

Classroom Management: Managing Instructional Scaffolding Through Research-Based Learning to Achieve Creative and Innovative Thinking Abilities

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Abstract: This research is concerned with measuring the contribution of the instructional scaffolding effectiveness through research-based learning to achieve creative and innovative thinking skills. The effectiveness of learning is largely determined by several factors including the supporting classroom atmosphere, learning opportunities, curricular alignment, formation of learning orientations, coherent content, thoughtful discourse, practice and application activities, scaffolding of student task involvement, strategy teaching, collaborative learning, goal-oriented assessment and achievement of expectation. This research used qualitative approach to describe a general picture of instructional scaffolding usage through research-based learning to achieve the ability of thinking creatively and innovatively. Data collecting was conducted in-depth investigation of one individual, group, or event to explore the causes of the underlying principles. The results are found to provide broader descriptions on: (1) planning of instructional scaffolding through research-based learning; (2) types of documents prepared and used in learning; (3) the ways the research-based learning are implemented; and (4) patterns of creative and innovative thinking as student learning outcomes. The impact of this reserach is students have a great motivation to learn actively and creatively through learning strategies are provided.

Keywords: *instructional scaffolding, research-based learning, creative and innovative thinking*

INTRODUCTION

Pedagogy divides into five different aspects, namely; convey, apply, create, communicate, and make decisions (delivering, applying, creating, communicating, and decision making), all of which inform the new environment (Fisher: 2005). Students are given the freedom to work in their own learning place; students write online journals, do research on the Internet, meet in groups to plan and create their website and digital media presentations, and evaluate their colleagues for collaboration skills and presentations.

Research and development-based innovation requires an environment that gives space for creativity to be allowed to develop, but still channeled to meet social and economic needs. The choice of strategy, process, structure and skills is the main thing to achieve this balance. There is no one recipe to follow, but innovation is to be allowed to develop and become, like the "part of the DNA of the entire company". Innovations that are constantly evolving and radical can be managed wisely in organizations. Broad strategic objectives related to innovation, processes to guide the younger generation in developing new ideas, and leadership approaches that balance creativity and added value, are very important things to discuss. Assessment tools that are useful in diagnosing organizational strengths and weaknesses in innovation, which readers can apply to their own organizations in increasing their capacity for sustainable and measurable innovation (Jain, R.K., Triandis, H. C., Weick, C. W., 2010). In addition, Wolf et al. (2016) argue that scaffolding during assessment can provide test takers with opportunities to better demonstrate their knowledge and skills that may not be elicited in traditional assessment tasks without

scaffolding. Scaffolding can be conceptualized as a temporary pedagogical structure that Smit et al. (2013: 817) suggest can ‘help pupils to perform a task they cannot complete by themselves and that is intended to bring pupils gradually to a state of competence in which they can complete a similar task or process independently.

What is research-based learning? Research-based learning is learning through direct and meaningful experience in research: students are researchers asking complex questions, seeking answers by doing research, and reporting on their research trips. Research-learning relationships can be seen as two sides of a coin, cannot be paired and complement each other. Why is research-based teaching needed? Universities can increase the relevance of education and can be better to prepare students for further studies and with new demands and emerging from the labor market. Close links between teaching and research strengthen their identity. Academics can help students by involving them in research to develop high-value competencies. Research-based teaching makes teaching more attractive to academics and can make teaching a vehicle for academic research itself.

Scaffolding, an instructional strategy for providing support until learners can perform a task on their own, holds a potential to improve assessments for test takers who need support to demonstrate their abilities (Ikkyu Choi, Mikyung Kim Wolf, Emilie Pooler, Lorraine Sova & Molly Faulkner- Bond: 2019). The concept of scaffolding is based on the work of Vygotsky, who proposes that with the help of adults, children can complete tasks that they normally cannot do independently. Scaffolded learning (Scaffolded instruction) is "a systematic sequence of requested content, materials, assignments, and teacher and peer support to optimize learning. Scaffolding is the process in which students are given support until they can apply new skills and strategies independently. When students learn with new assignments or difficult assignments, they need help. When they begin to show mastery of tasks, assistance or support is gradually reduced to transfer responsibility for learning from the teacher to students. Thus, students assume more responsibility for their learning, teachers reduce their support (Martha, L., 2002). For this reason, through this research, we tried to find the form of scaffolding using research-based learning methods to realize creative and innovative thinking skills.

