

# The frequency of déjà vu (déjà rêve) and the effects of age, dream recall frequency and personality factors

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**Summary.** A question about déjà rêve (already dreamt, a form of déjà experience) was included in a large “sleep, dreams, and personality” survey of 444 (mainly psychology) students at three German universities. The incidence of déjà rêve was high (95.2%) and, like most other déjà experiences, was negatively correlated with age. In addition to dream recall frequency, the most influential personality dimensions were thin boundaries and absorption. Additional research should use diary measures and experimental approaches in addition to the trait and dream variables.

**Keywords:** déjà rêve, déjà vu, dream recall frequency, personality

## 1. Introduction

Déjà experiences (Funkhouser, 2009; Neppe, 1983) are all those different happenings to people that are usually subsumed under the term “déjà vu”. Neppe (1983) compiled a list of 20 of them. One, known as déjà rêve (already dreamt), is that form of déjà experience in which the person has the impression that he is reliving an experience he has had previously while asleep (one usually says, in a dream). This explanation for déjà vu is one of the earliest, having been put forward by St. Augustine in the 5th century (A.C.E. 416) and offered among other possibilities by Sir Walter Scott (1815) (Funkhouser, 1983a). This form of déjà experience has been described and postulated many times since then (for overviews see Brown, 2004; Funkhouser, 1983b). Up till now, as far as the authors are aware, there has been no survey which looked at the incidence of déjà rêve in the general population.

The most generally accepted definition of déjà vu is “any subjectively inappropriate impression of familiarity of a present experience with an undefined past” (Neppe, 1983); there are, though, many others (Brown, 2004, lists 53 quotations where déjà vu was defined!). One aspect missing in Neppe’s definition is the surprise and bewilderment that often accompanies such experiences and make them so striking. Déjà vu has been the subject of study in a number of scientific fields since the latter part of the 19th century (Berrios, 1995; Funkhouser, 1983a). It is a very common experience: the best estimate of its incidence among adults amounts to 65% and among students it is even higher, amounting to 79% (See Brown, 2004; Funkhouser, 2009, Survey results).

Over the last 25 years, a few studies have been made in which survey participants were asked how many of their déjà vu experiences were dream-related - the results are summarized in Table 1. There have also been several studies that have investigated the relationship between dream recall and having déjà vu experiences. Zuger (1966) asked his psychotherapy patients about their dream recall and if they had had déjà vu experiences. His conclusion was that those who did not remember dreams also did not report having had such experiences. Neppe (1983) reported similar results. More quantitatively, for 91 college students Buck and Geers (1967) found a moderate, but non-significant correlation between both auditory and visual déjà vu experiences ( $r = .19$  and  $r = .17$ , respectively) and dream recall. Palmer and Dennis carried out mail-in questionnaire surveys of both townspeople and students at or in the vicinity of the University of Virginia. In the published results (1979) Palmer reported that there was a highly significant relationship between having déjà vu experiences and dream recall for the townspeople ( $n = 354$ ) but for some reason this failed to be true for the student population ( $n = 268$ ). Kohr (1980), using a mail-in questionnaire to investigate various parapsychological relationships among members of the Association for Research and Enlightenment, also found a moderate correlation ( $r = .22$ ) between having déjà vu experiences and dream recall ( $N = 406$ ).

*Table 1. Previous studies: the percentage of déjà vu experiences that were dream related*

Investigator(s)	Percent	N (students)
Rauwald (1984)	33%	42
Schmutte (1990)	16%	43
Brown et al (1994)	40%	57
Snowdon & Ito (2001)	74%	103

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The decrease of déjà vu frequency with age has also been determined in at least 30 different investigations (for an overview, see Brown, 2004). In déjà vu research this is regarded as one of the most robust findings. Brown lists 30 scientific publications which maintain that the incidence of déjà vu diminishes with age and only one (Neppe, 1983) who failed to find this relationship (possibly due to his broad definition of déjà vu).

