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## **Student Perceptions of Cognitive Efficiency: Implications for Instruction**

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# Student Perceptions of Cognitive Efficiency: Implications for Instruction

Bobby Hoffman

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## Abstract

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This study used a phenomenological approach with content analysis to create a model of how students perceive cognitive efficiency (CE), which is generally described as increases in the rate, amount, or conceptual clarity of knowledge, versus cognitive costs needed to attain knowledge. Graduate education students completed a five-item open-ended survey to measure perceptions of CE and what factors they believed enhanced or inhibited CE. Analysis of results revealed that student perceptions of CE predominantly focused on malleable aspects of self-regulated and reflective cognition, aligning with many descriptions of expert teaching. Students described a diminished emphasis on knowledge acquisition and information processing, in contrast to views typically associated with CE in instructional and psychological research (Hoffman & Schraw, 2010; van Gog & Paas, 2008). Practical teaching and learning implications, including suggestions for instructional practice and future research are presented.

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**Keywords:** cognitive efficiency, student perceptions, instruction.

# Percepciones de las y los Estudiantes sobre la Eficiencia Cognitiva: Implicaciones para la Instrucción

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## Resumen

Este estudio utilizó un enfoque fenomenológico con análisis de contenido para crear un modelo de cómo las y los estudiantes perciben la eficiencia cognitiva (EC), que se describe de forma general como el incremento en la tasa, cantidad o la claridad conceptual de conocimiento versus los costes cognitivos necesarios para conseguir el conocimiento. Estudiantes graduados completaron una encuesta semi-abierta de cinco ítems para medir percepciones de EC y qué factores creían que aumentaban o inhibían la EC. El análisis de los resultados reveló que la percepción de las y los estudiantes sobre la EC se focalizó predominantemente en aspectos maleables de la cognición auto-regulada y reflexiva, acorde con muchas descripciones de enseñanza experta. Las y los estudiantes describieron un énfasis reducido en la adquisición del conocimiento y el procesamiento de la información, en contraste con visiones típicamente asociadas con EC en la investigación instruccional y psicológica (Hoffman & Schraw, 2010; van Gog & Paas, 2008). También se presentan implicaciones para la práctica de la enseñanza y el aprendizaje, incluyendo sugerencias para la instrucción y para la futura investigación.

**Palabras clave:** eficiencia cognitiva, percepciones de las y los estudiantes, instrucción.

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Cognitive efficiency (CE), also known interchangeably as mental efficiency (Paas, Tuovinen, Tabbers, & Van Gerven, 2003; Stilley, Bender, Dunbar-Jacob, Sereika, & Ryan, 2010; Verplanken, 2006), is a growing topic of research in the domains of neuroscience (Ansari & Derakshan, 2011; Bassett, Bullmore, Meyer-Lindenberg, Apud, Weinberger, & Coppola, 2009; Doppelmayr, Klimesch, Hödlmoser, Sauseng, & Gruber, 2005; Neubauer & Fink, 2009; Rypma et al., 2008), psychology (Cates, Burns, & Joesph, 2010; Pyc & Rowson, 2007; Stilley et al., 2010), and instruction (Ayres & van Gog, 2009; Kalyuga, 2006; Kirschner, Paas, & Kirschner, 2009; Scharfenberg & Bogner, 2010). Although most conventional definitions of CE are domain specific, CE is generally described as increases in the rate, amount, or conceptual clarity of knowledge, versus cognitive costs such as mental effort needed to attain knowledge. Currently, there is little consensus regarding a conceptual model of efficient cognition or agreement how to measure and evaluate efficiency outcomes (Hoffman, 2012; Hoffman & Schraw, 2010; van Gog & Paas, 2008; Whelan, 2007).

Research in CE differs from most research on teaching and learning in that it focuses on optimal performance under restricted conditions, rather than on simple performance, while accounting for constraints such as time, effort, working memory, neurological processing, motivation, or variation in strategy use. Research in CE is important for both theoretical and practical reasons. From a theoretical perspective, cognitive and neurological views of learning emphasize that the constraints in human information-processing architecture must be considered to determine what constitutes optimal problem solving, learning, and associated pedagogy (Kirschner, Sweller, & Clark, 2006; Rypma et al., 2008; Stanovich, 2009). From a practical perspective, understanding student beliefs and perceptions has been closely linked to learning, motivation, and achievement (Pianta, Hamre, & Stuhlman, 2003), and more specifically CE is one of the primary considerations to inform instructional design (Beckmann, 2010). The development of a theoretical model that effectively articulates student perceptions of CE will assist educators in designing learning materials, pedagogy, and educational contexts that recognize student perceptions and meet the evolving teaching challenges encountered in the classroom (Corno, 2008; López, 2007; Valli & Buese, 2007).

Student perceptions of what constitutes efficient cognition have not yet been empirically considered. In order for instruction to be relevant and engaging it should align with students' needs and understanding about thinking and learning (McCaslin & Good, 1996; Perry, Turner, & Meyer, 2008). In addition, the appraisal of student thinking is highly relevant to foster abandonment of notions that may be misguided or inaccurate (Linn & Eylon, 2008). Assessment of student thinking is linked to promoting student conceptual knowledge (Fraivillig, Murphy, & Fuson, 1999), is instrumental in advancing constructivist pedagogy (Bereiter & Scardamalia, 1989), and ultimately creates opportunities for learning (Flutter, 2006; Flutter & Rudduck, 2004; Gillen, Wright, & Spink, 2011). Specific knowledge of student perceptions about CE will provide valuable insight to support instruction that matches student needs (Corno, 2008; Pianta et al., 2003).

The current study sought to answer three specific research questions using qualitative methods: how do learners describe cognitive efficiency; how do learners believe that cognitive efficiency can be enhanced; and what obstacles are described as inhibiting learners from being cognitively efficient? A phenomenological approach was used as existing literature has not documented student perceptions, or compared these perceptions to existing exemplars of CE found in expert teaching descriptions (Bereiter & Scardamalia, 1993; Berliner, 2001; Corno, 2008; Feldon, 2007; Hammerness, Darling-Hammond, Bransford, Berliner, Cochran-Smith, McDonald, & Zeichner, 2005; Sternberg & Horvath, 1995). The concordant views of students, teachers, and researchers may be invaluable in proposing instructional strategies that might promote efficient cognition in the classroom.

### **The Diverse Perspectives of CE**

Researchers in education, psychology, and neuroscience interpret CE as either a physiological phenomenon contingent upon optimal neurological functioning, or as competency in knowledge acquisition when accounting for constraints on learning such as limited time or accelerated effort. CE research is typically situated within the framework of cognitive load theory, which assumes a limited capacity working memory, and in absence of automatic information processing,

the need to dedicate more cognitive resources and effort when learning intrinsically complex material (Kalyuga, 2007). During knowledge acquisition, the relative effectiveness of instruction materials, the modality of delivery or pedagogical style can influence how learners regulate mental effort, and subsequently achieve CE.

Quantitative changes in the rate, amount, or frequency of knowledge acquisition can also determine CE (Hoffman & Schraw, 2009). Greater CE is associated with quicker learning, or the acquisition of more complex knowledge with a minimal investment of time or effort (Cates, Burns, & Joseph, 2010). Learners needing more time or exerting greater effort to achieve similar results in comparison to their own performance, or to the performance of others, are described as cognitively less efficient (van Gog & Paas, 2008).

All views of CE emphasize the importance of working memory capacity (WMC), which refers to “the limited-supply cognitive resources that can be allocated flexibly depending on the demands of the task” (Hambrick & Engle, 2003, p. 181). When learners automate cognitive processing the limits of working memory are moderated and CE improves. Distinct efficiency advantages are created as automation requires fewer cognitive resources, reduces the need for attentional focus, and allows for faster processing of information (Unsworth & Engle, 2007). For example, in mathematics, learners that bypass time consuming computational strategies can allocate capacity towards activities such as rehearsing new material, engaging in analogical mapping, or algorithmic approaches to problem solving. These activities eventually strengthen networks for math knowledge and improve overall competency in performance (Royer, Tronsky, Chan, Jackson, & Marchant, 1999). Automaticity frees up cognitive capacity to think about the problems to be solved, and to assist in learning additional content.

Most models of CE emphasize the mediating role of strategy use in reaching learning goals. Even when WMC is taxed, or when automaticity fails, learners can use strategies to enhance CE (Calvo, Eysenck, Ramos, & Jimenez, 1994; Hoffman & Spataru, 2008; Swanson, Kehler, & Jerman, 2010; Walczyk & Griffith-Ross, 2006). Strategy choice influences CE since strategies vary in the amount of cognitive resources needed to execute the strategy, and some strategies,



such as direct fact retrieval, are less time-consuming and less effortful. Conversely, some strategies are counterproductive to CE. When learners evoke self-regulatory approaches to monitor and reflect upon their progress towards learning goals additional task demands are created, and thus capacity must be appropriated between primary and secondary tasks (Feldon, 2007; van Gog, Kester, & Paas, 2011). Overreliance on automaticity can also lead to deficits in CE due to “arrested skill development” (Feldon, 2007, p. 131), resulting from a decrease in conscious monitoring, or a premature automation of skills prior to achieving expertise.

The research cited reveals that CE is a contextualized and task dependent cognitive process that is reliant on fast, controlled, yet automatic processing of information combined with the judicious use of strategies. Dual process models of cognition, using clear empirical distinctions from neuroscience and cognitive psychology (Feldon, 2007; Hoffman, 2012; Stanovich, 2004; 2009) mirror a similar multiplicative view to explain optimal cognition. Two complimentary, yet different modes of cognition are proposed, generally labeled as autonomous and controlled (see Stanovich (2004; 2009) and Evans (2008) for analysis and comparison). Autonomous processing, largely domain specific, is implicit, reflexive, heuristic, and relatively non-demanding of cognitive resources. Controlled processing is methodical, resource demanding, conscious, and analytical. The two symbiotic components work in tandem balancing physiological capability, learner motivations, and environmental constraints, with the goal of completing task demands. CE results when the two systems coordinate to reaching learning objectives with minimal time, low effort, and consistent accuracy.

### **How CE Applies to Teaching and Learning**

Understanding the variation between the research findings described above and student perceptions of CE is highly relevant for at least three applied reasons related to teaching and learning. First, pre-instructional beliefs and lack of congruence between instructional objectives and learner understanding can perpetuate construct misconceptions (Chinn & Brewer, 1993) and impede construction of knowledge (Greene, Muis, & Pieschl, 2010; Hammer, 1996). Misalignment of student and teacher



perceptions has been linked to inferior learning climates (Gillen et al, 2011; Pianta et al., 2003) and academic risk factors such as impaired student-teacher relationships (Fan et al., 2011). Potential consequences of cognitive inefficiency due to learner/teacher misalignment include ignoring critical content, misperceiving meanings and application of new knowledge, and inferior construct representations in memory, leading to poor recall (Vogel-Walcutt, Marino Carper, Bowers, & Nicholson, 2010).

Second, some learning contexts, typical to many higher education classrooms, exacerbate the need for CE. Learners completing standardized or classroom testing under time limits, or students needing to rapidly learn material, are especially vulnerable to inefficient cognition (Walczyk, & Griffith-Ross, 2006). Unlike simple learning without time considerations, restricted conditions place additional demands upon learners to achieve fast performance, and time restrictions negate the value of using compensatory strategies that typically mitigate CE during unrestricted tasks (Hoffman & Spatariu, 2008; Walczyk, Wei, Griffith-Ross, Goubert, Cooper, & Zha, 2007). In a study of cognitive disruptions, similar to the type found in many classrooms, Bailey and Konstan (2006) found up to 27% longer task completion times and more errors on interrupted computational and reading tasks than when compared to an uninterrupted control group. The elimination of interference allowed for more focused attention and superior performance suggesting that counterproductive contextual variables can impede CE.

From a traditional information processing perspective (Ericsson & Kintsch, 2007), CE is a prerequisite for the use and refinement of higher-order thinking skills. Many instructional situations require that learners decipher relevant and key knowledge constructs from an abundance of facts by actively filtering out extraneous and irrelevant information. Ineffective filtering, or the dedication of time and effort to ancillary aspects of a task, may result in cognitive overload, or a focus only on non-salient task aspects (Kalyuga & Sweller, 2005). Learners addressing irrelevant task aspects have been associated with non-productive haphazard memory searches for solutions (Vogel-Walcutt et al., 2010), or failure to eliminate non-essential steps in the learning process (Kalyuga, 2006). The cognitively inefficient learner is

disadvantaged, with impoverished resources dedicated toward shallow learning and unavailable to be used for reasoning, evaluative, and metacognitive strategies often found related to deeper learning, improved performance, and knowledge transfer (Corbalan, Kester, & van Merriënboer, 2009).

Third, several descriptions of expert teaching mention the need for efficient cognitive processing as a necessary component to be considered a teaching expert (Bereiter & Scardamalia, 1993; Berliner, 2001; Feldon, 2007; Hammerness et al., 2005; Hattie, 2003; Sternberg & Horvath, 1995). Expert teaching denotes the culturally determined qualities and practices that describe teachers deemed superior in comparison to normative or defined standards of performance, knowledge, or productivity (National Board of Professional Teacher Standards, 2012). Teaching expertise is not an automatic function of experience (Berliner, 2001), but instead involves the application of broad domain knowledge and a repertoire of teaching strategies (Fenstermacher & Richardson, 2000) that results in superior student achievement.

Models of teaching expertise vary broadly (see Hattie, 2003; Tsui, 2009 for reviews), but in regards to CE several themes transcend theoretical models. “Adaptive experts” (Bransford, Derry, Berliner, Hammerness, & Beckett, 2005, p. 48) rapidly retrieve information with minimal attentional resources, practice higher-order thinking skills routinely, judiciously and quickly direct cognitive resources and attentional control (Sternberg, 1998), while concurrently monitoring, evaluating, and adapting teaching strategies in response to classroom activity (Artzt & Armour-Thomas, 1998). Other expert teaching approaches suggest that superior working memory capacity, coupled with automatized schemas and routines (Feldon, 2007; Hammerness et al., 2005), and regulation and economization of mental resources, coordinated with a strong emphasis on metacognitive awareness are essential for teaching expertise (Bereiter & Scardamalia, 1997). Expert teachers devote greater cognitive resources to activities that promote learning, successfully manage the elimination of extraneous cognitive load and are far less likely to be consumed by prescriptive routines (Feldon, 2007). Table 1 summarizes empirically supported CE

exemplars represented in a variety of expert teaching descriptions.

Table 1

*CE exemplars included in expert teaching descriptions*

	Regulation of mental effort	Automaticity/ Working Memory	Filtering of extraneous cognitive load	Reflective cognition/	Speed/depth of knowledge acquisition	Speed of processing	Adaptive Strategy Use
Bereiter & Scardamalia, 1993	X	X					X
Berliner, 2001	X	X		X			X
Feldon, 2007		X	X	X			X
Hammerness, Darling-Hammond et al., 2005	X	X		X	X		X
Hattie, 2003	X	X		X	X		X
Sternberg & Horvath, 1995	X	X		X		X	X
Schulman, 1987				X	X		X

### The Present Study

The present study sought to aggregate perceptions of students understanding of CE. Although domain-specific descriptions of CE are well-articulated in education, psychology, and neurological research, no study to date has investigated student perceptions of what is considered optimal cognition. Graduate education students completed a five-item

opened-ended survey developed by the author to measure perceptions of CE and what factors they believed enhanced or inhibited CE.

