Direct and Indirect Effects of Teacher Instruction and Feedback on Student Adaptive Help-Seeking in Upper-Elementary Literacy Classrooms

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Abstract

Ninety-three fourth and fifth-grade students were observed once weekly for one semester during reading and writing instruction. A structured observational protocol was used to record information about instruction and feedback provided to these students by their teachers, as well as the students' participation, regulation, and self-instruction behaviors. A path analytic model was tested to investigate the direct and indirect effects of teacher instruction and feedback on student self-instructive information pursuits or adaptive help-seeking behaviors. The findings reveal that some aspects of teacher instruction and feedback influence student self-instructive information pursuits directly; however, the primary influence of teacher instruction occurs indirectly through effects on students' patterns of participation and monitoring. A student's personal pattern of participation and monitoring during teacher-directed instructional episodes was an important determinant of self-instructional information pursuits during independent literacy activities in the upper-elementary school classroom.

The transition from lower-elementary (K-2) to upper-elementary (3-5) is a time characterized by increased academic demands along with changes in the division of roles in the classroom. The renegotiation of responsibilities is especially apparent in reading and writing instruction. Upper-elementary students are expected to make an abrupt shift from instruction focused on decoding words to instruction focused on meaning-making and deep processing of texts (Chall, Jacobs, & Baldwin, 1990). After third-grade, the amount of time devoted to reading instruction significantly decreases, and students are expected to independently complete more lengthy reading and writing assignments (Durkin, 1974-1975). Not all students negotiate this transition successfully; consequently, even once successful students in lower-elementary may begin to struggle with the new academic expectations of the upper-elementary. It is important to understand the instructional practices and student learning behaviors and dispositions that may facilitate (or hamper) this transition and promote independent learning in reading and writing.

Self-regulated learners autonomously direct and manage their own learning instead of relying on continual guidance from external agents (Zimmerman, 1989). During teacher-directed instruction, self-regulated learners engage in the learning process through the employ of a variety of participation strategies. They answer questions, provide examples and make connections, generate solutions, and acquire and apply heuristics to help manage their cognitive loads. Self-regulated learners also are aware of what they know

and don't know (Winne, 1995; Zimmerman, 1995). When more information is needed to complete a task or master a concept, self-regulated learners use their teachers and peers as resources to acquire this information.

Upper-elementary teachers often expect students to have developed already a healthy repertoire of self-regulatory strategies. Although teachers may spend little time deliberately assisting their students along the path toward autonomous learning, even incidental interactions in the classroom may direct the course of students' development as effective independent learners. Research is needed that can assist educators in upper-elementary classrooms to better understand the development of self-regulation, the instructional practices influencing its development, and their critical role in the process. The purpose of this study is to investigate how information and feedback provided by teachers during literacy instruction relate to students' strategies for participation and regulation and eventual self-initiated and directed information pursuits.

Proposed Model of Adaptive Help-Seeking Information Pursuits

The goal of independent learning does not preclude use of external resources. A successful self-regulated learner initiates information pursuits about academic topics, tasks, strategies, or performances, among other participation options. These interactions are a forum for students to access, elaborate, organize, integrate, or verify information and enhance understanding (Butler & Winne, 1995; Woloshyn, Pressley, & Schneider, 1992). Self-instructional behaviors such as these are critical ingredients for literacy success. Therefore, understanding the factors that may contribute to the development of these self-instructional strategies is crucial. The present study seeks to test a model of students' self-instruction which hypothesizes that a student's use of an important component of self-instruction - information pursuit - is influenced by levels and types of instructional information and feedback available in the classroom as well student's own patterns of participation and regulation within instructional interactions with the teacher.

