Using Solicited Written Qualitative Diaries to Develop Conceptual Understandings of Sleep: Methodological Reviews and Insights From the Accounts of University Lives

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Abstract
This article presents the use of the solicited written qualitative sleep diary as a method for understanding sleep experience. The article reviews selected quantitative and qualitative research to contextualize contemporary sleep circumstances and concerns. It continues with a summary of previous diary applications in social scientific sleep research. The article then outlines the diary template, data collection procedures, and sampling. Diaries were received from a sample of 48 university students at a Canadian university campus who enrolled in a fourth-year course on sleep and society. The method’s analytical potential is highlighted by student accounts that construct meanings of sleep around academic accomplishments which are conceptualized as “rituals of obligation.” Students interpret sleep as a shutting off from ritual obligation. “Shut off” is observed in four ways: personalized management techniques, calendar rhythmicity, introspective bargaining, and the sleep fritter. The methodological discussion of the sleep diary echoes previously articulated observations about the method while offering additional strengths, precautions, and possibilities relating to the diary’s trustworthiness as a prioritized data collection method. The solicited written qualitative sleep diary benefits from its access and flexibility of participation, the encouragement of creative expression, the adoption of incentives and support mechanisms, and research reflexivity.

Keywords
qualitative methods, solicited diaries, sleep, university, students

What Is Already Known?
Solicited qualitative diaries have been used to study many social settings. The solicited written diary method can benefit from continued social scientific application and deliberate analysis to confirm and strengthen its methodological applicability.

What This Paper Adds?
Sleep has become a legitimate area of social investigation, yet these understandings of sleep could benefit from further qualitative inquiry. This article presents the methodological analysis of a written solicited qualitative diary as applied to the study of sleep. Results from a sample of university lives highlight the written diary’s capabilities in developing credible results for understanding the meanings of sleep. Methodological lessons include how diaries act as opportunities for flexible participation and access to sleep experiences, that diaries benefit from the researcher’s ongoing encouragement for creative expression and confidence development among diarists, how the completion of multiple diary entries among participants necessitates a motivated and incentivized sample, and that researchers remain reflexive about possible instrumental and researcher influences on data collection.

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Diaries for the purpose of research, or solicited diaries, take several forms that range from structured time- and calendar-based entries to highly reflective and freely structured narrative accounts known as unstructured, research-driven, and commissioned diaries (Bytheway & Johnson, 2002; Elliot, 1997; Jackson & Imperio, 2005; Meth, 2003; Monrouxe, 2009). Structured diaries in social research are synonymous with time-budget studies that ask participants to record how much time they spend doing activities (Bytheway & Johnson, 2002; Plummer, 2001). In sleep research, these diaries are used for assessing sleep quantity across time (Bae & Avidan, 2008; Dement & Vaughan, 1999; Wyatt, Cvengros, & Ong, 2012). Semistructured solicited diaries combine the structured guidance of procedures or instructions provided to diary participants, also known as diaryists, with the ability for diaryists to “log” their versions of daily thoughts, feelings, or events in their own styles and rhythms (Harvey, 2011).

Solicited diaries have shown their merits in the study of self and social activity, interactions, feelings and emotions, reflections, priorities, challenges, and management (Elliot, 1997; Jackson & Imperio, 2005). The benefits of solicited diaries are similar to interview methods in capturing detailed representations of reality (Alaszewski, 2006a; Hislop, Arber, Meadows, & Venn, 2005). Perhaps diaries are superior in this respect since they permit researchers to access certain experiences at their nearest points of occurrence which can reduce recall bias (Alaszewski, 2006a; Elliot, 1997; Kenten, 2010). Solicited diaries are advantageous when studying sleep since other qualitative methods such as observation and interviews are difficult to apply without the likelihood of altering sleep routines and rhythms as well as committing unethical intrusions into private times and spaces (Hislop et al., 2005). Although any research method that asks participants to share primary information will be intrusive, solicited diaries can give research participants more autonomy to record as many intimate facets of the social experience as they wish. Diaryists could be more comfortable sharing a sensitive experience in their private writing compared to that of a sensitive question during an on-the-spot observational encounter or face-to-face interview (Coxon, 1994; Milligan, Bingley, & Gatrell, 2005).

The purpose of this article is to demonstrate how the use of the written qualitative diary, as a prioritized tool, can advance, confirm, and refine our social understandings of sleep. The article begins by defining the situational contexts and consequences of university students’ sleep. The solicited written diary method is explained, followed by an exploration of findings from sleep diaries received from 48 senior undergraduate students (i.e., third- and fourth-year bachelor’s degree students) at a midsized Canadian university. The diary’s data collection and interpretive potential are demonstrated through the analysis of a primary emergent theme in the diary: sleep and academic accomplishment. Academic accomplishment is interpreted as a conflicting ritual of obligation that often take precedence over the need and want for sleep. The obligation of academic accomplishment is difficult to escape, but students find ways to achieve desirable sleep by shutting off. “Shut off” is achieved in four observed ways with the development of personalized management techniques, favorable rhythms of the scheduled calendar week, introspective bargaining, and the sleep fritter. The article concludes with an extensive discussion of the method’s strengths and precautions as applied to the study of sleep.

