Engagement – Promoting Aspects of Teacher's Instructional Style and Academic Self Regulated Learning

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Abstract

The study tested a model showing the effect of engagement-promoting teacher instructional style and self-regulated learning using Structural Equations Modeling (SEM). There were 335 fourth year high school students from a National high school in the Philippines participated in the study. Rating scale on Teacher Autonomy (Reeve, Jang, et. al., 2004), Teacher Structure (Skinner & Belmont, 1993), and the Academic and Self-Regulation Scale (Magno, 2010) were administered to the respondents. In the SEM analysis, the model shows the measures of goodness of fit (RMSEA=.075 and GFI=.95) indicating that the model is a good fit. It was found that the teacher's instructional styles of providing autonomy support and teacher structure significantly affects the student's utilization of academic self-regulated leaning strategies. Teachers manifesting autonomy supportive attitude structure results into an active student engagement, persistence, effort, and self-regulated leaning.

Keywords: Academic Self-Regulated Learning, Teacher Autonomy Supportive, Teacher Structure

Introduction

Self-regulated learning is an important component for student's success in school (Zimmerman & Martinez-Pons, 1986). Most researchers agree that it refers to multi-dimensional and self-steering processes that target one's own cognitions, feelings, and actions (Boekaerts, Maes, & Karoly, 2005). However, students' learning experiences triggers expectancies and beliefs which might influence their choice and effort in the learning situation (Boekaerts & Cascallar, 2006). Aspects of teacher behaviour and instruction like clarity and pace, structure, autonomy support, teacher enthusiasm, humor, fairness, and teacher expectation about student's capacity may have an effect on how student's self-regulate their learning (Boekaerts & Cascallar, 2006).

The self-determination theory (Ryan & Deci, 2000, 2002) explains that teacher's instructional style can be conceptualized along a continuum that ranges from highly controlling to highly autonomy supportive (Deci, Schwartz, Sheinman, & Ryan, 1981). Teachers who are autonomy supportive involve themselves in nurturing student's intrinsic motivation, make use of non-controlling informational language and acknowledge the students' point of view and affective states (Deci, et al., 1994; Mageau & Vallerand, 2003; Reeve & Jang, 2006; Reeve, Jang, et. al., 2004; Ryan & La Guardia, 1999).

Students who are exposed to this kind of teacher behaviour responds well to the learning task.

Autonomy-supportive teacher behavior brings about positive educational outcomes among students for it somehow satisfies the student's basic needs for autonomy (Hardre & Reeve, 2003; Reeve & Jang, 2006), competence and relatedness (Hardre & Reeve, 2003). Moreover, such teacher behaviour is perceived by students as acts that fosters beneficial teacher-student relationship (Reeve & Jang, 2006) and elicits student active engagement in the learning process (Reeve, Deci, & Jang, 2006). Level of student engagement may vary depending on the teacher's autonomy supportive behaviour (Reeve, et. al., 2004) because students are able to distinguish different ways on whether teachers support or suppress their need for autonomy in doing learning tasks or school work. Fostering relevance and suppressing criticisms are two identified important autonomy-supportive behaviour that students perceive as having positive influence in their cognitive and behavioural engagement in the learning tasks (Assor, Kaplan, & Roth, 2002).

Structure (Skinner & Belmont, 1993; Skinner et. al., 1998) refers to the amount and clarity of information that teachers provide to students about expectations and ways of effectively achieving desired educational outcomes. A teacher is said to provide effective structure if he/she presents clear, understandable, explicit and detailed directions, offers a program of action to guide students' ongoing activity, and offers constructive feedback on how students can gain control over valued outcomes (Brophy, 1986; Skinner, 1995; Skinner & Belmont, 1993; Skinner et. al., 1998). In a motivational point of view, teacher-provided structure helps students develop a sense of internal locus of control, perceived competence and self-efficacy, mastery motivation, optimistic attributional style and perceived control in influencing academic outcomes (Skinner, 1995; Skinner, et.al., 2008).