Phenomenological qualitative methods using content and comparative analysis were employed (Miles & Huberman, 1994). This method ideally fit the purpose of the study due to the intent to determine if student's perceptions of CE differed from research descriptions and in absence of any previous qualitative analysis of the CE construct. Since research-based findings describe CE as a multidimensional construct, qualitative approaches were ideal to disentangle the perceptions of students, as qualitative designs can reveal how constituent parts interact to define the construct. Findings should provide new evidence that will enable instructors to better align instructional materials and methods with student expectations, and provide a further understanding of the nature of how learner beliefs may be linked to instruction promoting CE.

## **Method**

### **Participants**

Study participants were from a large southeastern U.S. public university (N = 47, F = 33, M = 14) and were a convenience sample of 80% education majors taking a graduate level course in learning and instruction. The majority of the participants were in-service teachers or individuals completing education courses for alternative route teaching certification. The participant demographic data indicated 78.7% were Caucasian; 10.6% Hispanic; 4.2% African-American; 4.2% Asian; and 2.1% did not indicate an ethnicity. The average participant age was 31.4 and the mean grade point average of participants was 3.26. Participation was encouraged by offering students extra-class credit resulting in 100% student participation from two different class sections taught by the same teacher. The sample of graduate education students was selected based upon anticipated future work in teaching and instruction and because of the emphasis on efficiency in some models of expert teaching (Berliner, 2001; Bereiter & Scardamalia, 1993; Darling-Hammond & Bransford, 2005; Feldon, 2007; Sternberg & Horvath, 1995).

## Procedures

Data was gathered by administering an in-class survey that consisted of five open-ended questions designed to determine the student's perceptions of CE, and factors perceived as influencing the facilitation or inhibition of CE (See Table 2).

Table 2

### *Survey questions*

- 
1. What is cognitive efficiency?
  2. How do you know when you are cognitively efficient, how can you tell?
  3. What factors decrease your ability to be cognitively efficient?
  4. What factors increase your ability to be cognitively efficient?
  5. Do you believe cognitive efficiency is a general trait, or a trait that changes according to the subject matter you study or the task you do?  
☐ General    ☐ Changeable    ☐ Both
- 

The survey was administered prior to any class discussion of cognition or motivation during the term of the course to avoid responses being biased by any specific cognitive theory. Any participant indicating advanced knowledge of cognitive or motivational processes was excluded from the study. Advanced knowledge was determined by self-selection by the participants or exclusion by the researcher, if the participants had taken any previous courses in cognitive, motivational, or educational psychology at the graduate level. No participants required removal from the study. The survey questions were developed by the author based upon emerging research themes in cognitive load (van Gog & Paas, 2008; Paas, Tuovinen, Tabbers, & Van Gerven, 2003) and cognitive efficiency theory (Hoffman, 2012, Hoffman & Schraw, 2010, Stilley et al., 2010; Verplanken, 2006) that attempt to measure and define constructs related to information processing. Participants were informed that the intent of the research was to learn about how students

defined cognitive efficiency under the premise that the research results could provide instructors with additional knowledge to enhance the efficiency of instruction.

## **Method of Inquiry and Analysis**

### **Design**

The current inquiry used a phenomenological lens to examine student's perceptions of CE. A phenomenological approach was chosen to offer researchers and practitioners a descriptive, reflective, and interpretive analysis of individual perceptions (Richards & Morse, 2013) that were previously unknown. Phenomenological premises (Giorgi, 1997) emphasize the researcher's goal of discovering the psychological substance of a phenomenon, not a "universal or philosophical essence" (p. 100). Data using the phenomenological approach allows the researcher to construct knowledge and understand the nature of the individual inquiry, with the current intent to analyze and compare previously unreported student perceptions of CE with those found in published research.

### **Data analysis method**

Content analysis in three phases (Creswell, 2008; Miles & Huberman, 1994) was employed by the author to generate one or more codes from each survey response in order to summarize the data and create general categories from the full data set. During the first phase of content analysis, data repetitions and linguistic connections were used to generate 383 individual in-vivo codes (labels phrased in the exact words of participants) or lean codes (labels phrased in the words of the researcher). A summary is provided in Table 3. Descriptive code generation was used to determine individualized accounts of CE and the factors related to the facilitation and inhibition of efficient cognition. For example, when answering the question "what does it mean to be cognitively efficient?" a participant indicated "to be able to think coherently and rapidly without missing significant information". This statement generated the in-vivo codes of "coherence" and "speed", and

the lean code of “thoroughness”.

In the second phase of analysis, cluster coding was used to consolidate the phase one data to create 14 condensed categories, positioning each category at the center of the participant thought process, and relating to similar codes from phase one (Creswell, 2007). The phase two coding was completed individually by two trained graduate assistants resulting in 92% coding agreement. The initial categories were developed as a result of shared discussions between the coders. Initial discrepancies and ambiguous codes were resolved through discussion with the author until 100% coding agreement was reached. For example, phase two analyses included the consolidation of terms “fewest steps”, “precision”, and “accomplish the task effectively” into the category “organization”.

Table 3  
*Frequency of condensed categories by theme*

Condensed categories	Physiological	Cognitive/Affective	Environmental	Total
Time to complete task	0	0	40	40
Organization	0	10	44	54
Distraction	0	32	32	64
Resources	10	0	1	11
Timely completion of task	0	0	10	10
Concentration	0	17	0	17
Interest	0	15	0	15
Awareness	0	8	0	8
Ability	0	18	0	18
Health	44	0	0	44
Accomplish task	30	0	0	30
Decision Making	5	7	0	12
Performance	42	0	0	42
Stress	5	13	0	18
<b>Total</b>	136	120	127	383



The third coding phase led to the identification of three main categories. *Physiological influences* included individual differences, health, or measurable conscious actions related to one's physical condition, but unrelated to cognition, that a participant described as related to efficiency. *Cognitive or affective determinants* represented what the participant was thinking or feeling when completing a task and being cognitively efficient. Cognitive and affective exemplars of CE were combined due to the interdependence of the constructs as described in the neuropsychology (Ray & Zald, 2012) and education literature (D'Mello & Graesser, 2011; Efklides, 2011; Pekrun, Elliot, & Maier, 2009). *The environmental category* emerged from codes that described the influence of factors external to the person attempting to complete a task, but were not related to the internal physiological state of the respondent. These themes and condensed categories served as the basis for the analysis and subsequent development of a model indicating what strategies contributed to enhancing CE (see Figure 1).

Next, an adaptive prototype design framework (Sternberg & Horvath, 1995) was used to create a table comparing student perceptions of CE to research descriptions, including instructional implications for each CE exemplar (see Table 4). Prototype models, originally conceived by Rosch (1973) were designed to eliminate the “fuzziness” of discrepant categorical exemplars. The prototype view contrasts similarities and differences among exemplars to evaluate the confluence of evidence on a particular topic.

### **Analysis and Results**

The process of analysis was initiated by using the expertise of the researcher as a foundation of domain knowledge to describe results, assess intention, and ascribe meaning (Richards & Morse, 2013), while accurately transforming the essence of participant perceptions of CE. *Intentionality* (van Manen, 1990) was a planned analysis strategy, whereby the researcher sought to reflect on experienced phenomena, which included comparisons to descriptions of CE in neurological, psychological, and educational literature. The analysis process was repeated individually for each question described below.

## **What is Cognitive Efficiency?**

Responses to the main research question, “What is cognitive efficiency?” generated 84 unique codes. Participants most frequently associated CE with completing a task quickly by utilizing time effectively (33.3%), with minimal resources (14.2%), and in an organized (21.4%) and reflective manner (13.0%), while minimizing intrusive thoughts (10.7%) and limiting environmental distractions (5.9%). The confluence of responses led to the conclusion that students perceived CE as the conscious ability to monitor cognitive operations while completing a task as quickly and as accurately as possible.

Responses coded as attributing CE to physiological attributes (22.6%) focused on the deliberate and conscious regulation of mental resources, not specifically task related, or the physiological readiness to complete a task. Mental resources included “targeted attention”, “avoidance of day dreaming” and the “regulation of effort”, but excluded cognitive strategies such as planning, setting learning goals, or executing strategies used to complete a task. Physiological readiness included ample sleep, energy, and nutrition minimally necessary to attempt and complete a task.

Cognitive and affective determinants of CE (32.1%) were based on descriptions of what the person was thinking and feeling while completing a task under the perception of efficiency. Cognitive factors included concentration, interest, and ability, whereas affective factors targeted reducing anxiety, avoiding stress, and fostering adaptive task motivation. Substantial variability existed in the type of cognition described by participants. Some participants emphasized an information processing view of CE (Ericsson & Kintsch, 2007) for example, stating CE is “To do something with the least number of steps and in the shortest amount of time while still doing it effectively”. However, another participant indicated CE was “the ability to think logically and rationally” suggesting a reflective approach to evaluating efficient cognition. Others contended that CE was not possible without “decisiveness”, “higher-order thinking skills”, “creativity”, or “confidence”.

Codes related to environmental factors (45.2%) emphasized the importance of controlling one’s context and conditions of thinking to

achieve and maintain CE. Participants clearly indicated that the greatest environmental threats to CE were a result of distractions (16.6%) due to self-imposed stress such as lack of sleep (15.4%) or food deprivation (11.4%), or factors such as “noise”, “movement”, or “chaos”. One participant indicated, when there are “too many things going on at a time, the environment is not conducive to the task.” Another stated “the need to be aware and monitor what works for me”. The comments suggested that participants felt willing and capable to self-regulate their learning and thinking environments to foster CE.

Comparative analysis (Miles & Huberman, 1994) revealed a number of distinct contrasts in the perceptions of CE. A majority of participants (34) focused on the process of thought, while others (13) indicated their CE was based upon the quality of task outcomes. There was little variability in individual answers concerning the antecedents of CE. Participants implied that either internal processes (e.g., attention, deep concentration) determined CE (55.3%), or that external attributes such as controlling distractions were wholly responsible for their CE (29.7%). Only nine participants (19.7%) indicated that CE involved the regulation of both internal and external factors. Finally, participants were asked to evaluate the domain specificity of CE. Only two participants (4.2%) believed CE was exclusively a domain general trait, whereas most participants (53.1%) indicated CE was domain specific, or contingent on a specific task (40.4%).

Surprisingly, few participants alluded to the importance of background knowledge, or effortful cognitive processing as contributory to CE in contrast to widely accepted views of information processing (Hoffman & Schraw, 2010; van Gog & Paas, 2008) and neurological perspectives of CE (Rypma et al., 2008). Frequently participants stressed the influential role of self-regulatory strategies such as planning, monitoring, and reflective thought in achieving CE, a view consistent with many social-cognitive (Zimmerman, 2001) and dual-process theories of cognition (Evans, 2008; Smith & DeCoster, 2000; Stanovich, 2004).

Although student perceptions were partially incongruent with information processing and neurological perspectives of CE, many parallels between student perceptions and expert teaching models were observed. Resemblance across perspectives centered on the need for

rapid schematic organization of knowledge, the elimination of thought irrelevant to learning, and strategy adaption. Table 4 lists typical exemplars of CE aligned with a representative sample of student responses in conjunction with descriptions found in various teaching models.

Table 4

*CE research exemplars, student perceptions, teaching descriptions, and instructional inferences*

<b>CE Exemplar</b>	<b>Sample Student Perceptions</b>	<b>Sample Teaching Description</b>	<b>Instructional inference</b>
Regulation of mental effort	<p>“To use time wisely and work smart.”</p> <p>“In your mind you are able to get organized and focused all at once to accomplish a goal.”</p>	Executive control including planning, monitoring, and evaluating. The reinvestment of cognitive resources (Sternberg & Horvath, 1995).	View students as active participants in the construction of knowledge; sequence learning objectives logically; openly discuss potential difficulties learners may encounter during the learning process (Artzt & Armour Thomas, 1998).
Automaticity or enhanced working memory capacity	<p>“Performing multiple tasks simultaneously, to find or create a path of least resistance.”</p> <p>“When you don’t have to reread instructions, coming to conclusions without a huge investment of effort.”</p>	“Operations that once took thought and planning come to be done with little or no effort” (Bereiter & Scardamalia, 1993, p. 119).	Present brief lessons that do not overload learners. Embed repetition into lessons that promote automaticity of procedures. Consider just in time lessons, activation of existing mental models, and supportive scaffolding for non-repetitive knowledge (van Merriënboer, Kirschner, & Kester ,2003).

Filtering of extraneous cognitive load	<p>“Mentally efficient means that you have mental order. You don’t waste time daydreaming.”</p> <p>“To cut out a lot of white noise, other thoughts, other words.”</p>	<p>“Unnecessary structural or semantic content that occupies space in working memory”....Teachers “develop more elaborate schemas to process information efficiently and their actions require less mental effort.” (Feldon, 2007, p. 126)</p>	<p>Remove anxiety producing learning cues that might activate stress in high-anxious individuals, introduce preparatory periods that help learners adjust to restricted conditions. Provide learners with compensatory strategies to overcome anxiety (Ansari &amp; Derasham, 2011).</p>
Use of reflective cognition	<p>“You do not know if you are mentally efficient because if you realize, metacognitively that your mind has wandered off task and you are no longer efficient.”</p> <p>“To have a rational thought process when completing tasks.”</p>	<p>Reflection and conscious deliberation (Tsui, 2009).</p> <p>“The teacher’s skillfulness in monitoring...in-flight decision-making in dynamic environments (Berliner, 2001).</p>	<p>Given available resources, provide explicit instruction on how to monitor for efficient cognition with a focus on the evaluation of the thought process. (Helsdingen, van Gog, &amp; van Merriënboer, 2011). Expert teachers monitor the learning process, learning outcomes and their own intrinsic interest, while seeking self-evaluation of teaching techniques (Kreber, Castleden, Erfani, &amp; Wright, 2007).</p>

Speed of or depth of knowledge acquisition	<p>“Mental efficiency is achieved when the individual uses the minimal amount of time required to complete a thinking task.”</p> <p>“A solid education teaches you how to think.”</p>	<p>Expert teachers "can spontaneously relate what is happening....can quickly recognizes sequences of events occurring in the classroom which in some way affect the learning and teaching of a topic." (Hattie, 2003, p. 5)</p> <p>The depth of pedagogical content knowledge (Schulman, 1987).</p>	<p>Emphasize that efficient thinking and learning involves understanding of both the process and outcome of knowledge acquisition (Artzt &amp; Armour Thomas ,1998). Create a classroom with structure and predictability including the use of scripted routines that promote learner preparation (Konrad, Helf, &amp; Joseph, 2011).</p>
Speed of information processing	<p>“To be able to think coherently and rapidly”</p> <p>“Not missing significant and important information, but achieving a desired outcome quickly and thoroughly.”</p>	<p>“People who are high on efficiency can rapidly retrieve and accurately apply appropriate knowledge and skills to solve a problem or understand an explanation” (Bransford et al., 1995, p. 49).</p>	<p>To promote quick individual understanding, during intrinsically complex learning, focus on practical application of knowledge, instead of theoretical mastery (Scharfenberg &amp; Bogner, 2010).</p>
Adaptive strategy use	<p>“Using the fewest steps possible to reach a decision or understanding”</p> <p>“Know when to change gears and what does or doesn’t work for you”</p>	<p>An adaptive teacher ...has a propensity to check students’ thinking and understanding on a continuous basis in a variety of ways and has a hesitant attitude about using any one approach with every student” (Corno, 2008, p. 171).</p>	<p>Employ contextualized thinking by demonstrating responsiveness to changing circumstances and student thinking through impromptu decision making during, not after instruction (Berliner, 2001).</p>

### **How Do You Know When You Are Cognitively Efficient?**

Students reported that they monitored CE by reflecting on their progress towards meeting learning goals. Completing the task at hand (22.6%), with the fewest possible distractions (20.8%), in the quickest amount of time (22.2%) were reported as the most common actualizations of CE. Focused attention of mental resources was frequently described as necessary to achieve CE (25.9%). Students remarked, being “focused in the clearest possible manner”, having “thoughts flow without interruption”, and being “able to think without getting distracted” as representative of being cognitively efficient.