In a previous study having to do with personality measures among 91 non-clinical subjects, aged 18 to 65, Harper (1969) found a (non-significant) trend for déjà vu "to be less frequent in those with marked neurotic traits." He goes on to say that "Subjects reporting déjà vu were more often recorded as having many obsessional traits but the difference was not statistically significant. The déjà vu subjects were not more hypochondriacal, but they were less emotionally sensitive and the difference in respect of emotionality was statistically significant."

In order to learn more about this last finding (among other things), Franze and Koschnitzki (1997) employed the Freiburg Personality Inventory (FPI-R) as part of the mail-in questionnaire they utilized in a study with 76 adults working for a consulting company. They divided the respondents into three groups: Those who had identifiable déjà vu experiences, those they label as false positives, and those who claimed not to have had such experiences. With respect to emotional sensitivity, they found no significant difference among their three groups (double-sided testing,  $p = .3188$ ).

In another investigation having to do with personality variables, Snowdon and Ito (2001) used the Inventory for Déjà vu Experiences Assessment (IDEA) developed by Sno (1994) in order to elicit déjà vu data and Eysenck's Personality Questionnaire (EPQ-R) (Eysenck & Eysenck, 1975) for measuring personality factors. The EPQ-R scale measures along three dimensions: introversion – extraversion, neurosis – stability, and psychosis. These two scales were incorporated into an on-line questionnaire with a total of 110 questions. There were 130 respondents. In the results having to do with personality measures the only significant correlation was with extraversion.

The aim of the present study was to assess the incidence of déjà rêve and the relationships between it and a number of variables which included: age, dream recall, attitude towards dreams, the so-called Big Five personality measures, absorption, intrapsychic boundaries, and creativity/fantasy. This is the first time such a study has been performed specifically with regard to déjà rêve.

## 2. Materials and methods

### 2.1. Procedure and Participants

Participants were recruited at the universities of Mannheim, Heidelberg and Landau for a study entitled "Sleep, dreams, and personality". They were paid for participating. The questionnaires and the dream diary were given to the participants who completed the questionnaires and the diaries over a two-week period which were then returned to one of the experimenters. Of 457 participants, 444 persons returned their materials. The sample thus included 444 persons whose mean age was  $23.5 \pm 5.7$  years. There were 376 women and 68 men who were mainly psychology students. The statistical analyses were carried out using the SAS 9.1 software package for Windows.

### 2.2. Measurement instruments

#### 2.2.1 Frequency of déjà rêve and dream recall frequency

An eight-point rating scale to measure the frequency of déjà rêve was presented within a self-developed dream questionnaire ("How often do you find yourself in a situation that you have already dreamed in a similar way (déjà vu)?" 0 = never, 1 = less than once a year, 2 = about once a year, 3 = about 2 to 4 times a year, 4 = about once a month, 5 = about 2 to 3 times a month, 6 = about once a week, 7 = several times a week).

Overall dream recall frequency was measured by a seven-point rating scale (0 = never, 1 = less than once a month, 2 = about once a month, 3 = twice or three times a month, 4 = about once a week, 5 = several times a week and 6 = almost every morning). The retest reliability of this scale for an average interval of 55 days is  $r = .85$  ( $n = 198$ ; Schredl, 2004).

#### 2.2.2 Attitude towards dreams scale

The questionnaire measuring attitude towards dreams includes 25 five-point Likert items and was adopted from Schredl, Nürnberg and Weiler (1996) and Schredl and Doll (2001). A factor analysis was carried out in order to extract two factors: Items with direct relationship to dream recall and items which measure general attitudes towards dreams (Schredl, Ciric, Götz, & Wittmann, 2003). Examples of items of the scale are: "Dreams are nonsense products of the brain." or "I am opposed to working with dreams." The internal consistency of the ten-item attitude towards dreams scale was  $r = .784$  (Schredl et al., 2003).