Robert Colter & Joseph Ulatowski said, “Scaffolded learning’ describes a cluster of instructional techniques designed to move students from a novice position toward greater understanding, such that they become independent learners”. Poehner argued that several benefits of providing scaffolding in the assessment setting have been suggested in the literature, including engaging test takers in performing assessment tasks and measuring their emergent capabilities. Smith (2008) found that scaffolding from more capable peers through shared activities, cooperation, and joint problem solving was significant for children’s growth of musical understanding.

In attending to such variability, van de Pol et al. (2010) suggested the means for scaffolding should be flexibly utilized by teachers, taking into account aspects such as the complexity of the learning content, student ongoing progress, or the moment in the season. A stream of ‘student-centeredness’ has been increasingly placed at the forefront of educational policies, national curricula, and teacher education worldwide, under the tutelage of effective promotion of a broad range of cognitive, educational, and health outcomes (Tannehill et al., 2013). These types of shared activities tend “to motivate students, encourage them to coordinate roles, and provides the missing components in an individual students’ skills” (Bodrova and Leong, 2007: 118).

Specifically, this research attempts to propose the instructional scaffolding through research-based learning, to describe learning process through research-based learning, and exemplify creative and innovative patterns of thinking as student learning outcomes.

METHOD

This study uses a descriptive qualitative approach to describe the effectiveness of scaffolding learning through research based learning to achieve the ability to think creatively and innovatively in the form of words or narratives. This type of research is a case study, in the form of intensive testing of an entity equipped with sources and evidence of objects and subjects observed and limited to space and time. Case studies as part of qualitative research recognize that social reality is historical socio-construction and hence subjective. While the purpose of qualitative research is to understand and describe the typical complexity (special traits) of a phenomenon. Therefore, qualitative research is more suitable for using non-positivistic paradigms such as the interpretive, critical, or postmodern paradigm. Triangulation of a process carried out through data from various sources and forms (interviews, observations, and surveys); by carrying out this process qualitative researchers can state that the results of their research are "goals". Researchers can use several techniques in data collection, such as in-depth interviews and questionnaires.

Several stages in making a case study begin with determining the problem, creating a design and instrument, collecting data, making data analysis, and preparing a research report. The final result of this case study is an in-depth understanding of a phenomenon. The steps in conducting a case study research are: (1) Analyzing in depth the cases and situations that exist in the research subject; (2) trying to understand the case based on the point of view of the person carrying out (if in the form of activity) or who experienced it; (3) record the reciprocal relationship between events and analyze the factors that cause them to be interrelated. This study uses a case study design with the intent to understand the phenomenon experienced by the subject of study, which in this case is the advantage of using scaffolding through research based learning to achieve the ability to think creatively and innovatively.

This research was conducted at the English Language Education Study Program, Teacher Training and Educational Education Science, Singaperbangsa University, Karawang. This location was chosen because it met the criteria, namely: a) is an institution that organizes learning and learning processes; b) allows for the use of research based learning methods to achieve creative and innovative thinking skills. Furthermore, subjects in this case study are students in the sixth semester of the 2018-2019 academic year. The research subjects were determined using a purposive sampling technique. Purposive technique is a technique where the determination of a subject or research sample is adjusted to the purpose of the study and is based on certain criteria that have been set. Criteria for students who are subjects in this case study are: (1) registered as sixth semester students, (2) taking Educational Innovation Courses, (3) willing to use research based learning methods. The data in this study consisted of two data sources, namely primary data and secondary data. Primary data is data obtained directly from the subject as the source of information sought, in this study were students. Through primary data sources it is expected to obtain data on how to think creatively and innovatively on the students themselves. While secondary data sources come from leaders, lecturers, and staff who interact directly with students.

Data collection techniques were carried out in two ways, namely documentation and questionnaires. Documentation techniques are done by tracking data from documents or

something that has historical value, where the tracked data is related to the research theme. In documentation, researchers use it to obtain information about: (1) scaffolding learning design through research based learning; (2) types of documents prepared and used in learning; (3) the ongoing research-based learning process. Second, the questionnaire is a method of collecting data by distributing questionnaires consisting of a number of questions that must be answered by respondents. The questionnaire must represent the research questions and be related to the research proposal. Therefore, the questionnaire must be arranged clearly and easily understood so that it will be easier for respondents to read and understand the purpose of each question in it. On this occasion, the questionnaire was intended to reveal the description of creative and innovative patterns of thinking as student learning outcomes.

