〈論　文〉

Analyzing the Effects of Outside Factors on the use of Online Learning Websites.

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Abstract

The following study is an attempt to identify the outside factors that impact students' use of CALL websites. One cohort of students was followed for an entire academic year, their usage data collected and compared with external events occurring during the academic year, and some tentative conclusions reached.

Keywords: CALL, outside factors, intrinsic motivation, extrinsic motivation, student autonomy.

Introduction

Blin suggests that learner autonomy is a complex and multi-dimensional issue (Blin, 2004). Raby, says that learner autonomy is a mixture of internal factors (the learners' characteristics and external ones (the learners' environment) (Raby, 2007). This study looks at students' usage rates for the vocabulary learning site Word Engine (*https://www.wordengine.jp/*) over the course of one academic year.

Outside factors (the learners' environment) such as vacations, school festivals, and annual English tests are also considered in the final analysis. Tentative conclusions about student autonomy, kinds of monitoring, and the effects of external factors on usage are then presented. Word Engine is what Nation (2001) would describe as an "intentional" vocabulary learning website. I.E. the site is designed for the purpose of directly studying and learning new vocabulary.

Methodology

This study used a group of 80 students taken from the first-year Speaking I and II classes at Hokkaido Musashi Women's Junior College. All students were majors in the English Literature department during the 2014-2015 academic year. The students were drawn from all levels of the Speaking classes (1-8) high to low.

Students were enrolled in the Word Engine online vocabulary building website during the second week of the first semester. All students were put into the Eiken vocabulary-building option on the Word Engine site. This was done for two reasons: First, it was deemed that working on Eiken-related vocabulary would be beneficial to the largest amount of the cohort, and second, it was thought that having the entire cohort enrolled in the same option would allow for better evaluation of their efforts.

The entire cohort was monitored for goal completion, 150 correct answers per week on vocabulary building questions on the web site. Teachers were supposed to monitor students' progress online and to provide feedback on their progress by verbally informing the students in class on a weekly basis of who had met or exceeded the goals and who

had not. For the purposes of this study, weekly goal completion is represented as a percentage of the entire cohort who met or exceeded the 150 correct answers a week goal. In addition, time on task, measured in minutes per week spent using the site, was also computed as an average for the entire cohort. These two numbers were then compared for correlation for the first semester, the summer vacation between the first and second semesters, the second semester, and the winter vacation before the final week of the second semester. Finally, the weekly averages for goal completion and time on task were compared for the entire group. Statistical analysis was kept to a minimum in order to avoid the temptation to have inadvertent data dredging or P-hacking[1] occur.

Table 1A, below, shows the percentage of the cohort that completed their goal of 150 words or more by week. 1st Sem. is the first semester of the school year, Inter Sem. 1 is the time period for summer vacation, 2nd Sem. is the second semester of the school year, and Inter Sem. 2 is the time period for winter vacation. This table indicates that there was a

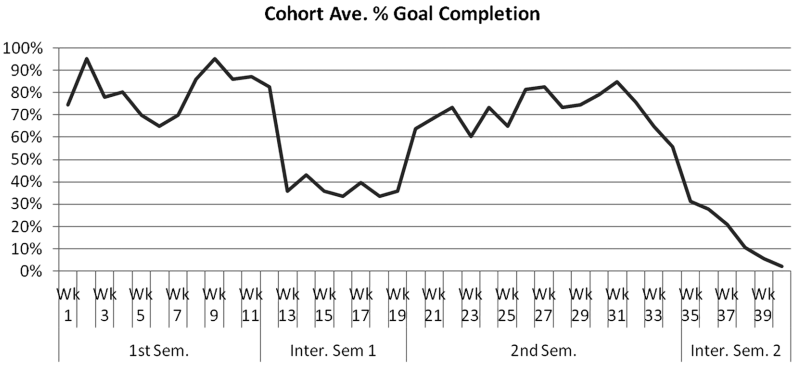

Table 1A

great deal of variability in how much the students used the website. Up to 95% of the students are using the site at the highest while only 35% are using it at the lowest point. The variability follows no cyclical pattern, seeming to go from peak to trough at random time intervals. To provide a possible explanation for this variability we need to look at table 1B, below.

