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Playfulness, Ideas, and Creativity: A Survey

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This article investigates whether self-reports about playfulness are related to self-reports about creativity and the alternate uses of objects. An on-line survey was conducted of how people think about themselves. One thousand, five hundred and thirty-six people completed the survey. They were asked whether a variety of statements were very characteristic of themselves through to whether they were very uncharacteristic. Respondents were then asked to offer alternative uses for 2 different objects. Those people who characterized themselves as being playful clearly thought of themselves as being creative. The self-reports of their playfulness, creativity, and innovation were positively correlated with each other and were validated with their suggested uses for 2 different objects. Personality measures were derived from the respondents' self-assessments. On the openness scale, the measure was positively correlated with the respondents' assessments of their own playfulness and with the number of alternative uses for two objects.

Creativity has, doubtless, many dimensions. The creative gifts of the person with a schizotypal personality (Nettle, 2002), the capacity to develop novel ideas while daydreaming (Baird, Smallwood, & Schooler, 2011), the ability to see connections between different images after a glass of wine (Jarosz, Colflesh, & Wiley, 2012), and the capacity to suggest many different uses for an object are unlikely to represent a unitary cognitive phenomenon (Batey & Furnham, 2006). Play and playfulness may also facilitate creativity (Lieberman, 1977; Bateson & Martin, 2013). Play may do so because it brings the person into contact with a range of different experiences that can be relevant to solving a problem with a novel solution at a later time. Playfulness can also create those conditions in which people are not unduly focussed on limited aspects of their lives. Are people who regard themselves as playful more likely to think of themselves as creative than those who do not regard themselves as playful? This was the first question that provided the basis for this study. Another issue raised by Bateson and Martin was whether creativity and innovation represented different capacities. The question of whether people see creativity and innovation as distinct was addressed in this survey by whether or not the participants regarded coming up with new ideas differently from implementing the ideas of others. A large number of participants were recruited via one of several web sites and after answering standard questions about their age, sex, and employment, they were asked whether a variety of statements were very characteristic of themselves through to whether they were very uncharacteristic. They were then asked to offer alternative uses for two different objects, a task that provides a well-known measure of creativity (Guilford, 1967).

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The tables of data not published in this report are available from the Dryad Digital Repository: http://doi.org/10.5061/dryad.kc4j4

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METHOD

The Survey

Statements about playfulness and innovation were embedded in a survey based on the Newcastle

Personality Assessor, a questionnaire designed by Nettle (2007). He created a set of statements, and correlated the answers of respondents to these statements with their answers to statements in the International Personality Item Pool (IPIP), a well-established Big-Five factor questionnaire consisting of many items (see Goldberg et al., 2006; Gow, Whiteman, Pattie, & Deary, 2005). For final inclusion in his set, Nettle chose the two or three statements that had given the highest correlations with the sum scores from the IPIP questionnaire. Reducing the number of items from hundreds to a small number had already been successfully explored by Gosling, Rentfrow, and Swann (2003) and makes respondents much more likely to complete the survey.

The present online survey was called "How do you view yourself?". Standard questions were asked about the respondents' demography and then they were asked to state on a seven point scale how they rated themselves on 14 statements from *very characteristic* (1) to *very uncharacteristic* (7). The critical statements for the purposes of the survey were: "Acting playfully," "Coming up with new ideas," and "Taking the ideas of others and doing something useful with them." For brevity, these are referred to respectively as *playful, ideas*, and *innovation*. Having completed the self-rating, respondents were asked to provide alternative uses for a picture of a jar with a lid and then a picture of a paper clip. Respondents were given up to a maximum of 10 possible uses and the time they took was recorded.

Participants were recruited from two Cambridge University sites, users of a mobile telephone site and participants at a small conference. Their anonymity was preserved. The survey was advertised as follows:

> Professor Bateson of Cambridge University would welcome your help in a survey examining how people view themselves. If you are willing to help, his survey will take you about 10–15 minutes. If you would like to be included in a draw for some interesting prizes, include your e-mail address in response to the last question.