Sleep and the University Student: Negotiating Rituals of Obligation

Sleep has emerged from a fringe question to a salient topic of social analysis (Aubert & White, 1959a, 1959b; Schwartz, 1970; Taylor, 1993; Williams, 2005, 2011; Wolf-Meyer, 2012). For this article and contrary to conventional wisdom, sleep is not social inactivity. It is a social activity accompanied by meanings, interpretations, roles, and rituals. Sleep is an intersubjective social negotiation that is informed by everyday self-reflections, social encounters, and larger institutional contexts (Taylor, 1993; Williams, 2011). When we are asleep a social world continues around us: It also continues to define and influence the meanings of the act.

Sleep has become an issue of concern for academic performance and personal wellness among university students as findings suggest a gradual decline in average sleep quantity and quality over decades (Coren, 1996; Hicks, Fernandez, & Pellegrini, 2001; Hicks & Pellegrini, 1991; Tsai & Li, 2004). University students experience ongoing growth and transformation as they mature and navigate through their life-changing academic careers. Academic life is a series of “rituals of obligation” that permeate the postsecondary experience (Montemurro, 2002). Students complete university as a status passage from one kind of individual (preuniversity) to another (graduate). This entails the performance of rituals that enable individuals to achieve successful status passage within groups (Turner, 1995). These rituals help to define the group’s norms, values, and beliefs to incoming individuals as well as boundaries of what are acceptable and unacceptable standards of activity within that group, or more broadly, a society. These rituals need to be accomplished in order for individuals to feel part of the group. The continuous permutations of university life such as the excitement, nervousness, and adaptation of first year, the enhanced academic and personal independence in the senior years, and the ongoing demands of a financially costly education compel students to sacrifice sleep in fulfillment of academic and social passage (Buboltz, Brown, & Soper, 2001; Buboltz et al., 2006).

Quantitative Research on Student Sleep and the Ongoing Need for Intensive Qualitative Inquiry

The established obligations of university education combined with the demands of a fast-paced and technologically enhanced student life can create pressures on student rhythms, routines, values, and norms which can be consequential for sleep. Quantitatively driven studies of student sleep, mainly of first-year university and college students, have addressed student
experiences by examining sleep patterns and practices (Forquer, Camden, Gabriaud, & Johnson, 2008; Machado, Varella, & Andrade, 1998), associations between sleep and academic performance (Buboltz et al., 2001, 2006; Hershner & Chervin, 2014; K. E. Kelly, Kelly, & Clanton, 2001; Onder, Besoluk, Iskender, Masal, & Demirhan, 2014; Patrick et al., 2017; Thatcher, 2008), the influence of student stress, academic demands, and social activities on sleep quantity and quality (Galambos, Dalton, & Maggs, 2009; Galambos, Howard, & Maggs, 2010) and gender differences (Buboltz et al., 2001; Forquer et al., 2008; Galambos et al., 2009; Lukowski & Milojевич, 2015). In the analysis of sleep and its interaction with academic life, little seems to be recorded, and much seems to be assumed, about the actual everyday/night sleep lives of university students. With the recent exception of Coveney (2014) who adopts semistructured interviews to examine the student sleep management experience, no intensive qualitative inquiry has been carried out to examine how university students actually experience sleep, see sleep as a meaningful activity, and articulate its situational conditions. This is despite the emergence of qualitative sleep research among and between other identified social groups such as sexes and genders (Hislop, 2007; Kirkman, 2010; Venn, 2007; Venn, Arber, Meadows, & Hislop, 2008), children and adolescents (Morgan-Ellis & Venn, 2007; Williams, Lowe, & Griffiths, 2007), and older adults (Venn & Arber, 2011).

When social scientists study sleep using qualitative methods, they are careful to recognize how sleep observations are actually not about sleep itself but rather provide social representations about the activities and social interactions that occur before, during, and after the sleep act (Hislop et al., 2005; Williams, 2008). Social scientific sleep observations serve to contribute to our understanding about the social and cultural dimensions of sleep itself but, as Williams (2008) proposes, the study of sleep also offers a unique social standpoint from which to understand other dimensions of social life.

The Solicited Written Sleep Diary Method

Data collection

Solicited written qualitative sleep diaries were collected from undergraduate students during a fourth-year special topic seminar entitled “Sleep in the Contemporary World: Multidisciplinary Perspectives.” The instructor offered the course once per year over a 4-year period (i.e., four academic terms). The course was an “elective” credit whereby students could self-select the course in support of their degree fulfillment. The diaries were initially assigned to students with the purpose of getting students to write and reflect on their own sleep experiences. They were assigned in the first week of the academic term and submitted with a floating due date. Students were required to complete diaries on five consecutive nights during the first 2 years and for three nights during the last 2 years of the course offering. All students were able to complete the consecutive entries anytime between September and December or January and April of an academic term with the understanding that diary completion, and sleep itself, can be very personal activities requiring varying degrees of comfort and readiness (Milligan et al., 2005). This also gave students opportunities to write their diaries during times they believed the consecutive nights could be completed. The number of actual nightly entries completed ranged between three and five nights. The 48 submitted diaries generated a total of 182 entries over four terms or an average of 3.8 nightly entries per student.