#### 2.2.3 Personality measures

The German version of the NEO-PI-R (Ostendorf & Angleitner, 1994) comprises 240 five-point items (coded: 0 to 4) measuring the Big Five personality measures (neuroticism, extraversion, openness to experience, agreeableness and conscientiousness). The sum scores (48 items) can range from 0 to 192. The internal consistencies of the scales are high ( $r = .89$  to  $.92$ ) and confirmatory Multitrait-Multimethod analyses have replicated the findings of the English version (Ostendorf & Angleitner, 1994).

The Absorption scale (subscale of Tellegen and Atkinson's unpublished personality inventory; Tellegen & Atkinson, 1974) consists of 34 Yes/No-items which measure the capacity of becoming absorptively involved in imaginative and aesthetic experience, e. g. "I can be greatly moved by eloquent or poetic language." Sum scores were computed. Since all absorption items were scored in one direction (Yes-answers), 32 unrelated items measuring other personality dimensions were included in the questionnaire (as was done in previous studies: e. g., Belicki & Bowers, 1981). The internal consistency of the German version amounted to  $r = .854$  ( $N = 51$ ; Schredl, Jochum & Souguenet, 1997).

The Boundary Questionnaire (Hartmann, 1991) which was translated into German by the Institute of Psychology, University of Zürich, Switzerland, includes 145 five-point scales covering 12 areas (e.g., sleep/dreams, unusual experiences, thought/feeling/mood, interpersonal relationships). The total score, reflective of boundary thinness, was derived by summing the ratings (ranging from 0 to 4) of 138 items, with item reversals when appropriate. The internal consistency of the German scale was  $r = .93$  ( $N = 152$ ), the same as reported by Hartmann (1991) for the English version ( $r = .93$ ,  $N = 966$ ).

2.2.4 Creativity/Fantasy

For measuring visual imagination, a subtest of the “Erfassungssystem Veränderter Bewusstseinszustände” (Test battery for altered states of consciousness; Quekelberghe et al., 1992) was applied. The internal consistency of the 18 five-point items is high ( $r = .92$ ; Quekelberghe et al., 1992). The scale assessing attitude towards creativity was developed by Schredl (1995) and comprises 12 five-point Likert items. The internal consistency was  $r = .668$  (Schredl, 1995).

3. Results

In Table 2, the frequency of déjà rêve is depicted for the total sample. Only 4.8% said that they had never had a déjà rêve experience. About 7% of the participants stated that they experience déjà rêve once a week or more often. As seen in the table, the great majority fell in between with the highest percentage occurring for those who claim to have déjà rêve experiences 2 to 4 times a year. While there was no significant dependence on gender, the incidence of having déjà rêve experiences was negatively correlated with age.

Dream recall frequency, attitude towards dreams, thin boundaries, absorption, and imagination correlated positively with déjà rêve frequency (cf. Table 3). The regression analysis which accounts for the intercorrelations among the influencing factors revealed that dream recall frequency, absorption, and thin boundaries are the most important in affecting déjà rêve frequency (cf. Table 3). I.e., persons with high dream recall, high absorption scores, thin boundaries, and lower scores for openness to experiences stated that they experience déjà rêve more often. The “openness to experience” personality dimension served as a suppressor variable by increasing the amount of explained variance due to the other three variables in the total analysis, even though showing no correlation to déjà rêve frequency itself.

4. Discussion

The findings of the present study clearly indicate that, like déjà vu, experiencing déjà rêve is common and that dream recall frequency and the thin boundaries and absorption personality dimensions were related to déjà rêve frequency (see regression analysis). The decrease of déjà rêve frequency with age is in line with previous research studying déjà vu frequency (Brown, 2004).

