

An Enhancement Model for Motivation on Learning Sentence Combining

C. C. LAO^a, S. H. HSU^a, J. H. WANG^b, T. W. CHAN^a

^a*Graduate Institute of Network Learning Technology, National Central University, Taiwan*

^b*Department of Computer Science and Information Engineering, National Central University, Taiwan*

andrew@cl.ncu.edu.tw

Abstract: Due to the current method on sentence combining, which results a frustrated and bored outcome on Taiwanese student's motivation, this study provides an enhancement model for stimulating student's motivation. Through integrating the in-class lecture with teacher-centered design, this model focuses on an after-class activity with student-centered design which concentrates on the impact of peer pressure. During the after-class learning activity, this study applies a drill-and-practice pedagogy. Student would accumulate personal cognitive knowledge as every student would have generated their self-constructed learning outcome, and s/he would be rewarded for her/his effort. Then the students would return to the in-class activity, and the teacher would allow the students to begin peer-evaluation. Every student starts to rank their peers' answers; as a result, the students own both a score on their efforts and a score on peer-evaluation. As soon as the peer-evaluation ends, student's personal identity (score) would be initiated. Student would have an opportunity on comparing their identity with the other students, so that there would be a peer pressure established among students. Students could enhance their self-motivation, and to work harder in the next stage of practicing (after-class activity). This study describes the design on the enhancement model for student's motivation, and further study would be mentioned at the end of this article.

Keywords: sentence combining, motivation, game-based learning, one-to-one learning, peer pressure

Introduction

The key of learning depends on how student learns [21]. For the student who learns in a traditional elementary classroom, Taiwanese students are required to imitate given examples in order to learn sentence patterns for writing. The design of the imitation may result a problem that it is required to create a sentence which bases on the given example. Students may come up with confusion as the learning goal is not clear, since many publishers adopt this methodology for most of the textbooks in elementary school learning. Student needs to build his/her personal idea to fitting in the provided sentence patterns which are pre-set in Chinese textbook. Many Taiwanese students encounter this challenge since the textbooks require them to adopt this skill, and the qualify examinations are designed to evaluate the skill on imitation, which is considered to be the ability to master sentence structures [26]. Some students could not achieve the assigned learning task (imitation) by the school teacher, i.e. unable to finish the given question because they may encounter side effects prior to the understanding on sentence structures. It is believed that students dropped out of the learning flow, as they lose interest and motivation on specific topic [8]. The reason for this phenomenon is that student faces unexpected difficulties such

as creativity, wordiness, or context knowledge problem [18]. Yet the goal of imitation is not to challenge student's creativity, it is designated to understand sentence structures.

1. Related Work

1.1 Background

User-centered design differs from the learner-centered design as the motivation is one of the important differences between two designs [23]. The user is motivated to facilitate their learning, but the learner (elementary level) does not. The reason why affects learner's motivation is that user holds a clear goal for attending the learning activity [23]. However, during the field observation in the elementary classroom, the learner often holds an absent mind when she/he attends the class, especially during the latter half of the class lecture. This might relate to the personal recognition on individual experience [11], peer pressure [17], and tutor's facilitation [2].

From the cognitive perspective, based on the psychological view, the independent and interdependent view of self result an inference on individual experience, which was considered as a factor on affecting student's learning [19], while they reviewed the different cultures on the affection of the cognitive, emotional, and motivation perspectives. The independent view on self implies a limited, unique, less integrated, low motivated cognitive ideas (Geertz, 1975), personal preference, and self realization (Johnson, 1985; Waterman, 1981). Under an isolated environment on one's individual thinking, she/he may be limited by the size of living space, the feeling (emotional), and a bounded idea generation/brain storming.

1.2 Fundamentals

[19] showed that many Asian cultures focused on the relation among others, which indicated a possibility that Asian people are more favored to share, discuss, and work collaboratively/cooperatively. Therefore, because of the less-stimulated learning is less-motivated [2], individuals may easily drop out of the learning flow, such as fall asleep, lost interest, or distracted from the learning activity [8]. As a matter of fact, since Asians incline to work together, there are possibilities that group learning may result a better stimulation on individualize learning [19]. After the field observation in the elementary classroom, the reason why it would result a better motivation on individualize learning would be that learners talk and discuss after attending the class. Factor appears on changing the way of individual learning, whereas different perspectives were summarized for group learning: the viewpoints on individual affects group cognition or group cognition affects individual [22, 28], human nature and similar studies [2], educational views of school teacher [10]. From 3 positions to recognizing learner's perception, characteristic, and learning efficacy, the aforementioned dimensions were discussed in three boarder ways [25]:

- Perspective on cognition: besides the individual/peer perspective of Piaget [22] and Vygotsky [28], Springer [25] also discussed the cognitive growth, cognitive elaboration, and cognitive restructuring (Dansereau, 1988).
- Perspective on affection: it was discussed on the interaction between students, teachers, and school. Since it was believed that school life was a social basis, student interacts with peers, and teacher interacts with schools...etc [10].