Help seeking, or information pursuit behavior, is an important strategy used by self-regulated learners. Whereas some types of help-seeking behaviors require excessive dependency on the teacher, *adaptive help-seeking* refers specifically to a set of behaviors that contribute to increased cognitive autonomy. *Adaptive help seeking* is a self-regulatory behavior used by a learner when he/she asks for assistance or information that is intended to facilitate his/her independent learning (Newman, 2002). Adaptive help seeking is a complex process involving specific competencies and resources, including: knowing what help is necessary, how to formulate an appropriate question, knowing who to ask for help and how to ask in a socially appropriate manner, willingness to admit that help is needed, and a classroom context that supports help seeking behavior (Newman, 2002). Help seeking behaviors in elementary school children vary depending on several social and contextual factors (Newman & Schwager, 1995).

Information made available by classroom teachers through direct instruction is a primary influential source in the development of academic self-regulation (Bronson, 2000; Neitzel & Stright, 2003; Scarr, 1992). Contingent on the content of these academic interactions,

students may begin to assemble a repertoire of general heuristics or learning strategies (Schunk & Cox, 1986), models or behavior scripts or routines (Schunk, 1987, 1997), and a set of performance standards and criteria (Zimmerman & Ringle, 1981); fundamental tools for self-regulation (Bugental & Goodnow, 1998; Winne, 1996). A student's beliefs about help seeking are influenced by the way teachers respond to help seeking behavior; in an effort to avoid negative evaluations, a student will act more passively when his/her help seeking is viewed negatively by a teacher (Newman, 2002). Adaptive help-seeking or informational pursuit is a strategy that can only be employed once a student has achieved a certain level of metacognitive competence; therefore, the questions and probes used and metacognitive information provided by teachers can help students become more skilled in recognizing gaps in their understanding and in asking questions (Newman 2002). Thus, teacher feedback plays two important roles in influencing help-seeking behavior. First, the type of feedback a student receives in response to his/her help-seeking attempts may determine the student's subsequent use of the strategy. Second, a student's exposure to teacher modeling of effective questioning may result in increased help-seeking competence.

Although certain invitations to participate may be extended during teacher-led instruction, students choose to engage in numerous ways. For example, they may simply recount rote facts and content information, forms of interaction that can be accomplished with only lower levels of information processing. Alternatively, students may choose to engage in the discussion of strategies, make personal connections and predictions, or self-evaluation or process assessments; forms of interaction that require deeper levels of information processing. In addition a student's active monitoring, either internally (e.g., independent, self-directed review of the accuracy of one's own work) or socially (e.g., comparing one's work to that of a peer), may be necessary to ensure appropriate and effective use of self-instructional skills. Before students can pursue additional information from the resources available in the classroom, they must perceive a gap between actual performance and desired performance (Butler & Winne, 1995; Nelson-Le Gall, 1985). We propose that students' select participation and regulation patterns ultimately may determine whether or not the students derive maximum benefit from social-contextual affordances of the classroom and function effectively with self-instructional tasks such as adaptive help-seeking pursuits.

Summary of Study

The ability to seek help appropriately is especially important for students in upper-elementary due to the increased cognitive demands placed on them during literacy instruction (Chall et al., 1990; Pressley et al., 1998). This study examines the relative contribution of a profile of social-contextual features of the classroom and students own participation and regulation strategies for understanding their subsequent self-initiated information pursuits in school. In sum, the central hypothesis of the study was that students' level of participation and information processing would mediate the relations between teachers' instructional information and feedback patterns and students' self-instruction strategies in elementary school literacy classrooms. Information gained from this study can enrich understanding of the development of these important tools for

execution and regulation of learning and offer much needed insight in the design of more supportive and effective literacy instructional practices.

Method

Participants

The data analyzed represent a subset of data collected in a larger study of self-regulation. An invitation to participate in this study was extended to all the students in four classrooms in two different schools in a southern region of the United States. One school served a predominantly African-American population in a low income urban neighborhood, and the other served a predominantly Caucasian population from a low income rural area. According to information from the U.S. Census Bureau quick facts and American Factfinder, just over 50% of the adults in these areas are high school graduates, less than 10% have bachelors degrees. The per capita income is between $14,000 and $16,000. Ninety-three students (25 fourth-graders and 68 fifth-graders) comprised the sample.