Mental resources were described in cognitive, affective, and physiological terms included “working smart”, “feeling confident”, and having “a clear head”. Specific cognitive determinants included having both interest and experience in the subject matter. Some participants claimed that they knew they were being cognitively efficient when they understood the information, “when you understand something, you can communicate”. Another participant indicated a problem-solving focus stating “when I am able to see all sides of the situation and work toward a solution I am cognitively efficient”. Others equated CE with physical well being and the regulation of stress. One student indicated “I can tell when I am cognitively efficient because I am not stressed out and worried that I am forgetting things, I feel calm when I am cognitively efficient”.

### **What Factors Decrease Your Ability to Be Cognitively Efficient?**

The reported impediments to achieve CE were largely based upon physiological factors, such as sleep and food deprivation (19.4%), stress (13.9%) or illness (12.9%). Environmental constraints including noise, and cognitively disruptive aspects of learning were cited as detrimental to CE by 13.9% of participants. A variety of changeable factors such as the ability to control distractions and lack of motivation were additional reasons that inhibited efficient cognition. Lack of task focus and maladaptive motivation were also cited as inhibitory to CE, as one individual stated, “use it or lose it” when referring to the need to dedicate resources to a task when trying to be efficient. Only 6.45% of

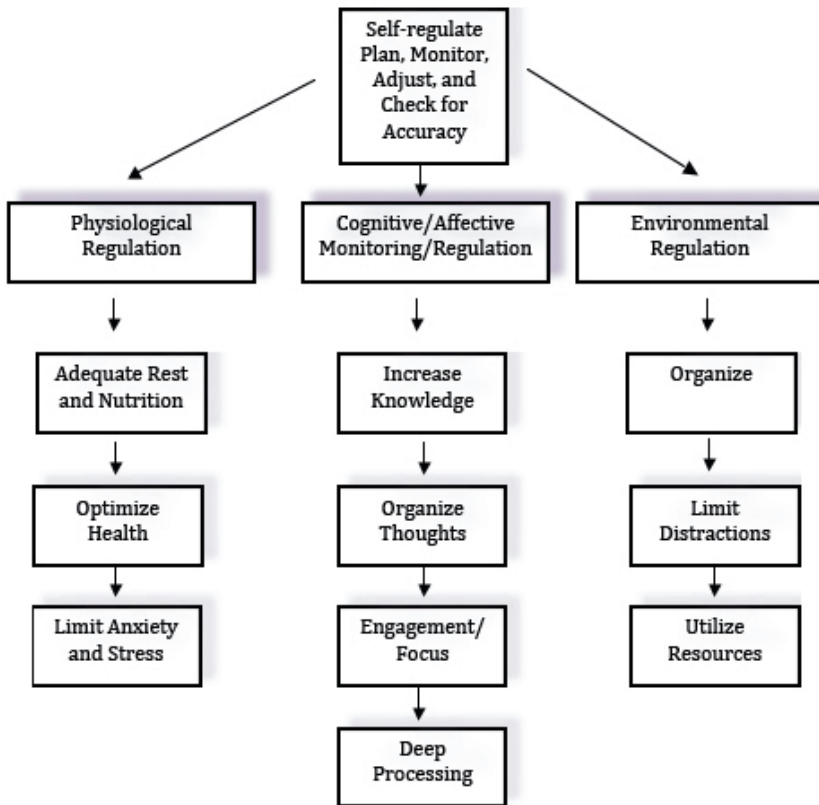


respondents indicated lack of ability or intelligence as interfering with their ability to achieve CE, suggesting that most learners in the current sample held an incremental and controllable view of efficient cognition.

### **What Factors Increase Your Ability to Be Cognitively Efficient?**

Four primary strategies evolved from the 84 codes developed to describe how CE may be improved: modeling optimal health (16.6%), limiting distractions (16.6%), gaining more experience through practice or increasing knowledge (15.4%), and organizing thoughts and resources (10.7%). Little emphasis was placed on motivational criteria typically associated with task success such as goals, task challenge, or effort (Csikszentmihalyi, 1997; Pintrich, Marx, & Boyle, 1993); however six students indicated interest was a necessary component to increase CE.

Students allocated the regulation of CE into two broad categories: behavioral (48.8%) and mental control (38.2%). Behavioral control means specific actions that individuals take related to the physical task environment or surroundings, such as “organizing the work setting”, or removing “external interference”. Whereas mental control means monitoring or orchestrating changes in cognitive processes including, “deep thinking”, “centeredness”, or “having a clear mind”. Figure 1 provides a graphic representation by theme of what strategies students considered when attempting to improve CE.



*Figure 1. Model of strategies used to increase CE*

## Discussion

The current study sought to understand student perceptions of efficient cognition. Several of the views espoused by students differed in emphasis from research-based perspectives of efficient cognition (Hoffman & Schraw, 2010, van Gog & Paas, 2008) and efficiency in descriptions of expert teaching (Berliner, 2001; Bereiter & Scardamalia, 1993; Darling-Hammond & Bransford, 2005; Feldon, 2007; Sternberg & Horvath, 1995). First, beyond the need for attentional control,

students significantly understated the role of working memory and processing resources as instrumental in CE. Second, students associated success in cognitive tasks as largely dependent upon physiological readiness and stamina. Last, students placed substantial importance on the role of experience, not qualitative changes in learning as a determinant of CE. Given the influence of learner conceptions on selective attention, deeper processing, and more accurate retrieval (Pintrich et al., 1993) the incongruence between research findings and student perceptions may have notable ramifications for learning and teaching.

The descriptions of CE suggested that students have their own clear conceptions of what constitutes optimal cognition. As such, students described how they assessed and evaluated discrepancies between states of routine performance and visualized states of optimal cognition. The self-evaluation and contextual remedies described closely parallel representations of self-regulated learning strategies designed to promote academic achievement (Pintrich, 2000; Zimmerman, 2001). Models of self-regulation employ specific metacognitive strategies whereby learners consciously and actively regulate cognitive resources, motivation, and behavior in an effort to enhance progress towards reaching learning goals. In the context of CE these self-regulatory strategies involve maximizing resources to quickly and accurately attain error-free performance. The model depicted in Figure 1, developed from aggregation of responses, suggests that student perceptions of how to enhance CE and research-based descriptions of self-regulation may be closely aligned, if not indistinguishable.

The most frequently contemplated strategies to improve the efficiency of cognition were internal controllable factors such as focused attention on task goals, or blocking out aversive environmental stimuli. Students' advocacy of these types of control strategies suggests a minimized awareness that cognitive capacity, and thus CE, can be mediated by the use of information processing strategies. Students may not believe, or may not be aware, of their ability to modify the transactional aspects of cognition. Two plausible explanations may account for the diminished emphasis by students, unconscious automatization of resources, or lack of motivation to use certain strategies. Both social-cognitive and dual process theories suggest that some types of cognitive associations such

as explicit rule-based processing associated with problem solving and complex learning takes longer and are more effortful and thus may be subject to learner motivation (Karoly, 1993; Smith & DeCoster, 2000; Stanovich, 2004). In addition, many laboratory accounts of self-regulatory behavior contend that some self-regulated learning strategies are a depletable, yet renewable resource, and learners may fail to activate strategies despite capability (Bannert & Mengelkamp, 2008), or personal agency (Pintrich & Zusho, 2002).

Only one-fifth of students stated that CE could be improved by both internal and external regulatory approaches, suggesting that student perceptions of CE may align with polarized views of motivational processes during learning, such as dichotomous entity or incremental views of intelligence, or related performance and mastery goal orientations (Dweck, 1986). Most students viewed CE as a contextually driven, domain-specific phenomenon and thus may believe task success is influenced by effort allocation, or ability, but not both. Partitioning intellectual efficiency into two classes may also account for the heavy reliance by some students upon physiological readiness as a CE prerequisite. In absence of the belief that CE is controllable by internal regulation, students may overly rely upon manipulation of their physical environment as the best method to enhance CE. Interpretations of this nature are critical to teaching effectiveness as learner beliefs have been empirically linked to receptivity of conceptual revision (Pintrich et al., 1993; Mason, 2007), strategy choice (Zimmerman, 1989), and student motivation (Dweck & Leggett, 1988). These findings are especially relevant for educational contexts with restricted conditions such as standardized testing. Students with misaligned perceptions of CE may needlessly forgo helpful strategic interventions and inadvertently hinder test performance.

Despite the apparent incongruity of student perceptions with information processing research several commonalities exist with expert teaching descriptions (see Table 4). The similarities focus on quickly regulating effort during knowledge acquisition, automating procedural knowledge, and eliminating extraneous cognitive load while using a variety of adaptive learning strategies. Although no models of expert teaching focus exclusively on CE, several models consider promoting learner efficiency as a necessary prerequisite to achieve developmental

trajectories for teaching expertise (Bereiter & Scardamalia, 1993; Feldon, 2007; Sternberg & Horvath, 1995). The investigation of corollaries across teachers, students, and researchers serves as the basis for the prototype view (Sternberg & Horvath, 1995) used to create Table 4, which served as a foundation to suggest instructional inferences that inform CE.

### **Recommendations for Practice**

Isolated knowledge of student's perceptions of CE may be considered inert in absence of instructional implications that foster the development of CE in the classroom. Table 4 displays the nexus of student perceptions and a cross section of evidence from expert teaching descriptions to suggest that several logical inferences may be proposed to cultivate efficient thinking, learning, and problem solving among students.

First, learners need to know that CE is a multidimensional construct that is influenced by knowledge acquisition, enhanced processing ability, judicious effort, and adaptive strategy use. Instructors providing greater awareness that CE can be simultaneously regulated by both internal and external strategies may assist students in making gains in both the amount and quality of knowledge they must master. Approaches that emphasize both the algorithmic nature of information processing and the analytic reflective aspects of learning closely mirror dual-processing descriptions of cognition (Evans, 2008; Smith & DeCoster, 2000; Stanovich, 2004) and may be well suited to deconstructing CE.

Second, adaption of strategies that foster CE are highly relevant in light of ongoing changes in teaching standards that emphasize the need for learners with better critical thinking and problem-solving ability as a means to address authentic learning challenges within and outside the classroom. Third, researchers and instructors should consider the importance placed on self-regulation by learners and investigate how reflective cognition and metacognitive awareness influence CE. Student perceptions suggested that CE and self-regulated learning were closely aligned implying that accurate and well-calibrated metacognitive activity may be a materially similar construct as CE. Although the

sample used in the current study were graduate students who perhaps may have had knowledge of self-regulated learning (although not yet covered in their current course of study), and it is unknown if these views of CE are a basis for generalization to other populations.

Empirical studies controlling for multicollinearity of variables are needed to determine the extent of variance in CE explained by judicious strategy use of all kinds across different domains and populations. The coalescence of neurological evidence garnered from brain-based studies that identify locality of information processing and behavioral assessments such as think-aloud protocols should provide additional evidence as to how learners may manipulate and control their cognition as a means to enhance or attain CE.

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## **Eye of the Beholder: Investigating the Interplay between Inquiry Role Diversification and Social Perspective Taking**

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# **Eye of the Beholder: Investigating the Interplay between Inquiry Role Diversification and Social Perspective Taking**

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## **Abstract**

Students and teachers engage in specific roles in classrooms, and within inquiry classrooms, these roles tend to be more varied compared to traditional settings. Teachers may take on traditional student roles including the role of learner, and students, for example, take on the additional role of question asker, traditionally reserved for the role of a teacher. Several of these roles are specific to perspective taking, in particular, social perspective taking (SPT). SPT is critical to successful social interactions and, because group work occurs frequently within inquiry-based teaching and learning environments, a better understanding of SPT roles is required. SPT roles within two different inquiry classrooms were closely examined through audiorecorded group interactions. Additional data were collected in the form of questionnaires, interviews, student and teacher log responses, and field notes. Two teachers and eight students participated. Social perspective-taking roles were dynamic and susceptible to influences including the nature of the classroom activities and instructional choices, student personality differences, and group-work dynamics. All participants adopted SPT roles, however, students who played an active role in choosing their work partners and who were assigned a task that required a consideration of the audience's understanding tended to adopt more Imagine Other roles as opposed to Imagine Self roles and also adopted more emotionally-based SPT roles compared to students in teacher-formed groups who were assigned more cognitively-based assignments. Implications for researchers, consultants, and students and teachers were discussed.

**Keywords:** perspective taking, social perspective taking, inquiry, role diversification, roles

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# **El Ojo del Espectador: Investigando la Interacción entre la Diversificación de Roles de Indagación y la Toma de Perspectiva Social**

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## **Resumen**

Alumnado y profesorado participan de diferentes roles en las aulas y dentro de aulas basadas en la indagación, estos roles tienden a ser más variados en comparación a entornos tradicionales. El profesorado puede asumir roles de estudiantes tradicionales, incluyendo el rol de aprendiz, y el alumnado, por ejemplo, asumir el rol de hacer preguntas, que tradicionalmente se ha reservado al rol del profesor. Muchos de estos roles son específicos a la toma de perspectiva, en particular, la asunción de la perspectiva social (SPT). SPT es fundamental para las interacciones sociales de éxito y, dado que el trabajo en grupo ocurre frecuentemente en entornos de aprendizaje basados en la indagación, se requiere una mejor comprensión de los roles SPT. Los roles SPT en dos aulas basadas en la indagación se examinaron en detalle a través de grabar las interacciones de grupo. Más datos se recogieron a través de cuestionarios, entrevistas, respuestas largas de estudiantes y profesorado y notas de campo. Participaron dos profesores y ocho estudiantes. Los roles de toma de perspectiva social fueron dinámicos y susceptibles a influencias incluyendo la naturaleza de las actividades de aula y las elecciones instruccionales, las diferencias en la personalidad de las y los estudiantes y las dinámicas del trabajo en grupo. Todas y todos los participantes adoptaron roles SPT, sin embargo, las y los estudiantes que tuvieron un rol más activo en la elección de sus compañeros y compañeras de trabajo y a quienes se les asignó una tarea que requería la consideración de la comprensión de la audiencia tendieron a adoptar roles de Imaginación de las y los Otros en oposición a roles de Imaginación Personal y también adoptaron más roles SPT basados en las emociones en comparación a estudiantes en grupos formados por profesorado a los que se les asignó actividades más basadas en la cognición. Se analizan las implicaciones para personal investigador y asesor, alumnado y profesorado.

**Palabras claves:** toma de perspectiva, asunción de la perspectiva social, indagación, diversificación de roles, roles

**I**nquiry-based teaching and learning environments are distinctive learning settings, based on social-constructivist principles. Inquiry refers to “making observations; posing questions; examining books and other sources of information to see what is already known; planning investigations; reviewing what is already known in light of experimental evidence; using tools to gather, analyze, and interpret data; proposing answers, explanations, and predictions; and communicating the results” (National Research Council, 1996, p. 23). Lee (2012) referred to inquiry-guided learning as active learning involving inductive teaching and learning methods. Student choice is also central within inquiry (Aulls & Shore, 2008; Clark & Shore, 2004).

