

The Ease and Value of Implementing a Note-taking Culture in the Classroom

大学講義におけるノートテイキング指導の重要性について

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概要

本論は、筆者が共栄研究論集第5号に掲載した論文 Bufton N. “Implementing a Note-Taking Program for Under-Achieving University Students — The Process and Problems Encountered —” をさらに発展させたものである。本論における調査は、学生にわずかな時間でもノートを取ることを奨励することが学習における目に見える効果をもたらし、教員の些細な振る舞いや教室での管理能力の向上が学生の学習意欲やパフォーマンスにおける顕著な向上につながることを示している。本論は、学生にノートを取らせるために、より厳密に調整されたプログラム構築の要求を結論付け、これは決して一部で言われているような「時間の無駄」ではないということを主張している。

本論における研究は、学習到達度が相対的に低い大学生男女の3グループから構成され、その3グループはほぼ同等の内容の授業を受けるという設定である。その3グループの内訳は、全くノートをとることの指示をされないグループ、ノートをとることを「単に指示されたのみ」のグループ、そして最後にノートをとることを熱心に奨励されたグループであった。そして学生に復習としてノートを見直す作業を強要しないこととした。この実験の6週間後にその分析をした結果、ノートをとることを指示された後者の2グループと、ノートを意識することのなかった前者のグループとの間で、学習効果の大きな開きがあった。

キーワード：ノートテイキング、クラス経営、スタディースキル、学習活動の向上

Abstract

This is a follow up paper to (Bufton, 2007) and argues that improving the way teaching note-taking techniques are taught to Kyohei University students need not be an overly time consuming endeavour. This study demonstrates that the investment of a little time in encouraging students to take notes has a tangible effect, and illustrates how simple teacher behaviour change in the classroom and better classroom management can lead to dramatic improvements in student attitudes and scholastic performance.

The article concludes with an outline and a call for a more coordinated program to encourage note-taking. It also demonstrates that this does not necessarily need to be difficult or excessively time consuming. The study consisted of three classes of low achieving male and female university students being given more or less identical lessons and exactly the same information to note. One group was not asked to take notes. The two remaining groups were asked to take notes. One was simply asked to take notes while the other was encouraged and cajoled into taking notes. There was no pressure on students to review their notes. Recall was measured six weeks from the commencement of the study. The results illustrate a marked improvement in test results between the groups taking notes and the group that was unaware of the need to take notes.

Keywords: note-taking, classroom management, study skills, improved academic performance

Contents

Introduction

The Function and value of note-taking

Method:

Design

Subjects

Materials

Procedure

Results

Discussion

Introduction

In a previous paper (Bufton, 2007) the case was made for improving the way note-taking techniques are taught at Kyoei University. The paper outlined research results that demonstrate how note-taking aids recall, whether those notes are reviewed or not at a later date. Also discussed was that, in spite of students' attitudes towards note-taking, the lack of reinforcement and conformity regarding note-taking was a contributory factor influencing the habit of note taking. Two years on it seems that there has been no improvement in either the teaching staff or the students' attitude to note-taking, and that

the following observations of lower achieving students' study habits made by Bufton, (2007) still persist. Observations made were:

- Many students did not bring notebooks or paper with them to class.
- Many students wrote notes in the margins of their textbooks and as the space ran out so did their notes.
- Printed notes and handouts prepared by teachers were either tucked into the back of their textbook or placed in a plastic file box, or in many cases unceremoniously stuffed into their bags.
- Most students did not organize their notes. The organization of notes/ handouts by students ranged from: inserting them into clear plastic pouches within one file according to subject; placing them in a file as and when they received them with no regard to subject or topic and, as mentioned above, randomly inserted into their bags.

In addition, it was also reported that many of these students did not take down any notes unless encouraged to do so. Unfortunately, observation of students' study habits between September and October, 2008 reveal that very little has changed — begging the question, why?