One of the classroom teachers taught two fifth-grade writing/reading classes in the urban school (a charter school in the neighborhood). Two of the remaining three teachers taught fourth-grade self-contained classes in the rural elementary school in a nearby town. The other teacher taught a fifth-grade self-contained class in the same rural school. Each of the teachers was fully certified in elementary education in the state of Tennessee; two of the four teachers had master's degrees in education. All four of the teachers were female.

Procedure

This study was conducted across the second semester of the school year. Teachers and their students were observed during reading/writing class instruction once a week throughout the semester. Each class was observed approximately 14 times and each observation lasted approximately one hour. Student academic behaviors and teacher instruction and feedback behaviors were coded for three-minute intervals using a structured observation protocol similar to that used by Neitzel in previous work (Neitzel & Stright, 2003). Each interval focused on four students located in the same area of the classroom. An observation rotation scheme was used to identify the target students for each three-minute observation interval. Each student was observed between four to six times during each observation period. This systematic rotation prevented the researcher from selecting students for an interval based on the quality of interaction he/she was having with the teacher. Teacher instructional behavior during each observation interval also was coded.

In addition, information about the instructional context was recorded for each interval. An interval was considered *teacher-directed* when the predominant direction of instruction was from teacher to student. Typically during these intervals, the teacher positioned herself at the front of the classroom, and students remained in their desks and raised their hands to ask questions or make comments. The context was coded as

independent when the students worked on an individual assignment, typically a worksheet or an assignment from a textbook. The *group* context code was used when the students were either assigned to groups by the teacher or formed their own groups. During group work, students typically worked on one task together as a group (i.e., only one product was expected), although there were instances of group work that involved individual work products.

Measures

Teacher Instruction and Feedback. The instructional information and forms of feedback available during teacher directed academic lessons were observed and assessed using frequency counts of each of the targeted instructional behaviors. Instructional information in the classroom was identified as either basic information (i.e., rote facts related to the content being studied) or metacognitive information (i.e., strategy and process information intended to enhance performance, including the identification of common pitfalls) and the frequency of each information type was recorded. An overall feedback score was computed to represent the total amount of performance feedback provided to each student. Additionally, frequency scores were calculated for two types of performance feedback: undeveloped (i.e., purely evaluative and corrective comments) and formative (i.e., evaluative comments that also included information about how to improve performance). Finally, information was obtained about the frequency of teacher questioning supportive of autonomous student thinking (i.e., questions that prompted students to generate strategies, reactions, and predictions).

Student Academic Behaviors. The students' academic participation, regulation, and information pursuit behaviors were assessed using an observational coding system based on an instrument developed in previous studies of students' academic self-regulation (Neitzel & Stright, 2003; Stright, Neitzel, Sears, & Hoke-Sinex, 2001). Adaptations were made to the coding system to facilitate assessment of students' specific participation and progress monitoring strategy use and information pursuits during teacher directed and student-centered instructional activities in the classroom. The students' participation, regulation, and information pursuit behaviors in each context were assessed using frequency counts of each of the targeted behaviors.

Three participation types were assessed: basic-level or concrete information contributions (i.e., recalling and recounting rote facts or content information), deep-level information contributions (i.e., providing strategies, making predictions or connections), and self or process evaluations. Two types of monitoring strategies also were tracked for each student: internal or self-monitoring (i.e., checking and correcting one's own work, independent review of one's own work) and external or social-monitoring (i.e., comparing one's work to that of peers). In addition to computation of overall participation and regulation frequency scores in each academic instructional context, composite scores were calculated for each student to represent the student's overall frequency of each of the levels of participation and types of monitoring in each of the instructional contexts.

The student's adaptive pursuits of information in the classroom were assessed using frequency counts of instances in which the student sought information in the classroom either from the teacher, a peer, or other resources in the classroom. The student's pursuits of three information types were coded: additional information, task-process information, and normative information. Instances of the student seeking objective, factual information, or requesting more details about a topic of study were counted as pursuits of additional information. Instances of the student seeking task or process (mastery) information, that included strategies, rationales, and explanations of procedures or how and why things work, were counted as task-process information pursuits. Instances of the student seeking information for the purpose of making social comparisons, evaluating performance in relation to peers, or determining relative standing ("Did I do it the way it's suppose to be?" "How did everyone else do it?" "Is mine as good as his?") were counted as normative information pursuits. Final scores for each type of information pursuit were calculated by averaging the frequency counts for each behavior from all observation periods in each of the instructional contexts.

