Teacher, What Do You Mean by "Creativity"? An Italian Survey on the Use of ICT to Foster Student Creativity

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Abstract. This paper illustrates how the issue of "creativity raising" is currently tackled by teachers in Italy and what is, in their view, the potential role of ICT to support creativity development. By referring to the results of a small–scale survey conducted among Italian teachers, and starting from the meaning and value they attribute to the concept of "creativity", the paper provides an overview of teachers' prevailing attitudes towards the issue and reports on the kinds of actions they usually carry out within their own classes.

Keywords: Creativity, education, ICT (Information and Communication Technology), creativity-oriented activity, school, TEL (Technology Enhanced Learning).

1   Introduction

Education to creativity is a hot issue mainly because it is widely acknowledged that creativity is a powerful catalyst for innovation, progress and growth. In addition, the debate about whether creativity can be triggered and fostered by means of educational intervention, is almost over and nowadays there is substantial agreement among researchers that creativity can be fostered and, to some extent, *taught* by means of appropriate educational interventions (Csikszentmihalyi, 1997; Nickerson, 1999; Treffinger et al., 2002, Hewett, 2005).

What needs further investigations is, instead, whether and how the issue of "creativity raising" is presently tackled in today's school. What does exactly mean creativity for contemporary teachers? What are their main attitudes towards this issue and the actual actions they usually carry out with this purpose (if any)?

According to an online survey launched by the European Commission in the context of the European Year of Creativity and Innovation 2009 and expressly aimed at shedding light on teachers' opinions concerning creativity in schools: "*An overwhelming majority of teachers believe that creativity can be applied to every domain of knowledge and every school subject. They do not see creativity as being only relevant for intrinsically creative subjects such as arts, music or drama. This is of paramount importance for the development of creative thinking as a transversal skill*" (Cachia et al., 2009).

The above mentioned survey, which involved around 10.000 teachers from the 27 member States of the European Union, offers an overview of teachers' opinions, attitudes, feelings and specific actions in the field and thus should be regarded as a key contribution to the ongoing debate around the issue.

This paper aims at giving a further contribution to the research field by focusing on the Italian situation and by illustrating how the issue of "creativity raising" is currently tackled by Italian teachers. In particular, it also concentrates on the perceived potential and the actual use made by Italian teachers of ICT (Information and Communication Technologies) to support creativity development. As a matter of fact, nowadays, the potential of ICT to support educational interventions aimed at developing student creative attitudes, has been widely acknowledged (Lubart, 2005; Johnson and Carruthers, 2006) and a number of research projects have investigated ways to trigger creativity through ICT in formal educational settings and the features of ICT tools that better serve this scope (Greene, 2002).

Thus the present paper is based on the results of a small-scale survey, this time conducted by the authors of this paper among Italian teachers; the survey is different from the European one (Cachia et al., 2009), not only in figures, which are of course lower, but also in nature, as it looks at the matter by using a different, more qualitative lens. The paper investigates teachers' concept of creativity, basing on the idea that the approach they adopt largely depends on the "meaning" they give to the term "creativity". It then explores how Italian teachers tackle the issue of "creativity raising", what are their prevailing attitudes towards this issue, what are the actual types of educational actions they take in their daily practice and, finally, what is, in their opinion, the role of ICT in sustaining creativity and to what extent they adopt digital resources at this end.

2   The Survey: Aims and Methods

In order to investigate teachers' attitudes towards creativity, a questionnaire has been developed and delivered to a sample of Italian teachers of any discipline, school kind and level. In particular the questionnaire aimed to explore:

- teachers' concept of creativity (what it is)
- approaches/methods adopted by teachers to support creativity (whether and how creativity can be fostered through educational interventions)
- teachers' awareness of the potential role of digital tools to support creativity.

The questionnaire was composed of 12 questions, namely:

1. Respondent's profile (age, discipline, school level, etc.)
2. What do you mean by creativity?
3. Do you think at creativity as a natural gift/talent?
4. Do you think it is possible to foster students' creativity with ad hoc educational interventions?
5. Do you think it is part of the school mission to do it?
6. Does the national curriculum of your discipline make direct reference to creativity and its enhancement?

