

Voice-recorded vs. written dream reports: A research note

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Summary. Previous research indicated that voice-recorded dreams are considerably longer than written dream reports. In a small randomized study this finding was replicated, the voice-recorded dreams were three times longer as the written reports. However, the participants in the writing condition reported more dreams and more links between dream elements and waking life, i.e., having a written dream report facilitates some tasks. Future research is needed to determine how strong the recording mode is affecting the results of dream content analytic studies and studies investigating the relationship between dreaming and waking life. Researchers should clearly state how dream reports were obtained.

Keywords: Dream diary, dream report, waking-life events

1. Introduction

Dream content analytic studies rely typically on dream reports (Schredl, 2010). Three approaches were commonly used to collect dreams: most recent dreams, dream diaries, and reports obtained in a sleep laboratory after awakenings by the experimenter (Schredl, 2018). Whereas the effect of the setting, e.g., home vs. laboratory setting, has been studied (e.g., Weisz & Foulkes, 1970), systematic research regarding possible effects of the mode of collection, voice-recorded vs written dream reports is scarce. Regarding dream length, the mean word count of diary reports using voice-recording, e.g., 543 ± 262 words (Vallat, Chatard, Blagrove, & Ruby, 2017) or 317 words of reports stemming from REM awakenings (Stickgold, Pace-Schott, & Hobson, 1994) are much higher compared to studies eliciting written dream reports, e.g., 136.0 ± 111.2 words (Schredl, 2004b) or 106.5 ± 82.7 words (Schredl, 1999). Casagrande and Cortini (2008) instructed their participants to write down and voice-record the dreams, (the order of the recording mode was balanced across participants), over a two-week period. The orally given reports were longer than the written reports of the same dreams (142.95 ± 111.66 words vs. 83.52 ± 42.54 words, $F = 129.65$, $p < .0001$; $N = 302$ participants reporting 2144 dreams). Given the marked difference in report length, it is astonishing that in over 45% of the 145 dream content articles Casagrande and Cortini (2008) found in the databases, PubMed and sleephomepage.org did not specify how the dreams had been recorded. The

findings of Casagrande and Cortini (2008), however, have to be viewed with caution as participants had to record the same dream twice and, thus, would have been affected by motivational factors. Previous research indicated that motivation might have an effect on dream report length, e.g., dream reports of mornings with recall of a single dream are much longer compared to dream reports stemming from mornings with recalling two or more dreams: 136.0 ± 111.2 words (single dreams), 104.4 ± 90.8 words (two dreams per night), 76.7 ± 65.0 words (three dreams per night), 73.7 ± 72.4 words (four dreams per night), and 70.9 ± 63.4 words (five or more dreams per night) (Schredl, 2004b), i.e., the time period for recording dreams in the morning might be restricted and, thus, shorten dream reports if more dreams are remembered or, in case of the Casagrande and Cortini study, recorded twice. The relatively small mean word count of 142.95 ± 111.66 words (Casagrande & Cortini, 2008) may support this. Moreover, dream reports recorded in the second week of the study period were shorter than those recorded during the first week (143.5 ± 119.5 words vs. 162.3 ± 135.5 words; $N = 425$, unpublished analysis). One might speculate that the difference in dreams length between voice-recording dream reports and written dream reports might be even larger when participants were randomly assigned to 'recording only' vs. 'voice-recording only' conditions. In addition to recording the dream(s) as completely as possible, some studies asked for additional information, e.g., the color of different dream objects (Schredl, Fuchedzhieva, Hämig, & Schindele, 2008), bizarre dream elements (Schredl & Erlacher, 2003) or correspondences between dream elements and waking-life (Vallat et al., 2017). As these paradigms necessitate looking through the dream report again after recording, one might speculate whether the method of voice-recording vs. writing down the dream report has any effect on the findings. It might be easier to review a written dream report compared to replay the (long) audio recording of the dream. Systematic research in this area has not been carried out.

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The aim of the present study is to examine the effect of the recording method of dream reports on dream report length and the number of correspondences between dream elements and waking-life made by the participants. It was expected that voice-recorded dream reports are longer than written dream reports but that the number of correspondences might be lower in the voice-recording paradigm.

2. Method

2.1. Participants

Overall, 45 persons were randomized to one of the two conditions (Voice-recording vs. writing). Due to one dropout and four participants not recalling any dreams within the one-week study period, the two groups were as follows: $N = 22$ in the written dream report group and $N = 18$ in the voice-recording group (see Table 1). Gender distribution between the two groups did not differ significantly. The age mean of the written dream report group was slightly but not significantly higher compared to the voice-recording group.