A core part of inquiry involves social interaction. Aulls and Shore (2008) described how the classroom culture is jointly constructed by teachers and students. Shore, Birlean, Walker, Ritchie, LaBanca, and Aulls (2009) provided a list of characteristics essential to inquiry literacy and several pertain to social interactions or collaboration, for example: shared goals, co-owning knowledge, listening and discussing respectfully, communicating clearly, asking relevant questions for an appropriate audience, seeking advice from adult or peer mentors effectively, organizing information for interpretation by self and others, positively valuing collaboration, and sharing the results of inquiry with others. For example, Emily, a hypothetical inquiry student, is working in a group on a poster about what can be made from recycled materials. As she researches on the computer, she finds an interesting fact about how recycled glass is crushed and then mixed with road paint to create greater reflectivity of lane markings at nighttime. After excitedly showing her group members, she asks the teacher if she can come up to the front to share this fact with the rest of the class. Emily not only has choice in terms of what particular aspects she researches, but she is also seeking to share her knowledge with others.

Aulls and Shore (2008) also recognized that teachers adopt learner roles and vice versa. Teacher roles can be defined as “actions, verbal interactions with students, and responsibilities undertaken to support students’ participation in components of inquiry such as projects, experiments, laboratories, hypothesizing, data collection, data analysis, dialog, theorizing, debate, argument, and evidential reasoning” (Aulls &

Shore, 2008). Role exchanges among teachers and students and among students have been conceptualized in inquiry as role shifts. Crawford (2000) coined the term “collaborative inquiry” to refer to instruction that involves “cognitive interactions between teacher and students with members of the community” (p. 933). Collaborative inquiry requires different roles from a traditional classroom and Crawford acknowledged that roles traditionally reserved for a teacher (e.g., knowledge provider) are commonly adopted by students in inquiry-based teaching and learning environments. Students take on a wider range of roles, requiring more complex and active involvement by the teacher. Therefore, roles traditionally reserved for students are adopted by teachers (e.g., listener). Collaboration is the primary method of developing conceptualizations of knowledge through a process of shared learning.

Walker and Shore (2013) suggested that role shifts or exchanges could, in fact, be better described as a process of role diversification and proposed a model that included four different phases. Each phase exists along a continuum with no clear-cut boundaries between any two phases. The Exploration phase involves learning implicit and explicit school and classroom inquiry rules, which tend to differ from those in traditional classrooms. These differences can lead to initial challenges for students. The Engagement phase involves initial participation as an inquiry student. Students learn the specific and nuanced obligations of functioning as an inquiry student, however, conflict can arise when traditional student expectations clash with inquiry expectations, for example, disagreements among learners can be common within inquiry settings and are not necessarily entirely disadvantageous. Stabilization is the third phase and involves committing to one’s position or role as an inquiry student. The final phase of Diversification involves adopting numerous roles within the classroom, for example, Reasoner or Explorer. The length of phases is dependent on context, individual differences, and levels of scaffolding.

Role diversification involves not only social interaction but many of these roles also require perspective-taking skills. In fact, what we now call perspective taking was originally referred to as role taking. Selman (1971) described how role taking involves understanding other individuals’ capabilities, attributes, feelings, and expectations, or the

ability to see the world from a different perspective. Selman and Byrne (1974) proposed four stages of role taking with each stage indicating the attainment of more complex or advanced perspective-taking skills. These stages move from Stage 0 (zero) or egocentric role taking, to subjective role taking, followed by self-reflective role taking and finally, mutual role taking. Selman (1980) later added a fifth stage to acknowledge the influences of deeper communication, expectations, and awareness and changed the terminology of the stages from role taking to perspective taking.

The research question for the current study was: What is the relationship or interplay between SPT skills and the adoption of numerous roles within inquiry classrooms? The different forms of perspective taking will be described, followed by a type of perspective taking that applies well to classroom settings, that of social perspective taking. To address the research question, data were collected from two different classrooms. Comparisons between two small working groups were primarily based on SPT roles identified through transcripts of audiorecorded dialog.

### **Types of Perspective Taking**

Perspective taking falls under the broader category of theory of mind and notably involves placing oneself in another person's proverbial shoes to understand what and how that person is thinking and feeling (Berk, 1989). Chandler and Helm (1984) concluded that preschool children are egocentric (Piaget, 1954) and are therefore rarely able to take the perspective of someone else. Seven-year-olds also tended to exhibit egocentrism, particularly when the experience was not shared. By the age of 11, children rarely if ever exhibited egocentrism. Young adolescents have cognitive skills that continue to mature, and these skills allow for perspective taking, even if the perspectives are unfamiliar.

At least five different types of perspective taking have been identified in the literature including social (Johnson, 1975), conceptual (Pillow, 1989, 1995; Selman, 1971; Taylor, 1988), academic (Gehlbach, 2011), affective (Dunn, Brown, Slomkowski, Tesla, & Youngblade, 1991), and perceptual, visual, or spatial (Flavell, Everett, Croft, & Flavell, 1981;



Flavell, Flavell, Green, & Wilcox, 1980; Masangkay, McClusky, McIntyre, Sims-Knight, Vaughn, & Flavell, 1974; Pillow, 1989; Rosser & Lane, 1993; Selman, 1971; Tarshis & Shore, 1991). Among these five, social perspective taking was the primary focus for the current study.

### **Social Perspective Taking**

Based on the different types of perspective taking listed above, social perspective taking is the most relevant to classroom or group settings because classrooms are social settings that provide numerous opportunities for individuals to interact in cooperative or collaborative ways. These interactions require a certain degree of social perspective taking.

Social perspective taking (SPT) is defined as “the ability to understand how a situation appears to another person and how that person is reacting cognitively and emotionally to the situation. It is the ability to put oneself in the place of others and recognize that other individuals may have points of view different from one’s own” (Johnson, 1975, p. 241).

There are several related conceptualizations of SPT including interpersonal negotiation (how individuals meet personal needs during interactions with significant others during conflict or disagreement [Mischo, 2005; Schultz, Yeates, & Selman, 1989]), empathy (contains an emotional component in addition to the cognitive component of perspective taking [Davis, 1983; Stinson & Ickes, 1992]), and interpersonal sensitivity (ability to use nonverbal cues to correctly judge abilities, traits, and states of others [Carney & Harrigan, 2003]). Empathy and interpersonal negotiation will be discussed because they were directly incorporated into the data collection tools for the current study.

Batson, Early, and Salvarani (1997) outlined two forms of SPT including imagining another person’s perceptions and feelings about a situation (imagine other) or imagining one’s own perceptions and feelings if placed in that same situation (imagine self). The former, in particular, requires a certain degree of role shift or diversification. Abele and Wojciske (2007) similarly determined that social judgements



involve two dimensions, agency and communion. Agency referred to social-information processing related to the perspective of self, and communion related to the perspective of others.

Other approaches to studying perspective taking have included examining both cognitive and emotional components. For example, Bernstein and Davis (1982) administered the *Interpersonal Reactivity Index* (IRI) self-report questionnaire (Davis, 1980). The IRI examines cognitive (taking another's perspective and fantasizing) and emotional empathy (feeling compassion or personally distressed for others). Individuals who scored highly on the IRI were more accurate on a task that asked individuals to view subjects on a video tape and then match these subjects with three-word self-descriptions. Therefore, frequently adopting another individual's perspective will lead to more accurate stereotypes.

More recently, Gehlbach extensively studied SPT and proposed a multidimensional approach based on Richard Snow's (1996) conceptualization of aptitudes. Gehlbach (2004) recognized the motivational component of perspective taking in addition to the cognitive component and acknowledged that empathy research overlooks the cognitive component important to perspective taking. Gehlbach stressed the need to fully conceptualize social perspective taking by considering the propensity to engage in SPT, cognitive abilities, situational characteristics, outcomes of SPT attempts, and how outcomes impact other abilities including conflict resolution. Traditionally, SPT accuracy has been studied with tasks involving two individuals who are videotaped during an unstructured interaction. Afterward, each individual is asked to report his or her thoughts and feelings at certain points during the replay of the video, and then are asked about the thoughts and feelings of the other individual at these same points. Accuracy of SPT ability is compared based on these independent descriptions. Gehlbach concluded that higher SPT propensity should highly correspond to levels of motivation. Furthermore, individuals with better emotional regulation skills should similarly more often attempt perspective taking and show more accuracy, which can help facilitate conflict resolution. Gehlbach also concluded that a higher propensity for perspective taking might correspond to higher intelligence and that females may engage in SPT

more frequently than males. Gehlbach also identified features of SPT task designs that either facilitate or hinder SPT abilities (e.g., familiarity facilitates perspective taking).

Gehlbach, Brinkworth, and Wang (2012) defined a successful perspective taker as a perceiver who “must first be motivated to try to understand one or more targets and then must engage in a process that allows him or her to accurately ascertain the target’s mental state” (p. 199). They investigated the specific characteristics that motivate individuals to engage in SPT because one’s motivation to engage in SPT might be more amenable to change compared to one’s innate tendencies for SPT. Through surveys, performance tasks (video task as described in Gehlbach, 2004), and semi-structured interviews, they determined that seven characteristics considerably influenced participants’ motivation to engage in SPT, including targets or situations that are especially important to the participant, prosocial goals, a desire for situational knowledge, relationship goals, social influence, intrinsic interest, or a desire for self-knowledge. Three characteristics negatively impacted SPT motivation: a lack of energy, hubris, and cognitive load.

**Social perspective taking in schools.** School environments involve numerous ongoing interactions with several different individuals, making SPT skills very relevant. Hale and Delia (1976) administered a social perspective-taking task that asked university students to identify two situations from the past year in which someone they cared about had hurt them or disappointed them, or alternatively, someone whom they did not like had helped them. They were asked to describe these situations in detail including the other person’s thoughts and feelings. Achieving a high score on this task involved setting aside one’s own evaluative stance or attributional orientation. The *Role Category Questionnaire* was also administered that asked participants to produce written descriptions of one person they liked and one person they did not like. The number of interpersonal constructs produced in the descriptions was representative of cognitive complexity. Hale and Delia concluded that individuals who produced more complex interpersonal constructs showed greater cognitive flexibility and therefore ease in shifting attributional orientations. Shifting attributional orientations is similar to the process of adopting new roles during the process of inquiry role diversification.

Gehlbach and Brinkworth (2012) applied SPT to social interactions in school environments and proposed a taxonomy of SPT strategies. These strategies were categorized as inferential strategies or information-cultivation strategies. Inferential strategies involved using available information to make inferences, whereas information-cultivation strategies involved attempts to obtain additional information to make inferences. They concluded that certain strategies might be better suited to particular individuals, indicating implications for determining the most appropriate SPT approaches for different individuals in the classroom.

LaMare and Rubin (1987) referred to Piagetian theory when describing how perspective-taking ability develops as a result of interactions and exchange of information with others. Peer sociability was related to perspective-taking abilities, more so among Grade 3 students compared to Kindergarten students. A certain level of peer interaction was required to facilitate the development of SPT; however, minimal improvements were noted as this ability improved beyond a certain threshold. SPT skills did suffer if the levels of interaction were below the threshold. Kohlberg (1969) proposed stages of social-personality development and determined that one of the first prerequisites for role taking is participation in a group. This group participation provides role-taking opportunities that facilitate moral development.

Gillespie and Richardson (2011) examined social perspective taking within cooperative activities and how exchanging roles or social positions may allow the other individual to experience the role demands for that person, therefore leading to less divergent perspectives. Gillespie and Richardson differentiated between cooperative and collaborative activities by describing how cooperative activities require a division of labor among members who adopt different social positions. Furthermore, cooperation is required when faced with individual differences. Collaboration, on the other hand, entails working together without differentiated roles or responsibilities.

The theory of position exchange was defined as different from perspective taking because cognitive perspective taking involves imagining another's perspective without experiencing that situation directly. Position exchange, however, refers to experiencing the situation

of another person directly, as is the case when adopting or exchanging roles during a cooperative activity. They hypothesized that exchanging positions or roles would lead to greater perspective-taking skills during a cooperative problem-solving task called the Communication Conflict Situation by Blakar (1973). In this task, two individuals were provided with identical maps; however, only one had a specific route outlined on it. The individual with the outlined route took on the role of Director, while the other person took on the role of Follower. This cooperative task required the Director to communicate the exact route to the Follower, who had to draw this route on his or her map. Each participant was not allowed to see the other's map; however, no other restrictions were placed on communication. This was repeated for three trials and then a conflict situation was introduced that changed a road on the Director's map slightly compared to the Follower's map. Control conditions had participants maintain their same role throughout four trials, however, in the position-exchange condition, Director and Follower roles were switched for the second trial before reverting to the original roles for the remaining two trials. Position exchange was determined to have a very powerful impact on perspective taking during the cooperative task. In other words, no pairs successfully completed the task in the control condition but 55% of the pairs were successful in the position exchange condition. They hypothesized that position exchange reduced power asymmetry through the exchange of Director and Follower roles, or as a result of self-attribution theory and the increased tendencies to blame the map instead of the person. Concerns related to how this manipulation may have simply facilitated cognitive perspective taking and therefore exchanging positions may not have had an impact.

In a second experiment to address this potential confound, the position-exchange condition involved alternating roles across five trials. A cognitive-perspective-taking condition was also introduced that asked participants to attempt to understand the task from the other participant's point of view in terms of thoughts, feelings, and expectations. Position exchange still had a powerful impact on perspective taking beyond the possibility that this effect was the result of priming cognitive perspective taking. In other words, there was no significant difference in successful outcomes on the task between the

control condition and the perspective taking condition, however, there were significantly more solutions in the position exchange condition compared to the control condition and the perspective-taking condition. They also determined that exchanging roles twice was more effective than exchanging roles once. This relates well to an inquiry classroom because roles are continually exchanged and adopted, perhaps facilitating the development of social perspective-taking skills.

Barfurth and Shore (2008) examined social perspective taking within role exchanges when they studied groups of four students working on science tasks. These tasks required students to build a working Lego model to demonstrate mechanical advantage. Groups were purposely organized to include strong-willed and soft-spoken members. Two different categories of discourse were identified including social moves and cognitive moves. Social moves involved discourse within the group, and cognitive moves occurred when one individual made a decision based on another member's suggestion. During arguments or disagreements among group members, cognitive advances within the group were often dependent on a preceding social move. For example, one social move involved a more strong-willed member asking the group to consider one of the more soft-spoken member's ideas. This instance of social perspective taking involved a role exchange or diversification among the students in which one student adopted the role of moderator. In addition, although it appeared that the groups were arguing and not acting collaboratively, many of these disagreements facilitated knowledge construction.

Many disagreements in groups also relate to Orbell and Dawes' (1981) free-rider effect. A "free rider" is an individual who takes advantage of other's efforts in a collaborative group in order to minimize his or her own effort, while still reaping the benefits of the final outcome. A "sucker" refers to that other individual who puts forth the considerable effort.

Student interest is central to inquiry environments and this interest can have an impact on group dynamics. Gehlbach (2011) addressed student interest but also considered perspective taking. He hypothesized that activities facilitating perspective taking should inherently facilitate interest and engagement in social studies because perspective taking requires actively engaging in taking on the perspective of someone else.