7. Do you usually propose learning activities explicitly oriented to foster creativity in your daily practice?
8. If yes, what kind of learning activities? If no, explain why you don't.
9. In order to develop students' creativity, do you think it is useful to propose specific activities equally in all the disciplines, or do you think this is more important in some disciplines and less in others?
10. Do you think ICT may play any role in developing students' creativity?
11. Have you ever used any ICT tools to foster students' creativity?
12. What kind of ICT tools?

The questionnaire was conceived in such a way to include both multi-choice questions, as well as open questions, so that respondents were let free to express themselves.

The total number of respondents is 160 subdivided as shown in Table 1 according school level- teaching subject- age.

Table 1. Sample of respondents to the survey

School		Subject		Age	
Kindergarten	15%	Humanities	45%	20 - 30	9%
Primary	34%	Science	17%	31 - 40	13%
Low secondary	28%	Special needs	10%	41 - 50	34%
Upper secondary	19%	Arts	8%	> 51	44%
Other	4%	Other	20%		

3 Results

The results of the small-scale survey are presented here in terms of: 1) what is the actual meaning assigned by Italian teachers to the word "creativity" 2) what is the actual relationships between school and creativity (namely whether creativity is felt as an important issue in the Italian school, and whether its development is regarded as one of the target objectives to be met); 3) whether and to what extent specific actions are carried out within the Italian school to foster creativity development; 4) what is the role that, in teacher's opinions, ICT may play in creativity development; 5) are ICT actually used in the Italian school with the explicit aim of support creativity development and, eventually 6) which specific ICT tools are used to this end.

3.1 The Meaning of Creativity

Looking at the definitions given by teachers to the term "creativity" (question 2), one may note that they mostly think at creativity as a capacity (in Italian "capacità", see Fig. 1) to "see" ("vedere") / find out ("trovare") / use ("utilizzare") / or even invent ("inventare"), new ("nuovo") or diverse ("diversi") solutions ("soluzioni") / ways ("modo") to problems ("problemi").

Fig. 1. Wordle representing the terms used by teachers to define "creativity" (dimensions of words depend on the number of occurrences for each term)

Such a definition is interesting as it points out that teachers do not think at creativity only as a natural gift which leads a person to a sudden insight or creation, but also as a process of (ri-)elaboration, definition which is basically in line with what most researchers in this field have stated (Rhodes, 1961; Shneiderman, 2000; Plucker and Beghetto 2004; Selker, 2005; Sternberg, 2005; Burleson, 2005). Despite this, as it will be shown in the following, it is interesting to note that such a definition is not always coherent with what teachers do in practice to support creativity.

3.2   School – Creativity Relationships

In accordance with what teachers of the European survey declared, also the very majority of the Italian teachers who participated to the small-scale survey, agrees that in principle student creativity can be developed and fostered by means of suitable educational interventions (question 4) (95% of the teachers agrees with the statement that creativity can be developed by means of suitable educational interventions, while only the 5% declares they don't know), and on average (60%) they do not think at creativity as a natural gift (question 3).

Besides, the very majority of Italian teachers (again 95%), agrees that in principle it is a specific mission of school to foster and develop student creativity (question 5).

As to school policies, looking at national curricula of the Italian Ministry of Education, there is uncertainty among teachers about the curricula specifically addressing creativity as an objective to be pursued (question 6). Despite this, teachers (86%) think that creativity should be pursued in all the disciplines (question 9).

3.3   Actions towards Creativity Development

Not surprisingly, the enactment of *ad hoc* activities to enhance student creativity decreases as school level increases (question 7). In particular, 83% of pre-school teachers declare they often carry out activities oriented to creativity, while 63% of the primary school teachers do it; for lower secondary teachers, it is the 58%, while 53% of the upper secondary teachers often propose creativity-oriented activities.

When teachers "confess" they do not take specific actions to promote creativity (question 8), the main reason seems to be lack of time, together with organizational problems and lack of suitable resources; only 1-out of 9 individuals- affirmed he has no ideas about it, nor motivation to do it.