Students who did not complete five nights during the first year of the diary assignment verbally commented how five consecutive entries were a challenge given their diverse responsibilities and nightly schedules across a week (e.g., part-time job shifts, travel between home and school for weekends, and anticipated and unanticipated social engagements). The instructor assigned consecutive five nights for the second offering of the course and then decided to reduce the number of entries to three consecutive nights for the third and fourth offerings. The instructor wished to examine whether any changes would occur in the quality of diary entries and student completion.

The lengths of entries (determined by number of lines per entry in a single-spaced MS Word document with Times New Roman 12 font), ranged from a minimum of 7 lines to a maximum of 57 (2.25 pages). There was only a modest decline in the average length of entries over time which has been observed in previous diary studies (Bytheway & Johnson, 2002; Kemsley, 1979). The highest average entry length occurred for night one entries with an average length of 29.7 lines. Diary entry lengths would decline modestly by the final entry with an average length of 27 lines per page. There were inconsequential differences between three and five night diary completions on diary entry lengths.

A sleep diary intended for teaching and learning became a solicited qualitative method for the purpose of research after the instructor received the first diary submissions in late September of the first course offering. The initial submissions demonstrated detailed, reflective sleep accounts: The length and thoughtfulness of the entries exceeded the instructor’s initial expectations. The instructor also become a researcher. Knowing that student sleep research was largely quantitatively driven at the time (e.g., Buboltz et al., 2001; Forquer et al., 2008; Galambos et al., 2010; Thatcher, 2008), and having clearance from the Wilfrid Laurier University Research Ethics Board (REB File #2443), students were invited by the instructor to submit their diaries with the purpose of adding qualitative understandings to the issue of student sleep while promoting the potential trustworthiness of this qualitative method as a sleep research tool (Guba & Lincoln, 1994). The assignment itself was a course requirement, but students could voluntarily submit their diaries for research purposes. Students signed an REB-approved consent form prior to their submissions. It was made clear that students would not be academically advantaged or disadvantaged by their choice to contribute their diaries for research or not.
The written diary’s design replicated an audio diary template previously developed by Hislop, Arber, Meadows, and Venn (2005) for their project on Sleep in Aging Women with three modifications. The sleep quality scales (not reported in this article) were modified as well as the addition of two themes for exploration including the spatial definitions of sleep and the meaning of nonhuman elements (e.g., technologies, animals) as influenced by the situational analysis and mapping approaches of Clarke (2005). The diary’s semistructured design provided a middle ground between unstructured and structured diaries: The design was meant to achieve a fine balance between the need for guidance with an unfamiliar topic while preserving the ability for the diarists to determine their own response styles and recording priorities (Alaszewski, 2006a, 2006b; Elliot, 1997; Harvey, 2011). The researcher avoided the unstructured diary to abate the concern that participants would not be familiar enough with the sociocultural elements of sleep to frame their experiences. With a structured diary, students may have recounted their experiences in ways that were too precise to offer insight into their unique social and sleep situations. The diary instructions and guidelines are provided in Appendix of this article.

Sample

Of the 85 total students who enrolled in the course over the 4 years, 48 students shared their diaries for the research. The majority of the students who enrolled in the course over the four academic terms belonged to the university’s Bachelor of Concurrent Education program (70 of the 85). These students also held the highest admission average of all academic programs offered at the university campus at the time. The remaining students were majoring in community health, psychology, children’s studies, English, history, and the campus’ core interdisciplinary program then known as contemporary studies. Students’ ages were not requested, but it is assumed that all student participants were in their early 20s. Five males were enrolled in the course over the four terms and three submitted their diaries for this research.

Analysis

Analysis began at the point of data collection as diaries were submitted during the first term of the course’s offering (van den Hoonaard, 2015). The diary analysis was completed with the assistance of NVivo Version 11.0 and executed over the span of 4 years. The total number of analyzed diary submissions ranged from 12 to 18 per term which helped to establish a reasonable pace for the researcher’s diary analysis. Data were analyzed over the span of this period using the analytical process derived from constructivist grounded theory. The ability to analyze clusters of diaries was valuable for this method since the researcher was able to receive a sample of multiple diaries every academic year, then continually analyze, memo, open code, categorize, and conceptualize explanations through a process of analytical comparison (Charmaz, 2014). Student data reflected the questions that were asked in the diaries, and so overarching themes were influenced by the existing semistructure of the diary. However, the diary’s semistructured design and narrative style of the entries enabled the researcher to investigate the emergence of “in vivo” codes: Unique concepts that spoke directly about the students’ sleep experiences. Concepts were provided directly from students’ accounts and were considered to be reportable according to the achievement of saturation and data adequacy (Corbin & Strauss, 2015). Important to the determination of reportable data was the extent to which each code also captured the possible variations of meanings within each code (i.e., variations in meanings such as “good” or “bad,” types of activities associated with the concept).

Findings

Sleep and the “ritual of obligation”

Although I felt tired when I woke up, it was because I was waking up early for work after a Friday night, beginning of the weekend…. Unlike every other morning during the week, Saturday mornings I start work at 7:00 a.m., meaning I have to set my alarm and get up significantly earlier than I have to for the rest of the week. This back and forth schedule throughout the week (different class and work times every day), makes it difficult to establish a proper sleep routine. I would love to get to bed and get up every day at the same time, but University life doesn’t allow it. (Student Diarist 13)

Student sleep is defined and arranged around the need to complete the academic requirements of university education. Students attend classes are required to complete readings, study for tests, and write term papers. They may also have jobs to assist in their funding of university and life’s necessities during that time. Like all individuals, sleep is informed by what they do during their waking hours, but it is not what they merely do that is important. The meanings of these activities are essential for knowing how students interact with, and manage, their sleep. The meaning of sleep for university students is shaped by the strong pull of everyday accomplishments.