There is a study guide to note-taking skills in place and Foundation Course seminar teachers are required to teach the various note-taking methods contained in the pamphlet entitled 'Study Skills', (2006). A sample poll of 34 students revealed that seminar teachers do indeed use the Study Skills pamphlet at some time during their Foundation Course seminar, however, those polled also reported that note-taking was only ever covered once with no subsequent follow up, and that the time allotted to teaching note-taking skills varied between 30 minutes and 75 minutes at most. It was also reported that only four members of the teaching staff actively encouraged the taking of notes during their classes.

On the other hand, when these concerns were informally raised with a number of teaching staff their responses revealed a number of issues. Chiefly, that they felt that the continual encouragement of note-taking during class was time consuming and of little value; that the handing out of printed notes was sufficient, and that they had their own preferred method of note-taking which they taught instead of the methods suggested in the Study Skills pamphlet.

It was also pointed out that there was a lack of leadership in the Foundation Course

seminar committee. Previously, the committee chair was held for two years, however, as of the beginning of the 2007 academic year the chairmanship of the committee had been reduced to only one year thus leading to a lack of continuity in implementing previously agreed policy. This issue is obviously of great importance and needs to be addressed, however, of concern in this paper is the claim that implementing a note-taking culture within the classroom is so time consuming that it interferes with the time allotted to teaching the syllabus contents of each class.

Therefore, this study sought to ascertain whether the implementation of a note-taking culture in the classroom is possible and whether the time taken to implement such a culture is a worthwhile investment of time considering the demands of a subject's syllabus.

Whether or not note-taking is of value has been studied in great depth for at least the last thirty years and a précis of the relevant research follows below.

The Function and value of note-taking

Research has established that note-taking is beneficial to learning in that it helps to facilitate encoding and storage. These two clear functions were reported by DiVesta and Gray, (1972), and led to a series of nearly 100 studies which have in most cases confirmed that different note-taking techniques serve either one function or another (see Hartley, 1983, and Kiewra, 1985a, for reviews). Encoding is the process of writing notes that are not later reviewed. In this process the learner reorganizes the material presented and by putting it into his or her own words take ownership of the material DiVesta and Gray, (1972). Through this process it is believed that the learner internalizes the material more efficiently as the information is associated in a uniquely personal way that enhances recall. The generative effect of connecting new information with current knowledge is also supported by Peper & Mayer (1978, 1986), cited in Kiewra (1989). The act of note-taking also has a measurable effect on far transfer tasks. That is, the use of information or a process in one context and applying that knowledge to help solve a different problem in another context (Peper & Mayer 1978, 1986, *ibid*). Though it should be noted that Einstein *et al* (1985) suggest that in addition to the generative effect and the personalization of information, the increased recall could be due to the learner paying more attention to a lecture's content as she or he concentrates on what is note worthy. Either way, the encoding process has been shown to increase

the recall probability rates of students by as much as 47%, Aiken *et al.* (1975). In addition, the available literature on comparisons between successful and less successful students reveals a difference in their respective organization and structuring of lecture information and their methods of encoding (Einstein, Morris and Smith, 1985), and that this view is in accord with earlier suggestions by Mayer (1975), that encouraging the organization of material by way of superordinate concepts is especially effective with low achieving students.

Evidence supporting the value of reviewing notes leads to enhanced retention - 'storage' - and a better understanding of the material being taught is well documented (see Fisher and Harris, 1973; Thomas, 1978), however, as this paper is concerned with encoding the issue of storage will be left to a later date.

The literature reviewed above has dealt with note-taking in a lecture type setting, whereas this paper investigates the outcome of note-taking on learning. While these are related to different cognitive processes, Peper & Mayer, (1978) claim that note-taking does have pronounced effects on learning.

Accordingly, research to date supports the idea that note-taking will, on the whole, aid student achievement and will be of benefit in an educational setting. The following study was designed to measure explicit knowledge 'learnt' knowledge (Bailystok, 1979; Krashen, 1985) in the English as Foreign Language classroom. Questions regarding the internalization of knowledge, *id est* the transfer of explicit knowledge to implicit knowledge, are beyond the scope of this paper.