Table 2: Frequency of déjà rêve (N = 442)

Category	Frequency	Percentage
never	21	4.8%
less than once a year	41	9.3%
about once a year	52	11.8%
about 2 to 4 times a year	153	34.6%
about once a month	78	17.7%
about 2 to 3 times a month	67	15.2%
about once a week	22	5.0%
several times a week	8	1.8%

Table 3: Correlations between influencing factors and déjà rêve frequency

Variable	Déjà rêve frequency r =	Regression analysis <sup>1</sup> t =
Gender (1 = f, 0 = m)	.013	-0.9
Age (yrs.)	-.142**	-2.5*
Dream recall frequency	.252***	5.1***
Attitude towards dreams	.106*	0.6
Neuroticism	.074	-0.3
Extraversion	.043	1.6
Openness to experience	.037	-4.0***
Agreeableness	.032	0.4
Conscientiousness	-.040	0.3
Thin boundaries	.228***	2.8**
Absorption	.238***	3.4***
Imagination	.091*	-1.2
Attitude towards creativity	.048	0.2

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

<sup>1</sup> t-value of the statistical test of the regression coefficient is depicted.

The high incidence of déjà rêve (about 95%) in this sample might be explained by the fact that the sample consists mainly of psychology students who consider such phenomena as interesting and related to their chosen profession. This finding points to methodological issues related to measuring déjà vu experiences. For nightmare (Zadra & Donderi, 2000) and dream recall (Schredl, 2002) it has been shown that keeping a diary increases the frequencies dramatically. It is still debated whether this is a real increase due to focusing on the subject or a recall bias of the rating scales measuring frequency retrospectively. It would thus be very desirable to study déjà vu frequency with a diary and compare these findings with retrospectively estimated values. It might be hypothesized that the same effect (increased frequency) as that found for nightmares and dream recall frequency can be detected.

The associations between the incidence of déjà rêve and dream recall frequency has been reported previously (cf. Schredl & Montasser, 1996-97). At first glance, this result seems very plausible in that a person with high dream recall attributes a déjà vu experience more easily to a previous dream. On the other hand, the impression of having dreamed the actually occurring events arises within that moment and usually cannot be attributed to a particular dream in the past, even if the persons kept dream diaries in order to document the dreams prior to the déjà rêve experience.

Adding the positive relation of déjà rêve frequency with thin boundaries, one might speculate about a possible explanation of déjà vu experiences called the dual process model (cf. Brown, 2004). The thin boundary concept (Hartmann, 1991) includes boundaries between two thoughts or two feelings (blending into one another, the difficulty persons with thin boundaries have distinguishing between separate emotions) and between states of consciousness (good ac-

cess to childhood experiences, dreams and other states of consciousness in the waking state). Bakan (1978) proposed a conceptual model of two streams of consciousness which he associated with the right and the left hemispheres of the brain. This was meant in a broad sense and not limited to the actual location of the functions within the brain, i.e., the left hemisphere is associated with language, sequential thinking whereas the right hemisphere is associated with pictorial, creative and holistic experiences. Based on the hypothesis that déjà vu experiences result from a merging of these two streams of consciousness, it seems plausible that persons with good access to their dream life (associated with right hemisphere functioning) and thin boundaries should experience déjà vu experiences more often. It would be interesting to study these persons (thin boundaries, high dream recall) in the laboratory applying paradigms to provoke déjà vu-like experiences like exposure to subliminal stimuli or setting with many flanking stimuli surrounding the focal stimulus (cf. Brown, 2004).

The positive relationship of déjà rêve experiences with absorption might point to memory effects of recalling déjà vu experiences after a long time in order to estimate their frequency retrospectively. Persons with high absorption presumably experience the déjà vu event more intensely and thus the recall bias is less pronounced. This hypothesis can be tested by using the diary approach (see above).

The result that openness to experience served as a suppressor variable within the regression analysis cannot be explained from the present findings. Overall, the big five personality dimensions were not related to déjà rêve frequency, thus contradicting a previous study regarding the positive relation to extraversion (Snowdon & Ito, 2001). In addition, "neurotic" traits or emotional instability (parts of the neuroticism dimension) were also not related to déjà rêve frequency, clearly indicating that déjà vu experiences are not a clinical phenomenon.

Overall, the present study indicates that déjà rêve experiences were reported very often and are related to different personality and dream measures. Future research should assess déjà vu experiences via diary keeping and through studying whether the variables associated with déjà rêve frequency in this study also explain interindividual differences in laboratory experiments.

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