authors (one creative and the other not) and a semantic differential scale of adjectives to describe a creative person. Results showed that children were able to catch differences between creative and non creative drawings. The semantic differential scale confirmed that children were able to outline a profile of the creative person. Some age-related differences emerged: younger children overestimated the aesthetic value of the drawings and were more focused on personality traits linked to social desirability.

Keywords: Creativity; implicit theories; scholastic context.

1. Introduction

Research on creativity attempted to define aspects of creativity itself and this trend generated different ways of conceiving creativity: creativity has been meant as a mental process, as the sum of distinctive features of original artefacts, as personality traits, and as sets of environmental characteristics which foster unusual ways of thinking (Rhodes, 1961; Sternberg, 1988; Antonietti & Cesa-Bianchi, 2003). Concerning the product, Amabile (1982) pointed out the aspects of novelty and usefulness of creative productions and stressed that these aspects can be identified in any domain, as arts, industry, and science. Concerning personality, Feist (in Sternberg, 1999) described specific traits related to creativity by analyzing the personal profiles of artists and scientists, as opening to experience, fantasy, imagination, and independence. Concerning the environment, social or psychological circumstances can influence the creative act. Amabile et al. (1996) reported some factors which prompt creativity (organizational culture, encouragement, support, freedom to decide) and other ones which may restrain it (negative pressure, negative competition, organizational impediments).

On the other hand, the increasing interest about creativity induced some authors to investigate the so-called implicit theories in order to understand how naïve people conceive creativity (Sternberg, 1985; Runco, 1999). Implicit theories refer to knowledge and beliefs that affect the opinion of laypersons about their own and other
abilities. Runco and Johnson (2002) stated that implicit theories are constellations of thoughts and ideas about a particular construct that are held and applied by individuals and contribute, as well as opinions of professionals (called explicit theories), to understand the nature of creativity.

As Sternberg (1993) pointed out, the investigation of the implicit theories is essential for defining explicit theories and also for allowing us to identify some stereotypes shared by people about a given phenomenon. Sternberg (1985) explored implicit theories of intelligence, creativity, and wisdom in different target groups (teachers and students in particular disciplines and laypeople) and found that all people were capable to distinguish creativity from intelligence and wisdom. People had an overall positive representation of these three psychological constructs: however, attributes as aesthetic taste and imagination were referred exclusively to creativity. Although some differences between groups were present, Sternberg concluded that implicit theories about creativity of ordinary people also include points of view of experts.

Other researchers (Runco & Bahleda, 1987) studied implicit theories of creativity in various categories of professionals, as artists and scientists: even if “artistic” or “scientific” creativity concepts emerged, nowadays is still difficult to make generalizations. It can be stated that implicit theories can be modified and different social variables come into play. For these reasons, the recent trend is to investigate implicit theories in a contextualised way, by asking respondents to express their ideas about creativity with reference to specific instances (Diakidoy & Kanari, 1999).

2. Aims and methods

A contextualised approach to assess implicit theories of creativity has never applied to children. The general aim of this paper was to investigate the representation of creativity in schoolchildren by deepening the analysis of their beliefs in reference to specific issues. In particular, two main aspects were explored: first, how children evaluate creative drawings compared with not creative drawings; second, how they consider creative people. As the first issue, we were interested in assessing whether children can identify the restructuring act which occurs in generating a creative artifact. As the second issue, the focus was on children’s opinions about cognitive styles associated to creativity.

2.1. Participants

In this study 119 children attending primary (second and fourth grades) and secondary schools (last grade) in Milan and Savona were involved. For every school level mean ages were respectively: 7 years and 4 months, 9 years and 3 months and 14 years and 7 months.

2.2 Materials and procedure

Participants were administered different instruments during scholastic activities. Before group administration, two pictures of suitcases – one creative, the other not creative (according of experts’ opinion) – which differed by shape were showed to the classroom in order to explain the difference between a creative and a not creative product.

