Dreaming in Adolescence: A "Blind" Word Search of a Teenage Girl's Dream Series

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Previous studies of dreaming in adolescence have found that (a) shifts in dream content parallel shifts in cognitive and social development, and (b) adolescent girls seem more prone than adolescent boys to disturbing dreams and recurrent nightmares. This article confirms and extends those findings by using a novel method, blind word searches, to provide results that are more precise, detailed, and objective than those offered by previous studies. The method is used to analyze a series of 223 dreams recorded in a private diary by an American girl, "Bea" (not her real name) from the ages of 14 to 21. Accurate predictions about continuities between Bea's dream content and waking life concerns included important aspects of her emotional welfare, daily activities, personal relationships, and cultural life. The results of this analysis illuminate the multiple ways in which dream content accurately reflects the interests, concerns, and emotional difficulties of an adolescent girl.

Systematic research on dream content in childhood (Foulkes, 1999) and adulthood (Domhoff, 1996; Hall, 1966) has shown that dreaming accurately reflects an individual's emotional concerns in waking life. Dream content in adolescence has received less attention, but the studies to date have produced results significant enough to merit further investigation. Two general findings stand out.

First, dream content changes over the course of adolescence, and some of these changes parallel important aspects of cognitive and social development. In Foulkes's extensive laboratory analysis of the REM-sleep dreams of several dozen American children, ages 3–15, he found that by the early teenage years the patterns of dream content had shifted to adult levels of social and cognitive activity (Foulkes, 1999). Strauch's (2005) longitudinal study of the REM-sleep dreams of 24 Swiss children, ages 9–15, found that unrealistic–bizarre elements of dream content declined with increasing age, whereas the dream plots became more complex, active, and verbal. Maggiolini, Azzone, Provantini, and Vigano's (2003) word-search analysis of the dreams of 326 Italian children, ages 11–19, showed that words relating to "family" declined over the teenage years. Siegel (2005) summed up current research on the developmental changes in dreaming

by saying that as children grow older they recall more dreams, their dream narratives increase in length, they have more elaborate character interactions, and they are less often victims of aggression.

A second general finding is that adolescent girls seem more prone than boys to disturbed dreams and recurrent nightmares. Nielsen et al.'s (2001) questionnaire-based research on the dreams of 610 Canadians, ages 13–16, revealed that the girls reported more bad dreams at each successive age, but that was not the case for the boys. Nielsen et al. concluded "these findings highlight a prevalence of disturbing dreams that is especially marked for adolescent girls" (p. 1). Oberst, Charles, and Chamarro's (2005) study of 120 Spanish children, ages 7–18, found that boys had fewer dreams of being victims of aggression as they got older, but the same was not true of the girls, who had relatively high levels of victimization dreams at all ages. Jones and Schulze examined in great depth the dream lives of five Northern European girls between the ages of 13 and 18 and found numerous connections between the girls' emotional problems in waking life and negative–upsetting themes in their dreams (Jones & Schulze, 2005). Taken together, these findings suggest that dream content is an especially accurate emotional barometer for the waking difficulties and challenges faced by adolescent girls.

A good way to build on these results and promote the further advance of psychological knowledge about adolescent dreaming is to combine the biographically detailed interview approach of Jones and Schulze with the objective precision of Maggiolini and Azzone's word-search method. That is the goal of this article, which reports the findings of a word-search analysis of a series of 223 dreams recorded in a private diary by an American girl, "Bea" (not her real name), at various times from the ages of 14 to 21. This analysis represents the first in-depth quantitative study of an adolescent dream series recorded in a natural setting (i.e., for her own interest, prior to contact with researchers, in her normal living conditions). The results not only confirm the basic waking–dreaming continuities identified by Foulkes, by Strauch, and by Nielsen et al., but they also refine our understanding of those patterns of dream content as they relate to the particular waking life concerns and emotional difficulties of an adolescent girl.

PARTICIPANT AND METHOD

Bea contacted G. William Domhoff in early 2010 after reading an article in *The New Yorker* magazine about his research. She offered to let him study her diary of dreams, which she had been keeping for several years for her own personal interest. After gaining her consent, Domhoff, in turn, offered to let me study Bea's dreams on a blind basis, initially knowing nothing about her personal life, as a follow-up to our study of the "Van" dream series (Bulkeley & Domhoff, 2010). This new study of the Bea series is an attempt to extend the blind-analysis approach by applying it to a relatively unknown area of research, namely, adolescent dreaming.

