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Content Analysis of German Students' Dreams: Comparison to American Findings

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Studies have demonstrated that general dream characteristics, such as gender ratio and familiarity of dream characters, frequency and type of social interactions and settings, and gender differences (e.g., heightened physical aggression in men's dreams), are very stable over time and across different populations. The present study included 537 dreams of 106 women and 39 men (German students). The results confirmed earlier findings regarding the stability of general dream characteristics and gender differences. Only the gender difference regarding the gender ratio of dream characters has not been replicated; this finding might be explained by the relationship status (single vs. stable partnership) of the dreamers. The comparison of large dream samples may shed light on the similarities and differences between the inner worlds of people of different countries and cultures.

KEY WORDS: dream content; gender differences; cross-cultural differences; reliability.

The first large-scale content-analytic study of dreams was published by Calvin Hall and Robert Van de Castle in 1966 (Hall & Van de Castle, 1966). In addition to an elaborate description of their scoring system, their book includes the codings of 1,000 dream reports, which were provided by 100 women and 100 men between 1948 and 1952. The dreams were analyzed for various characteristics, e.g., settings (indoor/outdoor), number and identity of dream characters, and social interactions. The aim of the authors was a comprehensive description of dream content. For example, marked gender differences were reported (Hall & Van de Castle, 1966); men tend to dream twice as often about men as they do about women, whereas women dream equally about both sexes. Furthermore, physical aggression, weapons, sexuality, outdoor settings, and unknown dream characters were more common in men's dreams than in women's dreams. A replication study (Hall et al., 1982) has shown that general dream characteristics, such as gender ratio of dream characters, ratio of aggressive and friendly interactions, etc., did not change over a time period of 30 years, and that gender differences were also very stable.

The publication of a large, normative sample and a content-analytic manual with explicit coding rules and sufficient interrater reliability offers the opportunity to compare

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dream samples from different countries and cultures with these data. Domhoff (1996) reviewed the studies applying the Hall and Van de Castle rating system. The interpretation of these findings was based on the continuity hypothesis of dreaming, which states that dreams reflect waking-life experiences.

For the purpose of the present article, the findings of European dream samples included in Domhoff's book (1996) will be briefly described. The Dutch sample was comprised of 330 dream reports of 34 women and 32 men between the ages of 19 and 31 years. Whereas the ratio of aggressive and friendly interactions was comparable with the American findings, the Dutch persons dreamed less often about physical aggression. Domhoff (1996) pointed out that the Netherlands tends to have less violence than the United States, and that this difference may be reflected in dream content. For example, the homicide rate (mean of years 1997–1999) in the United States is almost four times higher than that in the Netherlands (6.26 vs. 1.66 homicides per 100,000 inhabitants; Barclay, Tavares, & Siddique, 2000).

A Swiss sample consisted of 500 laboratory dreams (obtained by REM awakenings) of 26 women and 18 men aged 19 to 35 years (Strauch & Meier, 1996). Very few differences were found in comparison to the American findings regarding number of settings, indoor settings, percentage of known characters, and percentage of animals. Interestingly, the gender difference regarding the ratio of male dream characters to all human dream characters was less pronounced in the Swiss sample than in the American sample (Switzerland: 55% (women) vs. 63% (men); United States: 48% (women) vs. 67% (men)), but was still significant ($h = -0.16$, $p < .01$). Aggression, especially physical aggression, occurred less often in the Swiss dream sample, a finding which might be explained by different sampling techniques (laboratory awakenings vs. home dreams), since several studies (e.g., Domhoff & Kamiya, 1964; Weisz & Foulkes, 1970) have demonstrated that aggression (and sexuality) were less often found in laboratory dreams than in home dreams. This might be interpreted as an "inhibitory effect" of the laboratory setting (constant monitoring, unusual sleep environment, presence of a technician).

To summarize, studies applying the Hall and Van de Castle rating system to dream samples of different populations have shown that general dream characteristics differ little across groups, but that single culture-specific features may be reflected in dream content. These findings and the stable gender differences found in dream content support the continuity hypothesis since meta-analyses, for example, for gender differences in waking behavior, revealed comparable findings (heightened aggression and sexuality in men; Schredl, Sahin, & Schäfer, 1998).

The aim of the present study was to compare a dream sample provided by German students to the American sample (Hall & Van de Castle, 1966) with respect to dream settings, dream characters, and social interactions. Since both nations are highly industrialized countries of the Western hemisphere, few differences were expected. In addition, gender differences were analyzed in order to compare their magnitude to the American findings and to determine a possible cultural influence.

METHOD

Participants

The sample included 145 persons of mean age 24.2 ± 7.3 years. There were 106 women and 39 men who, with three exceptions, were psychology students. Overall, 537 dreams were

recorded. The mean dream report length was 106.5 ± 82.7 words. Mean word count did not differ between the sexes (women: 105.2 ± 81.0 words, $N = 397$; men: 110.2 ± 87.8 words, $N = 140$; $t = 0.6$, $p = .5364$).

