Students’ Academic Performance and Their Sleep Period

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I. Introduction

A. Background of the Study

Sleep occupied one third of our lives. Hence, it plays an important role concerning mental and physical health. Many educators believe that good sleep quality could facilitate students’ learning. However, quite a few students complained that they have endless assignments to do and have countless exams to prepare for, so they need to burn the midnight oil. It hence turns out to be the tendency that students do not have much time to sleep and even take a rest. Therefore, the lack of sleep hour results in fatigue in daytime and further affects the students’ performance (Taras & Potts-Datema, 2005).

According to Hong (2009), a cognitive psychologist, she believes that the sleeping period of many outstanding students is earlier, or better than those who have poor grades. Based on another report, enough sleeping is good for learning languages (Chang, 2003). In addition, a neurologist Matthew Walker, an assistant psychology professor, reported in 2007 that people will better their memories and organize their thoughts when they have plenty sleep.

B. Purpose of the Study

We have noticed that most of our classmates who go to bed late (i.e. after midnight) tend to have less attention in class, which results in poor grades. Most of the students mistakenly thought that staying up late for the coming tests or assignment deadline is a symbol of hard-working. However, the researchers in the current study have a different point of view. The researchers hypothesize that staying up late preparing for the coming tests might not help the academic performances but turn out to be less effective in the long run. Therefore, in this study we would like to investigate high school students’ sleeping period as well as their sleeping hours and discuss whether the time of sleeping would influence students’ learning performance.

In sum, the purpose of this topic is to learn about the importance of the sleeping for teenagers or adolescents, and to realize the relationship between students’ learning results and their sleep behavior.
C. Research Questions

In the following are the research questions of the study we would like to investigate.

1. What is the academic performance if students stayed up late?
2. Do students with less sleep or fewer sleeping hours have poor grades?
3. What is the relation between students’ sleeping period and their learning result?

II. Thesis

A. Literature Review

In the previous literature, several researchers have studied the sleep-oriented factors in relation to students’ academic performance (Wei, 2007). The factors might conclude in the following: the sleeping prime time, staying up late and lack of sleeping.

People’s sleeping time can be divided into prime time and non-prime time. The prime time is 9 p.m. to 3 a.m. in the midnight. According to Wei (2007), if two students both sleep for eight hours, but in different sleeping period, for example, one from 9 p.m. to 5 a.m. and the other from 2 a.m. to 10 a.m., their health status and working energy would have totally different condition. The former student would most likely to be much more lively whereas the other student might become more drowsy. Likewise, most children need at least 9 hours of restful sleep each night (Taras & Potts-Datema, 2005).

Staying up late may be another factor affecting the students’ learning result. It would cut down knowledge capability by approximately 40 percent. Moreover, according to report (anonymous, 2007), it indicated that the students between six to eighteen years old who do not have enough sleep would have lower IQ scores than average schoolchildren. Therefore, the lack of sleep will not simply influence on students’ learning but their memory. Furthermore, one of the doctors in this research says if schoolchildren or adolescents lack for sleep or have bad sleeping quality, it will of course result in the problem of physiology, or physical condition. Consequently, every student needs to sleep for at least eight to ten hours per day and sleep at the right time.

Lack of sleeping influences memory and learning (Gee, 2007). According to the research of Harvard Medical School, the researchers chose two groups of the students at random. In the beginning, they withdrew one group from full sleeping during two day
and one night. On the other hand, they gave the other group plenty sleep hours. Through nuclear magnetic resonance, the researchers carefully observed the participants’ Hippocampus, which was a certain part of the brain taking control of human’s memory and learning. They surprisingly found that the students with fewer sleeping hours whose Hippocampus would work less actively than the corresponding group.

B. Methodology

In this section, we first provide the information of our participants and then describe the instrument—questionnaires—in this study.

Participants

Two hundreds students take part in this study. They are students of Shilin High school of Commerce. They are chosen at random, and all of them are freshmen. Among them, 68% of them are female students, and 32% of them are male.

Instruments

In order to understand the relation of high school students’ sleeping hour and their academic performance, the researchers make use of the questionnaires to elicit the result. The questionnaire (see Appendix A) covers the topic of the participants’ sleeping period, average grade, and lifestyle. Note that the average grade refers to the student’s average scores of the previous semester.

We will plan to distribute our questionnaires to two hundred students randomly at Shilin High School of Commerce on February fifteenth, 2011. Afterwards, we would move on a further analysis.

C. Result and Discussion

According to previous researches, the results showed that the students’ sleeping hour tended to have some influence on their learning. With more or plenty sleep hours, students are shown to have better academic performance. To have a further discussion, we divided the students into three categories in terms of their sleeping hours: students with an over seven-hour’s sleep (N=29), with a seven-hour’s sleep (N=62) and with an under seven-hour’s sleep (N=49).
However, after analyzing our research result, we found that the result has little to do with the previous research. For those students who sleep over seven hours, their academic performance is almost the same as those who sleep less than seven hours. In the group of high-achievement students, the score of the students who sleep more than seven hours are the same as those who sleep less than seven hours. As the result, we thought the students’ academic performance has little direct relation to their sleeping period.

![Figure 1](image1.png)

**Figure 1 Relation between students’ sleeping hours and their academic performance: nine hours (N=29)**

Only 3% of the students who sleep enough 9 hours are above 90 points. And there are 97% of the students whose grades are between 70-89 points.

![Figure 2](image2.png)

**Figure 2 Relation between Sleeping Hours and Score: Seven Hours (N=62)**

Only 2% of the students who sleep enough seven hours are above 90 points. And there are 98% of the students whose grades are between 70-89 points.
Students’ Academic Performance and their Sleep Period

Figure 3  *Relation between sleeping hours and score: under seven hours* (N=49)

Only 4% of the students who sleep under seven hours are above 90 points. There are 96% of the students whose grades are between 70-89 points.

<table>
<thead>
<tr>
<th>Score</th>
<th>Under 7 hours</th>
<th>7 hours</th>
<th>Over 7 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over90</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>(4.08%)</td>
<td>(1.62%)</td>
<td>(3.45%)</td>
<td></td>
</tr>
<tr>
<td>80-89</td>
<td>16</td>
<td>29</td>
<td>10</td>
</tr>
<tr>
<td>(32.65%)</td>
<td>(46.77%)</td>
<td>(34.48%)</td>
<td></td>
</tr>
<tr>
<td>70-79</td>
<td>31</td>
<td>32</td>
<td>18</td>
</tr>
<tr>
<td>(63.27%)*</td>
<td>(51.61%)*</td>
<td>(62.07%)*</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>49</td>
<td>62</td>
<td>29</td>
</tr>
<tr>
<td>(100%)</td>
<td>(100%)</td>
<td>(100%)</td>
<td></td>
</tr>
</tbody>
</table>

*: significance

This table tells us that the rate of students sleeping under 7 hours and their grades between 70 and 79 is the same as the group of sleeping over 7 hours.

III. Conclusion

Base on common idea of learning, sleeping period have the connection to the learning effect. In modern society, most of the students have a lot of things to do, some are busy dealing with activities in school, others need to go to cram schools and they are too busy to study. If they do not have much time preparing their test or assignments, they
would stay up late. However, our research shows that staying up late seems nothing to do with students’ academic performance. Next time, to get more precise result, we should do the research in different kinds of school.

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