DOES LEARNING FROM OTHERS IN A CLASSROOM SETTING ENHANCE OR DAMAGE CREATIVITY?

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Abstract

In the digital age with a wide array of information never before so openly and easily accessible by the general public, students are allowed to access and reference other people's ideas and works in their learning processes more than ever before in human history. This paper seeks to explore how learning from others in an educational setting could possibly impact on students' creativity, and more specifically, to examine how the acquisition of two different types of knowledge in students' learning processes (i.e. acquisition of skill and acquisition of cognitive strategies) could impact on students' levels of creativity. Apart from delineating the distinct impacts on levels of creativity as a result of two different types of learning contents, this paper also studies how the classroom climate in which students study could moderate the relationship between these two aforementioned types of knowledge acquisition and students' levels of creativity.

Keywords: class climate, acquisition of knowledge, acquisition of cognitive strategies, creativity.

1. INTRODUCTION

It is not atypical for students in this digital era to constantly make reference to other people's works and ideas or to consult internet materials in their learning process so as to enhance their efficiency at school. Some students always ask their senior peers for their past assignments in order to enhance the quality of their submissions. It is also a common practice for teachers to showcase some sample assignments, sometimes in A, B, and C grades, to students for reference. However, literature suggests that solution reuse would jeopardize individuals' creativity in terms of quality of the creative ideas but conducive to the productivity in generating these ideas (Cheung et al. 2008). As nurturing creative future leaders have been one of the most important dimensions of education in liberal democracies, it is therefore imperative for us to explore whether referencing or learning behaviors of university students could facilitate the formation of creative ideas, and if yes, how the beneficial impacts would be crystalized. Also, as information system projects are often very sophisticated, students are required to demonstrate creativity in tackling these projects. This paper, therefore, seeks to contribute to literature by delineating how different types of acquisition behavior could possibly impact on students' creativity.

Contrary to some scholars' depiction of creativity as a nebulous concept, as a sudden mysterious process, or as a peculiar personal gift to create things out of non-existent (Brandt 1986), Perkins (2009) claims that even for the creative episodes of Coleridge, Mozart, Poe, and various others, the seemingly personal eccentricity and sudden insights involved are built upon and explainable by the concrete embodiment of the intentionality of our thinking process. As according to Salomon and Perkins (1998), learning on both individual and social aspects shaped our cognitive process and hence our interactions with the outside world, and according to Karlins and Schroder (1967), learning via inductive teaching program may have the potential to change the cognitive process of the future generations, it is imperative for us to explore what sort of contents of knowledge that we may acquire from others could possibly impact on people's creativity. At the same time, as existing literature on a workplace setting illustrates that the climate for innovation in the corporate world may affect the way people utilize skills and strategies, and henceforward the creative outcome, this study also seeks to explore whether the same basic principle is also applicable to an educational and learning context (Loewenberger 2013; McLean 2005).

There has been abundant literature relating to individual learning, creativity, and the correlations between the two. For instance, Rice and Rice (2005) examines how the SECI model (i.e. learning through socialization, externalization, combination, and internalization) could facilitate the creative formation of knowledge in an inter-organizational alliance setting. Similarly, Corbett (2005) and Kolb (2014) assert how experiential learning theory characterized by the dual process of opportunity identification and exploitation correlates to the idea of creativity. This paper, unlike existing literature focusing overwhelmingly on the mechanisms of learning, proposes to explore how learning from others could be a double-edged sword dependent on the contents of learning.

This paper will first utilize existing literature to define the meaning of contents of learning, and to illustrate the distinction we draw between the acquisition of skills and the acquisition of cognitive strategies which collectively form the idea of the contents of learning in this paper. After that, we would examine literature on the relationship among contents of learning (i.e. skills and cognitive strategies), the theoretical basis surrounding our model, and hypotheses we developed. Finally, this

progress report would address issues as to what are the measures utilized in this paper, where are the measurements coming from, and how we are going to adapt and make sense of the measures in the context of the particular educational setting of this paper.

