

Pass or Fail? Examination dreams in a long dream series

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Summary. Examination dreams had being classified as typical dream because many people have them. The literature focused on the negatively toned dreams, e.g., failing the exam, being obliged to take the exam again, being unprepared. The present findings analyzing 10,713 dreams of an academic indicate that examination dreams show high variability in content, i.e., there are examination dreams including positive emotions and knowledge about the subject of the exam and dreams about examinations without being examined. Furthermore, examination dreams were found more often in periods when the dreamer was facing a lot of exams in his waking life – supporting the continuity hypothesis of dreaming. To expand the present findings, it would be interesting to study examination dreams in persons with different educational background and in faculty staff who are examiners.

Keywords: Dream series, examination dreams, continuity hypothesis

1. Introduction

Sigmund Freud (1991) classified examination dreams as being typical and wrote that everyone who has pass the final school exam complains of anxiety dreams of failing the exam or as obliged to take the exam again, being unprepared, etc. Some of these dreams even become nightmarish, i.e., the negative emotion becomes so intense that the dreamer is awakened (Robert & Zadra, 2014). Typical dreams can be defined as dreams with similar contents reported by a high percentage of dreamers, but not necessarily occurring with high frequency within the person's total dream life (Schredl, Ciric, Götz, & Wittmann, 2004). The lifetime prevalence of examination dreams is quite high, a large proportion of students report having such dreams (see Table 1). The prevalence in psychiatric patients is much lower; possible explained by lower education as higher education is related to higher examination dream frequency (Schredl, 2010). A considerable number of adults report examination nightmares (see Table 1). The frequency of examination dreams within a person (all remembered dreams) is relatively small (3% or less), i.e., it is not a dominating dream topic.

Starting with Sigmund Freud a variety of authors speculated about the possible meaning of examination dreams in adults (after the phase in one's life taking a lot of exams; school, university etc.). Freud (1991) formulated two ideas: the first is that examination dreams reflect punishment the person suffered for her or his evil deeds in childhood. But he also put forward the idea that examination dreams can offer some consolation as most of the dreams he collected included examinations already passed in real life. The consolation aspect, however, is only present after waking up

from the dream and realizing that one has already passed. Interestingly, Freud himself failed one examination (forensic medicine) but never dreamed about it. Instead he dreamed sometimes of an oral school examination (history) that he passed with excellence but received help from his professor during the examination (guilt?). This idea that these dreams might reflect guilt about passing the examination with dishonest means was suggested by Ward (1961). Garfield (1984) focused on the basic pattern of the examination dream and not on the examination topic itself and hypothesized that examination dreams reflect a feeling of being unprepared in waking life. Stekel (1909) related examination dreams to sexual topics, proving one's potency in intercourse. Failing would reflect impotence (Renik, 1981).

Despite the considerable number of clinical case reports (Anonymous, 1919; Gutheil, 1974; Guttman, 1934; Kafka, 1979; Kaplan, 1985; Ostow, 1995; Sadger, 1920; Schmeiderberg, 1933; Sterba, 1927; Sutherland, 1941), empirical research in this area is sparse. Ekeh (1972) investigated 345 most recent dreams of students in Nigeria and found that examination dreams were more often reported by tribes that are more modern, thereby attaching more value to higher education, than in more traditional tribes. Interestingly, persons who failed and persons who passed with excellence did not report as many examination dreams as those who were just able to pass the examinations (Ekeh, 1972). Halliday (1993) presented findings of 33 persons with examination dreams (students, adults) and found that most examination dreams were based on real examinations (about 84% of the examinations were successfully passed) and a number of participants reported examination dreams before the actual examination. This finding led Halliday (1993) to the idea that examination dreams can also be explained by fear of the anticipated event. Fitting in this line of thinking is the fact that school-aged children who reported that their worst nightmares were examination dreams also showed more examination anxiety as measured by a questionnaire (Schredl, Pallmer, & Montasser, 1996). Arnulf et al. (2014) analyzed dreams of the night preceding a very competitive examination and found that reporting an examination dream was related to slightly better examination grades. This find-

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Table 1. Frequency of examination dreams reported in the literature