Bea's diary was divided into two sets of dreams, one from her time in high school ($N = 183$), mostly from the ages 14 to 16, and the other from her first years in college ($N = 40$), from the ages 18–21. She later sent Domhoff another 63 dream reports from both time periods, providing a total of 286 dreams. These additional

reports were not used during the blind analysis; the results reported here focus on the original two sets.

After explaining to Bea the limits of dream analysis, assuring her of confidentiality, and making clear she could end the process at any time, Domhoff forwarded the two sets of dreams to me with no information beyond that they came from a young female. I did not know the dreamer's ages or school situations during the times she recorded the dream series, and I did not know anything else about her waking life at the outset of my study. All I knew was that the second set of dreams was recorded at a later time from the first set of dreams.

A perennial challenge for scientific dream research regards the objectivity of its analyses and interpretations. Specifically, how does one ensure that a claim about the meaning of a dream is based on something intrinsic to the dream and is not the product of extraneous knowledge, influence, or theoretical bias? "Blind" analysis tries to control for this factor. It involves an exclusive focus on the statistical frequencies of word usage in a series of dreams, bracketing out the narrative reports and personal details of the dreamer's life and making inferences based solely on quantitative patterns in the word usage frequencies. The basic premise guiding these inferences is the continuity hypothesis, by which frequencies of dream content are predicted to reflect accurately the waking life concerns of the dreamer. The continuity hypothesis has been developed by several researchers, such as Domhoff (1996) and Strauch and Meier (1996), and it provides the basis for the present analysis. The aim here is to assess the patterns of dream content with the fewest possible preconceptions before reading through the narratives and learning about the individual's waking activities and concerns.

Word-search methods make the process of blind analysis easy, fast, and precise. Previous studies have found word-search methods to be powerful tools in the study of dreams (Domhoff & Schneider, 2008). To facilitate the comparison of word searches with traditional methods of study, I have been developing and testing a template of 40 word categories that address many of the major topics of dream content research over the past half century (e.g., emotions, perceptions, characters, social interactions; Bulkeley, 2009; Bulkeley & Domhoff, 2010; Bulkeley & Hartmann, 2011). In a previous study of the Hall and Van de Castle "norm" dreams (Bulkeley, 2009), the results of word searches were found to be comparable to the results of traditional content-analysis coding. More work needs to be done to refine this approach and clarify its limitations. But the results, so far, indicate that word-search methods can play a useful role in the scientific study of dreams.

After performing word searches on the two sets of Bea's dreams (which were stored in a private space on the www.dreambank.net website), using the template of 40 word categories plus a number of ad hoc word categories still being tested, I formulated 15 inferences about possible continuities between Bea's dreams and her waking life. Domhoff forwarded these inferences to Bea, and then he forwarded her responses back to me.

Once the veil of blindness was removed, I began learning about Bea's background and reading through her dreams. We had several more e-mail exchanges (with Domhoff remaining the intermediary) about patterns in her dream content and their waking significance. I shared all my findings and inferences with her, and Domhoff and I did everything possible to respect her boundaries and give her an easy way to opt out of the project if she ever wanted to do so.

No method can claim perfect objectivity, but the earlier study of the Van series showed that a blind analysis can provide strong empirical evidence for claims about waking–dreaming continuities. In this study of the Bea series, a compelling portrait emerges of a teenage girl's dreams and their meaningful relations to her turbulent emotional concerns in waking life.

RESULTS

Table 1 shows the percentage of dream reports that include at least one of the words from the 40 categories, along with the comparable figures from the Hall and Van de Castle norm dreams.

Below are the original 15 inferences I made based on these results (in the Discussion section I describe the basis of these inferences and the statistical issues involved in the use of this kind of data). Bea's complete and unedited responses follow each inference in italicized text.

