

An Empirical Study on Streaming in English Class :

With a Focus on the Relationship between LoC and Achievement

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Abstract

This research was conducted to clarify the relationship between a learner factor and achievement in English, following previous research. (Hosaka, 2004; 2005)

In this study, statistical analyses were conducted to clarify the difference of the relationship between upper- and lower-level students concerning the relationship between a cognitive variable (locus of control) and students' achievement in English.

Firstly, according to the results of the factor analysis, there are three factors in their locus of control; *Effort*, *Contingency*, and *Environment*. Secondly, according to the results of the ANOVA, lower-level students tend to attribute their achievement to contingency. Thirdly, according to the results of the multiple regression analysis conducted to compare upper- and lower-level students concerning the relationship between locus of control beliefs (LoC) and their achievement in English. *Environment* has a negative effect on achievement among lower-level students.

Finally, the results mentioned above are discussed in terms of their implications for streaming classes (dividing classes according to students' achievement in English), which has recently become very popular in many kinds of schools through Japan. The results may conclude that career orientations in high schools are more effective, in particular, for lower-level students. Then the orientations may not lead to better achievement directly, but instead improve students' motivation in English.

Key words: streaming, senior high school students, locus of control, achievement in English, empirical study

1. Introduction

In December 2000 the National Committee on the Reform of Education suggested that streaming should be introduced into elementary, junior high, and senior schools in Japan as soon as possible in the 21st Renewal Plan on Education. Sato (2004) noted that streaming has rapidly spread through Japan in the few years since then.

The objective of this study is to clarify how English teachers perform in and manage their

English classes, which have been “streamed” according to their achievement in English, and to clarify how and how much orientations or guidance are effective in improving their learners’ proficiency in English .

2. Background

Earlier research (Hosaka, 2005) has also revealed the relationship between learners’ variables (learning styles, learning motivations, and learning strategies) and students’ achievement in English. In the previous study, path analyses were conducted to clarify the difference of the LoC-achievement relationship between upper- and lower -level students. According to the results of the path analyses, lower-level students often use memory strategies to improve their achievement, but in fact these have no significant effects ($p < .05$) upon their achievement in English. On the other hand, the results have shown that upper-level students often use meta-cognitive strategies, which have a strong significant effect upon their achievement in English.

With reference to Brown (2000) and others, the other affective and cognitive factors—one of which is LoC—are thought to have a significant effect on achievement. Similarly, Richards and Schmidt (2002) state that LoC and other attributions play significant roles in language learning based on the theory behind the causes people attribute to perceived success and failures in their lives (p.38). LoC is thought to be a kind of attribution factor (an internal factor such as effort, as opposed to an external factor such as a textbook or teaching method).

On the other hand, no research has been found to clarify the relationship between LoC and language learning acquisition in Japan, though some research exists in educational psychology (Kanda, 1990; Kamahara & Higuchi, 1987; Hayamizu & Hasegawa, 1979), as well as in medicine.

Kamahara (1986) found that LoC has a significant effect on the value and career awareness of the students. In his study, senior high school students tended to attribute their achievement to contingency or environment rather than effort. Hayamizu and Hasegawa (1979) stated that there is little research to support the relationship between achievement and LoC. They came to the conclusion that LoC is made up for four factors; ability, effort, teacher, and luck, and that the effort factor is dominant in English.

In this study, a questionnaire, which Kamahara (1986) developed for high school students, was used to measure Japanese high school students’ LoC. Moreover, the relationship between LoC and achievement should be compared between upper- and lower-level students.

3. Objectives

The objectives of the present study are:

1. To single out factors in academic senior high school students’ LoC.
2. To clarify which factors in lower- and upper-level students have influenced their achievement in

English.

3. To clarify the differences of the path diagrams between the two levels of students to reflect the aforementioned influences.

4. Method

4.1 Participants

The research was carried out on the same 11th grade students, as Hosaka (2004) did. Only second-year students were used as participants in the research because first-year students are very similar to junior high school students. Furthermore, through analyzing the data, the results of the third year are generally influenced by entrance exams. The population is 167.

4.2 Upper-level and lower-level

I adopted the scores of the students in English II at the end of the second school year, since the scores are averaged from the five terms exams in 2002 and can be regarded as representative of performance in English II throughout the whole year. The average (\bar{x}) is 52.18 points (the full score is 100 points) and the SD (Standardized Deviation) is 17.75 points. The maximum is 96 and the minimum is 16. I divided the whole population into three groups, according to the average and the SD. The upper-level is generally more than $\bar{x} + SD/2$ and the lower-level is generally less than $\bar{x} + SD/2$. The upper-level ranges from 61 to 96, and the population is 57. The lower-level ranges from 16 to 42, and the population is 52.

4.3 Factor analysis

In this study, a questionnaire with a 4-point Likert scale, which was developed by Kamahara (1986, Appendix 1) was used to collect data. Then an exploratory factor analysis was performed with the data, not a confirmatory factor analysis.