- Perspective on motivation: Springer [25] listed one phenomenon that “one’s success might affect another’s success” (Slavin, 1992) with comparison to an incentive model that stimulating one’s motivation and individual accountability.

More specifically, this study emphasizes on the perspective of motivation, peer pressure plays a role on stimulating the individual in different ways: personal and social behavior (Michell & West, 1996; Brown & Bradford, 1986), team production (Barron & Gjerde, 1997), partnership and sharing [17]. It indicates that learners are easily “affected” by their peers, especially when they sit next to each other, because learners would like to communicate in an informal way, and to have comparison among the others. This informal communication and the comparison imply that peer interaction makes a stimulation on individuals, and the stimulation may result possibilities on cultivating individuals [5] and motivation [3].

1.3 Sentence Combining and Syntax Structure

Sentence combining is an approach for understanding sentence structures [9]; it also provides a positive impact on the grammar structures [20]. It is believed grammar structures can also improve the learning outcome on not only reading comprehension and writing skills [13]. In order to understand grammar structures, [6] formulated the language to understand human nature. A similar study [12] was to enhance the interactivity on computers, which related to universal grammar raised by [6], that its goal is to uniform the language into a logical interpretation. The formulated sentence structure elaborates the human language in a systematic way, which implies a modularized representation as a means to help understanding the sentence pattern [6]. It is believed that learning sentence patterns could be possible to help understand paragraph structures [1], and it could enhance student’s writing skill especially on the logical organizing [15]. Hence, the sentence combining approach plays a role on understanding sentence patterns, not only a imitation, transformation, and connection, but also organization, ordering, and criticizing [14].

The idea of sentence combining was originally developed as a transformation of sentences, which was referred to Mellon’s transformational sentence combining [20]. Student understands the certain grammar and follows the pattern to finish the assigned tasks [20]. Going through the context in Mellon’s article, it was particularly clarified that sentence combining would not only result ‘complex’ sentences at the end of exercises, as Christensen [7] pointed out that the result of transformational sentence combining was more than 30 words, i.e. long and complex sentences. With regard to the work by Hughes [16], who pointed out that sentence combining, could enhance the syntactic structures for reading comprehension, especially on the lower half of students. In fact, sentence combining was examined on the natural syntax of written language [16]. As it may refer to sentence organization, and organizing, the related idea on sentence re-ordering becomes a possible effect [14]. Sentence combining varies, as it involved different kinds of sentence structures.

2. Model Design

In order to link student’s learning with the peer pressure, the goal of this study is to raise a model (Figure 1) for sustaining student’s motivation on individual problem solving. The whole model is divided into two categories (Figure 1, upper part which is in green), the practice stage, which concentrates on individual learning in the after-class activity, is to accumulate personal cognitive knowledge. The lower category (Figure 1, lower part which is in green) stands for the presentation, and it’s to show the personal effort and personal cognitive knowledge. By accumulating personal cognitive knowledge, student focuses on

the understanding of certain domain, and to improve her/himself through self-realization (Johnson, 1985; Waterman, 1981). But students showed a frustrated and bored face when the same learning activities continued, so external stimulation or internal variation are needed to be designed for eliminating the problem on motivation. Based on the individual learning, students are rewarded for their effort, and they will have an identity [27] for them to compare with the other students. Each student owns an answer, and their answer will be peer-evaluated, i.e. giving ranks from the randomized 5 peers.

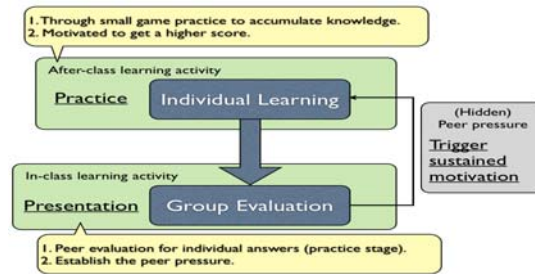


Figure 1: Model for sustaining student's motivation on sentence combining.

3. Discussion and Future Work

The current generic model emphasizes on the pedagogy design in a one-to-one classroom learning environment. Sentence combining is considered to be used as the pedagogy and the subject content for learning activity. Regarding the cognitive, affective, and motivational perspectives, this model is designed as an after-class model for motivated learning. From the cognitive knowledge accumulation, student works hard during the individual stage (practice stage) to apply classroom knowledge being taught by the school teacher. Then the student has a chance on demonstrating her/his effort and cognitive knowledge through peer-reviewed and comparison on personal effort among the other students. So it would be initiated an internal peer pressure for establishing the personal identity, and student would be motivated to practice more through this model. Although this pedagogical model adopted three perspectives as a foundation, more explorations should be developed further on the incentive models, and supportive results (e.g. questionnaires for attitude, interest, and motivation; statistical results of pre/post tests on learning effectiveness) would be supplied together in the future.