2. LITERATURE REVIEW

There has been abundant literature on how implicit and explicit knowledge sharing could impact on individuals‘ levels of creativity. For instance, Huang et al. (2014) ascertains that when teams members engage in tacit, rather than explicit, knowledge sharing, it is more likely for team members with dissimilar expertise to elicit creative behaviors. Similarly, Leonard and Sensiper (1998) asserts that it is the tacit knowledge, rather than physical skill embodiment could be conducive to group dynamics and group innovation. In the same study, Leonard and Sensiper (1998) also delineates the linkages between cognitive skills and tacit knowledge sharing. Although it is difficult to draw a fine distinction between how knowledge is shared (i.e. tacit mode of knowledge sharing or knowledge sharing through more explicit means such as codification) and what types of knowledge is shared (cognitive strategies or specific skills) as the two usually coincide with one another, it is still worth attention as the two are not exactly the same and may have different implications on individuals‘ level of creativity. The term ―creativity‖ is abstract in nature and as a consequence, quite sophisticated to measure. Consistent with Woodman et al. (1993) definition, creativity may refer to any useful novel solutions in any arena.

The literature review thereinafter will focus on utilizing existing literature to define the factors in our study, as well as addressing what have been ascertained by scholars in the past on the complex relationship among acquisition of skills, acquisition of cognitive strategies, class climate and levels of creativity.

2.1 Acquisition of skills

Skills, according to Afflerbach et al. (2008), refer to individuals‘ the proficiency of performing a complex act, and according to Alexander et al. (1998), refer to the capability to proficiently perform a complex action through automatic reactions which often do not involve extensive cognitive process in individuals‘ minds. Notwithstanding the fact that there is abundant support from literature that ―skills‖ are usually conducive to creativity, such as Chan and Zhao‘s (2005) contention that drawing skills are positively related to artistic creativity and Bailin‘s (1984) assertion that skills are in fact an important part of creativity, while not disputing skills are important and even necessary prerequisite for creative endeavors, Weisberg (1999) contends that there should be an inverted u-shape relation between skills and creativity, because in order to be creative, the indoctrination and mortar bounding the old ideas together must not be too strong, and because, as he wrote, ―too much experience can leave one in ruts‖. Similar to Aghion et al. (2002) who argue for a u-shape model relating competition level to creativity, Weisberg (1999) asserts that skill level have a similar effect in regard to creative formation of ideas.

2.2 Acquisition of cognitive strategies

Cognitive strategies as a general idea, according to Afflerbach et al. (2008), emphasizes on the

deliberation and conscience process involved in performing tasks, which is of diametrically difference to skills that refer to proficiency in performing complex actions which often do not involve extensive cognitive process in individuals‘ minds (Alexander et al. 1998). Based on Perkins‘s (2009) book titled *How the Mind Works*, contrary to skills which may sometimes jeopardize creativity, the cognitive process such as critical thinking and the conscious in adapting one‘s learning involved in performing tasks is what precisely motivate the creative formation of ideas. It is the intentionality, appropriateness and conscious process involved (i.e. active thinking in determining the means and the path to accomplish goals in each and every situation) that make cognitive strategies a different concept compared to skills, which are systematically practiced and executed across various situations (Johnson & Pearson 1975; Vygotsky 1978; Levin & Pressley 1986). One thing merits additional consideration is that for a given individual, strategies may transfer into skills if the individual concerned form a habit of utilizing the same strategies whenever encountered a similar situation, because as per the definitions above the difference between skills and strategies lies on the different level of intentionality and their respective automatic or non-automatic status (Afflerbach et al. 2008).

2.3 Classroom Climate on innovation

In corporate setting, ―climate for innovation", means whether employees perceive that change and novel solutions to problems are encouraged in the workplace (Koys & DeCotiis 1991; Amabile et al. 1996). Koys and DeCotiis (1991) assert that employees are more likely to elicit creativity when they perceive that creativity is encouraged.

Similarly three climate factors surrounding students‘ creative behaviors are proposed; they are: intra-family climate, inter-student interactions and teachers‘ empowerment in school‘s setting (Thousand et al. 2002). The three climate factor positively impact on the correlation between learning and creativity in an educational setting. While many scholars in the past such as Amhed (1998) Ekvall (1996) suggest a positive correlation between climate for innovation and creativity, this study seeks to examine how exactly the classroom climate through which students are interacting with their instructors (similar to the climate for innovation in a workplace setting focusing on interaction between managers and employees) factor into this relationship.