Method:

Design

The experiment consisted of 3 groups of students. The duration of the experiment was six weeks and the experimental sessions were held during the participants regular lessons. Session one was a consciousness raising exercise; during sessions two through four, each group would receive instruction according to the following parameters. Group 1 would receive no encouragement to take notes in the classroom beyond the instruction they had received from their Foundation Course seminar teachers. Group 2 for the duration of the study would be reminded to take notes at the beginning of each experimental session and once before any information relevant to the experiment

was given. Students in group 3 would, at the beginning of each class, be checked to see whether they had their note-taking materials and strongly encouraged to bring the required materials next time. As in group 2, group 3 were told to take notes once at the beginning of the class and once before any information relevant to the experiment was given. Group 3 were also monitored to ensure some level of compliance. On the sixth week of the experiment a simple test was administered to ascertain whether any there was any discernable difference between the three groups' performance.

The class time taken to give the instructions in each group was measured as was the time taken to encourage and monitor compliance in group 3. No separation of data between male and female subjects was made as the number female subjects was too low to be statistically relevant.

Subjects

The subjects were 5 female and 34 male first year university students from the School of International Business Management. The subjects had all performed below average on a GTELP™ level 3 English proficiency test administered at the beginning of the academic year and were consequently all members of the lower level English Conversation classes. All participants had demonstrated poor note-taking habits and prior to the beginning of the experiment all but one or two would not write down anything put up on the blackboard without being instructed to do so. The teacher of the classes was the author.

Materials

A target list containing a total of 15 prepositions of location with pictures and sample usage sentences, all of which were assumed to be new, and a list of 45 noun/noun phrases and 45 sample sentences for demonstrating the use of the prepositions was also prepared. This vocabulary list and the sample sentences were to be written on the blackboard over three weeks at a rate of 5 prepositions and 15 sample sentences per week. The order in which they were to be presented was also predetermined, as was the part of the blackboard on which they were to be written. The accompanying verbal explanation and answers to students' questions was kept, as best as possible, the same for all groups. Both Japanese (L1) and the target language, English, (L2) were used. (As

the content being tested was also part of the syllabus for those lessons, assistance was given where and when requested.) Notepaper was also made available to any student who had forgot to bring some. The words and procedures for instructing students to take notes in each group were also carefully scripted.

A forty-four question test paper were prepared, requiring students to either write in the blank space the missing prepositional phrase or the object to which a prepositional phrase referred. Only noun/noun phrases and prepositions of location that had been taught or reviewed, as we cannot be sure whether any students were already familiar with some of content, during the experimental period were tested. Pre-experimental investigations reveled that most students in the experiment were unlikely to already know more than 15% of the material. This should not have any discernable effect on the over all results as in classroom research we cannot completely negate students' prior knowledge.

Procedure

The participants assumed their regular seats in their regular English classes and were unaware that they were part of an experiment. The first thirty minutes of each of their regularly scheduled classes was allotted to the teaching of prepositions of location and new vocabulary and the remainder, around fifty minutes, of their class was devoted to related, but freer language lesson activities such as pair or task work. On the first of the four sessions devoted to the experiment all classes were given a ten minutes review of propositions to raise their consciousness and activate their current level of knowledge. Students were then handed a printed handout of the new prepositions to be taught. Each class was also told of the importance of note-taking and reminded to bring the handout, note-paper and a file to the next lesson.

During the second session each class was taught according to the permitted parameters mentioned above. At the beginning of the session each group was given a brief introduction as to what was going to be taught next. In addition to the introduction groups 2 and 3 were also instructed to take notes. Those who had failed to bring notepaper were given some. The experimental session then proceeds as close as possible to the following lesson plan:

5 min's Use OHP to demonstrate handout to class. Ask students to look up any words they may not know in their dictionaries. Read aloud to themselves

each prepositional phrase in English. Students are then asked to look at sample sentences being presented on the OHP and a physical demonstration that accompanied each one. *i.e.* 'The pen is in the cup.' Followed by the teaching putting a pen in a cup and an explanation in Japanese if deemed necessary.

