

Cluster Analysis of Learners Based on Their Perception of Writing Aids

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Background & Purpose

○ Academic writing class

- for 1st year students
- Flipped Classroom based on: textbook, e-learning, and writing aids

relevant researches are:

- tools for writing outline (Tominaga, et al., 2015)
- detailed outline (Fujita, et al., 2015)

Any individual differences among learners on perception of usefulness of writing aids ?

○ Writing aids?

- map, outline map, detailed outline, peer review, individual advice to students by Teaching assistants(TAs) and class teacher, rubric, and reflection sheet

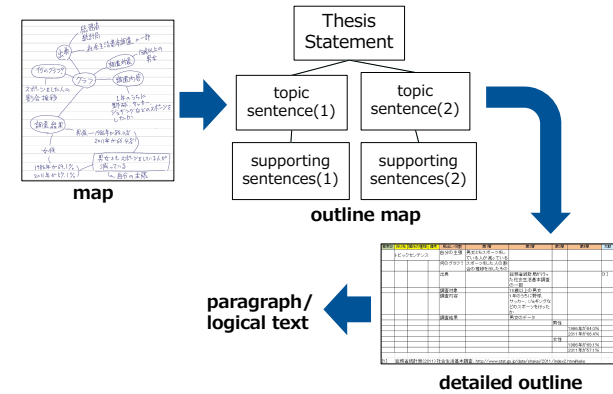
Method

○ Subjects

198 1st year students

○ Procedure

- 1) Students used writing aids
 - 2) Submitted report concerning on science and technology (1500-2000words)
- 1) Questionnaire survey
 - student's perception of usefulness on writing aids



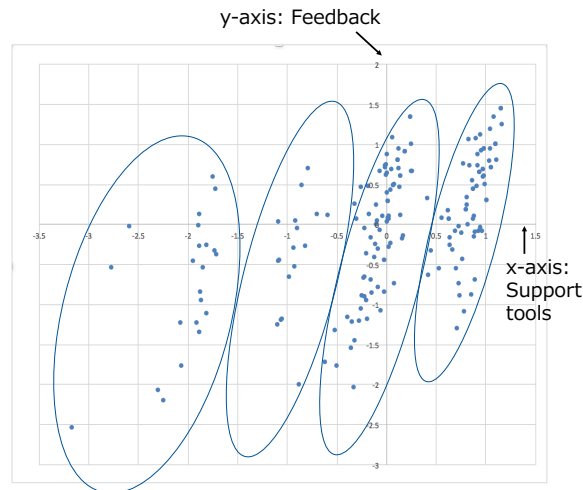
Results and Discussion

○ Factor analysis for usefulness

- principal factor analysis based on Promax rotation
- factor contribution ratio before rotation: 52.51%
- ✓ **Fac.1: Support tools for writing process**
- ✓ **Fac.2: Feedback**

○ Scatterplot based on factor score

Found 4 groups.



	Fac.1 Support tools	Fac.2 Feedback
outline map	.954	-.095
map	.564	.045
detailed outline	.416	.216
reflection sheet	.046	.672
peer review	-.020	.515
rubric	-.007	.466
individual advice	.037	.362
Cronbach's α	.575	.688
factor correlation	.463	

○ One-way anova to each group based on factor score

- Found main effects
- **Support tools** : $F(3,194)=46.96, p<.001$
- **Feedback** : $F(3,194)=25.56, p<.001$
- result of multiple comparison with Tukey method showed on following fig.
- **Learners clearly distinguished among their perception of writing aids**
- **learners can/can't use support tools and feedback**