3. DEVELOPMENT OF HYPOTHESES

As per the literature review, the term ‗skills‘ is defined as automatic reactions in absence of cognitive process in this paper, and the creativity is referred to the creation of novel solutions. There are several findings shown in few published journals mentioning different relationships between automatic skills and creativity. Gaut (2009) suggests that technical skills may not quite relate to creativity. Similarly, Haas and Hansen (2007) proves that technical skills may enhance efficiency notwithstanding, technical skills have little relevance to people‘s creativity. Some scholars published the view that high level of proficiency may damage or jeopardize creativity in some way (Rostan et al. 2002). It is Cheung et al (2008) finding that motivates our study, since in this paper, Cheung et al (2008) pushed a one step further by delineating that as people with relatively high level of technical skills would be tempted to reuse existing solutions and lose the incentive to create novel solutions, technical skills actually work to the detriment of creativity and inhibit the creative performance of individuals, especially when the qualitative dimension of creativity is concerned. Therefore, we propose:

Hypothesis 1: Acquisition of skills is negatively related to students' creativity

Cognitive strategy is different from skills since, based on aforementioned definition, the strategy is adopted consciously and with deliberation before action. Although few definitions pointed out that cognitive strategy could be more innate, for example, the memory and intelligence quotient, the cognitive strategy is also highly linked with knowledge acquired from others. Few scholars mentioned that the acquisition of cognitive strategies might enhance disabled students' creative self-efficacy (Graham & Harris 1989). In industry and business world, strategic processes of problem solving are believed to be conducive for creativity (Mintzberg & Lampel 2012). Therefore, we suggest:

Hypothesis 2: Acquisition of cognitive strategies is positively related to students' creativity

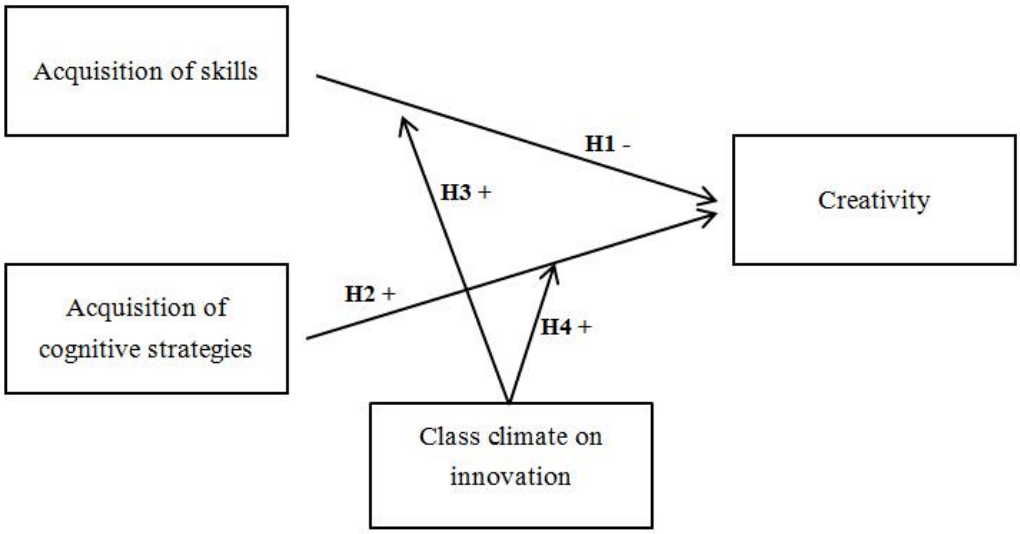

Figure 1. Proposed Model

Prior studies illustrate that when classroom climate for innovation is strong at schools, the negative effects of skills development on levels of creativity will be weakened (Davies et al. 2013). Also, as normally the climate for innovation per se will not lead to enhanced level of creativity in an organizational setting, it would be more appropriate to characterize classroom climate for innovation as a moderator (Dackert et al. 2004). The rationale of Davies et al.'s (2003) study is that when students are in an environment conducive for creative inputs, students may change the way they acquire the technical skills. In this very circumstance, students may focus less on learning the skills themselves, but rather on how they could utilize the skills they acquired to their own benefits (i.e. creating novel solutions). Therefore, we believe:

Hypothesis 3: Classroom climate for innovation weakens the negative relationship between acquisition of skills and students' creativity