1. You use more cognition words in the second set of dreams, especially references to awareness and reading/writing. Combined with very high use of words relating to school, books, and writing, this suggests you are a student who has become more academically active and challenged at the time of the second set.—*I would say that I was pretty academically inclined in both sets of dreams (high school and then college), but that I am definitely more challenged in college, as well as more dedicated to my studies. I have found my passion (art history) and love reading and writing about it, but still have anxiety around exams and papers.*

2. Sports, especially soccer and hockey, seem to be important to you. Soccer appears more important in Set 1, hockey more in Set 2.—*Yes, I played both in high school and continued with hockey into college.*

3. Your somewhat low use of visual words in both sets, combined with low colors, intensity, and positive aesthetics, suggest you (a) may not be a person who seeks lots of visual stimulation in waking life, (b) do not favor bright colors in your clothes or room decorations, and (c) are not an artist.—*I would actually have to disagree with (a) and (b). I do seek visual stimulation and consider myself a very visual learner. I think that's actually why I love art history so much. In my clothes, I do wear a lot of neutrals and black, but my room is quite bright and I do love bright and exciting colors and room decorations. I also have quite vividly colored dreams, but to be honest, that might have only started in college after I started studying art history. I honestly have the most vividly visual dreams, down to colors and textures, angles of what I'm seeing from what perspective, and saturations of light. I just honestly couldn't spend the time describing each scene because then I would forget the dream in its entirety. If something is quite vivid, I will sometimes incorporate it, but you might have only noticed this in my second set of dreams.*

Table 1. Word Usage Frequencies in the Bea Series

	Bea, Set 1 (N = 183)	Bea, Set 2 (N = 40)	Bea total (N = 223)	HVDC females (N = 490)	HVDC males (N = 491)
Perception					
Vision	36.6	35	36.3	47.1	37.9
Hearing	10.9	15	11.7	12.7	12.2
Touch	6.6	2.5	5.8	8.4	6.5
Smell	0.5	2.5	0.9	0.4	1
Taste	1.6	0	1.3	1.4	1
Intensity	7.7	10	8.1	46.3	34.6
Chromatic color	2.7	10	4	17.1	7.9
Achromatic color	4.9	12.5	6.3	11.4	7.5
Aesthetic evaluation	12.6	17.5	13.5	20.2	12.6
Emotion					
Fear	23	27.5	23.8	27.8	16.1
Anger	12	17.5	13	9.8	6.7
Sadness	6.6	15	8.1	4.9	2.2
Confusion	4.4	0	3.6	10.2	7.5
Happiness	3.8	0	3.1	10.8	6.1
Cognition					
Awareness	16.9	25	18.4	18.8	20
Speech	38.8	42.5	39.5	45.1	37.1
Imagination	1.6	0	1.3	3.5	2
Planning	5.5	7.5	5.8	5.1	4.1
Choice	6.6	10	7.2	11.4	5.5
Effort	1.1	0	0.9	1.6	1.8
Reading–Writing	7.7	30	11.7	6.7	6.7
Nature					
Weather	8.2	5	7.6	5.5	7.1
Fire	7.7	2.5	6.7	2.9	5.3
Air	2.7	7.5	3.6	2.4	3.5
Water	17.5	17.5	17.5	16.9	13.8
Earth	2.7	2.5	2.7	6.7	4.7
Flying	4.9	2.5	4.5	2.4	4.5
Falling	13.1	15	13.5	7.1	9.6
Characters					
Family	34.4	47.5	36.8	39.2	26.7
Animals	13.1	15	13.5	11	11.2
Fantastic beings	3.3	5	3.6	0.6	0.8
Social interactions					
Friendliness	39.9	45	40.8	50	37.1
Physical aggression	14.8	17.5	15.2	13.9	26.5
Sexuality	15.3	32.5	18.4	3.7	11
Culture					
School	41	62.5	44.8	24.1	14.5
Transportation	20.8	20	20.6	22.9	26.9
Technology	17.5	22.5	18.4	7.3	8.4
Money	7.7	2.5	6.7	7.1	8.6
Christianity	6.6	5	6.3	4.5	3.7
Death	3.8	7.5	4.5	6.7	4.9

Note. HVDC = Hall and Van de Castle Norm Dreams, frequencies from Bulkeley 2009.

4. Your high proportion of negative aesthetics in both sets, especially the word "horrible," suggests you are sensitive to conflicts, problems, and misfortunes in waking life.—*Yes, I am, but they are never my own misfortunes (knock on wood). I have been an RA* [Resident Assistant] *for 3 years now and am Head*

RA this year, so I go through very numerous intensive trainings about negative situations like roommate conflicts, alcohol abuse, drug abuse, depression, suicide, and so forth I have only really ever dealt with anything that serious a few times, but maybe the training just infiltrates my subconscious.