Author	N =	Population	Measure	Percent
Griffith, Miyagi, and Tago (1958)	250	Students (USA)	TDQ (lifetime)	38.8%
	223	Students (Japan)		41.0%
Ward, Beck, and Rascoe (1961)	748	Psychiatric patients	TDQ (lifetime)	16.7%
Nielsen et al. (2003)	1348	Students (Canada)	TDQ (lifetime)	45.0%
Schredl, Ciric, et al. (2004)	444	Students (Germany)	TDQ (lifetime)	60.8%
Yu (2008)	348	Students (Hong Kong)	TDQ (lifetime)	79.3%
Arnulf et al. (2014)	696	Students (France)	Single item (lifetime)	73.7%
Schredl (2010)	1022	Adults	Recent nightmare topic	12.7%
Schredl and Pallmer (1998)	624	School children	Most recent bad dream	3.0%
Mathes and Schredl (2014)	1612	Students	Diary dreams	2.2%
Mathes et al. (2014)	2893	Adults	Most recent dream	0.7%

Note. TDQ = Typical dream questionnaire

ing could be interpreted in the view of the Threat Simulation Theory (Revonsuo, 2000) as most examination dreams (85%) included failure, i.e., dreaming of the examination is helpful in preparing for the actual event – actually several participants reported that they addressed some weakness in their knowledge before the examination due to the negative examination dream (Arnulf et al., 2014). An alternative explanation – much in line with the continuity hypothesis (Schredl, 2012) – that student who took the examination more seriously and put a lot of work into the preparation are more likely to dream about it and, of course, obtaining a better grade.

Lastly, Schredl (2010) reported that adults with high education reported more examination dreams and that examination dreams decline with age. To summarize, the literature has focused on the negative aspects of examinations dreams as a recurrent and/or typical dream but little is known about the variability in the content of examination dreams. In students, the majority of examination dreams included failure but a small percentage of examination dreams (5%) before a competitive examination included success; the percentage was even higher (about 20%) if examination dreams during the study period were analyzed (Arnulf et al., 2014). So, at least in students there is variability in content of examination dreams. Several studies (Ekeh, 1972; Halliday, 1993; Schredl, 2010; Schredl & Pallmer, 1998) are in line with the continuity hypothesis of dreaming (Schredl, 2003) as those persons who took a lot of examinations or value their importance or have worries about examinations dream about them more often.

The present study was undertaken to study the content of examination dreams in a detailed way (e.g., positive and negative emotions, subjects, examiners). Secondly, it was investigate whether the phenomenology of these dreams, e.g., subjects, examiners, provides any hints as to whether these dreams are continuous with regard to the waking life of the dreamer, e.g., are the examination subjects in the dream those he experienced in waking life. As the dreams were recorded over a long period of time, it was also tested to see whether examination dreams were more frequent in periods that include a lot of exams, i.e., being a student, compared to periods with fewer or no exams.

2. Method

2.1. Participant and dream diary

The male participant kept an unstructured dream diary from the age of 22, beginning in September, 1984 through May 2013. The dreamer is German speaking and his occupation is research psychologist (starting after completing two degree programs in 1991). The examination “history” of the dreamer is presented in Table 2. In the third semester of his engineering studies the participant failed one examination (advanced mathematics III) with about 56% of his fellow students but passed on the second attempt. During the engineering studies he passed over 30 examinations in different subjects. During the last year, he had to undergo one or two examinations per week. Although the amount of time studying was high, the examinations were not highly selective, i.e., about 50% of the students started studying engineering completed all examination and obtained a degree. The psychological studies were less arduous with about 15 examinations. Similarly, about 50% of the students fin-

Table 2. Examination “history”

Year	Age of the dreamer	Topic
1981	18 yrs.	School finals (with distinction in mathematics, physics, chemistry, and computer sciences)
1981-1986	19 to 23 yrs.	Electrical Engineering (Diploma = Master Degree)
1986-1991	24 to 29 yrs.	Psychology (Diploma = Master Degree)
1998	36 yrs.	Ph.D. (Thesis plus two oral examinations in general psychology and philosophy of science)
2001	38 yrs.	Examination (sleep specialist)
2003	40 yrs.	Habilitation (examination lecture)

Note: All examinations were passed at the first time, except one examination during studying electrical engineering (passed at the second attempt).

