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Teachers' Nominations of Students' Creativity: Should We Believe Them? Are the Nominations Valid?

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Abstract: The study discusses the problem of validity of teacher nominations of students' creativity. Teachers from higher and lower ranked Polish high schools evaluated student creativity using 7-point Likert scale. Additionally, students' school results and behavioral grades were assessed. Every student completed Urban and Jellen TCT-DP and Popek Questionnaire of Creative Behavior CANH assessed level of creative and uncreative attitudes. Correlation analysis the same as regression showed that main predictor of nomination of the student as creative is school grade, students with higher academic achievements were perceived as more creative that students without such achievements. Creative abilities measured by TCT-DP or creative attitudes were only marginally important for teachers' nominations and just in 1 of 2 schools. Implications of the results are discussed.

Key words: Creativity, teacher nominations, creativity measurement, TCT-DP

INTRODUCTION

The aspects mentioned in the title of an article may be analyzed from different points of view and theoretical perspectives. At least three of them look important for researchers of creativity. First of them is consideration of teacher-student relationships and looking at interesting us problems from socio-psychological point of view. In such situation one can mention that evaluating students creativity some teachers are under influence of attributional biases (Kasof, 1995) or stereotyping (Bedyñska, 2006) and that is why sometimes valid recognition of creative student is hardly possible. Second one perspective is analysis of presented below problems from cross-cultural point of view. It is interesting and important to understand how teachers from different cultures perceive creative, un-creative, gifted and talented students, because such perception probably has strong influence on their attitudes toward those students. Third perspective-last but not least-is important because it is located rather in problems of creativity diagnosis and should be analyzed as an exemplary of using teachers nominations to find creative students and propose them effective ways to develop their potential. All mentioned perspectives are important, but looking from pedagogical point of view, problems of diagnostics look most important mainly because of their pragmatic role. The research results shortly briefed below (similarly as theoretical considerations connected with problems of identification of children's creative potential) are presented in a wider form elsewhere (Karwowski, 2007; Karwowski *et al*., 2007). The study summarizing teachers' biases connected with creative pupils is in preparation now.

TEACHERS' PERCEPTION OF STUDENTS' CREATIVITY LEVEL

Someone can optimistically say that it is easy for teacher to recognize creative student in the classroom. Knowledge from the field of psychology of creativity or psychological measurement and assessment does not look very important, more essential is teacher intellectual passion and kind of sensitivity. Creative education requires from the teacher not just regular work in school system, but also leadership skills, especially skills to create climate for creativity and change (Amabile, 1996; Ekvall and Ryhammar, 1999; Isaksen *et al*., 2001; Isaksen and Lauer, 2002) nurturing students creative talents and help children and youth to develop their personality. Awareness of every student stronger and weaker sides, psychological needs and intellectual level is important simply because of the probability of making education more effective and chances not to loose young bright minds.

Important issues to consider are teachers' attitudes toward creative students. Stereotyping and biasing opinions about creative children may disrupt teachers'

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treatment of them. There is some research confirming that teachers perceive creative children as nonconformist and chaotic (Chan and Chan, 1999; Chan, 2000; Lau and Li, 1996; Lau *et al*., 2004; Ng, 2001; 2003; Rudowicz and Yue, 2002; Scott, 1999; Westby and Dawson, 1995).

Another interesting issue is just how competent are teachers to identify creative children. In a well known critical article about measurement of creativity written by Hocevar (1981) teacher nomination is listed as one of the sources of identification of creativity. Research conducted by Giza (1998) in Polish schools shows that teachers think creativity is nothing more than high intellectual level and ability to learn-intelligence. Similar results can be found in Pearlman's (1983) study. It is worth mentioning that the goal of Pearlman study was to develop 2 simple measures of teacher nominations of creativity. Firstly, Teacher Creativity Rating is a thirty-statement questionnaire used to describe every student in the classroom, secondly, Creativity Distribution is a rank of creative potential of the students. Research using these 2 measures, Torrance Tests of Creative Thinking and IQ test on a large sample of students (N = 624) and smaller sample of teachers (N = 26) shows rather strong correlation between 2 experimental methods (r = 0.57). It is hard to say that teachers' nominations were valid, mainly because of the medium correlations of teachers' nominations with TTCT circle subtest (r's between 0.24 and 0.25). Teacher nominations were stronger related to students intelligence that creativity (r = 0.35 for creativity distribution and r = 0.52 for teacher creativity rating). Partial correlations illustrate that controlling influence of intelligence decreasing correlations to r_{part} = 0.13. The study also demonstrates that teachers, even with explicit definition of creativity, think that creative student is a student with high intellectual level.