Gehlbach differentiated between academic perspective taking, “taking the perspectives of the historical and cultural figures they [students] are studying,” and interpersonal perspective taking, “taking the perspectives of their [students’] peers in class” (p. 311). Gehlbach also noted that these two forms will overlap and are not discrete forms. Suggestions were provided for ways to target those individuals who might be more comfortable with one form of perspective taking versus another, therefore allowing teachers to modify classroom activities accordingly, for example, including both forms of perspective taking (e.g., asking a small group to answer the question, “Why did this particular historical figure act as she did did?” p. 315). Other suggestions included highlighting the benefits of peers as valuable sources of knowledge. Exposing students to different viewpoints not only facilitates perspective taking, but also facilitates engagement and mutual connectedness. The consideration of peers as valuable sources of information is a central component of inquiry.

### **Research Rationale**

Walker, Shore, and Tabatabai (2013) examined the process of role diversification within two different classrooms through dialog among two groups of four students interacting during inquiry-unit activities. The goal was to determine the nature and numbers of predominant roles as students and teachers worked through an inquiry-based unit of instruction. Student and teacher roles were identified and other qualitative information was gathered through questionnaires, interviews, and participants’ log entries. Four different influences were examined in the context of these roles: classroom context, teacher personalities and teaching style, individual student personalities, and group dynamics. One conclusion related specifically to perspective taking and group dynamics and interactions. Specifically, the method by which the groups of students were created had an impact on the nature of roles in terms of social and cognitive roles. Those students who did not have a choice in the selection of their group members tended to experience more conflict and negative emotional roles. They also tended to adopt fewer perspective-taking roles, but this was also confounded by the nature of the task. The current study examined this conclusion in more depth and



further investigated social perspective taking within the same student and teacher sample. Although the current study did not allow for specific conclusions regarding direct influences on perspective-taking roles, several examples will be described that provide insight into the interplay between role diversification and SPT.

### **Methodology**

The current study was part of a larger study examining inquiry role diversification and therefore an abbreviated methodology section is presented. For additional detail about the methodology, please refer to Walker et al. (2013).

### **Participants**

Eight pupils and their parents, and two female teachers agreed to participate from an elementary school in a generally middle-class suburb of Montreal, Quebec, Canada, and all participants were English-speaking. Six pupils were female and two were male. Four females were in Grade 4, one female and one male were in Grade 5, and one female and one male were in Grade 6.

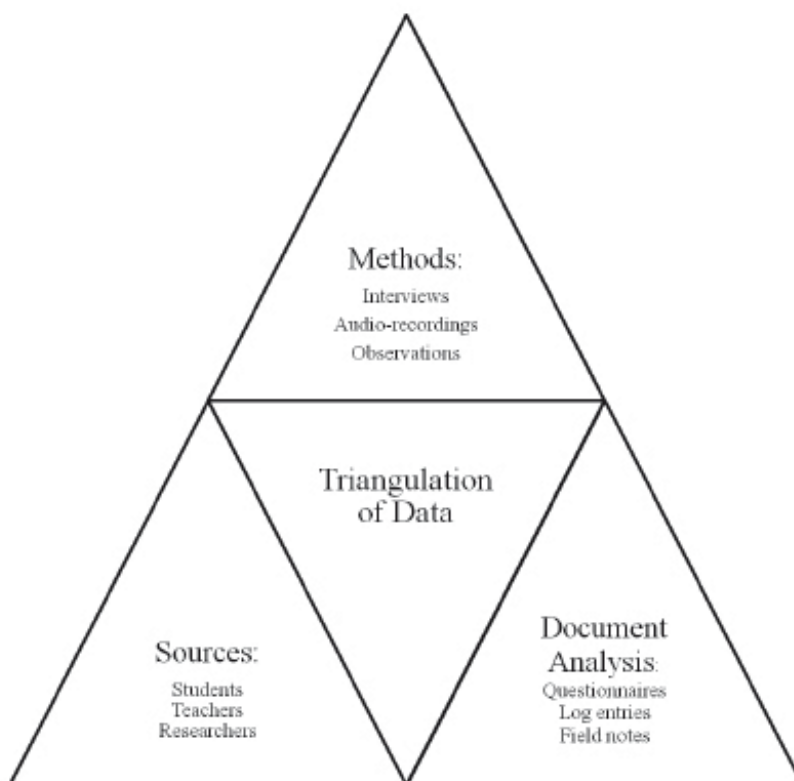
The Grade 4 class (referred to as Group 1; S1, S2, S3, and S4) was beginning their first complete inquiry unit on the topic of the environment. The Grade 4 teacher (Teacher 1 or T1) was beginning her third year of teaching and allowed students to form their own groups. The Grade 5/6 class (referred to as Group 2; S5, S6, S7, and S8) was also beginning their first complete inquiry unit on the topic of the structures of government. The Grade 5/6 teacher (Teacher 2 or T2) was beginning her 23rd year of teaching and she selected the working groups based on their personalities. T2 selected students with outgoing and opinionated personalities to hopefully facilitate interesting discussions and she also balanced the group by grade and sex.

### **Data Sources**

Anderson and Burns (1989) highlighted how understanding human meaning frequently occurs through observations within naturalistic



settings, for example, pupils within a classroom. Research in classrooms should also include multiple or continuous observations with multiple forms of data collection (Turner & Meyer, 2000). The current mixed-method research (Cresswell, 2013) included several different forms of data to meet these criteria and ensure data triangulation. Triangulation of data was achieved through methods (interviews, audiorecorded dialog), document analysis (questionnaires, log entries, field notes), and sources (teachers, students, researchers, supervisors). Please see Figure 1 for an outline of the data collected.



*Figure 1.* Data triangulation including methods, sources, and document analysis.

**Audiorecorded student interactions.** Student interactions within each group were audiorecorded, and then transcribed by Kei Muto, a volunteer student. The first author verified the transcriptions for accuracy and then imported the transcriptions into the MAXQDA computer software, designed for qualitative analysis (VERBI, 2011).

**Field notes and researcher log.** The first author took detailed notes at the end of every classroom visit. Information about classroom layout, attendance, the nature of the activity, teacher instructions, time of day, and duration of visit was recorded.

**Student and teacher log entries.** Teachers and students regularly completed very short journal entries and these journal entries were written responses to questions provided by the first author at the end of certain unit activities. Questions aimed to gather information about current thoughts, opinions, and attitudes regarding the learning environment. These data complemented and provided triangulation for the other forms of data.

**Social perspective-taking task.** An adapted social perspective-taking task was administered to each student in the group near the beginning and end of the unit to determine if perspective-taking ratings changed over the course of completing an inquiry unit (see Appendix A). If students had questions about any of the items, the items were verbally reworded to facilitate understanding.

This questionnaire combined different social perspective-taking tasks and examined interest and motivation as well as social perspective taking (Gehlbach et al., 2008). Demographic information was collected first, followed by an item that asked students to rate group-work frequency in the classroom. The next item asked students to rank a list of school subjects in order from most to least important. This item was followed by four different five-point rating scale items asking the student to rate how interested the student was in the current unit topic. Items were modified for each group depending on the topic of the unit (government or environment). The next three items contained five-point rating scales asking students to rank how often they attempt to figure out how another person might be thinking or feeling.

Davis's (1983) *Interpersonal Reactivity Index* was also incorporated into the questionnaire section; it consists of four subscales that examine different global aspects of empathy, including perspective taking. These

seven items were based on a five-point scale ranging from “does not describe me well” to “describes me very well,” and asked students to rate how well they discern the thoughts and feelings of others (e.g., “I believe that there are two sides to every question and try to look at them both”).

**Interpersonal negotiation strategies (INS) interview.** This interview examined interpersonal negotiation strategies, defined as, “the means by which one individual tries to meet personal needs via interaction with another individual, usually during conflict or disagreement within a relationship that has some personal meaning” (Schultz et al., 1989, p. 8). The first researcher studied the full interview manual prior to interviewing the students so as to increase the validity of the results, for example, to ensure appropriate question probing. Interviews were conducted in empty classrooms for the most part, however, for two of the tasks, teachers briefly entered the room. This interview was revised from the original due to time constraints (see [Appendix B](#)). Only two dilemmas were presented to each participant as opposed to four. Results from this instrument should therefore be interpreted with caution.

**Reliability and validity.** Coding descriptions were written for each code. These descriptions were revised for clarity and appropriateness multiple times through discussions with the second and third author, both very experienced with qualitative analysis; 284 lines of transcript were selected from 922 lines (30.8% of all codes) and these lines of transcript were coded independently by the first and third authors. The percentage of exact agreement was calculated at the more general level of coding to be 76.8%. Through ongoing discussions (totaling approximately four hours), 99.6% agreement was obtained at the more specific second level of coding.

For the interpersonal negotiation-strategies interview, the manual was consulted and used as a guide to score the transcribed interview responses. Two of the eight interviews were selected (25%) and were independently coded by the first and third author according to the scoring manual. The third author initially coded interviews according to the presented coding scheme and achieved only 39.6% agreement with the first author. The third author recoded the interviews based only on the scoring examples provided in the manual and 58.6% agreement was

achieved. Through discussions (totaling approximately two hours) that considered both the coding scheme and examples from the manual, 100% agreement was obtained.

According to Lincoln and Guba’s (1985) trustworthiness of qualitative data analysis, the principles of credibility, transferability, dependability, and confirmability were also met. For more detailed descriptions, please refer to Walker et al. (2013).

**Data-Analysis Procedures**

School visits occurred between February and April 2011, once or twice weekly. All data were marked with a unique participant code. Audiorecorded data were transcribed and coded using *a priori* codes (Miles & Huberman, 1994). These codes were not part of an existing coding scheme, rather, ideas for codes were generated based on previous inquiry research (Llewellyn, 2002; Shore et al., 2009; Shore, Chichekian, Syer, Aulls, & Frederiksen, 2012). Codes were imported into qualitative data-analysis software (VERBI, 2011). From these codes, those most relevant to perspective taking were selected for further analysis in the current study. These selected codes were then recoded using an additional set of codes that were created based on previous research on perspective taking (Batson et al., 1997; Flavell, Shipstead, & Croft, 1978; Gehlbach et al., 2008; Selman, 1971; see Table 1).

Table 1  
*SPT Roles With Associated Descriptions and Examples*

SPT Role	Role Description	Example (from transcript)
Imagine self thinking (Self Thinker)	Imagining how you would think in someone’s position (putting self in others’ proverbial shoes) and includes the verb “to be”	“No but, I don’t think it’s a good idea to write that.” (S3, February 16, Line 122)
Imagine self feeling (Self Feeler)	Imagining how you would feel in someone’s position and includes the verb “to want”	“Yeah exactly, that’s why I want to write it. That’s why I was--” (S3, April 18, Line 126)

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Imagine self acting (Self Actor)	Imagining how you would act in someone's position and includes the verb "to be"	"We're going to be like in front of the whole class. Like, they're probably going to sit on the carpets." (S2, April 13, Line 85)
Imagine self visual/perceptual (Self Visualizer)	Imagining how you would visually perceive a situation in another person's position	"No, but I saw it first." (S6, February 23, Line 201)
Imagine other thinking (Other Thinker)	Imagining how someone would think in a certain situation (imagine how a person would think in his or her proverbial shoes) and includes the verb "to be"	"Just because his name is premier, doesn't mean he's first." (S6, February 7, Line 14)
Imagine other feeling (Other Feeler)	Imagining how someone would feel in a certain situation and includes the verb "to want"	"I don't think it will scare them actually S3. I think it will, like, interest them to not do it."(S2, April 18, Line 627)
Imagine other acting (Other Actor)	Imagining how someone would act in a certain situation and includes the verb "to be"	"The government doesn't pay taxes. If the government paid taxes, they'd just be paying themselves." (S5, February 21, Line 97)
Imagine other visual/perceptual (Other Visualizer)	Imagining how someone would visually/spatially perceive a certain situation	"Look how big the poster is." (S2, April 29, Line 528)

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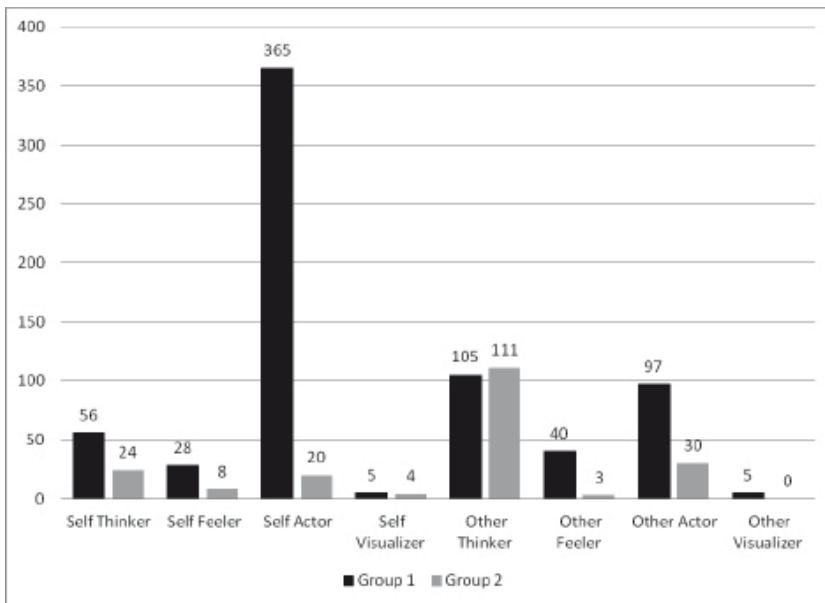
## **Results and Interpretation**

Four specific roles identified by Walker et al. (2013) that related to social perspective-taking included Respectful Listener, Audience-Appropriate Communicator, Open-Minded Collaborator, and Content Collaborator. For every transcript segment identified as one of the above four roles, more specific social perspective-taking roles were also assigned.

The present study also focused on specific variables within the classroom, including the nature of the classroom activities and instructional choices, individual student personality differences, and group-work dynamics. Within each category or variable, interview data, questionnaire data, and teacher and student log data were summarized in relation to perspective taking. Furthermore, the numbers and types of social perspective-taking roles were examined based on transcript analysis from classroom visits.

### **Classroom Activities and Social Perspective-Taking Roles**

Walker et al. (2013) determined that the classroom activities in Group 1 corresponded more with social roles including Collaborator, Communicator, and Respectful Listener versus Group 2, in which the classroom activities tended to correspond with roles more cognitive in nature including Knower, Questioner, and Hypothesizer. When examining the relationships among classroom activities and social perspective-taking roles in the present study, similar insights emerged. When comparing frequencies of social perspective-taking roles across groups, there was a very large difference in the frequency of the Self Actor role. Group 1 members more frequently adopted a Self Actor role (imagine how oneself would act in a certain situation) compared to Group 2 members (365 instances for Group 1 versus 20 instances for Group 2; See Figure 2).



*Figure 2. Frequencies of group SPT roles summed across all time points*

This large difference corresponds with the nature of Group 1's assigned unit activity of putting together a presentation for a younger audience. When looking specifically at the Audience-Appropriate Communicator role category (from Walker et al. [2013]), Group 2 was only represented in one instance. This suggests that Group 2 simply did not have the opportunity to take on this particular role due to the nature of the classroom activities: The highest role frequency for Group 2 was the role of Other Thinker (111 instances), which is also consistent with the more cognitive nature of Group 2's assigned unit activities (e.g., creating a chronological timeline of Canada's prime ministers). Overall, both groups were adopting social perspective-taking roles, but the nature of these roles varied according to the classroom activities or teacher's instructions.