5. Your frequent use of strangeness words, especially "weird" in Set 1, followed by a drop in the frequency of these words in Set 2, suggests your environment has become "less weird," that is, more comprehensible and predictable.—*Yes, I would agree, except that both my environments in both sets, although different, were equally predictable and comprehensible. I grew up where I went to high school, and I go to a college that is very similar. I think my use of the word "weird" is more descriptive of the way I felt in the dream, rather than the situation itself, but I could be wrong. It has been awhile since I've revisited the dreams in set one.*

6. The emotional shift from Set 1 to Set 2, with increased negative emotions of fear, anger, and sadness, combined with a disappearance of words relating to happiness and confusion, suggests there may have been a shift in the emotional tenor of your life. Something happening at the time of Set 2 may have prompted you to feel worse emotionally. The high sadness seems most significant in suggesting a possible loss or trauma.—*Yes, this is spot on. My first semester at college was very difficult and I was extremely homesick. I also had a spike in my anxiety, which led me to seek counseling through the college. I ruminated and worried a lot, missed my family, and was sure that now that I was away at school, something bad would happen. This was a distinct emotional change in my life for a couple of months, but luckily my emotional stability has returned to its balance.*

7. More references to family occur in Set 2, suggesting more thoughts about and/or interactions with family members at this time. You use more "brother" than "sister" words, especially in Set 2, leading to a prediction you have at least one brother but no sisters.—*I was probably obsessing more over my family as part of my anxiety (see above). And yes I only have 1 brother, but no sisters.*

8. You mention a smaller variety of animals in Set 2, but a higher frequency of dogs. This may indicate that your living situation in Set 2 involves fewer thoughts about and/or interactions with animals generally, but more with dogs.—*I have 2 dogs and certainly interact with them less now that I am away at school.*

9. In terms of speech and social interactions, you seem to be a person who is socially competent and engaged, but not extremely gregarious or extraverted.—*I am socially competent and engaged and can also be quite gregarious and extroverted. I am an interior person and need my alone time. Sometimes I am sick of people and don't want to see anyone, or just one or two people. But the other half of the Time I am actually quite bubbly and energetic.*

10. Your high frequency of sexuality in Set 1 is even higher in Set 2, with more references to "sleep with." This suggests a greater degree of thoughts, concerns, and/or behaviors relating to sexuality in waking life at the time of Set 2.—*Yes, I think my references in set one are more indicative of how I was thinking of sex or sexuality, something that I don't think really awakened in me until I was 16 or even 17. Certainly in college when I became more sexually active, my dreams became more sexual. I was dreaming of having sex though before I even had.*

11. Your more frequent references in Set 2 to "loved" and "loves," plus two references to "boyfriend," suggest a romantic relationship in waking life at this time.—*Yes, I had my first serious boyfriend and love my freshman year at college. Since then I have not had the same love for any boy, but have certainly "loved," in some way, a few of them.*

12. You use few Christian words in either set, which prompts the inferences that you (a) are not a religious person, (b) were not raised in a church-going family, and (c) are not someone who takes a great interest in "personal spirituality."—*I am not a religious or very spiritual person.*

13. You seem to have become more interested in music and concerts in the time of Set 2.—*Maybe! I never thought about that . . .*

14. You appear to be comfortable with technology and the regular use of computers and e-mail, especially in Set 2. You may not have used your iPod as much in Set 2 as you did in Set 1.—*I am quite comfortable with technology.*

15. You have very low references to bodies or illness, suggesting you are in overall good physical health. However, a rise in references to hospitals, doctors, and nurses in Set 2 could be significant of medical issues at this time.—*I am in very good health, as are all members of my immediate family. Certainly in set two some of my grandparents became ill, but are still alive and doing well for their age. Perhaps the spike in medical references is related to that. Or perhaps my seeking counseling prompted some sort of medical tendency in my dreams.*