Teacher autonomy support and teacher provided structure were found to be positively correlated (Jang, Deci & Reeve, 2010; Sierens, et. al., 2009), and both instructional styles strongly and positively affects student's classroom engagement (Jang, Deci, & Reeve, 2010; Skinner & Belmont, 1993; Tucker., et. al., 2002). Autonomy supportive teachers predicted both measures of individual and collective students' engagements while structure uniquely predicted student's collective engagement. In a learning situation, a teacher who encourages intrinsic motivation and stimulates student interest, acknowledges feelings about the learning task, is approachable and welcomes feedback and inquiries, provides clear directions, guides the student in doing the task, scheduling activities, providing realistic academic goals result into student's active individual and group involvement, effort and persistence to accomplish the task. Though previously perceived as distinct and somewhat opposite components of teacher instructional style, recent studies (e. g., Jang, Deci, & Reeves, 2006; Sierens, 2009) have somewhat identified its additive

contribution and influence in student learning engagement. Moreover, higher levels of engagement was achieved when elements of teacher structure is paired with moderate to high levels of teacher autonomy-supportive ways (Sierens, 2009).

Teacher structure and teacher autonomy supportive were perceive to have a synergistic effect on students' engagement in planning, self-monitoring, and evaluating progress. Consistent with SDT, teacher structure in the learning context provides the students with the necessary know-how to facilitate self-regulation while teacher autonomy supportive behaviour motivates students to effectively engage in self-regulatory strategies (Sierens, et. al., 2009).

Social cognitive perspective on self-regulated learning (Bandura, 1988; Zimmerman, 1983) recognizes the influential role of environmental and motivational factors which are assumed to affect a learner's utilization of self-regulated learning strategies (Zimmerman & Martinez-Pons, 1988). Learner's self-regulated strategies may be enhanced through teacher's application of various strategies in the leaning context, particularly in the classroom setting (Magno, 2009; Magno 2010). Self-regulated leaning has been commonly conceptualized as a student's active involvement in the leaning process (Zimmerman, 1986); which involves the learner's utilization of metacognitive, motivational and behavioural processes (Zimmerman & Martinez-Pons, 1988). The six model of self-regulated learning was conceptualized by Zimmerman and Martinez-Pons (1986; 1988). Magno (2010) validated the six model of academic self-regulated learning among Filipino respondents and uncovered a seventh factor structure of learning responsibility which reflect "a learner's liability, accountability, and conscientiousness of the learning task and learning experience" (p. 70). The seven factor model of academic self-regulated learning strategies (Zimmerman & Martinez-Pons, 1986; 1988; Magno, 2010) are memory strategy (i. e., rewriting notes, making lists, use of graphic organizers, outlines and summarizes topics and visualize words), goal-setting (i. e., plan and keep track of schedules on daily and weekly activities), self-evaluation (i. e., openness to feedback, monitor self improvements, open to change), seeking assistance (reaching out to friends, peers or classmates to verify, clarify and validate learning), environmental structuring (avoiding unnecessary situational distractions that may hinder learning), organizing (i. e., highlight important concepts and information, study at own pace) and learning responsibility (i. e., rechecking homework, concern for deadlines, prioritize schoolwork).

This study tested a model showing the effect of engagement promoting instructional styles of autonomy-supportive and teacher-provided structure on the academic self-regulated learning of students in high school. This is explained in Deci and Ryan's Self-Determination Theory (2000, 2002) where teacher's instructional behaviour lies within a continuum of highly supportive and highly controlling, manifested in autonomy-supportive

behaviour and teacher-provided structure, which, taken together, forms a synergistic influence in student engagement, effort, persistence, and adaptation of self-regulated strategies. Research supported the notion that teachers play a crucial role in the cognitive and motivational functioning of students.

Method

Research Design

The study used an explanatory cross-sectional design (see Johnson, 2001). It is explanatory cross-sectional because it tested the model where teacher's instructional style as it affects academic self-regulated learning. It explains how the phenomenon took place by looking into the causal factors it produced. The data are collected only once at a brief period (Johnson, 2001). Cross-sectional is appropriate for it describes the phenomena of relationships at a fixed point in time in which the instructional style and academic self regulation were measured (Polit & Hungler, 2004). Cross-sectional is appropriate in terms it provides a strong theoretical framework to guide the analysis.

Participants

The participants were 335 fourth year high school students from a national high school in the Philippines. This utilized stratified random sampling for the purpose of even distribution of participants among different section in science high school and regular class.