RESULTS AND DISCUSSION

This section attempts to describe the results of the analysis involving the ways the instructional scaffold in the forms of motivation and learning strategies employed by the teacher affects the students' critical thinking. The results include the data analysis gathered mainly from questionnaire on students' motivation and learning strategies as well as "conditional reasoning" to see how well the students do particular kind of thinking. The scaffolded instruction consists of eight elements that can be integrated into the classroom processes. It was revealed that the scaffolded instructions employed by the teacher has to some extent influenced the students' motivation and the learning strategies they used. According to the *Kamus Besar Bahasa Indonesia*, motivation is defined as "The encouragement arises in a person conscious or unconscious to take an action with certain goals ". In relation to learning, motivation includes all efforts to mobilize and provide stimulation to students both which coming from the students themselves (intrinsic motivation) to improve learning achievement and coming from the teachers, parents, or environment (extrinsic motivation). This is relative to the purpose of the learning itself, that is an attempt to gain knowledge.

As the analysis indicated, the students' motivation was found fairly well. In other words, they have a positive attitude about the class. In addition, learning motivation can be identified from several indicators including: 1) Duration of activities, 2) Frequency of activities, 3) Persistency at the goal activities, 4) endurance, tenacity and ability to deal with activities and difficulties to achieve goals, 5) Dedication and sacrifice to achieve goals, 6) Levels aspirations to be achieved with the activities carried out, 7) Level of achievement qualifications, 8) The direction of his attitude towards the target of the activity.

The result seems also relevant to what Sekarintyas (2017). She asserts that there is a positive and significant influence between Achievement Motivation and Critical Thinking Ability to Science Learning Outcomes. From the results of these calculations, it was revealed that the Motivation Achievement variable and Critical Thinking Ability jointly have a significant positive effect on Science Learning Outcomes. Hamdu & Agustina (2011) reported that there was a significant correlation between motivation and students' learning achievement. They later explained that if students have inner motivation learning, then the learning achievements will be good. Conversely if students have habits bad in learning, the learning achievement will be bad. In the same token, in language learning especially reading, Prasetyaningrum (2018) reported that: (1) there is an effect of learning motivation on students' reading comprehension abilities; (2) there is an influence of logistic thinking ability on students' reading comprehension ability; and (3) there is an interaction between motivation to learn and the ability to think logically about students' reading comprehension abilities. From these results,

it can be inferred that there is a significant correlation between students' motivation and their thinking ability, in this case, critical thinking.

In addition to motivation, scaffolded instruction was also reflected in students' use of learning strategies. Basically, a learning strategy is a person's way to deal with complete an errand. All the more explicitly, a learning system is a person's method for arranging and utilizing a specific arrangement of aptitudes so as to learn content or achieve different errands all the more viably and effectively in school just as in nonacademic settings. In this manner, instructors who train learning procedures show understudies how to adapt, as opposed to encouraging them explicit educational plan substance or explicit abilities. The results revealed that the students used varied learning strategies when dealing with learning and accomplishing tasks. The learning strategies used include:

1. Cognitive strategy
Cognitive leads to direct use of language material. This group includes, for example, repetition of a language expression, grouping words with the aim of storing them in memory, concluding a grammar rule based on examples, applying grammar rules in exercises, using mother tongue or other languages that aim to guess the meaning of a word. Memory techniques include cognitive strategy groups.
2. Social and affective strategy
Social strategies are implemented by learning together with others. For example, by asking for help from the teacher or classmates to solve the difficulties faced. Through affective strategies the learner consciously pleases himself by motivating himself or indulging in the success of learning that has been achieved.
3. Metacognitive strategy
In this case the learner designs his own learning process, observes concentration, oversees the success of teaching a task, determines the problems faced in the execution of tasks and evaluates the results of learning activities. If the cognitive learning strategy is directed directly to the language being studied, then the metacognitive strategy is not directly and this strategy can be applied to several learning tasks.

The scaffolded learning through learning strategies leads the students to develop critical thinking. Based on the analysis of the students' questionnaire, it was revealed that the instructional scaffolding used by the lecturer has to some extent promoted the students' critical thinking. It was found that the teaching strategy that encourages students to think critically on the subject matter in the lecture can use various teaching strategies that use the approach of active learning, collaborative learning, contextual learning, using a higher order thinking approach, and self-directed learning.

CONCLUSIONS

The scaffolded instructions in the form of motivation and learning strategies given by the lecturer did have a significant impact on the students' development of critical thinking. As the analysis indicated, the students' motivation was found fairly well. In other words, they have a positive attitude about the class. In addition to motivation, scaffolded instruction was also reflected in students' use of learning strategies. The results revealed that the students used varied learning strategies when dealing with learning and accomplishing tasks. The learning strategies used including cognitive strategy, metacognitive strategy, and social and affective strategy. The scaffolded learning through learning strategies leads the students to develop critical thinking. It was revealed that the instructional scaffolding used by the lecturer has to some extent promoted the students' critical thinking.

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