Successively children received a brief story (Antonietti & Pizzingrilli, 2008) entitled “Mark and Luke” (for boys) or “Anne and Martha” (for girls). Two versions were available (creative and not creative) but every pupil received only either the creative or the not creative one. The story told about two schoolmates: during recreation, a child was drawing a flower but suddenly he had to get up and go out, so leaving the drawing incomplete (initial drawing). In the creative version of the story another child came and decided to modify it so that it comes to represent a human character (intermediate drawing). When the first child came back, s/he noticed the changes that the second child had made on her/his drawing and s/he decided to complete it following the directions suggested by her/his friend, so that the final drawing depicted a sultan (final drawing). In the not creative version of the story, the second child modified the initial drawing by adding accessory elements consistently with the initial intentions of the first child. Participants were requested to judge the degree of beauty – by giving a score from 1 (“No, it is very ugly”) to 5 (“Yes, it is very beautiful”) - and originality – by attributing a score ranging from 1 (“No, it is not original at all”) to 5 (“Yes, it is very original”) - of the drawings and who (between the first and the second child mentioned in the story) gave the greatest contribution to the realization of the final drawing. Fig. 1 reports the drawings used in the story.
In a subsequent session, participants received a semantic differential scale of adjectives to describe a creative person. Two opposite characteristics were reported and children had to endorse the quality that a creative child should have: attentive vs. inattentive; careful vs. careless; tidy vs. untidy; curious vs. not curious; he/she has many ideas vs. few ideas; he/she has many friends vs. few friends; obedient vs. disobedient; self-confident vs. insecure; very intelligent vs. little intelligent; very affectionate vs. little affectionate; very clever vs. little clever; fanciful vs. not fanciful; he/she has many solutions vs. few solutions; dreamer vs. practical; interested to the novelties vs. indifferent to the novelties.

3. Analyses and results

Multivariate Analysis of Variance (MANOVA) was conducted considering the effects of the kind of story (2 levels: creative vs. not creative) and school grade (3 levels) on scores given by participants to the initial, intermediate, and final drawing. Concerning beauty judgments, mean scores showed a general increase from the initial to the final drawing in both creative and not creative conditions (Table 1). There was a significant effect of age: irrespective of the kind of story, younger children overestimated the aesthetic aspects of the initial (F = 18.36, p < .001) and intermediate (F = 7.05, p < .001) drawings. The beauty level of final drawing was affected by both school grade (F = 12.05, p < .001) and the kind of story (F = 10.45, p < .005).

<table>
<thead>
<tr>
<th>Beauty judgment</th>
<th>Not creative version (7-yrs) M SD</th>
<th>Creative version (7-yrs) M SD</th>
<th>Not creative version (9-yrs) M SD</th>
<th>Creative version (9-yrs) M SD</th>
<th>Not creative version (14-yrs) M SD</th>
<th>Creative version (14-yrs) M SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial drawing</td>
<td>4.07 0.83</td>
<td>4.61 0.70</td>
<td>3.50 0.76</td>
<td>3.42 1.0</td>
<td>3.10 0.55</td>
<td>3.41 0.71</td>
</tr>
<tr>
<td>Intermediate drawing</td>
<td>4.36 0.63</td>
<td>4.39 0.70</td>
<td>4.00 0.78</td>
<td>4.00 0.81</td>
<td>3.40 0.82</td>
<td>4.00 0.61</td>
</tr>
<tr>
<td>Final drawing</td>
<td>4.86 0.36</td>
<td>4.67 0.69</td>
<td>4.43 0.51</td>
<td>4.79 0.42</td>
<td>3.70 0.66</td>
<td>4.59 0.51</td>
</tr>
</tbody>
</table>

Concerning originality scores, there was a significant effect of grade (F = 6.45, p < .005) in the intermediate phase and a significant effect of the kind of story (F = 16.60, p < .001) and of grade (F = 3.19, p < .05) when the final drawing was shown. Table 2 shows that all participants were able to catch the originality of the intermediate drawing when creative modifications were introduced. It is worth noting that the trend of originality scores was different than the one of beauty scores: originality, but not beauty, scores showed a dramatic increase from the initial to the intermediate creative drawing – that is, when the creative act took place – but not in the corresponding change of the non creative drawing.
Table 2. Means and standard deviations of originality scores for creative and not creative story