Table 3. Examination dreams for five time intervals

Year	Time period	All dreams	Examination dreams
1984-1986	Electrical Engineering	279	3.94%
1986-1988	Psychology (part 1)	785	0.89%
1988-1990	Psychology (part 2)	703	1.42%
1990-1991	Psychology (part 3)	832	1.68%
1991-2013	Professional life	8027	0.72%

ished with a degree. In addition to the dissertation, the PhD exam involved two oral examinations: one topic was general psychology and the other was philosophy of science. The dreamer also underwent a sleep medicine examination for psychologists. For the title of an associate professor, the dreamer had to present a 30 minute talk with subsequent questioning in front of the full professors of the faculty. For the present analysis, all 10,713 dreams from the period mentioned above were included. The mean dream length was 133.05 ± 84.79 words.

2.2. Procedure

The dream reports were originally hand-written but were then typed and entered into a database (Alchera 3.72, created by Harry Bosma, www.mythwell.com) by the dreamer himself. This database allows one to assign key words to the dreams, which was also a task carried out by the dreamer himself. Each dream was coded by the dreamer for the occurrence of examinations as a theme. In a second step, all examination dreams were categorized according to whether the dreamer himself was examined or examination was a general topic of the dream, the examination topic, the type of examination (oral, written, practical), explicitly mentioned positive or negative emotions, explicitly mentioned level of knowledge regarding the examination topic, and the setting of the examination (school, university, other). The dream examples given in the results section will illustrate what kinds of topics were coded.

The Alchera software also provides a word count for each dream report. Dream reports did not include redundancies and non-dream experience related words. The analysis unit was a single dream report. The data were exported into an Excel spreadsheet (Microsoft) and the data analysis was carried out using the SAS 9.4 software package for Windows. For comparing percentages of different time periods, the algorithm of Klingenberg (2008) was adopted. This algorithm was developed specifically to analyze binary time series with varying time intervals between the measures (which is of course the case in a dream series as dreams are not remembered every morning). To analyze the single binary time series we fitted an autoregressive Generalized Linear Mixed Model (AR-GLMM) with a logit link and serial correlation within the GLIMMIX procedure with a power covariance structure. The exact dates for the different periods depicted in Table 2 are: Sep 5, 1984 (first recorded dream) to April 26, 1986 (electrical engineering studies finished), Oct 13, 1986 (starting psychology studies) to Oct 13, 1988 (first part of psychology studies finished), Oct 14, 1988 to March 31, 1990, and April 1, 1990 to Sep 29, 1991 (final parts of

the psychology studies), Sep 30, 1991 to May 11, 2013 (professional life). As the algorithm of Klingenberg (2008) can only handle a limited number of observation, the first year of professional life ($N = 797$) was chosen for the comparisons. Effect sizes for the differences in percentages were computed by the formula given in Cohen (1988).

3. Results

Overall, in 0.97% of the dreams (104 out of 10,713) the dreamer underwent some form of examination. In an additional 29 dreams (0.27%) examination was a topic: 16 dreams in which other persons undergo an examination, 9 dreams with the dreamer talking about an examination with other persons, 3 dreams with monitoring a written examination, and one dream in which it was unclear whether there is really an examination or not. The percentages of examination dreams (dreamer being examined) for the three time intervals (engineering studies, psychology studies, and professional life) are depicted in Table 3. For the two study periods together the percentage of examination dreams was 1.62%. The first year of professional life ($N = 797$ dreams) was used as reference in the analyses as the percentage of examination dreams was 0.75%. The difference between the electrical engineering period and the psychology studies (part 1 to part 3) was significant ($t = 3.1$, $p = .0019$, effect size: $d = 0.168$); also the difference between the electrical engineering period and the first year of professional life ($t = 3.1$, $p = .0022$, effect size $d = 0.226$). The difference between psychology period (part 3) and the first year of professional life was marginally significant ($t = 1.7$, $p = .0975$, effect size: $d = 0.087$), whereas the comparisons of the other psychology period parts did not reach significance.