Academic Accomplishments as Rituals of Obligation

The student diarists in this study overwhelmingly define their academic activities as accomplishments. Accomplishments are not defined as behavioral routine. They are defined in reflective action. They involve a thoughtful process in that students are anticipatory and strategic about them, and ultimately they are defined by the completion of meaningful activity. Accomplishments are expressed by students in numerous ways. They are generally defined in terms like being “more productive,” having a “busy day,” a “busy week,” a “busy term,” and completing a “to-do list.” Sleep is the antithesis to accomplishment. When students are sleeping, they are not doing. Students begin their days with accomplishments on their minds:
Once my alarm went off at 7:30 a.m., I hit the snooze button once and then got up and out of bed. I wanted to get up earlier today so that I could have a full day to accomplish all that I wanted to. I have found lately that waking up later in the morning seems to make the day go by too fast, I feel less accomplished and at times more tired. (Student Diarist 10)

In the morning, I awoke at 8:30 a.m. to my boyfriend calling me. It was a good wake up call because I needed to get up to do some work. But again, the morning came to me way too quickly. At first I thought I was able to sleep in this day. Then, the morning came and I remembered everything I had to do…. I think about what I have accomplished and what needs to be done in the weeks to come. (Student Diarist 35)

Accomplishments are also defined in more specific forms including “not missing a class,” “attending a night class,” “studying for a test,” “getting a good grade,” “doing homework,” or “working on an assignment.” These accounts have a distinctive tone from more general statements about accomplishment. Specific accomplishments are accompanied with expressions of unease that come with the conflicting desires for sleep and the pressures of academic accomplishment:

That night it took me awhile to fall asleep as I was up pretty late working on an essay for school that was due on Monday. Even though I was feeling tired and was probably ready for bed I continued to stay up and work on it later than I probably should have…. Once I did go to bed it did take me a little while to fall asleep as I was feeling restless about finishing my essay and my mind was still going over it and thinking about it. (Student Diarist 42)

I had a very restless sleep that night. I had a paper coming up and so I woke up a few times in the night worried I would not have enough time to finish it the next day. Due to this stress I woke up four or five times in the night, just because I was thinking about it… After I woke up in the middle of the night trying to get back to sleep I would just keep repeating to myself that I would have time, and twice when I had not fallen asleep after 10 min. (Student Diarist 47)

Sleep as ritual sacrifice, accomplishment as obligatory ritual

Accomplishments can be intrinsically motivating for students, such as feelings from getting good grades, but they are also expressed as obligations. Classes, readings, tests, and term papers are structured by deadlines established by instructors and the university. They are the obligatory activities that students think are necessary for completing the required task be it an essay, research paper, required reading, or studying for a midterm. If there is a choice between sleep and accomplishment, then students are inclined to choose accomplishment. Students wish to sleep more. Certain students recognize that more sleep can even advance the quality of their accomplishments, but the majority of the students believe this line of action can rarely, if ever, happen. Whether it is at night or in the morning, students compel themselves to accomplish at the expense of sleep:

Usually when I have something like an essay or an exam to study for, I find myself pushing my body to stay awake almost to the point of exhaustion as I’m sure many university students have done at some point or another. Schoolwork and university life in general has definitely had a major impact on not just my sleep habits but also the quality of my sleep these last 4 years. (Student Diarist 43)

I woke up to the sound of someone showering in the apartment. I felt decently well rested, but a little drowsy. I could have gone back to sleep again for probably another hour or so, but because I knew I had schoolwork to complete, I did not allow myself to sleep in. (Student Diarist 37)

Searching for shut off

No student in the sample admits that sleep is an easy choice to make over the everyday obligatory rituals of university education. One student remarks how school “has been stressing me out, making me feel like I should be going to bed later so I can finish everything” (Student Diarist 43). Some even see the loss of sleep as inevitable. This encroachment of work on sleep is noted by a student who suggests that the addition of over 2 hr of work time will inevitably become a familiar part of life in the near future:

This week was a very busy week for me at school and I believe this was reflected in my late nights going to bed. I went to bed around 1 a.m., when usually I try for 10:30 p.m., or 11 p.m. It is nearing the end of the semester and I have many projects and assignments. It is possible that I may be seeing this late hour more in the near future. (Student Diarist 35)

There are also the reflective moments before bed that intrude on the time when students think they could be sleeping. Some students spend time thinking of the day that has ended and of the next day to come:

I know stress is something that keeps me up often. Those few minutes before bed are always a time of reflection for me, what my day was like, what I need to get done, what I have to do tomorrow, etc. It is hard for me to focus on one thing at a time and sometimes I do not fall asleep for hours and have really short sleeps due to the stress of the events for the next day. (Student Diarist 41)