<table>
<thead>
<tr>
<th>Originality judgment</th>
<th>Not creative version (7-yrs)</th>
<th>Creative version (7-yrs)</th>
<th>Not creative version (9-yrs)</th>
<th>Creative version (9-yrs)</th>
<th>Not creative version (14-yrs)</th>
<th>Creative version (14-yrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Initial drawing</td>
<td>2.29</td>
<td>1.27</td>
<td>1.94</td>
<td>1.06</td>
<td>2.07</td>
<td>0.92</td>
</tr>
<tr>
<td>Intermediate drawing</td>
<td>2.86</td>
<td>1.35</td>
<td>3.17</td>
<td>0.93</td>
<td>2.07</td>
<td>0.93</td>
</tr>
<tr>
<td>Final drawing</td>
<td>2.79</td>
<td>1.37</td>
<td>3.44</td>
<td>1.1</td>
<td>2.50</td>
<td>0.94</td>
</tr>
</tbody>
</table>

When participants had to choose which child of the story must be praised, 74.5% of participants under the non creative condition selected the first child and only 36.4% under the creative condition selected the second one: it appeared that children were unable to acknowledge the merit of the child who changed the meaning of the initial drawing. This trend was evident particularly in 7-yrs children. Table 3 shows percentages of answers provided for motivating the choice. Five categories were created in order to group all possible answers: original qualities (e.g., “He/She added fantasy”); amount of work (e.g., “He/She worked more than his/her friend”); social qualities (e.g., “He/She helped his/her friend”), time (e.g., “He/She began/continued/finished”), and aesthetic qualities (e.g., “He/She made a beautiful drawing”). Results proved that children gave motivations related to the version of the story, although they were not able to identify who was the responsible for it.

Table 3. Cross table with percentage

<table>
<thead>
<tr>
<th>Story version</th>
<th>Original qualities</th>
<th>Amount of work</th>
<th>Social qualities</th>
<th>Time</th>
<th>Aesthetic qualities</th>
<th>Not valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creative</td>
<td>40%</td>
<td>7.3%</td>
<td>16.4%</td>
<td>16.4%</td>
<td>12.7%</td>
<td>7.3%</td>
</tr>
<tr>
<td>Not creative</td>
<td>22.6%</td>
<td>30.2%</td>
<td>15.1%</td>
<td>18.9%</td>
<td>13.2%</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>31.5%</td>
<td>18.5%</td>
<td>15.7%</td>
<td>17.6%</td>
<td>13%</td>
<td>3.7%</td>
</tr>
</tbody>
</table>

\(\chi^2 = 14.22, p < .05\)

Concerning the semantic differential scale, all pupils made use of almost all attributes. For 7-years children, a creative child should be attentive (60.5%), very intelligent (60.5%), self-confident (60.5%), curious (47.4%), obedient (47.4%), and plenty of solutions (47.4%). Furthermore, 9-years children quoted dreamer (66.7%) and tidy (36.1%). Percentages of adjectives pointed out by older students followed a more homogeneous distribution, although 48.9% of 14-years group did not consider being obedient and affectionate as characteristics of creative people. Finally, most students chose features as fanciful and plenty of ideas, irrespective of school grade.

4. Conclusions

To summarize, the main results reported in this paper showed that children of different ages were able to identify the difference between what is creative and what is not creative, although they had some difficult to define it, especially the younger children. The creative story described here offers some advantages in terms of timing and easiness: some pictures illustrate the steps of the creative process and they help children to understand the questions. Children had more difficulty to evaluate the different contribution of creative character presumably because this implies a deeper level of mentalization that they do not still manage.

The semantic differential scale confirmed that all pupils were able to outline a profile of the creative person: younger students were more focused on traits linked to social desirability and this may depend on the influence of school context: being appreciated by teachers and parents, assuming a correct behaviour, and being attentive at school are all factors that affect the positive representations of children.
In conclusion, age- and context-related variables may affect implicit theories of creativity. Future researches might focus on the importance of other aspects as social norms, schooling, and culture in order to modify misconceptions and foster creativity in educational settings.

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References