Results

First, preliminary analyses were conducted in order to provide descriptive information about the teachers' instructional behaviors and the children's academic behaviors. In addition to the initial analyses reported here, the distributions of each variable were examined statistically and graphically and the assumptions associated with general linear model analyses were checked. All assumptions of normality, homogeneity of variance, and linearity were upheld. Next, a hypothesized model of the relations among the teachers' instructional behaviors and the students' academic participation and regulation behaviors during teacher directed lesson and information pursuits during child-centered learning activities in the classroom were explored through path analysis.

Teacher Instruction and Student Participation, Regulation, and Information Pursuits

Frequencies, ranges, means, and standard deviations were calculated for each of the teacher instruction and student participation and regulation variables (Table 1). During teacher directed instructional activities in the classroom, typically, the teachers asked directed questions (Mean = 3.02, SD = 2.80) and provided basic information (Mean = 2.25, SD = 2.04). The teachers also routinely asked questions that served to support the students' active thinking about the material (Mean = 1.20; SD = 1.15). However, the teachers less frequently provided information about task demands, strategies, or procedural management suggestions (Mean = .60; SD = 1.38). The teachers did not often provide performance information or evaluation (Mean = .44; SD = 1.30). During teacher directed instructional activities, the students participation was characterized most regularly by recounting information (Mean = .49; SD = .87) and self-monitoring (Mean = .40; SD = .77). Infrequently, the students' methods of participation involved more deep-level processing forms (Mean = .16; SD = .40) and social monitoring (Mean = .19; SD = .46). The students rarely engaged in evaluation (Mean = .04; SD = .17) during teacher-directed instructional activities in the classroom.

Frequencies, ranges, means, and standard deviations were calculated for each of the student academic information pursuit behaviors during student centered instructional activities in the classroom (see Table 1). The children most frequently pursued task process information during student centered academic activities (Mean = .41; SD = .24), but also regularly pursued normative or evaluative information (Mean = .22; SD = .14) as they worked without teacher direction.

Path Analyses to Test Model Predicting Students' Information and Help-Seeking Pursuits

The relations among teacher instruction and student participation and regulation behaviors during teacher-directed instructional activities and student information pursuits during student-centered academic activities in the classroom were investigated through path analysis, which is useful particularly when it is hypothesized that a variable or set of variables may be operating as mediators of the relations between variables (Hoyle & Smith, 1994). In such instances, path coefficients are more accurate measures of the relation between any two variables because the effects of the other variables in the model are controlled statistically (Duncan, 1975).

Standard model fitting procedures utilizing maximum likelihood estimation were performed using LISREL 8.2 (Joreskog & Sorbom, 1998). The overall fit of the hypothesized model was tested using the goodness of fit χ^2 statistic. A significant χ^2 indicates the model is significantly different than the data; consequently, a χ^2 with a probability greater than .05 indicates that the model adequately fits the data.

A full model, in which teacher instruction and feedback patterns have direct as well as indirect effects on students' self-instruction strategies (information pursuits), was hypothesized and investigated. The overall model fit the data well, χ^2 (df = 25, n = 69) = 23.37, $\underline{p}$ = .56. The adjusted goodness of fit index, which does not consider the number of estimated parameters relative to sample size, was .89 (desired value, > .90, according to Sorbom & Joreskog, 1982; Thompson, 2000) and lends support to the initial conclusion regarding overall model fit. The root mean square error of approximation (RMSEA), a measure of the discrepancy in model fit per degree of freedom, was .012 (target value, < .05; Byrne, 1998; Sorbom & Joreskog, 1982) indicating a good fit of the overall model.