As to the kind of activities proposed to support creativity, it seems that group activities are more widely used with respect to individual activities (question 8, 56% against 27%).

3.4 Perceived Role/Potential of ICT to Foster Creativity

As to the role of ICT, most Italian teachers believe that ICT tools can be used to support creativity, but as to their effectiveness, they do not think ICT is in principle more effective than other tools (question 10): 30% of teachers think ICTs are extremely suitable tools to support creativity; 64% of them think ICTs are no more useful than other tools; 6% think they are not useful at all.

3.5 Actual ICT Based Actions to Support Creativity

Despite this, it seems that most teachers have used – at least once – ICT as a mean to foster creativity; only 28% of the teachers affirms they have never used ICT tools to develop student creativity (question 11). The situation is almost the same at all school levels, with the exception of pre-school, where there are an higher percentage of teachers (62%) that affirms they do not use ICT with creativity purposes. This may be explained also by the fact that in Italy ICT resources are very seldom available at this school level.

In practice, among those teachers who often propose creativity-oriented activities, the 34% of them uses ICT tools, against a 28% who does not use ICTs at all.

3.6 ICT Tools Used to Support Creativity

Finally, when looking at the kind of ICT tools are used by teachers to support creativity, it seems that images ("immagini"), graphics ("grafica") and videos ("video") are the most used terms, followed by games ("giochi"), writing ("scrittura") and LIM (see Fig.2).

Fig. 2. Wordle representing the terms used by teachers to describe the ICT tools they use to support creativity (dimensions of words depend on the number of occurrences for each term)

The answers provided to this question of the survey highlights that many teachers have to use what is available at their labs or – those who are more autonomous – are able to choose among open educational resources (OER). In any case, it seems that most of the tools cited by the Italian teachers, are much more oriented to the production of artifacts (a text, an hypertext, a video, an audio, a picture, etc.), rather than at fostering some kind of mental process; for example, it is surprising that only a couple of teachers cited Internet and search engines as tools to help students find out new information, new connections, new ideas. Similarly, only a few teachers mentioned the use of communication and collaborative tools, as a way to share data or write collaboratively (wikis, bogs, etc.). Even software for creating mental maps are mentioned very rarely (i.e. CMap).

Interestingly enough, these results are only partially coherent with the definitions provided by teachers to the term "creativity" (question 2, see Fig. 1); rather, they bring back to an older definition of creativity as something definitely related to some specific fields, such as arts, painting and literature and to the ability to create digital artifacts.

4 Discussion and Conclusions

When looking at the relationship between education and creativity, one should consider that there is a double bond: on the one side, education should foster students' attitudes towards creative thinking by proposing more open-ended, problem-based activities (Carrol & Borge, 2007); on the other side, education should contribute to create a solid "culture of innovation" that is a key aspect of all the productive sectors of modern societies (Kyriazopoulos & Samanta, 2009) and, in this perspective, it should be per se "creative", by adopting and proposing to students new, innovative and creative strategies to pursue the educational goals (both standard and non-standard).

Creativity can be regarded as an attribute of a mental process. Such mental process can be considered "creative" if it leads to either creative outputs, or if it allows the attainment of specific goals by following new, original paths/ways. So, as already mentioned, there is a basic distinction between "creativity of product" and "creativity of process". Aim of the teacher should be to foster both them (Craft, 2005) by also "*motivating people to apply their critical thinking and their imagination*" (Lytras, 2007).

On the contrary, the results of the mini-scale study presented here, demonstrate that – at least in Italy – despite what teachers declare about their way to conceive creativity, what they do in their daily practice is basically oriented to make students produce artifacts, instead of orienting their efforts towards organizing or structuring existing data, possibly by looking at them from a variety of perspectives, so to allow reflections, comparison, syntheses, connections.

The old idea that allowing students to play, draw or write freely is something that *per se* will help creativity emerge, is some way still persisting in the Italian school and it seems that, in practice, the way to go is still a long one.

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