Instruments

Academic Self-Regulation Scale (A-SRL-S). The A-SRL-S by Magno (2010) is comprised of seven factor model consisted of 55 items specifically Memory Strategy (14 items), Goal Setting (5 items), Self Evaluation (12 items), Seeking Assistance (8 items), Environmental Structuring (5 items). Learning Responsibility (5 items) and Organizing (6 items). This comprised of a four- point scale (strongly agree =4, agree, disagree=2, strongly disagree=1). This was derived from an initial principal component analysis. The framework was derived from Self Regulation from Zimmerman and Martinez-Pons (1988). It yields a high internal consistencies that was confirmed with a measurement model of good fit (RMR =.02, CFI =.94, and CFI .91). This was further validated by CFA and established by Polychotomous Rasch Model. The items were categorized into 14 (self evaluation, organizing and transforming, goal setting and planning, seeking information, keeping records and monitoring, environmental structuring, seeking peer assistance, seeking teacher assistance, seeking adult assistance, reviewing tests,

reviewing notes and reviewing texts) which was reviewed by educational psychologist and further revised. The Cronbach's alpha of the seven categories ranges from .78 to .82.

Teacher's Instructional Style (Jang, Reeve, & Deci, 2010) which comprised of two major categories (1) Teacher's Autonomy Support is characterized by the teacher nurturing inner motivational resources, informational language and acknowledges, and accepts students' negative affect; and (2) Structure where the teacher gives slear, understandable, explicit, and detailed directions; Strong guidance and feedback; Skill-building, and instructive. The two main categories yielded an ranges of interrater reliability of .72-.88 (autonomy support) and .84 -.88 (structure). Five raters observed classroom skills of teachers for 133 classroom visits. The raters worked in pair for each observation for classroom visits.

Procedure

A letter of permission was sent and approved by the school principal. The data collection was conducted last the Philippines. Both the Academic Self Regulation (A-SRL-S) and Teaching Instructional Style were administered to the following students of Special Science Class (SCC) and Basic Education Curriculum (BEC). This was facilitated by two teachers in their homeroom class time. The instructions were first given and explained in accord to the written guidelines in the questionnaire. This took them 15 to 20 minutes to answer the mentioned questionnaire.

Data Analysis

Pearson r was used to determine relationship between factors of Teacher's Instructional Style and Academic Self Regulation.

The Structural Equation Modelling technique allows to test hypotheses and make inferences on causation about the effects of certain variable on the other without doing experimental manipulation and random assignment (Munro, 2001). However the causal statements should be theory driven otherwise this violates the theoretical basis of SEM. Structural Equation Models comprised of the following phases: Specification, Identification and Estimation. The Specification is the application of theories into theoretical model. This is being transformed into SEM with structural equations. It consist of causal path between latent variables.

The identification is validation of enough information (both theoretical and statistical) to estimate the unknown causal parameters between two latent variables in the SEM. The primary principle in statistical identification of the SEM is that known parameters (correlation or covariances) between latent variables in the model must equal or exceed the number of unknown parameters in the model (Munro, 2001).

The SEM estimation means to provide information about the unknown causal parameters. Thus SEM fit is the determining whether the model is statistically and theoretically fit of the individual causal parameters in the SEM and likewise the overall fit, The model fit is being reported as overall empirical fit of the measurement model as maximum likelihood chi-square or goodness of fit.

Results

The means, standard deviations, Cronbach's Alpha, and intercorrelation of the factors are conducted determine the relationship and existing patterns among factors.

The means of the seven categories of the academic regulation ranges from 2.997 to 5.0 with standard deviations ranging from .4363 to .677. The Cronbach's Alpha ranges from .79 to .83. The Teacher's Instructional Style (Autonomy Structure and Teacher Autonomy Supportive).

Table 1

Means and Standard Deviations of the Components of Academic Self-Regulation and Teacher's Instructional Style

	N	M	SD	Cronbach's Alpha
Memory Strategy	333	2.99	.43	.79
Goal Strategy	333	2.93	.59	.78
Self Evalution	333	3.13	.45	.83
Seeking Assistance	333	3.12	.49	.82
Environmental	333	3.02	.67	.65
Learning Responsibility	333	3.26	.53	.78
Organizing	333	3.26	1.5	.80
Autonomy Structure	333	5	1.6	.83
Teacher Autonomy Support	333	5	2	.91

The correlations among factors of Teachers' Instructional Style and Academic Self Regulation shows significant results (p=.05). It was also noted that that the direction of the relationships is positive, however some have low correlations.