The subjects of the examinations are depicted in Table 4. In about one third of the dreams, a particular subject was not mentioned. Psychology and electrical engineering oc-

Table 4. Subjects of examinations in dreams

Subject	Dreams	Percent
Psychology	29	27.88%
Electrical engineering	16	15.38%
Bizarre topics	5	4.81%
German (school)	3	2.88%
Art (school)	3	2.88%
Physics (school)	2	1.92%
Juggling	2	1.92%
Mathematics (school)	2	1.92%
Physiology	2	1.92%
Geography (school)	2	1.92%
Economics	1	0.96%
Martial arts	1	0.96%
Latin	1	0.96%
Chemical engineering	1	0.96%
Subject not mentioned	34	32.69%

Table 5. Examiner in examination dreams

Examiner	Dreams	Percent
Teacher (an examiner in waking life)	3	2.88%
Unknown teacher	9	8.65%
Engineering academic (an examiner in waking life)	14	13.46%
Engineering academic (who has not been an examiner in waking life)	1	0.96%
Psychology academic (an examiner in waking life)	21	20.49%
Psychology academic (who has not been an examiner in waking life)	2	1.92%
Academic teacher (unknown)	16	15.38%
Boss/colleague	5	4.81%
Others	4	3.85%
Not specified	29	27.88%

curred most often. A total of 12 school-related subjects were found in the examination dreams. During the engineering studies 4 dream subjects were studies-related whereas three dreams included other topics (4 dreams without an explicitly mentioned topic). During the psychology studies, 13 dreams contained studies-related subjects, 9 dreams other subjects and 9 without an explicitly mentioned subject. In the time period after the two studies, 16 dreams included psychology-related examinations, 5 engineering-related subjects, 16 other subjects (21 dreams without an explicitly mentioned subject).

The distribution of persons carrying out the examination in the dream is depicted in Table 5. Interestingly, dream examiners were often persons who were real examiners in the dreamer's waking life (38 dreams). During engineering studies 10 examiners were engineering academics (one dream unspecified) whereas during psychology studies 15 examiners were psychology academics (one of them not a "real-life" examiner) and 11 other examiners (5 unspecified dreams). During the professional life period no engineering examiner was present in the dreams, 8 psychology examiners and one school teacher as examiner.

The emotions of examination dreams were more often negative than positive (see Table 6) but the difference didn't reach statistical significance (Sign test: $M = -2.5$, $p = .4869$). Interestingly, the dreamer was more often than not well prepared for the examination (see Table 5); this difference was significant (Sign test: $M = 13$, $p = .0029$).

Examples of examination dreams

E1: "... Eventually I realize that tomorrow or so the oral geography exam (final school examination) will take place and that I haven't prepared at all because I was so occupied with my social issues. On the one hand, I am sure that I know something but there might be a topic of which I know nothing at all. I am telling that to someone nearby. I am thinking how I will survive that."

E2: "Auditorium of my old school, final math exam. About 20 persons are present. The examination lasts one hour,

I am able to solve a few simple items but I am not progressing with the really important tasks. These consist of putting together Lego bricks according to complicated manuals. ... Time slips away, I not able to solve anything. After the examination I throw myself to the ground and start to weep. I never had such a bad grade. A teacher is asking me whether I expected a very good grade. I say no but I am a person who normally has good grades. Some of the task solutions were presented on a screen: I have some correct answers (not a complete failure); this should serve as consolation."

E3: "I am in the examination about the psychology of language. The examiner is Prof X. with a second person who is sitting at some distance. Prof X. is asking question about Chomsky and wants to hear another name. I admit that I do not know every person in the psychology of language field, but I was able to report the facts. Then, he wants to know a Gestalt psychology name, Max Horckheimer. My associations are running away. I comment on that. Then the name Kafka, Franz, comes to my mind, yes, Koffka with two fs. This is the end of the examination; he said I should wait outside so they can determine the grade. He is smiling. I am very unsure. After a short period of time he calls me, there are other persons in the corridor. I receive the best mark. I answer: "It is a pity that this is a dream." and go away.

E4: "I am standing with several persons in front of a big lecture hall. In this hall the entrance examination for studying electrical engineering has just finished. I am very happy that I already finished the studies; other persons had quite some difficulties with the examination.