In addition, the fit of each of the model components was evaluated by examining the path coefficients (reported in Figure 1), which represent magnitude of the unique relationship between variables (after relationships with the other variables are controlled). In the examination of model component contributions, several differences were noted in the magnitude of path coefficients compared to original bivariate correlations, an indication of the possible presence of interactions (Falk & Miller, 1992). Therefore, in these instances, potential interactions among teacher and student behaviors during teacher-directed activity in relation to students' information pursuit behaviors were tested using the following procedure. In a series of hierarchical regression equations predicting each of the information pursuit behaviors, main effects (teacher instruction and/or student participation/regulation factors) were entered first into the equation; and then in a second step, the interaction term was entered into the equation (Berry & Feldman, 1985; Lewis-

Beck, 1980). A significant change in R^2 between the two steps is an indication of significant non-additive effects (Pedhazur, 1982). In order to interpret the meaning of any confirmed interactions with the student information pursuit behaviors, low and high groups for each main effect (predictor) variable were created using median splits, relations with the relevant information pursuit behavior(s) were plotted, and follow-up tests of the interaction were performed using a procedure described by Aiken and West (1991) in which the strength of relationship for each group was tested to determine whether it was statistically significant. The results of the model component analyses and post-hoc follow-up analyses are reported below.

Teacher instructional information/feedback and student levels of participation/processing

Squared multiple correlations for this part of the model were examined to determine the amount of variance in student participation levels explained by the hypothesized relations with teacher instruction and feedback patterns. The profile of teacher instruction and feedback behaviors explained .35, .34, and .03 of the variance in students' recall, deep-level participation, and evaluation, respectively (evaluation was more highly related to students' own deep-level processing). Teacher instruction and feedback explained .23 and .27 of the variance in students' self-monitoring and social monitoring.

Specifically, performance information, formative and undeveloped, were related negatively to students' recall (β = -.29 and β = -.50, $p < .05$, respectively). In addition, foundational instruction (basic information) was related positively to student recall (β = .28, $p < .05$). Basic instructional information also was related positively to students' deep level participation (β = .28, $p < .05$). Performance information, undeveloped, was related negatively to student self-monitoring (β = -.26, $p < .05$). Basic instructional information and formative performance information were related positively to student social-monitoring (β =.37 and .31, $p < .05$, respectively), and autonomy supportive questioning was related negatively (β = -.22, $p < .05$).

Relations between teacher instruction/feedback patterns and student participation levels and students' self-instruction behaviors

The profile of teacher instruction and feedback behaviors along with student participation and processing levels explained .60 and .55 of the variance in students' normative information and procedural/task-process information pursuits. According to reduced model squared multiple correlations, teacher instruction and feedback uniquely explained .22 and .05 of the variance in students' normative and procedural/task-process information pursuits. In sum, it appears that teacher instruction and feedback is directly related to students' self-instruction behaviors; however, it most strongly contributes to students' informational pursuits indirectly, through its influence on students' patterns of participation levels and strategy use.

Normative Information Pursuits. Metacognitive information was the only aspect of teacher instruction to contribute uniquely (negatively) to students' normative information pursuits (β =-.25, $p < .05$). However, students' participation behaviors during teacher

directed activities were related significantly to their information pursuits during student led activities (independent work and group work with peers). Specifically, recall and evaluation were related positively and deep level participation was related negatively to students' pursuits of normative information (β = .62, .43, and -.48, p < .05, respectively). Social-monitoring also was associated with students' normative information pursuits (β =.35, p < .05). Follow up tests revealed that there also was a significant interaction between teacher instructional questioning and student participation forms as well as student social monitoring. In addition, follow up tests revealed an interaction between teacher metacognitive information and student participation. Students who engaged in high levels of recall were more likely to pursue normative information during student-directed work even if the teacher provided high levels of support for student autonomous thinking through their instructional questioning patterns (β = .43, p = .001); however, for students who engaged in lower levels of route recall, teacher questioning was related to decreased pursuits of normative information (β = -.23, p = .05). Although in general increased social monitoring was associated with increased normative information pursuits, in the presence of increased teacher instructional questioning supportive of student thinking, social monitoring was not associated with normative information pursuits (β = .02, p = .87). And, even students who engaged in higher levels of route recall were less likely to pursue normative information if the teacher provided higher levels of metacognitive information during teacher-directed instructional activities (β = -.34, p < .01).