Table 2

Intercorrelation of the Teachers' Instructional Style and Academic Self Regulation

	1	2	3	4	5	6	7	8	9
1. Memory strategy									
2. Goal Strategy	.56**								
3. Self Evaluation	.64**	.49**							
4. Seeking Assistance	.59**	.44**	.66*						
5. Environmental structuring	.38**	.22**	.31**	.43**					
6. Learning Responsibility	.59**	.49**	.55**	.56**	.41**				
7. Organizing	.62**	.41**	.60**	.66**	.47**	.59**			
8. Autonomy structure	.20**	.12*	.20**	.30**	.21**	.19**	.21**		
9. Teacher Autonomy Support	.17**	.10	.24**	.26**	.23**	.15**	.21**	.62**	

**p<.01

One model was tested for this study with Teacher Instructional Style and Self Regulation with two and seven major components respectively. The RMSEA obtained was .075 which signifies that the model is a good fit. The model comprised of two latent variables with 11 observed indicators based on several theories. The initial measurement model showed correlations between the two latent variables in the model. It was also observed the causal paths from the latent variables. The chi square for the model was (χ^2 =74.27, df=26) suggesting the model fit the data well, The unknown parameter were also estimated since it has been presumed that the model was theoretically and empirically identified. The following measures specifically fit the index such as McDonald Noncentrality (.95), Population Gamma Index (.95) and Adjusted Population Gamma (.92) indicate good fit.
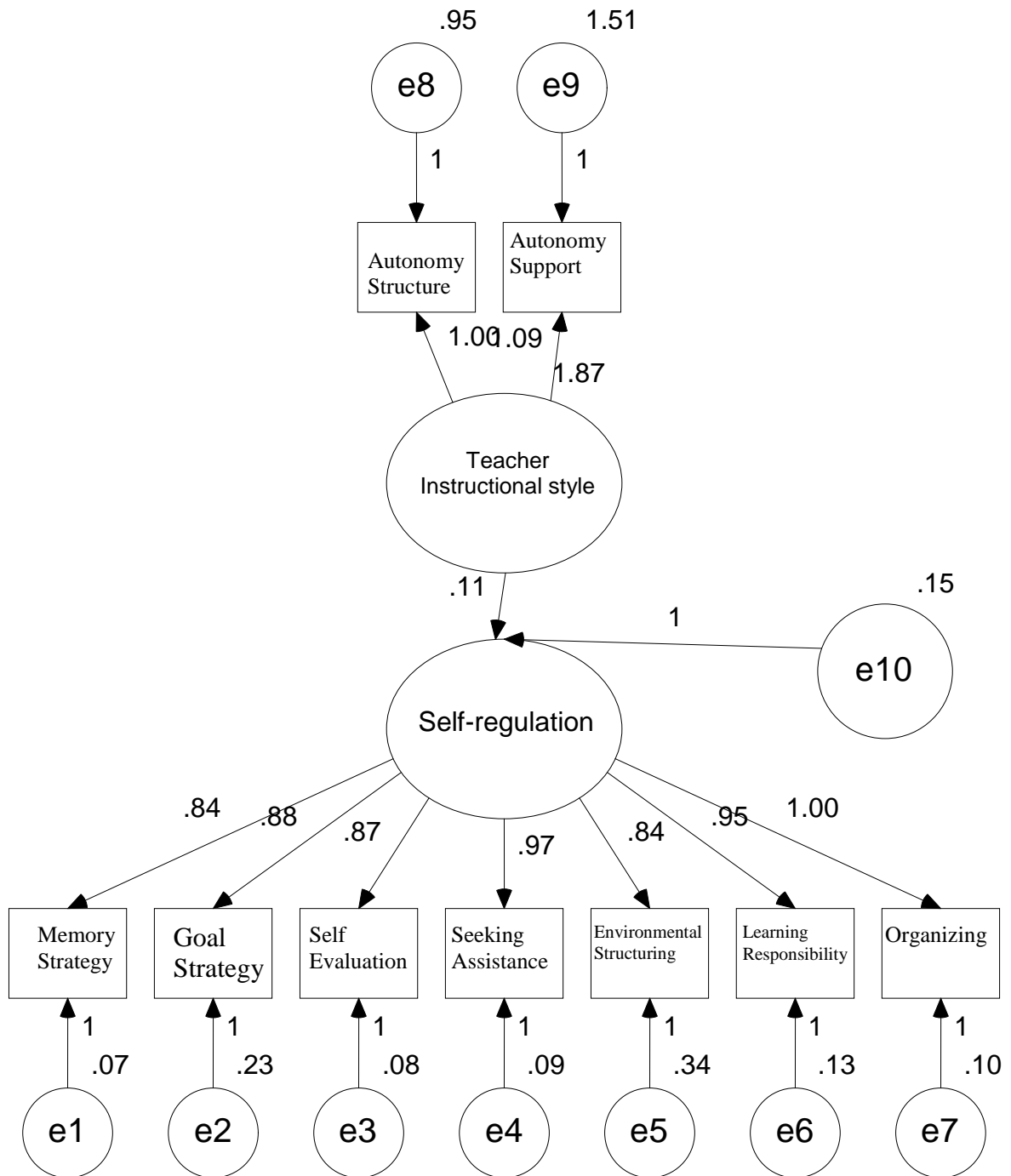
Figure 1. Effects of Engagement – Promoting Aspects of Teacher's Instructional Style on Academic Self-Regulated Learning