2.2. Research Instruments and Procedure

The study's protocol followed as closely as possible the protocol of Vallat et al. (2017). However, only three variables (number of dreams, word count, and number of correspondences between dream elements and waking-life per dream) were included in this research note. Due to confidentiality issues within this student project a considerable number of participants were not willing to allow more detailed analyses of dream content and waking-dreaming correspondences. This was partly due to the nature of this student project as the participants were not paid and recruited from the co-authors' circles of acquaintances. The pre-study questionnaire asked about various aspects of the participant's lives including age, gender, sleep habits, social network, leisure time activities, and important life events occurred in the previous four weeks. Next, one group of participants were requested to report their dreams using a voice recorder immediately upon awakening for seven consecutive days; the other group were asked to write down the dreams also for seven days. Both groups were asked to describe their dream content in as much detail as possible without adding interpretations. After each dream was reported participants should tell whether they felt that parts of their dream were obviously related to some features of their waking lives (e.g., places, characters, actions, events, objects, thoughts). For each link that was made by the participant additional information was elicited, e.g., emotional valence of the dream

element and of the related waking life experience, brief description of the waking life experience and ratings on various scales (from 1 to 10) to assess its familiarity, frequency, emotional valence, importance, personal versus professional dimension, social dimension, how much a concern it was, and how similar it was to the corresponding dream content. For a detailed description see Vallat et al. (2017).

After participants agreed to participate they were randomly assigned to one of the two groups (voice-recorded vs. written dream reports). The word count of the dream reports were determined after excluding all repetitions and information not related to the dream experience itself, e.g., I talked to my sister whom I met in real life the day before (second part of the sentence would be excluded).

Statistical procedures were carried out with the IBM SPSS statistics software package for Windows (Version 22.0.0.0). As word count was not normally distributed values were transformed using natural logarithm. Mixed model analyses were used as participants reported different numbers of dreams (repeated measurements). Several participants did not provide socio-demographic data such as age and gender.

3. Results

The participants in the written dream report group recalled more dreams compared to the voice-recording group (see Table 1). As expected, the difference in word count between the two groups was considerably large and highly significant. On the other hand, the participants of the written dream report group found more links between dream elements and waking life than the voice-recording group (see Table 1). If word count was added to the mixed model analysis, the group difference for the number of links was even larger ($F = 14.8$, $p < .001$); the covariate word count was also related to the number of links ($F = 7.8$, $p = .006$).

4. Discussion

The findings indicate that the mode of dream recording (voice-recorded vs. written) has a strong effect on report length, voice-recorded dreams were threefold longer than written dream reports – a much more pronounced difference compared to the study of Casagrande and Cortini (2008) who asked their participants to record the same dream twice (auditory and written). As Casagrande and Cortini (2008) reported difference in content, e.g., number of visual word, discontinuities, between voice-recorded and written dream reports, it would be very interesting to analyze larger dream samples from participants randomly as-

Table 1. Voice-recording vs. written dream report groups

| Variable | Written | Voice-recording | Statistical test |
|--|--------------------------------|-------------------------------|-----------------------------|
| Total number | 22 | 18 | |
| Male/Female/Gender missing | 2/18/2 | 4/12/2 | $\chi^2 = 2.4$, $p = .230$ |
| Age | 29.39 \pm 15.19 ($N = 18$) | 23.42 \pm 3.34 ($N = 12$) | $t = 1.6$, $p = .123$ |
| Number of dreams | 2.55 \pm 1.01 | 1.72 \pm 0.83 | $t = 2.8$, $p = .008$ |
| Mean word count | 100.70 \pm 72.57 | 310.39 \pm 335.63 | $F = 38.5^1$, $p < .0001$ |
| Number of correspondences between dream elements and waking-life per dream | 1.63 \pm 1.17 | 1.00 \pm 0.82 | $F = 7.0^1$, $p = .010$ |

¹mixed model analysis

signed to a voice-recording only or writing down only condition. One hypothesis would be that the main actions are relatively similar but that the voice-recorded dream reports might include more details, e.g., about settings, features of dream objects and so on.

On the other hand, the task of matching dream elements to previous waking-life experiences seems to be easier if the participant can scan through the written dream protocol. Given the very long reports of the Vallat et al. (2017) study, one might expect more links between waking and dreaming (average number was 1.8 ± 1.6 links per dream) if the dreams would have been written down. The difference between mean dream length between the Vallat et al. (2017) study (543 ± 262 words) and the present study (310 ± 336 words) might be explained by the fact that Vallat et al. selected only high dream recallers (three or more dreams per week) whereas the present study did not exclude low dream recallers – as dream length and dream recall frequency are related (Schredl, 2004a). The recommendation would be to standardize the matching protocol in case of voice-recorded dreams, e.g., explicitly asking the participants to listen to the recording at least once to make sure that they name all links between dream elements and waking life. Another option would be to implement automatic speech-to-text tools and let the participants do the matching with the printed dream report.

To summarize, in addition to the dream type (home dreams, most recent dreams, laboratory dreams) the mode of dream collection (voice-recorded vs. written) strongly affects the obtained dream reports. Future research is needed to determine how strong those effects are and – as Casagrande and Cortini (2008) pointed out – researchers should clearly state how dream reports were obtained.

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