Materials and Procedure

The participants kept a standardized dream diary over a two-week period. A maximum of 5 dream reports per participant was included in the analysis. Dream reports were typed out and scored in random order by an external judge. 105 dream reports were scored by a second independent judge in order to compute interrater reliabilities.

A German translation of the Hall and Van de Castle (1966) rating system translated by Riepl (1992) was used. The judges also read the original English text and the scoring examples provided by Hall and Van de Castle (1966). For the present study (which focused on gender differences), settings, dream characters, social interactions (aggression, friendliness, sexuality), misfortune, and some objects (e.g., clothes and weapons) were scored. Characters were classified according to four dimensions: number (single, group), gender (male, female, joint sex groups, indeterminate sex), identity (mother, father, prominent person, stranger, known, uncertain) and age (adult, teenager, child, baby). In addition, animals were scored. In regard to settings, 18 different codings are possible in the Hall and Van de Castle system. For the present study, indoor, outdoor, ambiguous settings, and absence of setting were differentiated. The classification and scoring of social interactions is more complex, and includes the dream character who is initiating the interaction, the type of interaction (e.g., an aggressive act resulting in the death of a character), and the recipient. For detailed information, see Hall and Van de Castle (1966) or Domhoff (1996).

The data were entered into DreamSat, a Microsoft Excel file that is available on the Internet (Scheider & Domhoff, 1999). This program computes ratios that were often used in previous studies. Male/female percent, for example, is the ratio of male characters to the sum of all human characters. For direct comparison of the occurrences of aggression, friendliness, sexuality, and misfortunes per dream, reports with word counts between 50 and 300 words were selected (women: $N = 282$; men: $N = 101$), since Hall and Van de Castle (1966) have applied these criteria. For the differences between percentages, effect sizes (h) were determined and tested against the null hypothesis; for detailed description of the formulae, see Cohen (1988) or Domhoff (1996).

RESULTS

Interrater Reliability

In Table 1, interrater reliability coefficients of the major categories are compared to those obtained by Hall and Van de Castle (1966; Domhoff, 1996). The values for the classification of characters were slightly below the original values, whereas the differences for social interactions and settings were more pronounced. If the coding of settings into indoor, outdoor, and ambiguous is considered, the exact agreement between the two judges amounted to 74%. It should be kept in mind that the coefficients of Table 1 were computed for the correct categorization of a single dream element with several details (e.g., recipient, type of interaction); figures such as the occurrence of sexuality per dream or "befriender"

Table 1. Interrater Reliability (Percentages for Exact Agreement)

	Present study (<i>N</i> = 105 dreams)	Hall & Van de Castle ¹
Characters: Presence	92%	93%
Characters: Single/Group	99%	92%
Characters: Gender	87%	89%
Characters: Identity	76%	81%
Characters: All correct	69%	76%
Interactions: Aggressions	43%	54%
Interactions: Friendliness	44%	61%
Interactions: Sexuality	43%	64%
Settings	55%	73%

¹See Domhoff (1996), p. 30.

percent, for example, have higher reliabilities, since not all details are relevant for computing the specific measure. Domhoff (1996) gives examples of the increase in reliability in case one detail of the interaction was not coded correctly.

Comparison of German and American dreams

Tables 2 and 3 show that very few differences between the German and the American samples were detected. An exception, however, is the gender ratio of the dream characters. German women dreamed more often about men than American women, whereas German men dreamed less of men than their American counterparts. The additional findings of the more frequent occurrence of animals in women's dreams and heightened physical aggression in men's dreams are not very pronounced.

Gender Differences

Within the present sample, the following gender differences emerged (see Tables 2 and 3): men dreamed more often about sexuality and physical aggression, and acted more often

Table 2. Comparison Between German Students' Dreams and the Hall and Van de Castle (1966) Findings

Variables	Women (<i>N</i> = 397)	Women (H & VC)	Effect size	Men (<i>N</i> = 140)	Men (H & VC)	Effect size	Gender difference (present sample)
Characters: Male/Female Percent	56%	48%	0.17***	58%	67%	-0.19**	-0.04 ¹
Characters: Familiarity Percent	57%	58%	-0.03	46%	45%	0.02	0.22*** ¹
Animal Percent	6%	4%	0.09*	7%	6%	0.02	-0.04
Aggression/Friendliness Percent	55%	51%	0.07	63%	59%	0.08	-0.16
Befriender Percent	54%	47%	0.13	62%	50%	0.23	-0.16
Aggressor Percent	28%	33%	-0.11	40%	40%	0.02	-0.25* ¹
Physical Aggression Percent	41%	34%	0.14	64%	50%	0.28*	-0.46*** ¹
Indoor Settings Percent	60%	61%	-0.02	50%	48%	0.03	0.20** ¹

* $p < .05$; ** $p < .01$; *** $p < .001$; all probabilities are two-tailed (except for ¹).