While hypothesis two proposes that acquisition of cognitive strategies would enhance people's creativity, the innovative environment in classroom may help further enhance student's creativity because an environment for innovation stimulate the initiatives of students to focus more on developing novel solutions to problems concerned and increase the motivation to use more sophisticated cognitive strategies or apply strategies on a more frequent basis. As a consequence, we

believe that individuals‘ levels of creativity will be improved as a result of the interactions among classroom climate, usage of cognitive strategies, and levels of creativity. Therefore, we submit:

Hypothesis 4: Classroom climate for innovation strengthens the positive relationship between cognitive strategies and students' creativity

4. METHODS

4.1 Survey method and samples

Questionnaire will be distributed to the sample population: university students across different majors and across different years of study, as this study seeks to explore the impacts of learning from others on university students‘ creativity in an educational setting. Expected sample size is 500. Control variables such as participants‘ gender, nationality, majors, year of studies, etc. will be recorded so as to ensure the relative impact of acquisition of skills and cognitive strategy on student creativity are tested appropriately.

4.2 Measures

Classroom Climate for Innovation, similar to climate for innovation in workplace, is defined as the extent to which support and encouragement was provided to students to take initiative and explore innovative or novel solutions (Martins & Terblanche 2003). There are a variety of research measures to assess the climate for innovation from existed literature focuses on corporate setting. The authors develop the measures for classroom climate for innovation based on the measures put forward by Durcikova et al. (2011) in workplace setting with adjustments of wordings so as to fit in to the educational context of this research. For instance, in Durcikova et al.‘s (2011) original questionnaire, one of the questions read ―my supervisor encourages me to develop my ideas.‖ In an efforts to tailor the measures to an educational environment, we rewrite the questions as ―my professors encourage me to put forward novel ideas and suggest improvements.‖

The measurements for acquisition of skills in existing literature often focuses on highly specialized areas such as surgery, rendering measurements contained therein of little relevance to our study (Moorthy et al. 2003; Beard et al. 2005). Based on the special nature of our respondent population, we establish measures based upon definition of skill as per the literature review part, and tailor it to the context of our research. According to Afflerbach et al. (2008), skills are strongly associated with high proficiency in performing complex act and the low degree of cognitive process involved, and as a consequence, we developed three general measures surrounding the definition and one specific measure based on Afflerbach et al. (2008) study on reading skills (because reading skill, unlike highly specialized skill such as skill of performing orthopedist surgery, is applicable to all our respondents whatever they are specialized in) to quantify individuals‘ skill level. One sample question on acquisition of skills is ―When I learn from others, I acquire their automatic reactions to problems.‖

Acquisition of cognitive strategies is measured by the Motivated Strategies for Learning Questionnaire (MSLQ), which is used to measure different learning strategies of college students by utilizing a self-reported approach (Pintrich 1993). The original questionnaire involves nine dimensions: declarative knowledge, procedural knowledge, conditional knowledge, planning,

information management strategies, monitoring, debugging strategies, and evaluation. Notwithstanding the fact that there are nine dimensions mentioned in the MSLQ, the measures in this paper focus on only four of them (i.e. planning, monitoring, evaluation, conditional knowledge) owing to the fact that these four dimensions are more relevant to the learning and educational context of our research. At the same time, we believe that the four questions we selected would be most readily understood by respondent population, and hence help ensure validity of our research. One sample question on this measure is "When I learn from others, I learn how they develop several alternatives to a problem before answering".

As for creativity measurement, it is suggested by Brandt (1986) that individuals' track record rather than personality questionnaire or self-reported creativity measurements should be used in measuring creativity in order to minimizing social desirability bias in responding to questions on creativity (Nederhof 1985). While we recognize Brandt's (1986) assertion that self-reported questionnaire may tempt respondent to answer it in certain "socially desirable" ways, it is inherently difficult to keep track of every respondents' track record of creativity and what qualify as track record in creativity may still be a subjective measurement. As according to Tierney and Farmer (2002), creative self-efficacy also predicted creative performance, we believe that self-assessed creativity measurements may still be valid for the purpose of this research. Measures for self-reported creativity are based on Durcikova et al.'s (2011) study. For instance, one measure under this category reads "I often produce creative ideas".

Similar to Durcikova et al.'s (2011) recognition that factors such as age, gender, seniority level, and time pressure may affect the levels of creativity elicited in workplace, we also put students' age, year of study, personality, and field of study into control variables so as to minimize the effects on these factors on students' levels of creativity.

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