4.4 ANOVA

To investigate the effects of achievement in English on LoC, ANOVA was conducted.

4.5 Multiple Regression Analysis

The independent variables were factor scores calculated from the factor analyses conducted above on LoC. The dependent variables were scores the students earned in English II. First a regression analysis was conducted with data from all students. Subsequently, two regression analyses were conducted with data from upper-level students or lower-level students.

5. Results

5.1 Factor analysis

A factor analysis was performed to detect an underlying structure in the LoC questionnaire's forty-three items. Maximum likelihood solution method with promax rotation was performed on all items. The initial run produced four factors with eigen values greater than one. Subsequent analysis also specified the number of factors as three with a factor loading of more than .40.

Factor I (LoC 1) obtained loadings from 5 variables (items 21, 11, 2, 3, and 17, see Appendix 2). Almost all the 5 items were concerned with efforts in English lessons; therefore, the author unambiguously labeled this factor *Effort*.

Factor II (LoC 2) obtained loadings from 4 variables (items 26, 38, 1, and 9, see Appendix 2). The four loadings were concerned with chance in English lessons; therefore, the author unambiguously labeled this factor *Contingency*. Item 38 was negatively loaded on this factor.

Factor III (LoC 3) obtained loadings from 4 variables (items 27, 7, 41, and 20, see Appendix 2). The three highest loadings were concerned with environment in English lessons; therefore, the author unambiguously labeled this factor *Environment*.

5.2 ANOVA

First, ANOVA was conducted with all the data using achievement as an independent variable and LoC as a dependent variable. Afterwards, similar ANOVA were conducted using only the data of lower- or upper-level students.

With regard to *Contingency*, there is a significant difference between lower-level students and the other students ($F(2,164) = 7.116, p < .005$). The lower-level students tend to attribute their achievement to contingency. On the other hand, with regard to the other two factors (*Effort* and *Environment*), there are no significant differences among the students ($p < .05$).

5.3 Multiple Regression Analysis.

The results of three multiple regression analyses are summarized in Figure 1 (Appendix 3). The only significant path arrows are depicted here (* $p < .05$, *** $p < .005$). The figure tells us the followings.

1. LoC 2 (*Contingency*) has a significant negative effect on the achievement of all the students.
2. None of the LoC factors has a significant effect on the achievement of upper-level or lower-level students.

6. Discussion and Conclusion

Judging from the results above, we can draw several conclusions, which can then be used to ensure that career orientations are useful for senior high school students.

1. Senior high school students' LoC beliefs are made up of three factors; Effort Contingency, and Environment. The effort factor is predominant among the three, as Hayamizu & Hasegawa (1979) demonstrated.
2. Generally, career orientations are useful in making the students think about their future and improving their cognitive awareness of their achievement in English.
3. Lower-level students tend to attribute their achievement to contingency and become complacent about their future because they belong to an academic high school.

Study orientations and career guidance have become popular, and they are effective in particular among lower-level students, judging from the results above. Moreover, career orientations are expected to increase, in order to improve students' awareness of their future, the subject of English itself, entrance exams, and college.

The overall results, however, suggested that LoC affects achievement not directly, but through other learner factors—for example—motivation because the R^2 wasn't high enough. Further research should be undertaken to clarify the relationship between LoC and other learner factors, including motivation.

As for streaming, in this study, we couldn't ascertain the differences between upper-level and lower-level students regarding the relationship between LoC and achievement. There are, however, some upper- and lower-level students who attribute their achievement to contingency, thus, career education is useful for them.

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Appendix 1: Questionnaire on locus of control beliefs (Kamahara, 1986)