Students define bedtime as an opportunity to conclude their day, to clear their minds, or as more than one student mentions, to shut off, suggesting that the way to achieve sleep is to shut off one’s body or mind as if to flick a switch or press a button. The shut off symbolism is similarly conveyed by students as “winding down” or “turning off.” The following accounts represent student difficulties with shutting off:
...if I am worried about not being to fall asleep because, for example, I have a practicum the next day, then I usually won’t sleep. Or if I am really excited about...a new job that I start the next day, then I also can’t sleep. What keeps me awake is the fact that I can’t stop thinking about the issue or event and so my brain doesn’t shut down. Instead, it feels like it’s on full power. (Student Diarist 48)

I also worked on school work much later than I normally do that night. I find that I do my best work during the day, and find that my brain “shuts off” at around 9:00 p.m. However, I did not have much time during the day to do homework, so I worked on homework until about 10:30 p.m. Therefore, I was much more awake at 10:30 p.m. then I normally am, so my mind, and body were not as relaxed as they normally are at this time. (Student Diarist 25)

Achieving and maintaining shut off: Personalized management techniques, calendar rhythms, introspective bargains, and the sleep fritter. Some students describe their difficulties at achieving shut off. Others share their successes. Successful “shut offs” are achieved with personalized techniques that help students break from their concerns. Two students share their personalized techniques that involve technology use such as music listening, game playing, and mind tricks such as counting.

I am very aware of my heavy course load and the amount of assignments I have due around this time of year so I have made an effort to have quiet time before I go to bed, in attempt of shutting off my mind from thoughts. I have allotted this time to listen to quiet music and stretch before bed to achieve a longer quantity of sleep. (Student Diarist 46)

It is normal for me to take a while to fall asleep and there are a variety of strategies I use to try and help me get to sleep. The one thing I do nearly every night, unless I am extremely tired and fall asleep within minutes, is to play a game of Sudoku on my iPod touch. The reason I do this is because I feel that it helps to use up some of my mental energy that otherwise just keeps my mind racing and thinking about anything and everything. Another strategy I use when my mind just will not shut off is to count. I suppose it is similar to counting sheep, but I never picture any sheep, I just count until something stops me, whether it is a new thought or sleep. These were both strategies I used last night to help me sleep. (Student Diarist 44)

Other personalized bedtime shut off activities include prayer; television watching; talking with housemates, significant others, and family; and interacting with pets.

Satisfying sleep is also possible when calendar rhythms favor students who are free from classes. The rhythms of the calendar week favor students when weekends (Friday to Sunday nights) mark the conclusion of classes and when they are “not having to think about schoolwork” (Student Diarist 13). Weekdays can also bring breaks for students since class schedules may create midweek interludes which enable them to enjoy more rest during the middle of the calendar week. Even then, students feel the pushback from academic obligations.

One student in particular compromises between “sleeping in” and not “wasting time” when she explains,

Today I woke up at 8:00 a.m. I do not have class on Fridays so I allow myself to sleep in as late as I can, and do not set an alarm. Having known my sleep norms, and the fact that I rarely sleep past 8:00 a.m., I do not have to worry about sleeping in too late and wasting my day. (Student Diarist 25)

Students introduce two forms of resistance against the obligations of academic accomplishment. One is introspective bargaining. When a student hits the “snooze button,” this could be considered a habitual form of sleep bargaining for extra sleep, but students may find opportunities during their scheduled lives to more deeply reflect about which parts of their forthcoming obligations are worthy and which are not. As students choose studying, reading, and paper writing over the need or desire for sleep in the nighttime, they alternatively choose sleep in the morning over one particular academic priority: the early morning class. Not all early morning classes are eligible for negotiation as the legitimacy of the obligation will depend on the value and interest that students ascribe to a given class. If anything is going to be sacrificed for extra sleep, it seems students will waive a morning scheduled class. The following account from one student demonstrates the introspective bargaining process between the morning obligation of going to class and more sleep. This can vary from morning to morning depending on which obligation is scheduled for that morning and to what benefit the fulfillment of that obligation will be compared to the value of sleep:

Just as yesterday, when 6:30 a.m. came today, I began my contemplation: to go to class or not to go to class. Without the pressure of a friend coming to pick me up, I decided that I was not going to attend my 8:30 a.m. class. This is a class I can justify missing because it is merely a regurgitation of the textbook material; a class that I admit, I would probably stop attending altogether if it did not have a participation grade. Today, the prospect of receiving a lower grade for participation was not enough of a motivating factor to force me out of my bed. (Student Diarist 19)

...today I did not have the internal debate with myself as to whether I should get out of bed and attend class because I actually enjoy this class. I find that listening to people’s seminars and discussion is far more interesting than listening to a passive lecture; therefore I never notice that I am tired and I feel more engaged. (Student Diarist 19)

The second way of achieving more sleep is by way of the sleep fritter where sleep is used as a deliberate delay tactic for avoiding academic obligations. Admittedly, this is not an unusual tactic for many human beings, but the flexibility of university schedules further enables students to fritter time with sleep. One student’s account summarizes how a frittering moment could work in favor of more sleep:

I did not feel great waking up by alarm once again. I set my alarm for 8:30 a.m. to wake up and continue to study but I did not get
myself out of bed until about 9:30 a.m. and thus did not study. When I woke up, I felt very tired and groggy and I was really warm and did not want to get out of bed. I was comfortable and clearly my body wanted to sleep more. (Student Diarist 41)

Frittering is commonly reported during mornings whenever students do not have structured obligations to meet, but activities such as reading, studying, and paper writing will continue to pull on students’ desires for sleep. The sleep fritter offers a form of successful resistance against this pull. It should be noted that students were not asked to document naps that could also be defined as a form of sleep fritter.