Overall, 2,206 people responded but those that did not complete the survey were excluded leaving a sample of 1,536, of which 860 were women and 676 were men. Judging from the servers used, the great majority of the respondents came from the United Kingdom. The age distribution of respondents is shown in Table 1. A relatively small proportion of them were under the age of 35. For purposes of analysis, age groups from under 13 to 34 were lumped. A limited range of possible employments was offered and 49% described themselves as retired and 43% as *Other*, not giving one of the conventional professional categories such as doctor, lawyer, etc. For this reason information about employment has not been used in subsequent analysis.

TABLE 1
Distribution of Ages of the 1536 Respondents Completing the Survey

Age Range	*Number*	*Percentage*
<13–34	145	9.4
35–54	473	30.8
55–64	421	27.4
>64	497	32.4

Analysis

The answers to a few statements were distributed normally, including "Acting playfully" and "Taking the ideas of others and doing something useful with them." Most answers to the statements and the number of uses for two objects showed a Poisson distribution and were transformed by taking natural logarithms. All scores were standardized to z scores: (mean score – individual score)/standard deviation of scores.

Using the Newcastle Personality Assessor, personality scores were derived for openness, extraversion, neuroticism, conscientiousness, and agreeableness as detailed in Nettle (2007). With the exceptions of the time taken to offer uses for two objects (jar and paper clip), the median scores were close to the means and are not given. Standard parametric analyses were carried out on all z scores and the personality scores which were derived from z scores.

RESULTS

Sex and Age

The differences between the sexes were negligible on self-assessments of *playful, ideas*, and *innovation*. For both men and women, the scores for *playful* were higher ($M = 3.37$, $SD = .71$, where higher is less characteristic) than for *ideas* ($M = 2.94$, $SD = .71$, matched pairs $t = 9.51$, $p < 1 \times 10^{-6}$). Also the scores for *innovation* were higher ($M = 3.40$, $SD = 1.41$, where higher is less characteristic) than for *ideas* (matched pairs $t = 11.05$, $p < 1 \times 10^{-6}$). Sexes did not differ on the derived personality measure of Openness.

A significant trend with age is apparent in the self-assessments of *playful* with the younger respondents regarding themselves as the most playful, $F(3, 1532) = 5.8$, $p < .01$. A similar trend was also found in the self-assessments of *innovation* $F(3, 1532) = 5.8$, $p < .01$. With univariate General Linear Model (GLM) analyses entering age and sex as fixed factors, none of the interactions between age and sex was statistically significant.

Alternative Uses Tests

The median time to complete answers to the alternative uses for the jar was 184 seconds and that for uses of the

paper clip was 121 seconds. The sexes did not differ in the time taken to complete these questions. Women found more different uses for the jar than the men on average (women $M = 6.69$, $SD = 2.76$; men $M = 6.04$, $SD = 3.05$), $F(1, 1534) = 14.3$, $p < .001$. The responses to the paper clip were smaller in number than for the jar (matched pairs $t = 27.97$, $p < 1 \times 10^{-10}$) and in this case the sexes did not differ (women $M = 4.63$, $SD = 2.63$; men $M = 4.80$, $SD = 2.80$), $F(1, 1534) = .27$ *ns*.

Respondents in the oldest age group (>65 years) offered the smallest number of uses for the jar when compared with the other age groups, $F(3, 1532) = 5.8$, $p < .01$. In the case of the paper clip, the youngest age group produced the largest number of alternate uses when compared with the other age groups, $F(3, 1532) = 11.0$, $p < .001$. With univariate GLM analyses giving age and sex as fixed factors, none of the interactions between age and sex was statistically significant.

Correlations Between Variables

The Pearson correlation coefficients (r) between the standardized measures for six variables are shown in Table 2 ignoring the small effects of sex and age. Although the variance accounted for in most of the data was low, all the correlations are very highly statistically significant because of the large sample size. The high correlation between ideas and openness arose because the measure of ideas is used with other measures in calculating openness.