DISCUSSION

Eleven of the 15 inferences were confirmed by Bea. These results are close to those found with the Van series, where 12 of 14 blind inferences were confirmed by the dreamer. The third inference, about Bea's interest in visual aesthetics and art, was clearly wrong (more on that below). Bea's comments about inferences no. 5 (more weirdness in Set 1), no. 8 (more dogs in Set 2), and no. 13 (more interest in music in Set 1) were ambivalent and could not be counted as affirmative responses. The 11 accurate inferences related to Bea's waking life activities (school, sports), her relationships (family, boyfriend), and her cultural activities and preferences (technology, religion). Inference no. 6, about the worsening of her emotional state

from the first to second sets of dreams, received the strongest confirmation from Bea. This result is especially encouraging because it corresponds with the basic finding of researchers mentioned in the introduction that dream content relates most clearly to important emotional concerns in waking life.

It could be argued these findings are less impressive because the 15 inferences were so broad they could safely apply to any number of people (especially knowing at the outset the participant was a young female). That may be true of some of the inferences, but many of them were quite specific and could easily have been wrong. The fact that so many inferences were correct suggests that real patterns in dreaming–waking continuity have been identified. It could also be argued that Bea felt compelled, either consciously or unconsciously, to provide pleasing answers to confirm my expectations. However, she firmly rejected one of my inferences and gave every indication of answering my other questions honestly. The research design maximized her privacy and limited my influence on her as much as possible.

Questions may also be raised about using numerical frequencies and statistics to make inferences like these. Until many more studies have been undertaken with much larger samples of participants, it remains unclear what statistical tests are most appropriate for use with this method. The results presented in this article reflect an exploratory case study, with a limited statistical approach. Appendix 1 presents a more detailed chi-square test of the word-search results for the two sets of Bea's dreams. This test was performed subsequent to my interactions with Bea. It shows that four word categories varied between the two sets at statistically significant levels: chromatic color, reading–writing, sexuality, and school. All of these variations corresponded with accurate inferences about Bea's waking life — indeed, this additional level of statistical testing would have improved my initial inferences by flagging the significant variation in Bea's usage of chromatic color words (inference no. 3). After further statistical scrutiny to control for the fact that multiple tests are being conducted on the same data, only one of the variations reached a level of adjusted significance: reading–writing, relating to her shift from high school to college.

Using progressively more rigorous statistical tests, thus, limits the number of inferences, but those inferences remain, in this case, accurate in terms of identifying waking life concerns of the dreamer. However, several inferences based on nonsignificant variations of word usage also turned out to be accurate (e.g., about the shift in Bea's emotional state). Future studies will need to develop better statistical tests and interpretive algorithms to guide a trustworthy process of blind analysis.

At this stage of the process I invited Bea to ask any questions she might have about the findings, and she said: "I guess I am just curious about why I have such horrible and vivid nightmares if I lead such a protected, safe, and really wonderful life." Bea said she was close to her parents and brother, had never suffered any major trauma, and enjoyed her studies in high school and college, both of which were prestigious private institutions. Why did her dreams have such a predominantly negative cast? Three of Bea's own comments may provide answers to this question.

First, she said she felt very homesick at the beginning of college and was "suffering from pretty severe anxiety," for which she received a period of counseling at the student health center. She was bothered by admittedly irrational

fears that her parents and brother might die from an illness or a freak accident and she would be left alone. These fears were dramatized by several of her dreams in the second set, which contained a higher frequency of family references than the first set. This finding highlights an important point about the continuity hypothesis: Dreams accurately reflect emotional concerns but not necessarily actual events. In college Bea was physically present with her parents less than before, but she was thinking and worrying about them more than ever. Her anxious feelings, not her physical interactions, carried over into her horrible dreaming. (This could also relate to references to dogs in the second set; if so, inference no. 8 would be correct.)

Second, Bea noted the parallels between her nightmares and her responsibilities as an RA in her school's dormitories. Such a position requires preparing for any number of crisis situations, and as Bea said these possibilities weighed on her waking mind and filtered into her dreams. A tendency for dreams to envision frightening and highly realistic "worst case" scenarios of threat and danger has been noted by other researchers (e.g., Revonsuo, 2000), and Bea's emotionally demanding, "first-responder" work as an RA gave ample cause for triggering a high frequency of threat-simulating dreams. Her nightmares are not about bad things that have happened; they are about bad things that might happen.