- 3 min's Demonstrate the location of objects in relation to each other and elicit answers in English from students.
- 2 min's Choral drill. Students repeat after the teacher the sentences provided in the handout.
- 10 min's Put up pictures on the OHP as a visual support to the prepositions and the 15 supporting sentences that were to be written on the blackboard. Each preposition and supporting sentence is demonstrated first with reference to the visual aid before being written on the blackboard. Each sentence is then read aloud by the teacher.
- 2 min's Students are given time to ask questions or look up any unknown words in their dictionaries.
- 3 min's Choral drill. Students repeat after the teacher the sentences written on the blackboard.

Group 2 would follow the same lesson plan above, except they would be reminded to take notes at the very beginning of the session and again before the teacher writes the new prepositions and vocabulary on the blackboard. They would receive instruction to take notes a total of 5 times per session. The time taken to remind students to take notes was recorded. No other encouragement or cajoling of students to take down what was written on the blackboard took place. Group 3 would also follow the above lesson plan, however, in addition to being told to take notes as in group 2 above, they were also encouraged and monitored 5 times per session and the time taken encouraging and monitoring students' note-taking was also recorded. Encouragement was in the form of walking up to any student not taking notes, calling him or her by their name and telling him or her to write what was on the blackboard.

Two weeks after the final session each group was administered the same objective test. No mention of the test was made beforehand.

Results

Two elements the study measured were the difference in long term recall/performance, as measured by a long term objective test, between the three groups and the actual amount of time spent by the teacher in each session encouraging students to take notes.

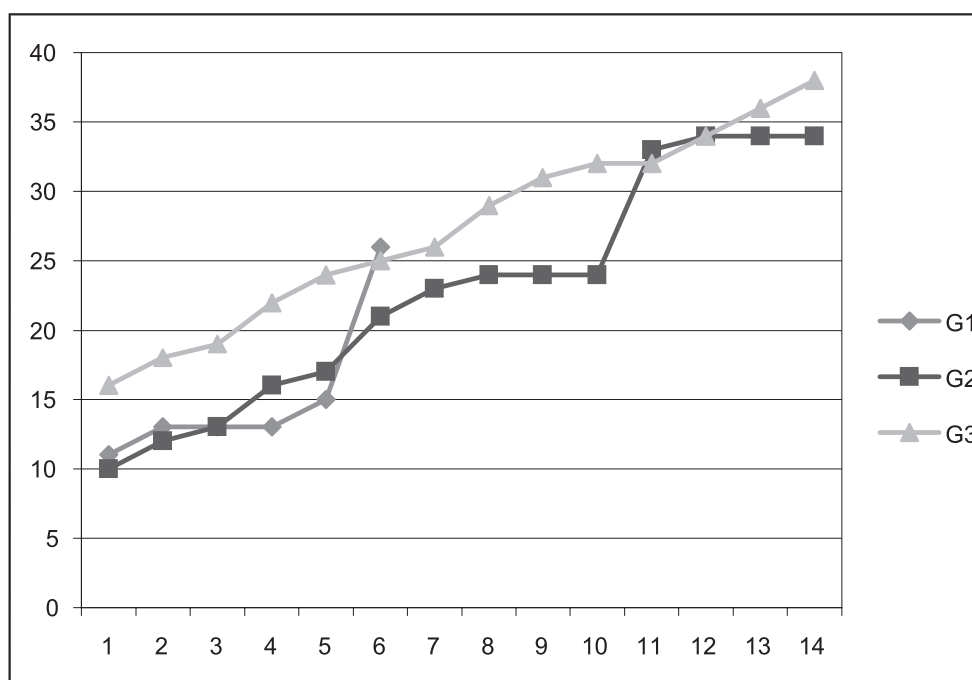


Fig 1. Comparison of long term objective test results for groups 1, 2, and 3

X axis represents the number of test takers.