### **Instructional Choices and Social Perspective-Taking Roles**

Classroom activities are typically decided by the teacher and so, naturally, the instructional choices also seem to impact social perspective-taking roles. The interplay between instructional choices and SPT became clearer in researcher field notes of classroom visits. Teacher 1 often began discussions that facilitated social perspective-taking roles based on events in the news or based on occurrences in the classroom. For example, on February 7, 2011, T1 introduced a lesson on the environment. A student had approached the SmartBoard in order to answer a question about what materials are recyclable but had a short whispered conversation with T1 before responding with a correct answer. Teacher 1 then stated to the class that the student had first provided a different answer to her during their whispered conversation and asked the class to guess what question she might have asked the student to help this student. This style of questioning requires students to engage in social perspective-taking in order to imagine what T1 might have asked.

Another example of facilitating social perspective-taking occurred on March 14, 2011. Teacher 1 began the class with a discussion about the recent earthquake and tsunami in Japan. She asked the class how they feel when a disaster happens in another part of the world, and asked them to think about ways they might be able to help. This question may have led students to reflect on what it might be like to be in that situation or to imagine how the Japanese people affected by the tragedy might be feeling.

One of the most striking examples of the facilitation of social perspective taking occurred in T1's class on February 21, 2011. A small group of students (not Group 1 students) were presenting to the class a poster that they had made, demonstrating how to use recyclable materials to create something new. Group 1 students were sitting in the audience and immediately noticed that this group had presented the information in the same creative way that they had. Both groups had drawn a picture of a recyclable material (e.g., piece of rope), followed by an addition sign followed by a picture of another recyclable material (e.g., tire), followed by an equal sign, followed by what can be made by combining the two materials (e.g., tire swing). Group 1 members were

immediately upset because they viewed this as plagiarism of their innovative idea. Following is a summarized account of what happened in the classroom, not from audiorecordings, but from field notes by the first researcher.

After the group finished presenting their poster, one of the members in this group commented about how the presentation had gone horribly. Teacher 1 immediately asked the members what had not gone well. One member answered that the writing on the poster was messy. Teacher 1 then asked, "What could you have done beforehand so you could share well?" This student answered that the group could have practiced. When T1 asked what else could have been done to make the presentation run more smoothly, S2 spoke up from the audience and stated that the group members could have kept their eyes on their own paper. Teacher 1 responded, "Is it possible that people used the same websites or books?" S1 and S2 called out, "They copied!" Teacher 1 soon realized that Group 1 members were talking about the copying of presentation style and not the information as such. She then responded by asking, "Is it possible that when I shared your work with the class earlier, another group was inspired by your ideas?" S2 again responded, "We don't like when people copy us!" At this point T1 responded, "OK, let's address this because I can tell you are frustrated. As a group we need to get over the copying thing, S2, they were probably inspired by your work, it's a form of flattery. I don't think their poster looks the same, they are both different, and maybe some parts are similar, but you are still going to get credit for coming up with the idea first, so it doesn't take anything away from you." Teacher 1 then provided an example from her own personal life to help demonstrate social perspective taking. In reference to two teachers who had visited her classroom earlier in the day to learn about some of T1's different teaching techniques, she asked the class, "If I went to their classroom and saw them using my mental math exercise, is it fair for me to tell them to not use my ideas? Well, Miss [Teacher 1] did not invent mental math, I got the idea from another teacher. How do you feel now?" S2 responded, "Those are teachers, this is different. You invited those teachers to come." Teacher 1 then said, "This is a good debate to have. I am giving you all credit as the first group who depicted the information in that way. You inspired others, and just like when we use information in a

book, we say, I used this book as a source. Maybe others used you as a source.” T1 provided another example from her personal life, specifically about how her dance group in high school had used a similar dance move to another group. After this example, S3 apologized and S2 indicated that she was happy that the other group had liked their idea. T1 finished the discussion by stating, “Would it have been better if maybe they had asked you first? So from now on, we will give each other a heads up before we use a similar idea.”

T1’s flexibility during classroom time allowed for the facilitation of several different and important skills. First, acknowledging individual student concerns sent the message that the student’s ideas and opinions were important and worth discussing. Second, T1 facilitated dialog among classmates about the sensitive topic of plagiarism. Third, T1 asked questions that encouraged social perspective-taking skills and used relevant personal examples to facilitate interest and to demonstrate different perspectives. Fourth, T1 helped the group come to a consensus on the topic and helped them accept a different perspective regarding the issue. Finally, T1 taught the class a valuable lesson about plagiarism and the sharing of ideas.

Similarly, several of the questions that T2 asked throughout her lessons encouraged students to put themselves in the proverbial shoes of the person of interest. For example, on February 16th, 2011, T2 asked the class, “What do you think some of the major accomplishments of these prime ministers are? Did some of them have a harder time in office than others?” In addition, on February 23rd, 2011, T2 asked, “Do you think the prime minister’s accomplishments came from a goal?”

T2 also closely monitored each group’s progress and intervened during serious disagreements or exchanges in which she felt that a member’s perspective was being ignored. For example, on February 2nd, 2011, one group was in a heated discussion and T2 intervened to say, “Why are you negating other’s ideas?” During that same class, T2 had originally instructed the groups to come to a consensus on the answers, however, after hearing all of the conflict, made a class announcement stating, “I should have told you that everyone’s ideas count. Brainstorming would have avoided conflict so I should not have had you reach a consensus. That was my mistake.” This particular instance facilitated social perspective-taking because T2 directly

intervened to ensure that all perspectives were considered and then later communicated to the class the importance of considering all ideas and perspectives during group discussions.

In another example on February 9th, 2011, T2 was reviewing the different characteristics of inquiry learning including Communicator and asked the class, “Would you be a good Communicator if you talked the same way to a five-year-old or to your peer? Would you talk the same way to me as to your brother?” These questions directly taught the students that communicating requires taking the perspective of the person you are communicating with to ensure that the communication is appropriate.

Overall, T1 tended to use world events or classroom events as opportunities to facilitate and build upon social perspective-taking skills (more social in nature) whereas T2 tended to ask reflective questions based on lesson content (more cognitive in nature). Therefore, both teachers were facilitating SPT skills, but in different ways.

### **Individual Differences and Social Perspective-Taking Roles**

Individual differences among students impacted the numbers and types of social perspective-taking roles. Social perspective-taking skills for each participant were assessed in two different ways at the beginning of the unit. A social perspective-taking questionnaire was administered near the beginning and again near the end of the unit activities. In addition, an interview that examined interpersonal negotiation skills, an important component of social perspective taking, was administered near the beginning of the unit activities.

On an independent-sample *t* test, there were no significant differences between the two groups on any item related to social perspective taking. On a paired-samples *t* test, there were no significant differences for either group on pre- versus post-items of the SPT questionnaire. In other words, neither group showed any significant change in social perspective-taking skills over the course of the unit activities. On a task assessing interpersonal negotiation strategies, there were no significant differences across students in grades 4, 5, or 6, or between the two different groups for overall interpersonal negotiation strategies based on a one-way ANOVA and an independent samples *t* test, respectively. In

addition, the INS task categorized responses into orientations including self-transforming (changing oneself to meet the needs of another), other-transforming (attempting to change another person’s perspective to meet one’s own needs), collaborative (consideration of both perspectives equally), and indeterminate (strategies do not fit into one of the above categories; Schultz et al., 1989). There were no significant differences between grades or groups on INS orientations. Overall, there were no significant differences between groups or across grade level indicating that all participants could be considered to have the same level of social-perspective taking skills before and after the presented units of inquiry. The frequencies of SPT roles for each individual were also compared (see Figure 3).

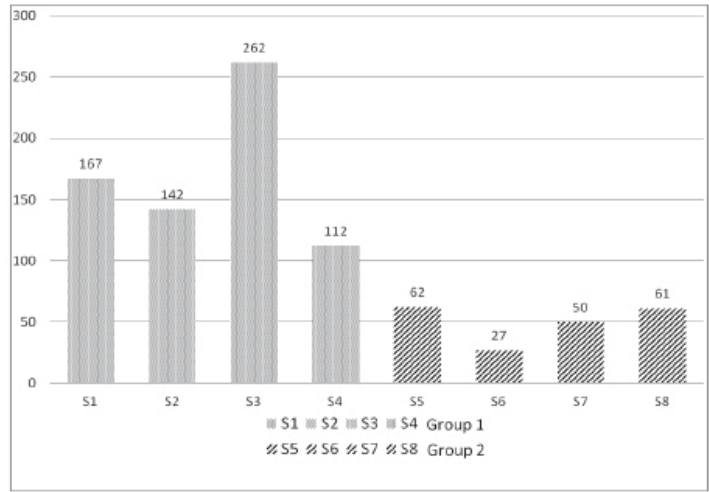


Figure 3. Frequencies of student SPT roles summed across all time points

Group 1 students tended to adopt more SPT roles compared to Group 2 students. S3 (Group 1) took on SPT roles more frequently than any other student at 262 role instances, and S6 (Group 2) took on the fewest number of SPT roles at 27 instances. When considering individual personalities, S3 and S6 tended to be the most outspoken members in

each group, but were outspoken in different ways. S3 tended to be outspoken but considerate of all members' ideas (e.g., "I know. So now we say--What did you write S1?"; April 18, Line 503), whereas S6 tended to be outspoken but stubborn at times (e.g., "Who cares? It's the same as salaries."; February 21, Line 87). Perhaps being outspoken but considerate leads one to adopt more SPT roles compared to someone who is outspoken but maybe not as considerate of all perspectives.

Within the Imagine Self role category, S3 adopted the highest frequency of the Self Thinker, Self Feeler, and Self Actor roles compared to all other participants (see Figure 4).

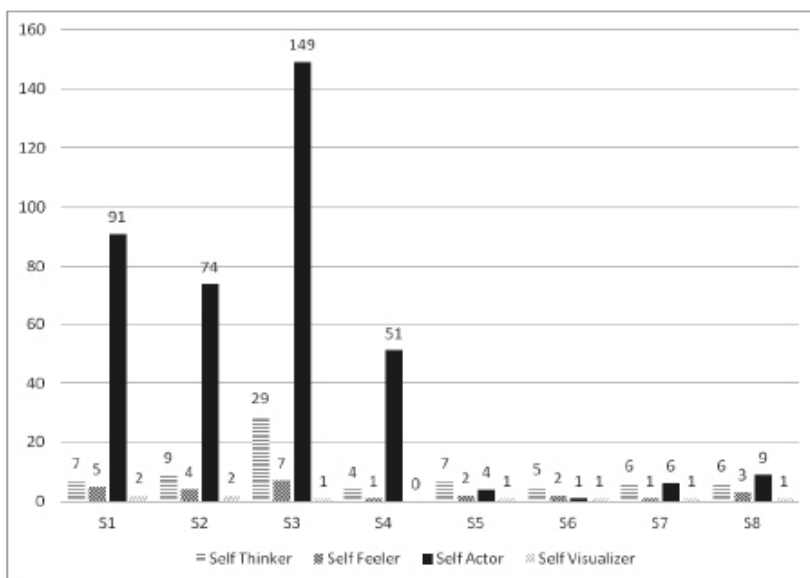


Figure 4. Numbers of different Imagine Self roles adopted by each participant across time

Therefore, S3 was often able to imagine how she might think, feel, and act in different situations. Similarly, within the Imagine Other role category, S3 adopted the Other Feeler role more frequently than other participants (see Figure 5).

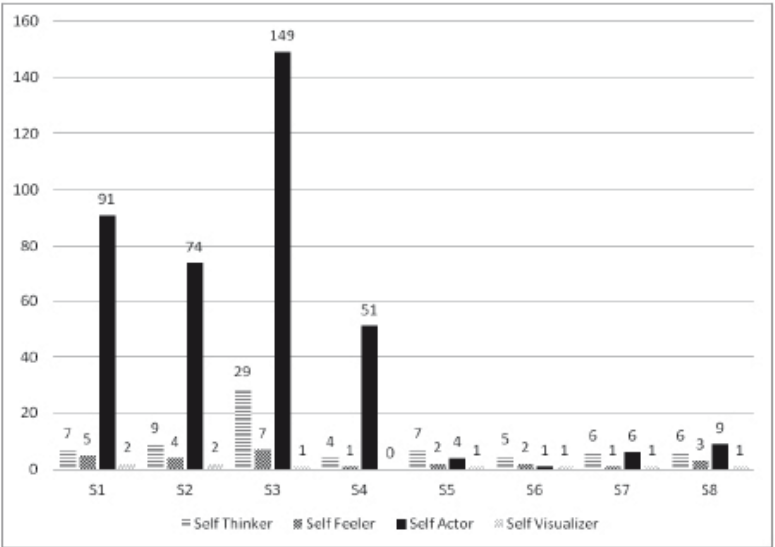


Figure 5. Numbers of different Imagine Other roles adopted by each participant across time

S4 adopted the Other Actor role more frequently compared to all other participants whereas the Other Thinker role was adopted most often by S5 followed by S8 (38 and 36 instances respectively), and was adopted least often by S6. Overall, within the Imagine Other roles, Imagine Feeler and Imagine Actor roles were most often adopted by Group 1 members whereas the Other Thinker role was most often adopted by Group 2 members. This may have related to the nature of the classroom activities as described above, but individual differences may have also contributed to some of these differences. For example, S3 was considerate of her group’s needs and therefore may have been more likely to adopt roles that involved imagining how another person might feel. In addition, S5 tended to be quite confrontational at times (e.g., “No, that doesn’t have to do with anything though!”; February 23, Line 247) and, as a result of this debate-like challenging, may have been better equipped and more likely to imagine how another person might be thinking. Although the Other Visualizer role was very infrequent, S2 adopted this role more frequently than all other participants. This role



was only adopted in one other instance by S3. Perhaps S2 was better able to imagine the visual conditions of a situation rather than how another person might be thinking, feeling, or acting.

A better understanding of individual differences in personality and interpersonal dynamics became clearer when examining interview data for each participant. Interviews were conducted near the end of the unit activities. Each participant was asked who the leader of the group was throughout the unit. Interestingly, S6 identified herself as the leader of the group, and indicated that she would tell the members what to do and did most of the work. This is consistent with her outspoken but sometimes stubborn personality. S3 claimed that there was no leader of the group and that they worked as a team and that every member was a leader in her own way. S4, meanwhile, identified S3 as the leader of the group. This is consistent with the high number of roles that S3 adopted. All other participants indicated that there was no leader of the group and that this responsibility was a shared one.

### **Group Dynamics and Social Perspective-Taking Roles**

Although individual differences influence interactions within inquiry environments and social perspective-taking roles, how individuals interact within their interpersonal situations provides a clearer window into the perspective-taking process. Group 1 students were previously friends and therefore tended to get along very well throughout the unit activities. Group 2 students were not previously friends and were selected by T2 in what she believed would be a good group for the first author to examine. The conflict among members within Group 2 became so great that eventually T2 had to separate the members for the remainder of the unit. Group 2 did temporarily reassemble during researcher visits.

As a first examination of group differences, variability of roles across time were compared. Values of 0 indicate that a transcript was not obtained on that particular day. No clear patterns emerged in terms of the frequencies of SPT roles across time. Time therefore did not seem to influence the pattern of SPT roles adopted by either group (see [Figure 6](#)).