Analysis Part One: A look at the outside factors affecting goal completion

Table 1B, below, contains the same goal completion data as table 1A but with outside factors such as vacations, Eiken test dates, and school festivals added to the timeline. Please note that we must remember the maxim, "correlation does not imply causation." Just because two events are occurring together in no way means that one causes the other. The late scientist and author Carl Sagan wonderfully presents this idea in his

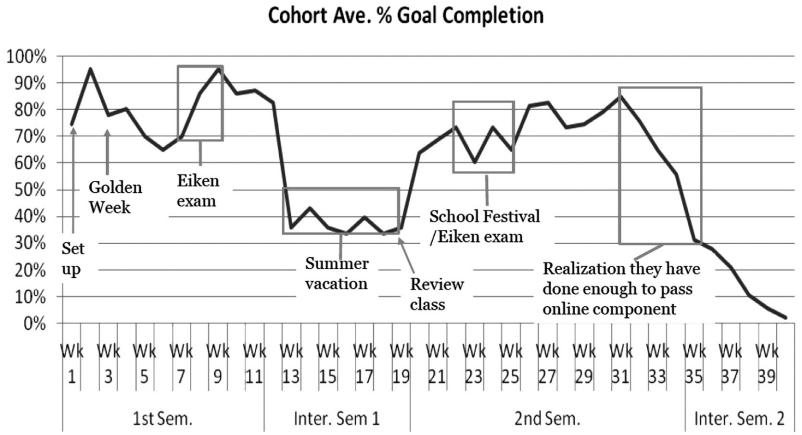

Table 1B

book, "The Demon Haunted World."

Looking at Table 1B (Cohort Average Percentage of Goal Completion) we can see that goal completion starts at 70% for the first week of Word Engine implementation and then rises up to above 90% as students begin using the web site. We then see a drop off in usage during the Golden Week holiday period, a time when there was no weekly monitoring of goal completion by the teachers, followed by an upswing in goal completion as students prepare prior to the Eiken Exam. Post-Eiken we see a slight drop off in site usage, from a peak of above 90% to the mid-80's. Following this, a precipitous drop in goal completion occurs concurrent with the beginning of summer vacation. Note that there was no weekly monitoring of the students' usage of the website during summer vacation.

During summer vacation, there is an average goal completion rate of around 35%. This low percentage continues through the review week of the first semester.

Things take a bit of an upswing during the first three weeks of the second semester rising from the summer lows to a high of just above 70%. This is short lived however, as they go down to 60% concurrent with preparation for the school festival. This downturn seems to be tempered by a need to prepare for the second Eiken exam, which was held on the same weekend as the school festival during the year for which this data was gathered and analyzed.

The remainder of the second semester sees a slight increase in goal completion, followed by a slight dip in the middle of the semester, followed again by a slight rise when the end of the second semester is close at hand, finally followed by a more gradual drop off in students

fulfilling their online goals and the second semester comes to a close. This is followed by another drop off on goal completion concurrent with winter vacation and the end of the academic year.

As previously stated, correlation does not imply causation, but the fact remains that we have five instances of outside factors; vacations, tests, and a school festival occurring when there are either drop offs or increases in site usage for a group of 80 students. In addition, no monitoring by teachers occurred during Golden Week or the summer and winter vacations. Further studies will be required to see if similar results occur under similar conditions.