Using Solicited Qualitative Diaries for Sleep Research

The findings about university students’ sleep experiences and academic accomplishment illuminate the analytical potential of the solicited written qualitative sleep diary. Students develop personalized sleep management techniques that help to shut off academic rituals of obligation. The concept of sleep personalization has been developed and articulated in sleep research by Hislop and Arbor (2003, p. 820) who, in their study of women’s sleep management, define it as the act in which people take “responsibility for their sleep, as they have always done, through recourse to personal strategies...designed to help improve the quality of their sleep...” Calendar rhythms also create opportunities for sleep despite most times when these rhythms conflict with their biological tendencies. Zerubavel (1981, p. 11) offers the distinction between this “organic” and “mechanical periodicity” to describe the struggle that student face when natural desires for sleep meet against the socially structured times and schedules of university life. Students allow themselves to sleep when these periods occasionally synchronize such as weekends.

The inability to find enough sleep within their structured schedules means that students consider other options. Students resist obligatory rituals by introspective bargaining: At the beginning of a day, they reflect on the choice they have between sleep and obligations, choosing sleep according to the value it has compared to pending obligations. Bargaining reinforces the view that sleep is a negotiated order accomplished through self-reflection (Meadows, 2005; Strauss, 1978, 1993). Introspective bargaining is expressed through the fritter when students suspend academic work through sleep: By using sleep as a fritter, the students succeed in achieving more sleep. People continue to fritter their time in numerous other ways to manage the strain of constant obligations, but diary entries confirm the power that sleep, as a frittering device, can have for students to avoid academic obligations (Bernstein, 1972; Nash, 1990).

This article shares the methodological lessons that have been learned from the solicited written qualitative diary experience. These can be considered for future research in student contexts as well as other specialized sleep populations (see shift workers in Coveney, 2014). The method benefits by enabling access and flexibility for participants, encouraging and realizing diarist creative expression and confidence development, considering the influence that incentives can have on commitment and data quality, and the presence of the diary instrument and instructor-researcher in influencing diarist accounts.

Access and flexibility of completion. No other qualitative data collection method can come as close to recording the sleep lives of participants than the solicited qualitative sleep diary. The diary is the closest version to a bedside visitation that a social researcher can potentially achieve without the presumptively awkward scenario of shadowing participants before, during, and after sleep. Notwithstanding, the solicited written qualitative diary can be a long commitment for diarists. For university students, the expectation of a continuous multiple night diary, for the purpose of closely recording their sleep accounts, can be a major task when placed in the contexts of other study, work, and social responsibilities. Diverse scheduling rhythms make it more challenging for some to commit several consecutive nights to a diary, but data credibility can be strengthened by emphasizing the method’s participatory flexibility. A diary offers time and space accessibility where participants can give data either immediately or within minutes of bed- and wake times as well as in their chosen places. The diary encourages participants to complete their entries as close as possible to their sleep experiences while enabling them to start and complete their participation during favorable time blocks (i.e., consecutive days, available weeks).

Creative expression and confidence building. Alaszewski (2006b, p. 48) discusses how diaries are not necessarily basic recordings of essential events but are opportunities for creative personal expressions. Students’ creative opportunities were bound by the parameters of the semistructured diary as well as by the fact that the required assignment had to be completed by a specific date (i.e., end of the academic term), yet students expressed creativity and complexity of thought during the diary completion. It is recognized, however, that the expressiveness of the diarists was potentially influenced by a number of privileges associated with the sample. There was the certainty that senior-level undergraduate students possessed the multiple skills necessary to complete a diary such as writing, analysis, and reflective and critical thought (Meth, 2003). The students who participated in the research were also proficient in the written English language, but these may not be as well-developed in other participants or diary settings.

These advantages did not prevent students from asking the researcher for reassurance that their diaries were being written “correctly.” This parallels the observations of Elliot (1997) where diarists requested assurance that they were completing the diary “properly.” Students expressed reservations about the diary writing process, particularly for a tacit topic such as sleep, and therefore, some had difficulties thinking consciously and deliberately about the act. But as Elliot also notes, these diarists...
eventually built their participatory confidence over time. Diary confidence can increase when participants are comfortable interacting with researchers for confirmation and guidance while researchers are open to accepting questions and concerns from diarists. This achieves what Ravitch and Carl (2016) call participant validation which is also supported by Cho and Trent (2006).

Incentives and “Supporting Mechanisms”

The diary assignment was accompanied with a modest grade requirement for the course (10% of the final grade). This may have encouraged them to prioritize its quality. It is stressed that nonparticipants performed just as well in their completions as those who volunteered their diaries, but it is also acknowledged that the grade incentive could be an influence on the “thickness” of diary accounts. This has implications for the transferability of the method to other social contexts where incentives are not easily available. Future applications of this solicited qualitative diary method could consider other forms of incentives to motivate completion (Meth, 2003). Recent research tests the influence of incentives on participation in qualitative research, but it remains unclear how incentives can bolster the depth of qualitative data obtained from participants (B. Kelly, Margolis, McCormack, LeBaron, & Chowdhury, 2017). Speculation turns to how this sleep diary method could generate data quality in other settings with the use of (a) monetary incentives; (b) what Clark (2010, p. 404) calls individual and collective “supporting mechanisms” such as participants having interest in the topic, feeling empowered through participation, or having the opportunity to contribute to the public good; and (c) their combinations. This article encourages further research into the influences, positive, and negative that incentives and supports can have on the quality of written diary data completion.