E5: "A beautiful, friendly morning. In a cozy room we (several students) take a written exam. The end is approaching, 2 p.m. The suggestion of the professor is to continue after a short break during the afternoon hours but she immediately says that she was not serious about it. We get another 5 minutes to finish our exam. I am going through my answer sheets; I just manage to complete all tasks of the exam. I am very confident regarding my performance, most of the answers should be correct. I clear away my stuff and the empty sheets but I am careful not to put away one of the answer sheets.

E6: "I am a pupil in the 9th grade (age 15 in Germany). We took a brief written test consisting of three tasks. These are quite simple; all pupils had no difficulties. I return my two sheets after I entered the abbreviation of my class (c). I am curious whether I will get the best grade and whether my grades are overall on a high level."

4. Discussion

The present findings indicate that examination dreams show much more variability in content than previously described in the classical literature (Freud, 1991; Renik, 1981; Ward, 1961), i.e., there are examination dreams including positive emotions and knowledge about the subject of the exam and dreams about examinations without being examined; a finding which is in line with the findings of Arnulf et al. (2014) also reporting a considerable percentage of successful examination dreams. Furthermore, examination dreams were found more often in periods when the dreamer was facing a lot of exams in his waking life – supporting the continuity

hypothesis of dreaming (Schredl, 2003). As the exact dates of the examinations could not be reconstructed, it was not possible to differentiate whether the examination dreams occurred prior to the examination which might reflect anxieties about successfully passing or after the examination, i.e., incorporating salient life events into the dream (Malinowski & Horton, 2014; Schredl, 2006).

From a methodological viewpoint it must be noted that the findings are based on one dreamer who is highly educated and passed a lot of exams successfully (failed only once and successfully passed the second attempt). Thus, it would be very interesting to study the phenomenology of examination dreams in other persons, preferably not only students since education is related to higher frequencies of examination dreams (Schredl, 2010). Compared to the student sample (Mathes & Schredl, 2014), the frequency of examination dreams during the studies was comparable (dream series: 1.62% and students: 2.2%); also the frequency of examination dreams during professional life was comparable to the figure of 0.7% reported by adults (Mathes, Schredl, & Göritz, 2014). This supports the validity of the present findings. As the coding was done by the dreamer himself, it should be noted that simple content analytic scales (Topic present/not present) show high interrater reliabilities (Schredl, Burchert, & Grabatin, 2004) and, thus, possible coding biases regarding the results should be minor.

As the examination dream frequency is considerably higher during the studies periods when facing a lot of examinations, the present finding supports the continuity hypothesis (Schredl, 2003) and the cross-sectional finding that examination dreams decline with age (Schredl, 2010). Furthermore, the examination subjects and the examiners are also often continuous with regard to the waking life of the dreamer, i.e., the dreamer dreamed about examination he took in his waking life. On the other hand, there are dreams including topics that are not related to waking life, e.g., taking a Latin exam (the dreamer never took classes in Latin) or even bizarre subjects like putting together Lego bricks. Like Freud (1991), the dreamer never dreamed about the examination (advanced mathematics) he failed. It would be very interesting to study whether this type of examination dream is related to waking-life in a more general level like a basic pattern of being unprepared (Garfield, 1984), especially in adult who have not to face any formal examinations (compared to students).

Whereas the emotions of examination dreams were balanced, the dreamer more often reported examination dreams in which he was quite well prepared also reflecting waking life as the dreamer was an above-average pupil and student; these percentages are higher than those reported by Arnulf et al. (2014) in a large student sample. Thus, it would be very interesting to study examination dreams like Ekeh (1972) in persons who struggle a lot to pass their exams. One would expect more negatively toned dreams and more often the feeling of having not prepared enough. Another interesting topic would be to study academics and teachers who administer a lot of examinations; the dreamer reported three dreams where he was on the "other side" but he was never an examiner in his waking life although he helped a few times to prepare written exams.

To summarize, examination dreams show a broad spectrum of contents, continuous and discontinuous to the waking life of the dreamer. In the future, it would be interesting to carry out longitudinal diary studies which include measuring

daytime challenges (including examinations) and measures of examination anxiety, for example, in students at different points of their studies but also in the working population in order to elucidate the relationship between waking life and examination dreams. Moreover, the educational background and the average grades should be elicited as these factors might contribute to the frequency and content of examination dreams.

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