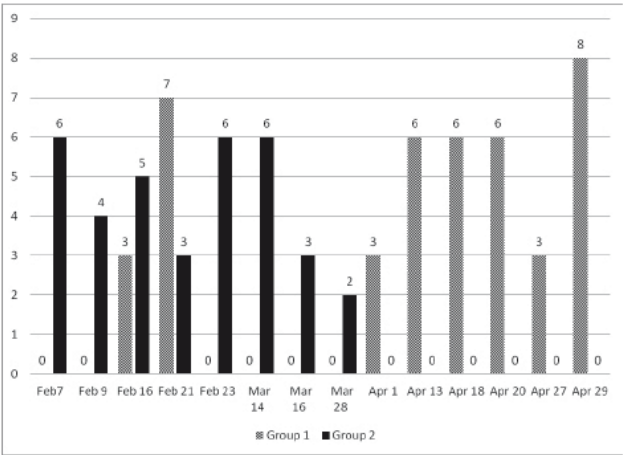


Figure 6. Numbers of different SPT roles adopted by each group across time

When comparing Group 1 with Group 2, Group 1 students tended to more frequently adopt Imagine Other roles, specifically Other Feeler, Other Actor, and Other Visualizer roles (see Figure 7).

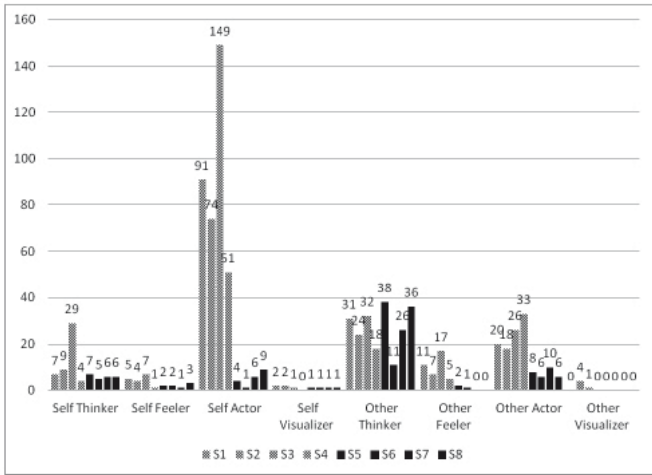


Figure 7. Frequencies of different SPT roles adopted by each individual summed across all time points

There were very few, if any, arguments within this group. Imagine Other roles tend to require a higher level of perspective taking because, instead of imagining how oneself might act or feel in a certain situation, this person must imagine how another person might act or feel in a certain situation. This relates well to the process of role diversification in inquiry. Perhaps cooperation and friendship facilitated a higher level of perspective taking in terms of more frequently adopting Imagine Other roles. This is consistent with Gehlbach's (2004) multidimensional approach to SPT, specifically, that engaging in SPT requires a motivational component and that familiarity facilitates perspective taking. Friends may therefore be more motivated to engage in SPT. Gehlbach also discussed that females may engage in SPT more frequently and this group was entirely female. Gehlbach, Brinkworth et al. (2012) also identified several characteristics that increase one's motivation to adopt other's perspectives and several of these related to friendships including prosocial goals, relationship goals, social influence, and the importance of the target to the person engaging in SPT.

Group 2 students argued frequently and had to be separated (after the February 23 classroom visit). These members infrequently adopted Other Feeler, Other Actor, and Other Visualizer roles. Group 2, did however, more frequently adopt the Other Thinker role. Perhaps certain or heated discussions can facilitate social perspective taking, specifically, imagining how other people think in certain situations. This is also consistent with Walker and Shore's (2013) Engagement phase of inquiry role diversification because conflict may arise during this phase due to conflicting expectations of roles. Perhaps Group 2 students spent more time within the Engagement phase as opposed to the fourth phase of Diversification. Furthermore, facilitating social competence within peer discussions requires participants to not only provide and criticize explanations, but also involves a willingness to adopt another individual's explanations and to believe these explanations (Mischo, 2005).

Several interview questions provided additional insight into the group dynamics and the impact on social perspective-taking skills within each group. All participants were specifically asked if they believed that they worked well with the other members in their group. All Group 1

members responded yes to this question, often citing the fact that they were all friends prior to beginning the unit. S3 answered yes and stated that although sometimes they might have argued about who would complete what activities, she identified the group as a good group. Group 2 members responded differently to this question. S8 responded with a yes and a no to the question, indicating that there were some members in the group who were “mean.” S7 indicated that although there were ups and downs, it was “pretty good,” and added that there were some problems with S6 because they were not friends prior to beginning the unit. S6 similarly identified the difficulties with S7. S5 responded that it was harder to work with the group members because he did not consider them to be his friends.

When asked if participants felt that their group argued a lot, Group 1 responses included “no,” “a little bit,” “no, not a lot,” and “not really.” Group 2 responses included “sometimes,” “no, not really,” “yes,” and “yes.” Students who responded “yes” or responded with anything other than “no” were further asked if this arguing was helpful in some way. Group 1 members responded with “I don’t know,” “maybe a little bit,” and “maybe, yeah.” Group 2 members responded with “yes,” “sometimes, sometimes not,” “no,” and “no.” S6 commented, “well the arguing in our group wasn’t really like good arguing” (March 28, Line 189).

Another question related to group dynamics and social perspective taking and asked students if they thought that their group members valued their ideas. The majority of Group 1 members responded affirmatively to this question, specifically indicating that, yes, they felt that their ideas were valued by other group members. S3 responded, “Some of them, not all. I remember some they wouldn’t, they would say, ‘It’s not a good idea’ or ‘I don’t really feel like doing that’” (April 27, Lines 168-169). Among Group 2 students, responses were more varied. Two students responded that sometimes they felt that their ideas were valued and other times they felt that their ideas were not valued. One student responded “yes, definitely,” and another student responded “not all of my ideas, but most of them.”

Participants were also asked if they felt that their group spent more time in discussion or more time actively working to complete the assigned activities. Three of the four Group 1 members indicated that

more time was spent in discussion and one member felt that with one activity, more time was spent in discussion and in another activity, more time was spent actively completing the activity. Similarly, three out of the four Group 2 members indicated that more time was spent in discussion and one member felt that half of the time was spent in discussion and half of the time was spent actively working.

T1 specifically acknowledged social perspective taking among the Group 1 members in her final interview with the first author. In a discussion about her perceptions about the group dynamics within Group 1, T1 mentioned that she felt the group had worked very well together and that they were very effective at listening to each other and respecting one another's opinions. She also stated that these students tended to be very conscious of their audience. Commenting on a unit activity that involved creating a presentation for the younger grades about the importance of recycling, T1 said, "through discussion they realized what's appropriate to tell the younger grades and what's not, and that was through discussion. You know some of the students were scared that they would scare the younger ones, so that was interesting" (April 27, Line 66-68). Later in the interview, T1 reiterated, "That's amazing to hear and just to see that they're conscientious of their audience. I think that's important. ... They have concern for others, they have that empathy and that's amazing to see at 10 years old" (April 27, Lines 372-376).

Further insight into group dynamics was gathered from student log responses written on individual sheets of paper in response to a written question posed by the first author. On February 23, 2011, students were asked what they enjoyed least about working on the activities that day. Group 2 responses were particularly telling in terms of some of the conflicts that had emerged at this stage in the group's progression through the unit. The following responses were grammatically corrected for easier reading: "The fact that S8 wasn't listening to me," "I think it was when me and S6 had our disagreement," "That my partner doesn't do a lot of work and that I do most of the work." One student in this group also wrote a paragraph referring to a disagreement with another member that required teacher intervention. This log entry detailed the student's side of the argument and expressed frustration about not feeling heard by the teacher.

On March 16, 2011, T2 was asked if the group had faced any difficulties, hurdles, or challenges and, if so, what they were and how the group dealt with them. T2 identified listening to one another as a challenge for this particular group of students, along with respecting that everyone has an opinion, and compromising. She indicated that the group required intervention and guidance to make compromises including discussion about respecting other's opinions.

On April 27th, 2011, near the end of the unit, Group 1 members were asked if they believed that they were making good progress on their project. The responses were as follows, "yes, because we are really putting our heads together and discussing what we think--if someone in our group says something average, we try to make it better and build on it," "yes my group is making good progress because we're working hard and not fooling around," and "I think we are doing better because we are now staying on topic." The group dynamics within Group 1 and Group 2 differed dramatically, and this was related to the social perspective-taking roles that were adopted within each group. Perhaps the conflict within Group 2 or the lack of friendships among members decreased the motivation to engage in the more emotional forms of SPT, including Other Feeler and Self Feeler roles.

## **Conclusions**

Social perspective taking is a complex process and examining these skills within the dynamic and complex social environment of a classroom can be difficult. This research investigated the interplay between social perspective-taking skills and role diversification within inquiry classrooms. Three influences provided the framework for investigating this relationship including nature of the classroom activities and instructional choices, individual personalities, and group dynamics.

There were no significant *t*-test differences on the social perspective-taking questionnaire and interview data, suggesting that perspective-taking skills were the same or very similar between the two groups and across the three grade levels. These *t*-tests were exploratory, and the absence of significant differences, especially in the face of low power due to small sample sizes does not strongly assert that there are no

underlying differences, only that none were detected here on this occasion. Any differences that were observed in terms of SPT roles can be at least partially attributed to the nature of the classroom activities and instructional choices, individual student personalities, and group dynamics.

One of the most interesting insights from the current study related to the nature of the perspective-taking roles. Historically, perspective taking has been largely conceptualized as a stable trait that one gradually acquires throughout childhood development (Selman, 1980). Furthermore, individuals can differ in their level of perspective-taking ability. The current study suggested a different hypothesis.

Although levels of SPT ability were similar between the groups, the nature of the SPT roles that were adopted differed throughout the respective inquiry units. This suggests that in addition to SPT skills being stable, these skills may also have a state-like characteristic and be more fluid, dynamic, or susceptible to external influences than originally suggested. This hypothesis cannot be adequately tested from the current series of observations, however, it does warrant further investigation.

Furthermore, the group that engaged more frequently in emotionally-oriented and action-oriented SPT roles tended to work very well together and successfully completed all unit activities. The other group tended to exhibit more cognitively-oriented SPT roles and eventually required teacher intervention to resolve conflicts within the group. This suggests that the proper conditions must be implemented to allow students to take on more emotionally-based SPT roles in order to function well as a group. To create this ideal environment, teachers need to take into consideration the nature of the classroom activities and the instructional methods, individual personalities, and group-work dynamics. For example, Group 1 students may have thrived because the assigned activities inherently required considering others' perspectives, the students were allowed to choose their own group members, the group members' individual personalities meshed well together, and members knew each other well and were previously friends.

Reflecting back on previous research, several studies support and relate well to some of the observations within the current study. Gehlbach, Brinkworth et al. (2012) noted how hubris or a lack of energy



can hinder SPT while prosocial goals and relationship goals can facilitate SPT. This was consistent with the conflict that was experienced within Group 2 and the corresponding SPT roles that were more cognitive in nature and less frequent use of more complex, other oriented SPT roles. Group 1 worked very well together and this corresponded with higher frequencies of emotional roles and more complex other-oriented roles. Allowing groups to self-select may be advantageous in certain situations for the facilitation of perspective taking and collaboration in inquiry group-work settings.

Cooperative activities require a division of labor among members whereas collaboration requires working together without well-defined roles (Gillespie & Richardson, 2011). Within inquiry, collaborative activities are the norm, therefore offering additional opportunities to adopt numerous roles, diversify existing roles, and adopt roles that are often non-traditional in nature (e.g., question asker role). Gillespie and Richardson (2011) determined that exchanging roles leads to less divergent perspectives and therefore better perspective taking skills and the more frequently that roles are exchanged, the larger the effect. Within the current study, both groups frequently participated in collaborative inquiry activities and both groups also demonstrated similar levels of social perspective-taking ability. Furthermore, both groups demonstrated a wide range of social perspective-taking roles. Although there were differences in the nature of some of these roles, the role diversification that occurs within inquiry can be hypothesized to be comparable to how exchanging roles facilitates perspective-taking abilities.

Creating a successful inquiry environment requires careful consideration of social perspective taking within the classroom. Social perspective taking is important to classroom success within inquiry environments, but caution is warranted in assuming that SPT or the ability to engage in SPT is the only influence on what happens in the class. This paper presented several examples within classrooms that at the very least suggested connections between inquiry group dynamics and the social perspective-taking skills of pupils. Engagement in inquiry can influence the types of social perspective-taking roles that are adopted and the quality of this SPT influences the quality of inquiry learning, creating a mutually cyclical or mutually supportive

relationship that leads to dynamic and complex interactional patterns and SPT roles.

## **Limitations**

There were limitations with the current research, primarily related to the nature of the environment under study. Although classroom activities and instructional choices, individual student differences, and group-work dynamics were discussed as influences on social perspective-taking roles, it is possible that there are additional influences that were simply not evident within this study, for example, cultural beliefs. The other difficulty arises from the complexity of studying an authentic classroom environment. Teasing out the relative contributions of classroom activities, instructional choices, individual personalities, and group dynamics on SPT skills is challenging. Although the smaller sample size allowed for a more in-depth examination of these classroom variables and social perspective-taking roles, additional research of this kind would be helpful in verifying some of the above conclusions.

Furthermore, it would be helpful to replicate this research with groups that were in different stages of inquiry implementation. Although one teacher was new to teaching and inquiry techniques in particular, and one teacher was quite experienced, all the pupils were new to inquiry and so examining these variables in a classroom well versed in inquiry would provide useful comparisons. Other ideas for additional research directions include a greater focus on the student-teacher relationship and potential teacher SPT roles. Some research has already started to address SPT within teacher-student relationships (Gehlbach, Brinkworth, & Harris, 2011). For example, teachers reported better relationships with those students who were better at adopting the perspective of their teacher. Social perspective taking was consistently associated with teacher-student relationship quality. For practitioners, these results underscore the promise of social perspective taking as a means to improving teacher-student relationships; for researchers, these findings signal the need to account for motivation, accuracy, and context in the future.

An additional limitation related to sex and age differences. In an attempt to maintain some consistency in terms of environmental

characteristics, only one school was selected and from within this school, two classes were selected based on the teachers who were willing to participate. Some research has suggested females may be better able to engage in SPT. In terms of the different ages, some of the younger students may have been at an earlier phase of cognitive development (e.g., Piaget's concrete operational phase), and may have therefore struggled to engage in more of the cognitively-based roles that involve more abstract developmental thinking and hypothesizing.

## Implications

**Researchers.** The current study provides researchers with a framework for conceptualizing a particular subset of inquiry roles related to social perspective taking including Other Thinker, Other Feeler, Other Actor, Other Visualizer, Self Thinker, Self Feeler, Self Actor, and Self Visualizer. Within inquiry settings, students and teachers may often adopt additional roles in the classroom that they may not have adopted in a traditional classroom. This diversification of roles may necessarily require social perspective-taking skills.

**Consultants.** For consultants, the information from the current study provides an interesting look into the importance of the social lives of elementary school students. For school psychologists, it provides insight into interpersonal relationships within collaborative settings. Identifying classroom conditions that facilitate social perspective-taking skills can be applied to promoting friendship development and can help inform the debate about the link between perspective-taking skills and bullying behaviors (Caravita, Di Blasio, & Salmivalli, 2009; Sutton, Smith, & Swettenham, 1999). Many researchers have also begun to examine if perspective-taking skills can be specifically taught (Chandler, 1973; Gehlbach, Young, & Roan, 2012; Heagle & Rehfeldt, 2006).