Y axis represents the test scores.

Due to the number of students who failed to attend all of the sessions, the final number of students completing the study period and thus providing usable data was reduced to 34: 5 female and 29 male. The number of students completing the study period were: in group 1 (G1), 6 out of 11; in group 2 (G2), 14 out of 14 and for group 3 (G3), 14 out of 14. Accordingly this absenteeism has had an effect on the data, nonetheless, the results are worth pursuing as the remaining data is useable. Data from all test takers was pooled to examine the overall reliability of the test. The overall mean is 23.294, with a SD of 8.422 and a ADEVEC of 6.535. The maximum and minimum scores were 38 and 10 respectively. A reliability coefficient of 0.859 was obtained by

using the split-half Spearman-Brown formula. The data for each individual group are: G1, mean 15.1, SD 5.455, ADEVEC 3.611, max 26, min 11 for G2, mean 22.7, SD 8.523, ADEVEC 6.816, max 34, min 10 and for G3, mean 27.3, SD 6.932, ADEVEC 5.857, max 38, min 16. The scores for each group are also presented in graph form in fig 1 below.

The average time invested by the teacher reminding students to take notes was zero for G1 and for G2; 1 minute 17 seconds (session 1), 1 minutes 14 seconds (session 2), 1 minute 15 seconds (session 3) giving a mean of 1 minute 15 seconds over three sessions. For G3 the time spent reminding students to take notes was 1 minute 1 second (session 1), 1 minute 2 seconds (session 2), 1 minute 3 seconds (session 3) resulting in a mean of 3 minutes 2 seconds. In addition, for G3 the time needed for monitoring and encouraging some measure of conformance was 6 minutes 40 seconds (session 1), 6 minutes 3 seconds (session 2), 6 minutes 1 second (session 3), mean 6 minutes 15 seconds. The total time invested in G3 was 19 minutes 22 seconds. Details of each individually timed episode and the mean scores are also presented in Tables 2a, 2b, 2c and 2d.

Table 2a

Week 2 (Experimental session 1) Time in seconds						
Group	Time taken to issue 1st N-T instruction	Time taken to issue 2nd N-T instruction	Time taken to issue 3rd N-T instruction	Time taken to issue 4th N-T instruction	Time taken to issue 5th N-T instruction	Total in minutes
Group 1	0	0	0	0	0	0
Group 2	18	12	10	17	20	1 min 17s
Group 3	17	11	8	10	15	1 min 1s
Time taken monitoring and encouraging Group 3 students to take notes						
Group 3.1	168	50	49	54	79	6 min 40s

Table 2b

Week 3 (Experimental session 2) Time in seconds						
Group	Time taken to issue 1st N-T instruction	Time taken to issue 2nd N-T instruction	Time taken to issue 3rd N-T instruction	Time taken to issue 4th N-T instruction	Time taken to issue 5th N-T instruction	Total in minutes
Group 1	0	0	0	0	0	0
Group 2	16	13	14	14	17	1 min 14s
Group 3	18	14	11	11	18	1 min 12s
Time taken monitoring and encouraging Group 3 students to take notes						
Group 3.1	103	44	59	72	85	6 min 3s

Table 2c

Week 4 (Experimental session 4) Time in seconds						
Group	Time taken to issue 1st N-T instruction	Time taken to issue 2nd N-T instruction	Time taken to issue 3rd N-T instruction	Time taken to issue 4th N-T instruction	Time taken to issue 5th N-T instruction	Total in minutes
Group 1	0	0	0	0	0	0
Group 2	20	13	15	10	17	1 min 15s
Group 3	15	12	12	9	15	1 min 3s
Time taken monitoring and encouraging Group 3 students to take notes						
Group 3.1	97	53	72	69	70	6 min 1s