Table 2 shows the average time on task in minutes for the entire cohort. The designations for first semester, summer vacation, second semester, and winter vacation are the same as those in Tables 1A and 1B. Correlation between goal completion and time on task was measured for the first semester, the summer vacation, the second semester, and the

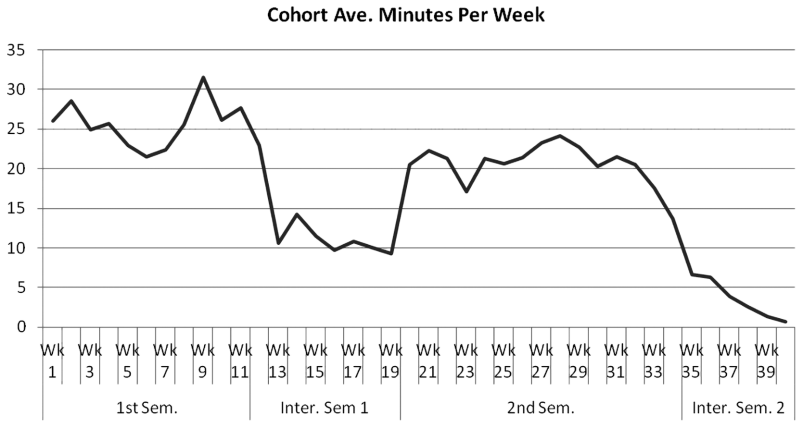

Table 2

winter vacation/end of the academic year. Results were as follows: .93 correlation for the first semester, .98 for the summer vacation period, .71 for the second semester, and .99 for the winter vacation/end of the school year period. These results are obvious in light of the fact that students need to spend time on the website in order to complete their weekly study goals. What is not obvious is why there was a sharp drop in the correlation between goal completion and time on task during the second semester. Some possible ideas to follow up on include: students using the system more efficiently and thus taking less time to get the same scores, students somehow "gaming" the system I. E cheating to get their scores in less time, or disruption in the normal correlation between time on task and goal completion due to there being so many outside influences occurring during the second semester.

Conclusions

From the above data we can see that the entire group could be affected by outside influences such as vacations, upcoming tests, and school festivals. The degree of which the group as a whole is affected seems to depend on the presence or absence of regular monitoring. Referring once again to Table 1B we can see that the largest drop in usage rates during the academic year occurred during the summer vacation. This was a period of time when there was no external monitoring or feedback from the teachers with regard to students' usage of the website in question. Compare this to later drops in goal completion, with the exception of the end of the academic year. We can see that these drops, specifically during weeks 22 and 23 are much shallower and shorter lived than the summer vacation decline. This could be due to the

fact that there was weekly monitoring and feedback in place during weeks 22 and 23 while none was occurring during the summer vacation. We can conclude, therefore, that monitoring and feedback on goal completion is important to students using online self-study sites especially when outside factors are also considered. This theory would benefit from further investigation to see if it has any predictive value outside of the very narrow confines this study.

Final Thoughts

It is hoped that some of the conclusions of this study will give online learning website administrators a more realistic view of the factors affecting their students during the academic year. By being aware of these outside pressures for and against the use of these websites, or any form of independent study for that matter, we, as educators, can hopefully better understand why students do or do not use the learning opportunities that they have.

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Notes

1. "P-hacking" AKA "data dredging" or "inflation bias" is the now all-too-common practice of manipulating statistics to obtain statistically significant results. For more on this phenomenon see the article in PLOS Biology by Megan Head entitled "The Extent and Consequences of P-Hacking in Science."

Bibliography

Blin, Francoise. "Call and the development of learner autonomy: Towards an activity- theoretical perspective," *ReCALL* vol. 16, no. 2, 2004, p. 377-395.

Freedman, David et al. *Statistics*. New York: W. W. Norton and Company, 1980.

Head, Megan et al. "The extent and consequences of P-hacking in science," PLOS Biology, vol. 13, no. 3, Published: March 13, 2015 https://doi.org/10.1371/journal.pbio.1002106

Huff, Darrell. *How to lie with statistics*. New York: W. W. Norton and Company, 1954.

Nation, I. S. P. *Learning vocabulary in another language*. Cambridge: Cambridge University Press, 2001.

Raby, Francoise. "A triangular approach to motivation in Computer Assisted Autonomous Language Learning," *ReCALL* vol. 19, no. 2, 2007, p. 181-201

Sagan, Carl. *The demon haunted world: science as a candle in the dark*. New York: Ballentine Books, 1997.

Word Engine. *https://www.wordengine.jp/*