Table 3. Comparison Between German Students' Dreams and the Hall and Van de Castle (1966) findings (Dream Length Between 50 and 300 Words)

Variables	Women (<i>N</i> = 292)	Women (H & VC)	Effect size	Men (<i>N</i> = 101)	Men (H & VC)	Effect size	Gender difference (present sample)
Dreams with at least one:							
• Aggression	38%	44%	-0.14	40%	47%	-0.15	-0.04
• Friendliness	39%	42%	-0.07	30%	38%	-0.18	0.19
• Sexuality	2%	4%	-0.07	9%	12%	-0.09	-0.33** ¹
• Misfortune	31%	33%	-0.05	36%	36%	0.01	-0.10

* $p < .05$; ** $p < .01$; *** $p < .001$; all probabilities are two-tailed (except for ¹).

as aggressor in their dreams than women; women dreamed more of known characters and indoor settings than did men. For the "clothes" object category, no gender difference was found (women: 3.9%, $N = 2289$ objects; men: 3.5%, $N = 938$ objects; $h = 0.02$, n. s.). Although weapons were seldom mentioned within dream reports, men dreamed more often about them (women: 0.3%; $N = 2289$ objects; men: 1.1%, $N = 938$ objects; $h = -0.10$, $p < .01$).

DISCUSSION

Overall, the present results confirmed earlier findings that general dream characteristics, such as familiarity of dream characters, frequency and type of social interactions, and type of settings, are very stable across different populations. In contrast to the findings of the research done in the Netherlands and Switzerland (Domhoff, 1996), aggression was not reduced. This may be explained by the sampling technique (in comparison to the Swiss study), since the present study—like Hall and Van de Castle (1966)—analyzed home dreams (see discussion about laboratory and home dreams in the introductory section). The difference with the Dutch findings might be explained along the lines suggested by Domhoff (1996), that the Netherlands, a small country, is less aggressive as a nation than other Western countries.

Whereas the small differences regarding the occurrence of animals (women) and physical aggression (men) might be chance findings (overall, 24 statistical tests were carried out), a marked difference for the gender ratio of the dream characters was found. The typical gender difference that was found in many different samples (Hall, 1984) was not present in this data. Schredl (2001), who included some of the present data in his analyses, has demonstrated that male and female singles showed a similar pattern in gender ratio of dream characters compared to the Hall and Van de Castle sample, whereas the ratios of men and women with stable partnerships were not different. Therefore, it might be assumed that the slightly older German students (mean age 24.2 years) more often have stable partnerships than the students of the Hall and Van de Castle sample. If partners were excluded from the gender ratio of dream characters, the ratios approximated those of singles (Schredl, 2001). This reasoning may also be valid for the reduced gender difference in the gender ratios of dream characters found in the Swiss sample (Strauch & Meier, 1996). Since the male/female percent ratio was stable over time (Hall et al., 1982; Domhoff, 1996), it seems plausible that cohort effects did not play an important role in explaining the differences between the American and the German samples. A direct relationship between the waking-life

pattern of social contacts and the gender ratio of dream characters has been demonstrated by Schredl and Jacob (1998) and by Schredl, Lossnitzer, and Vetter (1998). These findings support the notion of continuity between waking and dreaming and, thus, did not indicate that the difference is attributable to cultural differences between Germany and the United States.

Except for the gender ratio of dream characters and the occurrence of clothes in dreams, the previously reported gender differences (e.g., Hall et al., 1982) have been replicated. Men dream more often about unknown characters, outdoor settings, sexuality, physical aggression, weapons, and of themselves as aggressors than women do. Schredl, Sahin, and Schäfer (1998) pointed out that this is in line with meta-analytic findings regarding gender differences in waking-life behavior, e.g., sexuality (Oliver & Hyde, 1993), aggression (Eagly, 1987), and personality (Feingold, 1994).

The interrater reliability coefficients of the present study, especially for social interactions and settings, were considerably smaller than those reported by Hall and Van de Castle (1966). This might be explained by the raters having less experience, since the previously reported coefficients were based on the comparison between the authors, who had developed the rating system and had scored over 10,000 dreams. It will be very useful to conduct studies determining the effect of rater training on interrater reliability coefficients in order to recommend the amount of training necessary to obtain sufficient interrater reliability.

To summarize, the findings of the present study indicate that general characteristics of dreaming are surprisingly stable over decades (Hall et al., 1982) and across different populations. The German and American students' dreams were comparable regarding almost all investigated dimensions. Thus, the results support the continuity hypothesis of dreaming, assuming a comparable waking-life environment in these two highly-specialized industrial countries of the Western hemisphere. Specific influences on dream content (e.g., effect of partnership), however, can be detected. The comparison of large dream samples may help to shed light on the similarities and differences between the inner worlds of people of different countries or cultures.

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