Procedural or Task-Process Information Pursuits. Teachers' performance information (undeveloped) and autonomy supportive questioning were each uniquely related to students' pursuits of procedural or task-process information (β = .21, and .36, respectively, p < .05). In addition, students' self-monitoring was related positively (β = .29, p < .05) and recall was related negatively (β = -.38, p < .05) to procedural or task-process information pursuits. Follow up tests revealed that there also was a significant interaction between teacher instructional questioning and student monitoring. In addition, there was an interaction noted between teacher metacognitive information and student evaluation. Students who engaged in high levels of self-monitoring during teacher directed activity were not likely to pursue task-process information during student-directed work even if the teacher provided high levels of support for student autonomous thinking through their instructional questioning patterns (β = -.20, p = .08); in contrast, for students who engaged in lower levels of self-monitoring and higher levels of social monitoring, teacher questioning was related to increased pursuits of task-process information (β =.47, p < .001). Only students who engaged in higher levels of evaluation during teacher directed instruction appeared to benefit significantly from increased teacher metacognitive information (β = .51, p < .001).

Discussion

This study examined the relative contribution of a profile of instructional features in upper-elementary literacy classrooms and students own participation and regulation strategies for understanding their subsequent self-initiated information pursuits during

independent or student led literacy activities in school. The central hypothesis of the study was that students' level of participation and information processing would mediate the relations between teachers' instructional information and feedback patterns and students' self-instruction strategies in elementary school literacy classrooms. The findings suggest that some aspects of teacher instruction and feedback influence student self-instruction directly; however, the primary influence of instruction occurs indirectly through the effects of various instructional components on students' own patterns of participation and monitoring during teacher-led literacy instruction activities.

Self-regulated literacy learning is not exclusively a cognitive process – social components of literacy are at play as well (Freebody, Luke, & Gilbert, 1991; Gee, 1996; Street, 2003. In this study, the social component of interest was the student's ability and willingness to seek out information from social sources (i.e. peers and teacher) during reading activities. The findings of this study indicate that the social dynamics of the classroom (how students participation and monitoring are sanctioned) impact how students pursue information related to reading and writing activities that have been assigned. A student's personal pattern of participation and monitoring during teacher-led episodes was an important determinant of self-instruction during independent work and the relationship between instructional input and performance feedback provided during teacher-directed literacy instruction and students' self-instruction during subsequent episodes of independent work was best described by taking into account the students' personal repertoires of instructional management behaviors during teacher-led activities. In sum, even if a teacher provided high-quality instruction and extensive feedback, students did not necessarily benefit if the classroom culture had not provided ample opportunity for monitoring and deep level participation.

Numerous studies and reports have documented the role of strategies in reading and writing development (Graham & Perin, 2007; Panel, 2000; Pressley, 2002). Most of this research focuses on how students use strategies to interact with and comprehend texts. Researchers interested in cognitive strategies instruction emphasize that good readers are able to assess whether or not what they read makes sense (monitoring) and employ strategies to ensure comprehension (such as summarizing, drawing inferences, etc.). (Dole, Duffy, Roehler, & Pearson, 1991). This study expands the definition of strategic reading and writing to include strategies that are enacted socially (i.e., students' strategic information pursuits while working on reading and writing activities). We view reading and writing classroom as communities of practice (Lave & Wenger, 1991) in which the literacy practices that occur in these spaces are ideologically governed (Barton, Hamilton, & Ivanic, 2000).