1: そう思わない

2: ややそう思わない

3: ややそう思う

4: そう思う

次の項目であなたが思うものをどれか1つ○をつけなさい。

- | | |
|---|---------|
| 1: 何でも成り行きまかせが1番だ。 | 1-2-3-4 |
| 2: 努力すれば立派な人間になれる。 | 1-2-3-4 |
| 3: 一生懸命に話せば誰にでも自分を分かってもらえる。 | 1-2-3-4 |
| 4: 自分の人生を自分自身で決定している。 | 1-2-3-4 |
| 5: 自分の人生は運命で決められている。 | 1-2-3-4 |
| 6: 自分が幸福なるか不幸になるかは偶然によって決められる。 | 1-2-3-4 |
| 7: 自分の身に起こることは自分の置かれている環境によって決定されている。 | 1-2-3-4 |
| 8: どんなに努力しても友人の本当の気持ちを理解することはできない。 | 1-2-3-4 |
| 9: 人生はギャンブルのようだ。 | 1-2-3-4 |
| 10: 将来自分が何になるかを考えることは、役に立つ(意味がある) | 1-2-3-4 |
| 11: 努力すればどんなことでも自分の力のできる。 | 1-2-3-4 |
| 12: たいていの場合、自分自身で決断した方が良い結果を生む。 | 1-2-3-4 |
| 13: 幸福になるか不幸になるかは、自分の努力次第だ。 | 1-2-3-4 |
| 14: 自分の一生を思い通りに生きることができる。 | 1-2-3-4 |
| 15: 自分の将来は運やチャンスによって決まる。 | 1-2-3-4 |
| 16: 自分の身に起こることは自分の力ではどうすることもできない。 | 1-2-3-4 |
| 17: 努力すれば誰とでも友人になることができる。 | 1-2-3-4 |
| 18: あなたの努力と成功とはあまり関係がない。 | 1-2-3-4 |
| 19: 自分の行動に注意していればいずれは人から信頼される。 | 1-2-3-4 |
| 20: 親友ができるかどうかは、クラスやクラブの雰囲気による。 | 1-2-3-4 |
| 21: 努力すれば希望の職につくことができる。 | 1-2-3-4 |
| 22: 理想的な相手と結婚できるかどうかは巡り合わせだ。 | 1-2-3-4 |
| 23: 予習復習をしておけばテストで良い成績を取るの簡単だ。 | 1-2-3-4 |
| 24: 自分の努力次第で異性の友人を作ることができる。 | 1-2-3-4 |
| 25: 自分でも気付かずに衝動的に行動することがよくある。 | 1-2-3-4 |
| 26: 希望する大学に進学できるかどうかは能力よりも偶然に左右される。 | 1-2-3-4 |
| 27: 友人とのつきあいが長く続くかどうかは周りの状況による。 | 1-2-3-4 |
| 28: あなたが何か行動する時、自分の希望と言うよりも人が言うから
そうすることがよくある。 | 1-2-3-4 |
| 29: 学校の授業が面白くないとすれば自分がその教科の勉強をあまりしない | |

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からだ。	1-2-3-4
30：自分のすることはいつも自分で決める。	1-2-3-4
31：テストの結果はあなたの場合，体調や偶然の出来事でしばしば左右される。	1-2-3-4
32：自分で決めたように行動することは難しい。	1-2-3-4
33：頭の良し悪しは変えることはできない。	1-2-3-4
34：友情が続くかどうかはあなたの努力次第である。	1-2-3-4
35：必要があればいつでも自分の欲求を抑えることができる。	1-2-3-4
36：異性の友人ができるかは運によるので自分の行動をどうすべきか考えても仕方ない。	1-2-3-4
37：自分の行動はまわりの状況によく流される。	1-2-3-4
38：前もって計画的に試験勉強をすれば結果はずっと良くなる。	1-2-3-4
39：友人と仲良くやるために自分の行動を考えることは重要である。	1-2-3-4
40：友人と意見が違ってても，自分の行動を優先することが多い。	1-2-3-4
41：成績はつける先生によって変わる。	1-2-3-4
42：友人に親切にしていればいつかは友人に助けってもらえる。	1-2-3-4
43：やりたくないと思っていなくても行動していることがよくある。	1-2-3-4

Appendix 2: The result of factor analysis of locus of control beliefs

Factor I (*Effort*) (the highest three) (factor loading)

- 21. I can get a job I want to, if I do my best. (.723)
- 11. I can do anything, if I do my best. (.712)
- 2. I can become a good person, if I do my best. (.657)

Factor II (*Contingency*) (the highest three) (factor loading)

- 26. Passing the test for a university I want to enter depends on luck rather than ability. (.701)
- 38. My results improve when I prepare for the test in advance. (-.532)
- 1. I leave everything to luck. (.446)

Factor III (*Environment*) (the highest three) (factor loading)

- 27. Whether or not relationships with my friends last long depends on the situations. (.540)
- 7. What may happen depends on the situations. (.538)
- 41. Scores are different from teacher to teacher. (.537)

Appendix 3

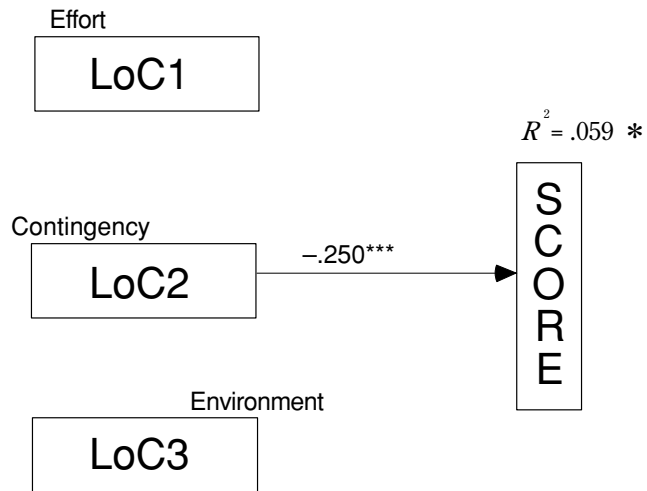


Figure 1: The path diagram of all students ($n=167$, $* p < .05$, $*** p < .005$)