Table 2d

Total time taken to issue instructions over 3 weeks (In seconds)						
Group	Time taken to issue 1st N-T instruction	Time taken to issue 2nd N-T instruction	Time taken to issue 3rd N-T instruction	Time taken to issue 4th N-T instruction	Time taken to issue 5th N-T instruction	Total time over 3 weeks
Group 1	0	0	0	0	0	0
Group 2	54	38	39	40	54	3 min 45 s
Group 3	50	37	31	30	48	3 min 16 s
Time taken monitoring and encouraging Group 3 students to take notes						
Group 3.1	368	184	181	195	234	19 min 22 s

Discussion

The results of this study seem to indicate that the encoding function of note-taking does indeed lead to improved recall/performance. Unfortunately, the large number of students dropping out of G1 does not leave us with a solid base from which to compare the differences in average performance between G1, G2 and G3. Also due to G1's low population, weighting would not add much to the statistical reliability of G1. Even so, this anomaly has no bearing on the comparison of results between G2 and G3. The available data from the test scores indicates a mean difference between G1 and G2 of 7.6 and of 12.1 between G1 and G3. Taking G1 data as base, bearing the above caveat, the results indicate a significant increase in recall/performance between the groups that were encouraged to take notes in some way when compared with the students who were not directed to take notes. This measurable effect on the out come of learning outcome is in harmony with observations made by Peper & Mayer, (1978). Also of significance was G3's 4.5 point mean increase in recall/performance over that of G2. While this increase is not as large as that between G1 and G2. It is equal to 59.2% of the gain recorded between G1 and G2 and therefore is a significant improvement over G2's performance.

The teacher spent on average 1 minute 15 seconds of an approximately 25 minute experimental session, instructing G2 students to take notes. While for G3 the teacher invested 1 minute 5 seconds instructing students to take notes and an additional 6 minutes 15 seconds (both average times) encouraging and monitoring students per session. Thus the total average time invested in G3 was 7 minutes 20 seconds per session or roughly one fifth of the time allotted to teaching.

As investment of time it could be argued that the cost benefit ratio of the outcomes observed between G2 and G3 are not as great as those between the non-note taking group and the G2 note-taking group, however, considering G3's superior performance for effectively 7 minutes 20 seconds less teaching time, the results strongly suggest the benefits of encouraged note-taking over the methods employed for G1 and G2. In addition, post-test observations of the students made 3 weeks after the final session reveals nine of the fourteen students in G3 continue to keep regular notes while only three of the fourteen in G2 do so. Thus in this respect the extra investment in encouraging and monitoring may have led to note-taking becoming a more habitual behaviour. Though one cannot be certain as just the presence of the teacher involved in the encouraging and monitoring during the experimental period may have a vicarious effect on student behaviour. Either way, it would seem that this method has had a desirable effect on students' study habits in that more students are taking notes.

The post-test data also shows that, in addition to instructing students to take notes, encouraging and monitoring are more effective than simply leaving it up to the individual student whether he or she actually takes any notes. Given that the investment of an average extra 6 minutes 15 seconds encouraging and monitoring for G3 resulted in better performance and a possibility that note-taking could become habitual, it would seem clear that for the professional educator this additional step is time well spent.

In the past it has been suggested by teaching staff at this institution that requiring students to take notes will lead to poorer academic performance as they would dislike the activity. Having said that, research has shown that there is no statistically significant relationship between students' opinions about note-taking and subsequent measures of their recall (Fisher and Harris, 1973). Thus apart from having to reserve enough time during each class to carry out instruction, encouragement and monitoring of students' note-taking there is little reason for not pursuing this teaching strategy. It also is entirely possible that in the long term many students will acquire the habit of note-taking. This could also have a cumulative effect, thus reducing the length of time to be put aside for

this activity per class, especially, if all members of staff encouraged note-taking as a matter of course.

In conclusion, the findings above suggest that strongly encouraging low achieving college students to take notes combined with monitoring for compliance is associated with enhanced academic performance and that the time taken to implement such a culture in the classroom is a worthwhile investment.

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