Similar results can be found in well-known and classic Getzels and Jackson (1962) research study on teachers' attitudes toward creative and intelligent students. Teachers evaluating work of highly intelligent (but uncreative) students and creative (but unintelligent) students evidently preferred to teach highly intelligent students; creativity was not an important factor for teachers.

Creative students are often perceived as disrupting. Teachers find it difficult dealing with all of the students' questions and activity. It is crucial that teachers should be capable of recognizing the traits pinpointing a creative student so they can easily identify creative potential. As Cropley (2001) mentioned, sometimes it is hard to distinct creative behavior from bad behavior because child's divergent thinking can make situation in the classroom difficult. Asking questions and trying to understand things deeper can destroy classroom discipline in at least 2 meanings: Such behaviors can be interpreted by other students as a disruptive behavior which can not be prevented by the teacher; Such behavior can give an opportunity to real destruction of the lesson.

Another problem which is more often associated with intuitionism as a preferred cognitive style of many creative children, are sudden answers. Creative children easily answer in original way and find solutions which are highly outstanding. If sometimes student says "I know that, but I cannot explain it" many teachers' initial reaction is annoyance. Such answers are not well evaluated; they suggest that students simply guess. Rational teachers prefer logical explanations and not intuition. Research presented in another study (Karwowski, 2006) demonstrates that intuitionists achieve poorer school grades, although their intelligence level and creative abilities are not lower than in rationalists' case. Interpretation of such results can focus on teacher biases and strong preference of rational students, or character of most problems solved in school, in most cases convergent and requiring step by step, convergent thinking.

MATERIALS AND METHODS

The main purpose of the study is to understand how valid are teacher nominations of pupils' creativity, where their validity was understood as correlations between teachers rating and creativity tests. Teachers from 2 Polish high schools were invited into the study and they were asked to assess their students' creativity on a seven point Likert scale (0-6). Two schools participated in the study: One of the highest ranking and one of lowest ranking schools. Additionally every student completed Urban and Jellen (Urban, 2004) Test of Creative Thinking-Drawing Production (TCT-DP) and Popek's Questionnaire of Creative Behavior CANH (Popek, 2000).

TCT-DP is a well known non-verbal test of creativity achieving high reliability and validity, used in many studies around the world. In Cropley's (2000) view it is one of the best available tests of creativity. Questionnaire of Creative Behavior CANH is a sixty statement questionnaire assessing level of creative and un-creative attitude due to Popek's (2000) theory. There are 2 dimensions of creative attitude: Cognitive named heuristic behavior and personality-nonconformist behavior. Uncreative attitude consists of conformity and algorithmic behavior. Every scale consists of fifteen statements with three categories: No, don't know and yes. Reliability of every scale if good or very good (reported in manual is about 0.80 for every scale). Every student school grades were collected for further analyses.

The aim of this study was to answer 2 questions: Are teacher nominations valid source of knowledge about students creativity? Are there differences between teachers of better and worse schools?

Participants: Sample consisted of 94 students from 2 Warsaw high schools, 40 of them (15 women, 25 men) were students of the higher performing high school, 54 (30 women, 24 men) were students of the lower ranking high school. Schools were chosen based on 2 well-known rankings of Polish high school-one was published in Polityka, second one-in Perspektywy.

Additionally teachers were asked to evaluate each student's creativity. As anticipated it was difficult to have all teachers' participation as many of invited teachers refused to be involved into the study. To have comparable profiles of teachers we aimed to have similar teachers in both schools. For example, if one of the schools English teachers refused to take part in the study English teachers from second school were excluded from analysis.

After the initial analysis teachers of Polish language, math, history, physics, English and sociology were chosen, in these cases missing data was relatively small. To further the analysis were chosen 12 teachers, 6 from each of the schools.