Acknowledgements

The authors would like to thank the National Science Council of the Republic of China, Taiwan for financial support (NSC-98-2631-S-008-001).

References

- [1] Alsina, A. (1996). The Role of Argument Structure in Grammar. CSLI Publications, Stanford, CA.
- [2] Bentley, T. (1994). Facilitation: Providing Opportunities for Learning, *Journal of European Industrial Training*, 18(5), 8-22.
- [3] Bindra, D. (1974). A motivational view of learning, performance and behavioral modification. *Psychol Rev*, 81, 199-213.
- [4] Brown, B. B., Clasen, D. R., Eicher, S. A. (1986). Perceptions of peer pressure, peer conformity dispositions, and self-reported behavior among adolescents. *Developmental Psychology*, 22(4), 521-530.

- [5] Chen, Z. H., Chou, C. Y., Deng, Y. C., Chan, T. W. (2007). Active Open Learner Models as Animal Companions: Motivating Children to Learn through Interacting with My-Pet and Our-Pet. *International Journal of Artificial Intelligence in Education*, 17(2), 145-167.
- [6] Chomsky, N. (1968). *Language and Mind*, Harcourt Brace Jovanovich, New York.
- [7] Christensen, F. (1968). The problem of defining a mature style. *English Journal*, 1968, 57, 572- 579.
- [8] Csikszentmihályi, M. (1990). *Flow: The Psychology of Optimal Experience*. New York: Harper and Row.
- [9] Daiker, D. A., Kerek, A., Morenberg, M. (1978). Sentence-Combining and Syntactic Maturity in Freshman English, 29(1), 36-41.
- [10] Dewey, J. (1943). *The School and Society: & The Child and the Curriculum*, London: The University of Chicago Press.
- [11] Gardiner, J. M. & Parkin, A. J. (1990). Attention and recollective experience in recognition memory. *Memory & Cognition*, 18(6), 579-583.
- [12] Harbusch, K., van Breugel, C., Koch, U. (2007). Interactive sentence combining and paraphrasing in support of integrated writing and grammar instruction: A new application area for natural language sentence generators. *Computational Intelligence*, 10(4), 579-590.
- [13] Hayes, J. (1996). A new framework for understanding cognition and affect in writing. In M. Levy & S. Ransdell (Eds.), *The science of writing: Theories, methods, individual differences, and applications* (pp. 1-27). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- [14] Hudson, R. (2006). Language Education: Grammar. *Encyclopedia of Language and Linguistics* (ss. 477-480). Elsevier.
- [15] Hunt, K. W. (1965). Grammatical structures written at three grade levels. National Council of Teachers of English Research Report no. 3. Champaign, Ill.: National Council of Teachers of English, 1965.
- [16] Hughes, T. (1975). "What the British Tell the U.S. about Writing and Reading." Paper, Annual Great Lakes Regional Conference of the International Reading Association, 1978. ED 175 020. Hulewicz, R. R. "A Prototype for Objectively Measuring Composition Ability. " *DAI* 35 (1975): 7167-A.
- [17] Kandel, E. & Lazear, E. P. (1992). Peer Pressure and Partnerships. *The Journal of Political Economy*, 100(4), 801-817.
- [18] Maloney, K. B., and B. L. Hopkins. "The Modification of Sentence Structure and Its Relationship to Subjective Judgments of Creativity in Writing." *Journal of Applied Behavior Analysis* 6 (1973): 425-33.
- [19] Markus, H. R., Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation, *Psychological Review*, 98(2), 224-253.
- [20] Mellon, J. C. Transformational sentence-combining: a method for enhancing the development of syntactic fluency in English composition. Report to the U.S. Office of Education, Cooperative Research Project No. 5-8418, 1967.
- [21] Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. New York, NY: Cambridge University Press.
- [22] Piaget, J. (1926). *The language and thought of the child*. New York: Harcourt Brace.
- [23] Quintana, C., Krajcik, J., & Soloway, E. (2001). Exploring a Description and Methodology for Learner-Centered Design. In W. Heineke & L. Blasi (Eds.), *Methods of Evaluating Educational Technology* (Vol. 1). Greenwich, CT: Information Age Publishing.
- [24] Rea, D. W. (2000). Optimal motivation for talent development. *Journal for the Education of the Gifted*, 23(2), 187-216.
- [25] Springer, L., Stanne, M. E., Donovan, S. S. (1999). Effects of Small-Group Learning on Undergraduates in Science, Mathematics, Engineering, and Technology: A Meta-Analysis, 69(1), 21-51.
- [26] Stevens-Long, J., & Rasmussen, M. (1974). The acquisition of simple and compound sentence structure in an autistic child. *Journal of Applied Behavior Analysis*, 3(7), 473-479.
- [27] Tajfel, H. (1982). *Social Identity and Intergroup Relations*. Cambridge, UK: Cambridge University Press.
- [28] Vygotsky, L. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.