The diary instrument and the instructor-researcher as data influencers

The solicited written diary is trustworthy when the researcher is reflexive of how their status and identity can influence diarist interactions with the instrument as well as their contents within it. Bytheway and Johnson (2002), Monrouxe (2009), and Hislop et al. (2005) acknowledge how diary methods themselves can influence the kinds of data that researchers receive. They also note how the diary can modify the actions of diarists themselves. The sleep diarists rarely indicated that the exercise influenced their regular activities, but a few exceptions are noteworthy. Selected student accounts indicate how the diary influenced them to try new bedtime routines, sleep techniques and technologies, and testing sleep myths. One student decided to try a number of things during the duration of the diary. She first tried a sleep “app” on her phone by incorporating it her bedtime ritual:

```
I just shut my eyes and
```

Last night I tried out this sleep application that I downloaded on my phone. It was called “Relax” by Andrew Johnson. I did my usual thing; turned the fan on, fed the fish, closed my closet door and made sure my dog was with me. I also did not set my alarm clock on my phone so that I could achieve a longer sleep. (Student Diarist 18)

The student also took the opportunity to test a notion that cheese allegedly influences dreaming and subsequently reported the results of that test the following day:

```
I was told that if you eat cheese before bed, you have really abnormal dreams. I am going to try this tonight and see if it’s true!
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Last night, I decided to eat before I went to bed (which I do not normally do). I had cheese and crackers because I wanted to test out the “weird dream” theory. (Student Diarist 18)

During her diary experience, one student discovered the benefit of reading before bed as it made her more tired and able to fall asleep:

```
Last night I had to read before bed and that made me very tired and ready to fall asleep. Why is it that when one needs to stay awake to read they cannot, however, when one focuses on trying to fall asleep they are often feeling wide awake? I think I will use this strategy to help me fall asleep earlier and sleep longer in the future.
```

Diarist 18)

Students were also recorded “talking to” the researcher as they conveyed thoughts about their sleep (Monrouxe, 2009). One diarist talked to the instructor on two nights as if having a conversation with him when she says, I just shut my eyes and within ten minutes I can guarantee you I was sound asleep (Student Diarist 17, Monday, October 24). This is followed by the next entry when she says, You may be wondering why I am telling you so much about the physical characteristics of my room and the surroundings of it (Student Diarist 17, Tuesday, October 25).

The identity and positionality of the researcher during the solicited diary exercise was uniquely multilayered: He was a curious consumer/reader, researcher, and instructor, with the latter two implying degrees of evaluative authority. Students’ communications were influenced by the knowledge that the instructor-researcher was their evaluator as well as a perceived “expert” in the area. For these reasons, students shared their reflective “lessons learned” or “what I found” moments from their diary experience to the instructor-researcher to confirm their fulfillment of learning outcomes:

```
The main learning experience I grasped from this entry is that my sleeping pattern changes every night. It may be because I am bringing in new strategies to help me achieve a better sleep. Tonight I am going to go back to my original way of falling asleep and see if my sleeping pattern stays the same or is different. I was really shocked that the cheese theory actually worked. (Student Diarist 18)```

Bytheway and Johnson (2002) acknowledge how diary methods are reflexive of how their status and identity can influence diarist interactions with the instrument as well as their contents within it. Monrouxe (2009) and Hislop et al. (2005) acknowledge how diary methods themselves can influence the kinds of data that researchers receive. They also note how the diary can modify the actions of diarists themselves. The sleep diarists rarely indicated that the exercise influenced their regular activities, but a few exceptions are noteworthy. Selected student accounts indicate how the diary influenced them to try new bedtime routines, sleep techniques and technologies, and testing sleep myths. One student decided to try a number of things during the duration of the diary. She first tried a sleep “app” on her phone by incorporating it her bedtime ritual:
Over the past couple of weeks, I have noticed that I do not feel quite as tired in my psychology class as I described earlier. Although I do not sleep for the typical 8 hours a night, I have noticed that my body has adjusted and I feel quite normal throughout the day. I think this sleep journal caused me to focus on how much I was not sleeping which lead me to very negatively assess my sleep and how tired I felt the next day... (Diarist 19).