The latent variables and the errors for each manifest variable are significant This implies that the proposed factors are significant components of the construct measured. This means that all effects of one latent factor on another have significant paths. Thus the result shows that teacher instructional styles have a significant direct effect on Academic Self Regulation ($p < .05$). The model provides empirical data that teachers who are autonomy supportive bring positive outcomes among students (Hardre & Reeve, 2003; Reeve & Jang, 2006). Similarly with teacher autonomy support it was noted to be positively related to teacher structure (Jang, Deci, & Reeve, 2010; Sierens et al., 2009).

Discussion

The result of the study showed that the factors of teacher's instructional style are significantly related to the factors of academic self-regulated learning strategies (Table 2). More importantly, the study was able to test the structural model that supports the connection between the two variables. The model showed goodness of fit in explaining the effect of teacher's instructional styles in student's utilization of academic self-related learning strategies which means that the observed values among variables approximated the model tested. The present study provides significant contribution to the existing literature in two ways. Firstly, the study established the additive or synergistic attributes of teacher instructional style of autonomy supportive and providing structure; as opposed to its portrayal in the literature as being either antagonistic, curvilinear, or independent (Reeve, Deci, & Jang, 2010), on its influence on student's engagement in the learning process. Secondly, the impact of teacher's autonomy supportive behaviour and teacher-provided structure as complementing influences is broadened into the cognitive and motivational processes involved in student's self-regulated learning.

The findings of the study support previous studies demonstrating the effect of teacher autonomy supportive and teacher –provided structure in student's active engagement in the learning situation (Jang, Deci, & Reeve, 2010; Assor, Kaplan, & Roth, 2002; Reeve & Jang, 2006; Reeve, et. al., 2004) and self-regulated learning (Sierens et al., 2009). Teacher's autonomy supportive behaviour in the classroom situation that fosters student's interest, enjoyment, sense of challenge, opportunities for initiative, providing choices, flexibility, identifies value and meaning of the learning tasks, acknowledges student's affective states, openness and understanding, promotes students' utilization of academic self-regulated strategies. Students are active participants in the learning process and therefore can distinguish and identify factors in the learning situation that may foster or inhibit satisfaction of their psychological needs for autonomy, competence and relatedness.

Students actively engage, exert effort and persevere despite difficulties and frustrations, when exposed to a classroom environment where teachers provide structure such as being instructive, gives understandable directions, clear action plan and learning goals, provide competence-relevant information and strong guidance, give constructive and skill-building feedback on progress. Non-threatening student-teacher relationship experienced by the students through provisions of supportive teacher behaviour and organized learning structure are conducive and essential to affect positive learning processes and outcome. Teachers who provide secure and supportive behaviour, promotes student autonomy, competence, and develop and maintains clear learning structure contributes and complements different the strategies utilized by students to regulate learning.

The result of the present study highlights the crucial role teachers' play in the cognitive and motivational engagement of students in the learning situation. Students, though active agents responsible for their own learning, are still influenced by environmental factors that may either trigger, promote or hinder their "adaptive" or self-regulative processing. Self-regulation as perceived by educators as necessary for success in school and learning should be facilitated by the learning environment, specifically, through teacher's effective and adaptive utilization of instructional styles which enables feelings of autonomy, competence and relatedness in the learning tasks.

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