

Indivisual Difference in Study-time Allocation and Ordering : Effect of Regulatory Focus and Theory of Intelligence Jo, Hye seung¹ Bae, Jinhee² Hong, Seok sung¹ Lee, Sunhwa¹ Kim, Kyungil¹¹ ¹Department of Life Media, Ajou University, Suwon, Korea²International St. Mary's Hospital[†]kyungilkim@ajou.ac.kr

1. Introduction

- Learning Strategies in Study-time Allocation & Ordering Study-time Allocation
- ➡ Many studies found 'How learners allocate the time in a time-limit' & 'What factors affect the decision of time allocaton. (Atkinson, 1972; Mazzoni & Cornoldi, 1993)
- Discrepancy Reduction Model
- The learners choose item that felt one of the most difficult and allocate the longer time.(Son & Kornell, 2008, 2009)
- Region of Proximal Learning Model
 - They choose the easier item than the difficult item, because the learners want to study perfectly and efficiently. (Metcalfe, 2002)

Ordering

- Many studies suggest that students allocate a lot of time to learn the difficult items, so they study difficult one first. (Dunlosky & Hertzog, 1998)
- On the other hand, some studies suggest that students study difficult items after easy one. (Thiede and Dunlosky 1999)

Recent Study(Son & Kornell, 2009)

- (a) Many students spent almost studying time on the difficult items, (b) they study relatively easy items first.
- But, selection of a strategy may shift depending on the internal and external factors.
- The goal orientation and learning strategy
- The goal orientation of learners influences the decision of learning strategy such as the study time allocation. (Son & Metcalfe, 2000)
- Goal orientation is influenced by individual internal(e.g. motivation, personality) and external factors(e.g., task demands, time pressure). (Thiede & Dunlosky, 1999; Son & Metcalfe, 2000)
- What are the internal variables that influence learners' choice of learning strategies?



-focus' and 'theory of intelligence' among people will make the learner's goal-orientation different and thus make them choose different learning strategies.

Regulatory Theory of Focus Intelligence	Promotion	Prevention
Intelligence	Mastery-Approach	Mastery-Avoidance
Entity	Performance-Approach	Performance-Avoidance

Combination of two different Variables

2. Study

• Participants

- ➡ 123 Ajou University Undergraduate students (male = 65, female = 58, Mean Age = 22.7 years)
- Design
- ➡ 2(Incremental / Entity) X 2 (Promotion / Prevention) between subjects
- Dependent variable (focused on) is
 - the difficult item choice rate at a early learning trial,
 - The rate of selecting difficult items in word pair selection for re-study.

• Stimulus

Theories Of Intelligence(TOI) essay

Incremental essay

...The brilliance of Leonardo da Vinci and Albert Einstein was probably due to a challenging environment. Their genius had little to do with their genetic structure....."

Entity essay

"....The brilliance of Mozart and Einstein was mostly built into them at birth. Their genius was probably the result of their DNA.....

Regulatory Focus Questionaire(RFQ)

Based on the RFQ developed by Higgins (1997), Kim Sena (2015) used it as a Korean translation(5 point scale).

Spanish-Korean Word pair Task

- **ex) galaxia -** 은하수
- Difficulty Setting
- Q> If you only see the Spanish you just saw and take the test to write in Korean, how many percent do you think is the correct answer?
- A> 1 point ~ 10 point





• Result

To conduct two-way ANOVA for investigate the effect of TOI and regulatory focus on the difficult item choice rate at the early learning trials

- A significant interaction between TOI and RF $(F(1,119)=4.02, p<.05, \eta 2=.03)$ and main effect in TOI $(F(1,119)=4.71, p<.05, , \eta 2=.04)$

As interaction effect was

found, we conducted simple

main effect analysis.

- Promotion

: A significant difference between **Incremental & Entity** (F(1,119)=7.76, p < .01)

Rate of Choosing difficult Word-pairs for restudy

0.8-0.74 0.7— 0.65 0.6— 0.5_ Incrementa Promotion Prevention

4. Conclusions

- 'Promotion focus' participants showed the difference for time allocation by intelligence perspective, but 'prevention focus' participants were not affected by intelligence perspective.
- In prevention condition, there was not the effect of intelligence perspective, because affecting to 'prevention focus' participants was to avoid the negative outcome.
- As a result, 'promotion focus' participants showed that intelligence perspective was more affected, when participants chose the studying strategy.

5. Reference

Bandura, M., & Dweck, C. S. (1981). Children's theories of intelligence as predictors of achievement goals. Unpublished manuscript, Harvard University.

- Dunlosky, J., & Hertzog, C. (1998). Training programs to improve learning in later adulthood:
- Helping older adults educate themselves. Metacognition in educational theory and practice, 249,276.
- Higgins, E.T. (1997). Beyond pleasure and pain. American psychologist, 52(12), 1280. Kim, S., Pyo, D. M., Lee, J., Lee, J., Min, J., Shin, K., Kim., K. (2015). A Study of The Validity of Korean
- Versions of Regulatory Focus Scale. The Korean Journal of Social Psychology, 29(3), 85-110. Kornell, N., & Son, L. K. (2006, November). Self-testing: A metacognitive disconnect between memory monitoring and study choice. In Poster presented at the 47th annual meeting of the Psychonomic Society, Houston, TX.
- Leonardelli, G. J., Lakin, J. L., & Arkin, R. M. (2007). A regulatory focus model of self-evaluation. Journal of Experimental Social Psychology, 43(6), 1002-1009.
- Miele, D. B., Son, L. K., & Metcalfe, J. (2013). Children's naive theories of intelligence influence their metacognitive judgments. Child development, 84(6), 1879-1886.
- Metcalfe, J. (2002). Is study time allocated selectively to a region of proximal learning. Journal of Experimental Psychology: General, 131(3), 349.
- Son, L. K., & Metcalfe, J. (2000). Metacognitive and control strategies in study-time allocation. Journal of Experimental Psychology: Learning, Memory, and Cognition, 26(1), 204.