Before they seek out information, students must first be aware of a gap in their knowledge. Such metacognitive awareness of their reading and writing abilities and literacy tasks is a necessary prerequisite for adaptive help-seeking or informational pursuits (Baker, 2002; Baker & Brown, 1984; Pressley, 2003). Metacognitive awareness allows students to evaluate their progress during a reading and writing activity and identify missing information that is needed to ensure success. However, although information-seeking behavior is an important literacy practice, it is one that is not always

supported in traditional reading and writing classrooms. Teacher instructional practices may promote or inhibit student adaptive help-seeking by providing access (or not) to important strategy, task, and performance enhancement information. In the absence of availability of this information from the teacher, students may be ill-equipped for the demands of the literacy classroom in upper-elementary school in which the amount of time devoted to reading instruction significantly decreases, and students are expected to independently complete more lengthy reading and writing assignments (Durkin, 1974-1975).

Before students seek out information from teachers and peers, they also must feel empowered to do so – the social dynamics of the classroom have to allow for this type of strategy use. Reading and writing activities have to be viewed as social practices instead of isolated cognitive accomplishments (Freebody, Luke, & Gilbert, 1991; Gee, 1996; Street, 2003). Purcell-Gates et al. (2004) recently stressed this point saying "We reject this implication that the social and the cognitive are independent and incommensurable…. We suggest that a more accurate way of envisioning the relationship between the sociocultural and the cognitive is as relating transactionally in a nested relationship, with the cognitive occurring within the sociocultural context." Intentionally or unintentionally, components of teacher instructional practices may sanction certain forms of participation and regulation. The classrooms in this study were mostly traditional in that students interacted more with worksheets and workbooks than with authentic texts (books, stories, nonfiction sources). In these classrooms, cognitive aspects of reading and writing development predominated – but even still, the social aspects were not totally absent. There were many instances observed in which students initiated social maneuvers for acquiring the information they felt they needed. Students found ways to seek out information socially; however, it was the teacher-sanctioned participation and monitoring during teacher-directed instruction that ultimately determined the extent to which information seeking occurred during student-centered literacy learning activities in the classroom.

The findings derived from this study holds important implications for both practitioners and researchers. Armed with a deep understanding of the ways in which their instructional feedback patterns help students learn to orchestrate their own learning, teachers can begin to facilitate self-regulatory development in their students. For researchers, the model may inform the way they think about the role of classroom experience and individual resources in shaping patterns of self-regulatory behavior. Additionally, this research provides evidence that a teacher's influence on his or her students goes beyond traditional measures of academic growth. An important component of educational quality, as defined in the context of this study, is the development of information pursuit habits that will help students independently engage in self-instruction in the literacy classroom.

In order to construct knowledge, learners must be actively engaged with information and activities available in classroom settings (McCaslin & Good, 1996). Participation is a critical tool for academic success (Schneider & Bjorklund, 1992). Reciprocally, information has a strong influence on cognitive engagement and forms of engagement

with tasks (Winne, 1995). In their early academic interactions, students may begin to assemble a repertoire of general heuristics or learning strategies (Schunk & Cox, 1986), models or behavior scripts or routines (Schunk, 1987, Schunk & Zimmerman, 1997), and performance standards and criteria (Zimmerman & Ringle, 1981); fundamental tools for self-regulation (Bugental & Goodnow, 1998; Winne, 1996), particularly subsequent self-instructional behaviors such as adaptive help-seeking or informational pursuits. Thus, students' subsequent information pursuits and the information options emphasized in their pursuits may be contingent on the content or forms of information made available as well as their early participation and management. However, the results of this study also illuminate the need to investigate perceived (and actual) instructional context purposes or constraints; as well as task relevant variation in "need," selection criteria and factors influencing choice, and the precursive or adaptive function of particular strategies