RESULTS

Before main analyses MANOVA was conducted to find any differences between 2 types of school and gender. Significant differences between students of higher and lower ranked schools were found in case of nonconformity ($F[7,84] = 3.92$; $p = 0.05$), algorithmic behavior ($F[7,84] = 17$; $p = 0.0001$), creative abilities assessed by TCT-DP ($F[7,84] = 23.12$; $p = 0.0001$) and school grades ($F[7,87] = 75$; $p = 0.0001$). Students from higher ranked school were significantly more creative (TCT-DP) and achieved better school grades, but they had lower results of nonconformity and algorithmic behavior than lower ranked school students.

Gender significantly differentiated just heuristic behavior ($F[7,84] = 6.87$; $p = 0.01$, men were significantly more heuristic than women. Significant interactions school x gender and results of creative abilities and nonconformity were found. Girls from weaker school were more nonconformist than those from better one ($M = 23$ and $M = 20$, respectively).

In study of school with lower position in rankings there is evidence of higher nonconformity of women rather than men. Different results were found in the school with higher ranking position, where men are more nonconformist. However, it is worth mentioning that in case of men, the level of nonconformity was rather stable, differences were seen just in women nonconformity. In sociological research published as 'Social Diagnosis' in Poland (Czapiński and Panek, 2004) similar results were found and interpreted as high risk behaviors of frustrated young women. It should be noted then that due to Popek's conception, nonconformity without activity to change the world creatively, may be a rather disturbing trait, especially if it is negative nonconformity that is going to destroy some paradigms not to propose something original and valuable.

Different kinds of connections were found in cases of creative abilities. Students from higher ranked school were more creative, but it was especially true in case of women ($M = 30$ in better school and $M = 16$ in weaker one). Women from this school were significantly less nonconformist, but more creative than their peers from lower ranked high school. Even taking into consideration independence of personality and cognitive characteristics of creativity, it must be noted that this results were interesting, especially the finding in the women's group. These results support hypothesis of non-creative nonconformity of women from lower ranked high-school.

Creative student in teachers' view: To understand purposes of teacher nominations, results were analyzed using correlation and regression analysis. Because all teachers nominations was highly correlated one scale was made using raw nomination (Cronbach's $\alpha = 0.90$) and was used in analyses presented below, treated as a dependent variable. Correlation analysis results are shown in Table 1.

In study of both school there were statistically significant and strong correlations between teacher nominations and school grades, the same as between

Table 1: Correlation between creative attitudes and abilities and school grades, behavior grades and teacher nominations of students' creativity

Correlates of teachers nominations of students' creativity	Lower ranked high school	Higher ranked high school
School grades average	0.70**	0.79**
Behavior grades	0.62**	0.58**
Creative abilities (TCT-DP)	0.14	0.16
Conformity	-0.01	-0.28
Nonconformity	0.22	0.27
Algorithmic behavior	-0.004	0.01
Heuristic behavior	0.30*	0.17

*p<.05; **p<.01

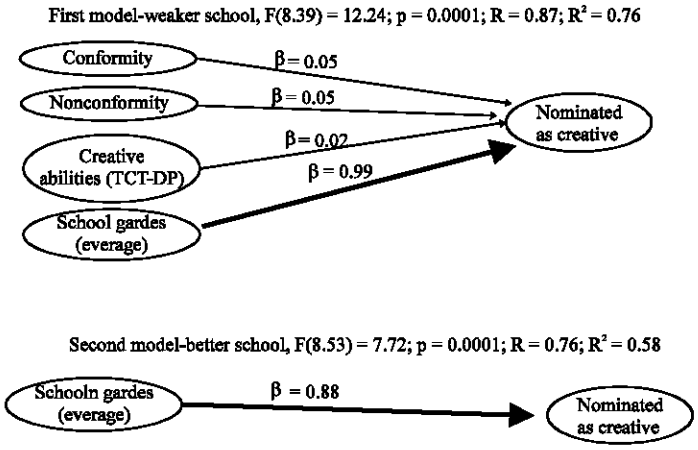

Fig. 1: Models explaining main criteria of creativity in nominations of teachers from better and worse schools

nominations and behavior grades. Correlation coefficients are higher in case of lower ranked school, but differences between Pearson r's are not significant. Overall, the shape of connections is the same in both cases. Additionally, in better high school there is observed correlation between teachers' nominations and students' heuristic behaviors.