After writing about my sleep I’m finding that I’m not very picky about how I fall asleep or what wakes me up. As long as I feel like I get enough sleep I’m not bothered very much and my mood isn’t affected. I think that after more time I will be able to find a pattern or maybe find that this sleep was just a fluke because of our decision to sleep in. (Diarist 34)

Finally, the sex and gender differences between the researcher, a heterosexual male, and the overwhelming majority of the students, who were female, should be acknowledged. The instructor was careful to verbally instruct students to avoid sharing events, activities, routines, or identities they did not feel comfortable sharing. The possibility that the sex and gender of the instructor influenced the content and style of diarists is a legitimate consideration. Female students could have been apprehensive about sharing biological and social activities associated with sleep loss and disruption to a male instructor-researcher (e.g., hormonal activities, sexual activities), but the findings suggest that students were not necessarily hesitant to share certain elements such as sleep arrangements with current partners. It should be noted that no same-sex sleep arrangements were disclosed by diarists. This diary research was limited by having only five males enrolled in the courses over the 4-year period. Future applications of this diary can consider the recruitment of a greater proportion of male participants, or perhaps assessing the method’s performance with an exclusively male sample, to examine how they may interact with the sleep diary method compared with other sexes and genders.

**Conclusion**

Zimmerman and Wieder (1977, p. 481) propose the “diary-interview method” in which the diary acts as a “supplemental procedure” to support other qualitative research methods such as interviews and field work. Debate continues about whether the diary shall act as a supportive method or whether it is also capable of generating authentic information on its own, enough so that social researchers could draw strong conclusions from the diary method alone. Elaborating on the privileged characteristics of the student sample used for this research is the possibility that the sample reflected an academic subculture: The majority of the participating students belonged to a program with the highest admission average for the university campus. Consequently, the findings offered in this article, and by the diaries overall, may represent certain sets of motivational characteristics, self-performance expectations, academic capabilities, and even sleep prioritization. The concepts and activities that emerged from the sleep experiences of these 48 students, such as the concept of “accomplishment,” may not have materialized in a sample with different characteristics, or, if they did emerge then the meaning of accomplishment may have been different. Perhaps another method such as interviews could test the authenticity of the accomplishment concept. However, an emergence of concepts that are supported by detailed descriptions demonstrates the method’s credibility: The diarists directly wrote their own accounts and articulated their own experiences (Bryman, Bell, & Teevan, 2012; Charmaz, 2014; Corbin and Strauss, 2015).

The performance of this solicited qualitative sleep diary parallels the observations of Milligan, Bingley, and Gatrell (2005, p. 1891) who, in their use of diaries to understand the benefits of communal gardening on the health of older adults, conclude that when “carefully designed and supported,” diaries “can produce insightful data that make it possible to employ them as a useful research tool in their own right.” The application of the solicited qualitative sleep diary to a sample of students certainly does not close this debate, but it does, however, offer conditions under which a diary can succeed as a prioritized method for achieving trustworthy qualitative understandings about social experience. These conditions are time access and flexibility, encouragement of creative expression, incentives and support mechanisms, and instrument and researcher reflexivity. This article encourages other researchers to consider the solicited qualitative sleep diary as the prioritized data collection method for achieving deeper understandings of sleep experiences. The solicited qualitative sleep diary can be delivered for the study of other subcultural groups such as shift workers, men or women, children, adolescents, older adults, or other persons for who sleep is socially consequential.

**Appendix**

**Guidelines for the Completion of a Sleep Diary**

This assignment has three goals. One goal is for you to gain a familiarity with some of the ways that sleep medicine assesses sleepiness and screens for potential sleep issues. A second goal is for you to consciously reflect on your own sleep activities and their consequences through the completion of a sleep diary. Thirdly, you will offer your thoughts about each piece of data to arrive at your own conclusions about the value of sleep research. This diary replicates the audio diary template developed by Hislop et al. (2005) with certain modifications.

For your sleep assessment, you will complete a five night written qualitative sleep diary. This will involve a summarization of your sleep after you wake up from your main sleep for three consecutive mornings. The following points are suggestions for the kinds of things you might include in this diary but feel free to include anything else you believe has informed your sleep situation, positively or negatively, during your entry days.
For each diary entry, record, where applicable:

- Day and date.
- How you slept that previous night. Rate that sleep on a scale of 1–5 (1 = very poor sleep, 3 = average sleep, 5 = very good sleep).
- Time you (approximately) went to bed last night, the time you (approximately) woke up, and the time you eventually got up that morning.
- How you woke up that morning. For example, naturally or by alarm clock and the effects of this on you. How you felt when you woke up. Any reasons for why you felt this way?
- The quality of your sleep that night. For example, whether you went to bed, woke up, or got out of bed later or earlier than usual; how long you think it took you to fall asleep, whether you slept deeply or lightly; how often you remember waking up, whether something in your environment woke you up; how long you stayed awake, when you awoke, whether you communicated your wakefulness with others; and how others acted toward your wakefulness.
- Strategies you used to get to sleep, return to sleep after waking, achieve longer sleep.
- The reasons you think that can explain a troubling night of sleep. For example, a stressful event or interaction the day before, eating, or drinking habits the day before, medication disturbance, injury, noise/silence, temperature, smells/odors, material influences (bedding, sleep surroundings), and sleeping (napping) the previous day.
- (If applicable) biological/physical factors influencing your sleep. Turn Over —
- (If applicable) influence of a sleep partner or nearby sleeper/nonsleeper on your sleep (positive or problematic influences).
- (If applicable) influence of “nonhuman elements” on your sleep (positive or problematic influences). For example, your sleep space, pets, wildlife, and technologies.
- Any other experiences you feel might be interesting about your sleep.
- End each diary entry with a reflective summary of your thoughts. What have you learned about your sleep from this entry? How do the contents of your diary confirm or critique your quantitative sleep assessments?

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