Most intriguingly, Bea's growing passion for art history seems directly related to both the form and content of her nightmarish dreaming. As noted above, inference no. 3 about her interest in art was the most erroneous of all. The Van series taught me that mistaken inferences provide a good opportunity for refining the blind word-search method, and this was true with the Bea series as well. Despite what struck me as relatively low usage of words relating to visual perception and aesthetics, it turns out that Bea has developed a strong interest in art history. Although not an artist herself, she said in later e-mail conversations that art history has given her a creative new way of applying her capacity for vivid perception and sensory analysis, which manifests in both waking and dreaming experience. She said,

> I think if I had all the time and the ability to somehow record my dreams, either with a camera of some sort or written out, you would find that I have extremely detailed and colorful dreams. I think you were right to think I wasn't an artistic person (I'm not), but I am quite a visual person. I don't have a photographic memory, but I do have certain images, phrases, and icons imprinted on my mind. Some are from real life and some are from dreams. I don't want to mislead you, however, into thinking that my dreams are only vivid in color. I can feel things and smell things in my dreams so acutely that I think they just HAVE to be part of my real life somehow. I can feel my chest contract when I'm sobbing over my mother's desk. I can feel the cool fall air of my school. I can "remember" the way a boy smelled when he kissed me. My dreams are quite vivid in all senses, but I find that being able to verbalize colors and images is easier than trying to describe the way something smelled, for example.

Her response highlights the considerable gap between the dream as experienced and the dream as reported, particularly in describing the sensory qualities of dreaming. In Bea's dreams, and perhaps most people's dreams, the explicit mentions of sensory perceptions in their reports do not accurately measure their overall incidence in the dreamer's experience. As Bea said, it is just too difficult and time consuming to provide so much detail. This shows that future efforts at blind

analysis should be cautious in making inferences based on varying frequencies of perceptual word usage.

Not all of Bea's dreams were bad or nightmarish. In fact, several of them were happy and pleasurable. But her capacity for unusually intense dreaming experience meant that when things took a negative turn, her nightmares became quite harrowing no matter what the source. Some might argue that Bea's propensity for horrible dreaming suggests a hidden trauma she did not share with us. Although that is possible, the personal information that Bea did share provides a more parsimonious explanation. Bea has vivid nightmares because she has a vivid imagination, an imagination that becomes especially active at times of emotional stress (starting college, working as RA). Her bad dreams are not necessarily pathological symptoms of secret trauma but rather can be understood as meta-phorically rich expressions of her feelings about challenging situations and worri-some possibilities in her waking life.

Throughout Western history, people have recognized a connection between nightmares and artistic sensitivity, a connection that Hartmann has demonstrated in a study of lifelong nightmare sufferers in which he unexpectedly found that many of them did not suffer from past traumas or excessive anxiety or guilt. Instead, they were very sensitive, artistically inclined people whose personalities he conceptual-ized in terms of thin psychological boundaries (Hartmann, 1984, 1998). Bea certainly fits the profile of an individual with thin boundaries in that sense. Her hyperrealistic dreams, anxious fantasies, and sophisticated knowledge of art history all stem from a powerful imagination unconstrained by the boundaries of ordinary waking life. Consider this dream from the second set:

> Last night I had a dream that I was swimming in the river in Van Gogh's "Starry Night Over the Rhone." It was cold and windy, but the water was warm. There were islands that were actually paintings, and sometimes I wanted a break, so I would grab onto the paintings, but then the oil would run and the canvas was ruined.

Whatever personal meanings may be attached to this dream, its fantastic Escher-like form illustrates the creative workings of an imagination in which boundaries are fluid, porous, and permeable.

CONCLUSION

This study does not offer an exhaustive analysis of all the meanings in the Bea series. It offers instead a solid starting point for more detailed investigations of the metaphors and symbols in her dreams, the large cast of characters (more than 200 friends, classmates, and teachers), and her frequent cultural references to movies and painting, among other topics. The word-search approach presented here can support studies like those by providing a quick and reliable overview of broad statistical patterns plus an ability to find specific elements of content for more detailed consideration.

The multiple connections between Bea's dreams and her concerns in waking life confirm previous research about dreaming–waking continuities in adolescence. The results here add a new degree of specificity by highlighting connections between her dreams and important aspects of her emotional welfare, daily

activities, personal relationships, and cultural preferences. The kaleidoscopic dream world of this particular teenage girl is filled with everything that excites, worries, and intrigues her in waking life.