Analyzing other correlations in Table 1 it should be mentioned that in higher ranked high school positive associations between school grades and creative abilities (TCT-DP) were found; such result does not exist in case of lower ranked high school. However, it worth to remember that more good school students were researched (N = 54, N = 40 in lower ranked school case), so even the same values of Pearson's *r* achieved different statistical significance in both cases.

In summary, observed results demonstrated that despite the school, teacher nominations are stronger correlated with student grades, than creativity tests results. To resolve this problem in multivariable way, we conducted 2 separate multiple regression analyses-for each school. Results and empirically found models are shown in Fig. 1.

First general information is the fact that both models are very well suited to explain teacher nominations-general percentage of variance explained is 68% (58% in lower and 76% in higher ranked school). Standardizedβ's are in contrast with some results shown in correlation analyses. Firstly, in weaker school (with lower rank) there are four significant predictors of teacher nominations-school grades-with the strongest influence, nonconformity and creative abilities (with marginally, but significant influences) and (with negative β value)-conformity. Controlling correlations between variables make insignificant influence of behavior grade, what provide into conclusion that earlier observed correlations between behavior grades and teacher nominations was correlation fallacy observed probably because of strong correlations between school and behavioral grades.

In study of higher ranked high school one significant relation was found-just school grades had influence on teacher nominations, other predictors were not significantly related to perception of the student as creative.

DISCUSSION

Presented results can be discussed at least from 2 different perspectives. First perspective, let us call it "tighter", is analyzing the results as an argument for teacher as a source of information about pupils' creative abilities. In other words the main problem is whether teachers are valid evaluators of children creative potential or they are not. Second perspective, definitely "wider" and omitted here, is a problem of explicit and implicit criteria used by the teacher when label creative or uncreative is used.

Even so, basic statistics demonstrate that better school students are more creative and definitely better in terms of their school grades, but conditions of teacher nominations are quite similar in both schools. Multiple regression analysis showed that factor with strongest influence on perception of the student as creative is not his/her results in creativity test or strong nonconformity or heuristic behavior but simply school grades. One can simply argue that despite of creative abilities, conformity or nonconformity, if students achieve high grades they probably will be perceived as creative by the teachers. Conformity was important predictor just in one school (lower ranked one), decreasing of conformity level increased chances for the student to be evaluated as creative.

Referred results are in line with those of Pearlman (1983) because factor with strongest influence on school grades it is probably intelligence level and task commitment. Results of research presented in other study confirm it Karwowski (2004).

CONCLUSION

In conclusion, it can be stated that even if definition of creativity is explicitly given to the teachers, they still (since Getzels and Jackson times) perceive creative student as intelligent and high achieving. Interestingly, the comparison of two regression models built for higher and lower ranked school shows that there is more statistically significant relations in case of weaker school (especially with more liberal statistical significance level). The fact that averaged teachers nominations were higher in better high school ($F[1.93] = 21.27$; $p = 0.0001$) does not explain these differences, because variance in better school teachers nominations was even higher (1.20 on 0-6 scale), the same as gap between minimum and maximum (4.60-better school, 3.66-weaker school). So it is impossible to defend *ad hoc* hypothesis that variance in better school could be less and that is why there is no many significant relations.

At the end, 2 possible conclusions could be formulated. Firstly, teachers are not good at evaluating students' creativity. Halo effect of school grades strongly influences their nominations and in result creativity for them is a synonym of academic achievement. It suggests that teacher nominations often used as a reliable method of creativity assessment are not without doubts. Second conclusion, similar to this of Hocevar (1981) may emphasize weak validity of different measures of creativity-correlations between creativity tests and teacher nominations were significant just in TCT-DP case and were modest or weak. Of course, someone can argue that teacher can focus on different sides than TCT-DP measures, but it is hard to defend such thesis.

Relatively small and non-representative character of the sample makes stronger conclusion impossible and further research should explore these problems.

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