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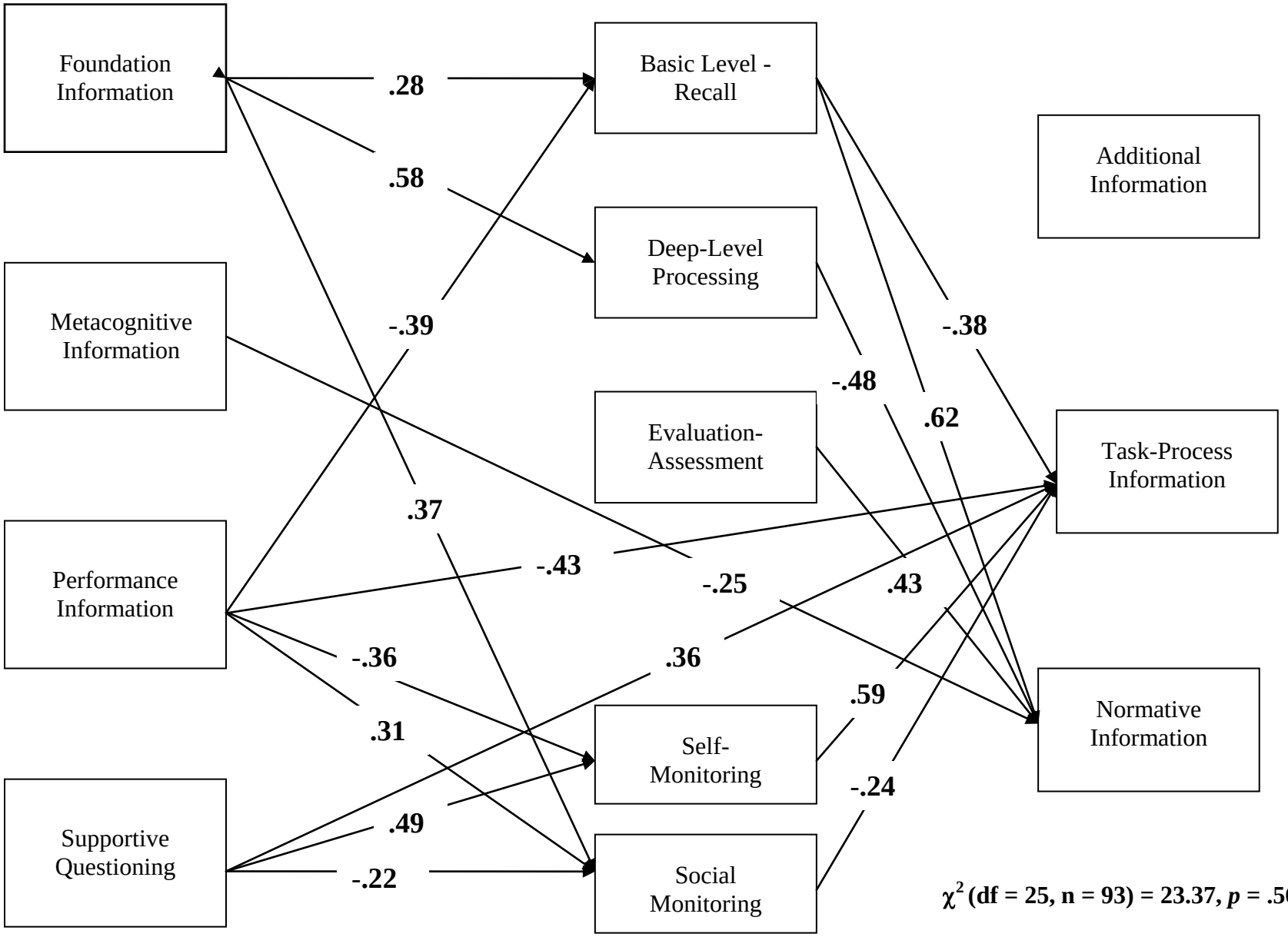
Foundation Information
Metacognitive Information
Performance Information
Supportive Questioning
Basic Level - Recall
Deep-Level Processing
Evaluation-Assessment
Self-Monitoring
Social Monitoring
Additional Information
Task-Process Information
Normative Information
.28
.58
-.39
.37
-.43
-.36
.31
.49
-.22
-.25
.36
-.48
.62
-.38
.43
.59
-.24
χ^2 (df = 25, n = 93) = 23.37, *p* = .56