These findings underscore an important yet frequently misunderstood point about the continuity hypothesis: The strongest continuities between dreaming and waking relate to emotional concerns rather than external behaviors (Domhoff, Meyer-Gomes, & Schredl, 2005–2006; Hall & Nordby, 1972). Many of Bea's nightmares do not reflect actual waking experiences, but they do accurately reflect the dire possibilities and worst-case scenarios that trouble her in waking life. Bea's nightmares mirror her worries about things that might happen, not necessarily any actual events that have happened.

For clinicians, therapists, counselors, and teachers who work with adolescents, the Bea series adds new empirical depth to the idea that dreams are meaningful expressions of emotional truth, especially around issues of family history and personal relationships, and perhaps especially for adolescent girls. It remains to be seen if word-search analyses have any further practical value, but the results presented here should certainly encourage anyone who works with teenagers to listen carefully to their dreams for potentially valuable insights into their developmental experiences.

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Appendix

Additional Analysis of the Word Usage Frequencies in the Bea Series

	Set 1 (%)	Set 2 (%)	Overall (%)	Difference $(S_1 - S_2)$	Significance
Perception					
Vision	36.6	35.0	36.3	1.6	*ns*
Hearing	10.9	15.0	11.7	−4.1	*ns*
Touch	6.6	2.5	5.8	4.1	*ns*
Smell	0.5	2.5	0.9	−2.0	*ns*
Taste	1.6	0.0	1.3	1.6	*ns*
Intensity	7.7	10.0	8.1	−2.3	*ns*
Chromatic color	2.7	10.0	4.0	−7.3	*
Achromatic color	4.9	12.5	6.3	−7.6	*ns*
Aesthetic evaluation	12.6	17.5	13.5	−4.9	*ns*

	Set 1 (%)	Set 2 (%)	Overall (%)	Difference $(T_1 - T_2)$	Significance
Emotion					
Fear	23.0	27.5	23.8	−4.5	*ns*
Anger	12.0	17.5	13.0	−5.5	*ns*
Sadness	6.6	15.0	8.1	−8.4	*ns*
Confusion	4.4	0.0	3.6	4.4	*ns*
Happiness	3.8	0.0	3.1	3.8	*ns*
Cognition					
Awareness	16.9	25.0	18.4	−8.1	*ns*
Speech	38.8	42.5	39.5	−3.7	*ns*
Imagination	1.6	0.0	1.3	1.6	*ns*
Planning	5.5	7.5	5.8	−2	*ns*
Choice	6.6	10.0	7.2	−3.4	*ns*
Effort	1.1	0.0	0.9	1.1	*ns*
Reading–Writing	7.7	30.0	11.7	−22.3	**
Nature					
Weather	8.2	5.0	7.6	3.2	*ns*
Fire	7.7	2.5	6.7	5.2	*ns*
Air	2.7	7.5	3.6	−4.8	*ns*
Water	17.5	17.5	17.5	0	*ns*
Earth	2.7	2.5	2.7	0.2	*ns*
Flying	4.9	2.5	4.5	2.4	*ns*
Falling	13.1	15.0	13.5	−1.9	*ns*

(*Appendix continues*)

Appendix (*continued*)

Characters					
Family	34.4	47.5	36.8	−13.1	*ns*
Animals	13.1	15.0	13.5	−1.9	*ns*
Fantastic beings	3.3	5.0	3.6	−1.7	*ns*
	Set 1 (%)	Set 2 (%)	Overall (%)	Difference ($T_1 - T_2$)	Significance
Social interactions					
Friendliness	39.9	45.0	40.8	−5.1	*ns*
Physical aggression	14.8	17.5	15.2	−2.7	*ns*
Sexuality	15.3	32.5	18.4	−17.2	**
Culture					
School	41.0	62.5	44.8	−21.5	**
Transportation	20.8	20.0	20.6	0.8	*ns*
Technology	17.5	22.5	18.4	−5	*ns*
Money	7.7	2.5	6.7	5.2	*ns*
Christianity	6.6	5.0	6.3	1.6	*ns*
Death	3.8	7.5	4.5	−3.7	*ns*

* $p < .10$.   ** $p < .05$.