Of particular interest for the study are the correlations between *playful* (Acting playfully) and *ideas* (Coming up with new Ideas) on the one hand and with the openness scale on the other. However, *innovation* (Taking the ideas of others and doing something useful with them) was also correlated with these other measures. Therefore partial correlation coefficients were calculated. When controlling for *innovation, playful* remains correlated with *ideas* ($r = .25$, $p < 1 \times 10^{-6}$) and with openness ($r = .24$, $p < 1 \times 10^{-6}$). When controlling for *ideas, playful* also remains correlated with *innovation* ($r = .17$). The same pattern of correlations was found in all age groups.

TABLE 2
Pearson Correlation Coefficients (r) for Six Variables Central to the Study

	Ideas	*Useful*	*Jar Use*	*Clip Use*	*Openness*
Playful	.31	.25	.12	.13	.31
Ideas	—	.23	.19	.22	.70
Innovation		—	.13	.21	.36
Jar use			—	.59	.19
Clip use				—	.23

Note. All values of Pearson's r are highly significant for a population of 1536 with the probability of two measures being randomly correlated for $r = 0.1$ being 1×10^{-5}.

DISCUSSION

Respondents to the survey who assessed themselves as acting playfully also reckoned that they came up with new ideas. Although only one item about being playful and about coming up with new ideas were used, reliability was guaranteed by the levels of significance of the correlations and the large sample size. Furthermore, when broken down by age, the same highly significant trends were found in each age group. The respondents' scores were highly significantly correlated with the derived personality measure of openness, which is regarded as a measure of creativity (McCrae, 1987). The usefulness of the playfulness score as a measure of creativity was validated by the number of alternative uses suggested for the jar and the paper clip. The alternative uses of objects were particularly strongly correlated with openness, a finding that others have found beforehand (Furnham & Bachtiar, 2008; McCrae, 1987). Overall, these findings support the hypothesis advanced by Lieberman (1977) and Bateson and Martin (2013) that playfulness is associated with creativity. They also support the findings of Tegano (1990), who used different instruments from ours. She recruited 50 adult teachers, teacher aides, and staff members of childcare centers (49 women and one man) who were asked to respond, among other things, to questionnaires about playfulness and creativity. Playfulness was measured by the Adult Behavior Inventory, adapted for adults by Graham, Saws, and Debord (1989) from the Child Behaviors Inventory of Playfulness. Creativity was measured with the Myers-Briggs Creativity Index (Myers & McCaully 1985). Playfulness and creativity were also positively correlated with each other in Tegano's (1990) study.

Although *creativity* and *innovation* are often treated as synonymous (e.g., Feist, 1998), Bateson and Martin (2013) argued that the terms can usefully be distinguished. Creativity is displayed when an individual develops a novel form of behavior or a novel idea, regardless of its practical uptake and subsequent application. Innovation means implementing a novel form of behavior or an idea to obtain a practical benefit, which is then adopted by others. Although creativity can lead to innovation, the distinction was not apparently supported by the findings of the survey. This is because the respondents' assessments of their own playfulness were also correlated with their assessments of the extent to which they used the ideas of others. Whether or not this feature of the data provides a serious objection to a distinction between creativity and innovation is

more difficult to assess. The respondents may have had little experience of innovation. They were much more likely to give a neutral response to the statement about using the ideas of others than they were to the statement coming up with ideas of their own.

The number of people completing the survey was large, but inevitably difficulties of generalizing to other populations are considerable because nearly half of the respondents were retired and nearly 60% were over the age of 55. The self-assessments of the relatively small number of younger people who responded indicated that they regarded themselves as significantly more playful than the older respondents. If larger numbers of younger people had responded, the pattern of results might have been different. A further point about generalizing to other populations is that the respondents were very largely drawn from the United Kingdom and were presumably well educated.

Creativity has many facets and each facet is facilitated by different factors. The survey has demonstrated that playfulness is associated with at least one form of creativity and people who regard themselves as playful also believe that coming up with new ideas is characteristic of themselves. Bateson and Martin (2013) argued that playfulness in individuals' lives and in organizations can be encouraged by good practice and, in so doing, creativity and hence innovation can be enhanced.

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