**Teachers and students.** Teachers may want to involve students in the decision process when developing working groups. Similarly, students may want to consider how their own individual personalities and characteristics can shape their interpersonal relationships and abilities to engage in social perspective taking. If the conditions that facilitate social perspective taking are addressed and investigated, then the

probability for healthy interactions in the classroom can be increased. Teachers benefit from being able to anticipate which instructional decisions will make learning accessible for all of their students and students need to be prepared for the increasingly diverse multicultural settings that bring with them several different perspectives requiring advanced SPT skills. Galinsky and Moskowitz (2000) also examined social perspective taking and through an experimental manipulation determined that perspective taking can reduce biased social thought and stereotypes. Teachers could also assign tasks that more easily facilitate emotionally-based SPT roles when group work is involved.

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## Appendixes

### Appendix A

#### Social Perspective-Taking

##### Questionnaire

Please answer the following questions. This will take approximately 30 minutes. Please do not write your name anywhere on these pages.

Birthdate: Month \_\_\_\_\_ Date \_\_\_\_\_ Year \_\_\_\_\_

What grade are you in? \_\_\_\_\_

I am a (circle one):

Girl      Boy

How often do you do group work in your class? (Circle one)

Never Sometimes Often Always

Please rank the following subjects where 1 = most important to 4 = least important to you.

\_\_\_\_\_ English

\_\_\_\_\_ Math

\_\_\_\_\_ Science

\_\_\_\_\_ Social Studies

Please continue onto the next page.

Please check the most appropriate box after each question

	Not at all interesting	Slightly interesting	Moderately interesting	Quite interesting	Extremely interesting
1. Overall, how interesting do you find your unit on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When you hear about the environment in the news, how interested are you?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. How interesting are the different topics you study in this unit on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. How interesting are the assignments you are given for this unit?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please check the most appropriate box after each question

	Almost never	Once in a while	Sometimes	Often	Almost all the time
1. How often do you try to figure out how the people around you view different situations?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If you are having a disagreement with your friends, how often do you try to imagine how they are feeling?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. How often do you try to understand your classmates better by trying to figure out what they are thinking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please check the most appropriate box after each question

	0	1	2	3	4
	Does not describe me well				Describes me very well
1. I believe that there are two sides to every question and try to look at them both.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. I try to look at everybody's side of a disagreement before I make a decision.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I sometimes find it difficult to see things from the "other guy's" point of view.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Before criticizing somebody, I try to imagine how I would feel if I were in their place.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I sometimes try to understand my friends better by imagining how things look from their perspective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## Appendix B

### **Interpersonal Negotiation Strategies Interview (Selman, 1989)**

“Everyone runs into problems with other people all the time and has to work out ways to solve these problems. I’m going to read you some make-believe examples of these kind of problems and then ask you a series of questions about them. There are no right or wrong answers to these questions; we’re just interested in your ideas about solving these problems.”

**Dilemma 3:** Bob (Debbie) and Steve (Anne) are classmates. They don’t know each other very well, but their teacher has assigned them to work together on a social studies project about Africa, and they are trying to decide on a topic. Bob (Debbie) wants to do the report on wild animals, but Steve (Anne) wants the report to be about different tribes, like pygmies.

8. What is the problem here? Why is that a problem?
9. How do you think Bob (Debbie) feels? Why does he (she) feel that way? How do you think Steve (Anne) feels? Why does he (she) feel like that?
10. What are all the things you can think of that Bob (Debbie) can do to solve his (her) problem with Steve (Anne)? How would that solve the problem? What else could he (she) do? Why would he (she) do that?
11. What would be the **best** way for Bob (Debbie) to solve his (her) problem with Steve (Anne)? Why is that the best way to solve the problem?
12. How would Bob (Debbie) and Steve (Anne) feel if Bob (Debbie) did that? Why would they feel like that?
13. What could go wrong with Bob’s (Debbie’s) solution of? Why might that mess it up?
14. What would Bob (Debbie) do next if that happened? Why would he (she) do that?
15. How would Bob (Debbie) know if he (she) had really solved the problem?



**Dilemma 7:** Jimmy's (Bonnie's) class has a substitute teacher named Mr. Jones for the day. Jimmy (Bonnie) is working on some difficult math problems that he (she) is supposed to finish before lunch. He (she) needs some help from Mr. Jones, but Mr. Jones seems very busy with other kids in the class.

16. What is the problem here? Why is that a problem?
17. How do you think Jimmy (Bonnie) feels? Why does he (she) feel that way? How do you think Mr. Jones feels? Why does he feel like that?
18. What are all the things you can think of that Jimmy (Bonnie) can do to solve his (her) problem with Mr. Jones? How would that solve the problem? What else could he (she) do? Why would he (she) do that?
19. What would be the **best** way for Jimmy (Bonnie) to solve his (her) problem with Mr. Jones? Why is that the best way to solve the problem?
20. How would Jimmy (Bonnie) and Mr. Jones feel if Jimmy (Bonnie) did that? Why would they feel like that?
21. What could go wrong with Jimmy's (Bonnie's) solution of? Why might that mess it up?
22. What would Jimmy (Bonnie) do next if that happened? Why would he (she) do that?
23. How would Jimmy (Bonnie) know if he (she) had really solved the problem?

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## **Bullying, Cheating, Deceiving: Teachers' Perception of Deceitful Situations at School**

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# **Bullying, Cheating, Deceiving: Teachers' Perception of Deceitful Situations at School**

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## **Abstract**

Two studies investigated in which situations teachers (would) investigate whether a student was lying or telling the truth and how these situations were perceived. Results of Study 1 indicate that teachers (would) interview students when it comes to use of unfair means, aggressive behavior, theft, absence without permission, bullying, and vandalism, whereat deceitful situations with rather light consequences were most frequently described. Moreover, participants perceived the frequency of occurrence of all situations as lower for themselves compared to colleagues. In both studies, the use of unfair means, absence without permission, and bullying (over a longer period) were rated as most frequently occurring in everyday school life. Further, deception detection was perceived as being mostly important in situations with severe consequences. Study 2 also demonstrates that situations with light consequences are perceived as situations where it is of relatively less importance to make accurate judgments, avoid wrongful accusation, and detect misbehavior, as compared with situations with severe consequences. Overall, teachers perceive avoiding wrong accusation as more important than detecting misbehavior. Influences of teachers' perceptions on their behavior are discussed.

**Keywords:** school, deception, cheating, bullying, social perception

# **“Bullying”, calumnias, engaño: Percepción de los profesores ante situaciones engañosas en la escuela**

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## **Resumen**

Dos estudios analizan situaciones en las que profesores tratan de advertir, si un alumno ha mentido o no y como estas situaciones son percibidas. Los resultados del primer estudio, reflejan que los profesores interrogarían a los alumnos al observarse comportamientos inadecuados tales como: el robo, la ausencia sin permiso, la intimidación, o el vandalismo. Con lo que situaciones fraudulentas de menor gravedad, son descritas frecuentemente. Además, dichos integrantes del estudio, perciben la reiteración de los sucesos en menor medida que sus colegas. En ambos estudios se han advertido los siguientes hechos (durante un largo periodo de tiempo) como los más comunes en el día a día escolar: actuaciones improcedentes, ausencias escolares no justificadas y “bullying”. Asimismo, se detectaron mentiras mayoritariamente en situaciones de graves consecuencias. El segundo estudio demuestra, que las situaciones con consecuencias de menor gravedad, se perciben como situaciones en las que realizar un juicio preciso, no es tan significativo como en las situaciones mas graves, pudiendo evitar así una acusación injusta. En definitiva, los profesores valoran más evitar una falsa acusación, antes que la detección del mal comportamiento. Debatis sobre como la percepción de los profesores ante tales situaciones, puede influir en su conducta.

**Palabras clave:** escuela, engaño, calumnias, acoso escolar, percepción social

A long line of (social) psychological research demonstrated the importance of studying social situations from the perspective of those who are involved in the situation and investigating how they perceive, interpret, and bias it (see Aronson, Wilson, & Akert, 2008; Kassin, Fein, & Markus, 2011). In school settings, for example, it is important to explore how teachers perceive, interpret, and bias situations where students are involved to be able to understand teachers' behavior and reactions. Especially in deceitful situations where students' (mis)behavior might have severe consequences for others, like bullying, or for themselves, as cheating on a test, it is important to study the teacher's perspective and perception. The present studies take a closer look at teachers' perception of deceitful situations by using both, a qualitative and a quantitative approach. The main goal of Study 1 is to explore what kind of deceitful situations teachers have actually experienced. In Study 2, we use the qualitative results of the first study to investigate how deceitful situations are perceived.

### **Deceitful situations: Frequency of occurrence and consequences**

**Deceitful situations.** We define deceitful situations as situations in schools where students misbehave in a certain way, where their misbehavior might have severe consequences for another student (like bullying), for an object (like vandalism), or for themselves (like cheating on a test), and where teachers have to take action. These entire situations share one feature: due to the possible consequences of misbehavior, students are motivated to lie to their teacher (see Vrij, 2008). Thus, in all deceitful situations the teacher is possibly confronted with lying students and, therefore, has to find out whether the student is lying or telling the truth in order to take disciplinary action. In Study 1 we asked teachers to describe situations where they had actually or would hypothetically interview a student to find out whether the student was lying or telling the truth.

*Frequency of occurrence of misbehavior.* According to a study of the Ministry of Interior and Criminological Research of Germany, deceitful situations in schools seem to appear quite frequently. In their study it was found that 44.8% of 44,160 students (average age 15) students have at least once been absent from school without permission, whereby

12.1% of the students were absent for 5 days or more during one school year (Baier, Pfeiffer, Simonson, & Rabold, 2009). Almost one quarter (24.2%) of the students said to have hit or kicked another student at least once within six months, 6.1% have destroyed another student's belongings, and 10.4% to 20.7% (depending on state, region, and size of the city in which they live) have bullied another student several times a month at school (Baier et al., 2009). Another quite frequently named criminal act was, with a percentage of 13.3%, having stolen something in a shop within the last 12 months (Baier et al., 2009). The use of unfair means is another quite prominent situation at school. Franklyn-Stokes and Newstead (1995) investigated the perceived seriousness of cheating and the assumed frequency of cheating behavior such as copying course work from other students or quoting from other existing texts without mentioning the source. The results indicate that both, teachers and students, perceive cheating as occurring quite often and as a serious offense. In total, the results indicate that misbehavior is quite common among students and, therefore, the chance of teachers finding themselves in deceitful situations is quite high. In order to keep up a functioning school system, the frequency of occurrence should differ between deceitful situations. Situations with more severe consequences should occur less frequently than those with rather light consequences. For example, schools where teachers have to deal with bullying and aggressive behavior everyday should be functioning less well as schools where teachers have to deal with absence without permission or cheating on a test on a daily basis (cf. Huiskens, 2007).

*Consequences of misbehavior.* One can differentiate between rather light and more severe consequences of misbehavior. More severe consequences may follow misbehavior which directly involves other students. For example, Rigby (2003) found that being victimized by peers is significantly related to comparatively low levels of psychological well-being and social adjustment and to high levels of psychological distress and adverse physical health symptoms. The author suggests that long-term studies offer stronger support to the hypothesis that peer victimization is a significant causal factor in damages to pupils' health and well-being and that the effects can be long-lasting. Moreover, it seems that the tendency to bully others at school is a significant predictor for subsequent antisocial and violent

behavior. Rather light consequences may follow misbehavior which does not involve other students directly. For example, if it comes to cheating on a test or copying homework, it consequently becomes difficult for teachers to grade their students objectively and challenge their students appropriately. A student who deceives in a performance situation and consequently performs better than he or she actually is, can't be supported to actually increase his or her skills.

### **Findings on perception, interpretation, and cognitive bias**

Following up the frequency of occurrence of deceitful situations, one can assume that people will more likely judge one type of deceitful situation as more frequently occurring in everyday school life than another type of situation if they had described this type of situation before a frequency judgment. This can be explained by the availability heuristic (Tversky & Kahneman, 1973), i.e., the tendency to estimate the odds that an event will occur by how easily instances of it pop to mind (Kassin et al., 2011). For example, imagine a teacher described a situation where he or she had interviewed a student and suspected the student to have used a cheat sheet during a test. As a consequence, this teacher would rate the frequency of occurrence of cheating incidents in general as higher as the general frequency of occurrence of another type of situation (e.g., a student was absent without permission). This can be explained by the fact that people make attributions and other types of social judgments by using heuristics such as the availability heuristic. Thus, by describing a cheating incident this type of situation is more cognitively available and will therefore be rated as generally more frequently occurring. Making an incident more cognitively available can also be achieved through media (e.g., Shrum & O'Guinn, 1993). For example, Shrum and O'Guinn (1993) found that television consumption (hours per week) influenced the perception of crime, i.e., the more television they watched the more they thought people would consume drugs or had alcohol dependency problems. The authors refer to this as the cultivation effect, i.e., the effect of watching television on the construction of social reality. These results can be explained by the heightened accessibility. Since bullying at work or in school has been a



prominent topic in the media during the last years (e.g., Gebauer, 2009, p. 2, and Tiefenbacher, 2008, p. 5) one could assume that bullying is perceived as quite frequently occurring.

Moreover, a wide range of studies on person perception (see Aronson et al., 2008; Kassin et al., 2011) indicate that people expect bad things to happen more likely to others than to oneself. For example, according to the belief in a just world (Lerner, 1980) people assume that bad things happen to bad people while good things happen to good people. Moreover, people are motivated to see themselves in a positive light, i.e., perceive themselves as a good person who does good things (e.g., Aronson, 1998). To maintain this positive self-perception, people engage in self-serving attributions, i.e., people attribute success to their personality or internal reasons and failure to external, situational factors (e.g., McAllister, 1996). Research on self-serving attributions (e.g., McAllister, 1996) indicates that students as well as teachers make self-serving biases in classrooms and take credit for success but not for failure. Moreover, the concept of implicit egoism, which is considered as an unconscious form of self-enhancement, states that people hold themselves in high regard, for example, exaggerate their control over life events, and overestimate their intellectual and social abilities (see Kassin et al., 2011, for more details). Thus, one could assume that people think that good things will happen to themselves and bad things rather to others.

Research findings in the field of social cognition (e.g., Kunda, 1990, 1999) and social information processing (e.g., Chaiken & Trope, 1999) indicate that perception and interpretation of social situations are often biased. Kunda (1990, 1999) states that social judgments can be influenced either by accuracy goals or directional goals. While an accuracy goal enhances the use of information that is considered to be the most appropriate, a directional goal motivates individuals to reach a desired conclusion and, therefore, leads to the use of information that is considered most likely to yield a desired judgment. These assumptions are in line with the Heuristic-Systematic Model (HSM) of social information processing (Chen & Chaiken, 1999). In the HSM, different kinds of motivation are described that are assumed to influence social judgments: accuracy, defense, and impression motivation. While

accuracy-motivated perceivers are assumed to process judgment-relevant information relatively open-mindedly and even-handedly, defense and impression motivated perceivers are hypothesized to process this kind of information in a rather biased manner. The problem with biased information processing lies in the consequences for behavior. According to Ajzen (1985), behavior depends on behavior intention and behavior intention is influenced by attitude towards the specific behavior, assumptions of what significant others think about the behavior (subjective norm), and perceived control of behavior. From research on attitude and attitude change, we know (Chaiken & Trope, 1999) that social perception influences attitude formation. Thus, if one's perception is biased, it is likely that their attitude and their following behavior are inappropriate. For example, a teacher with a strong bias to detect all possible misbehaviors will perceive a student more likely as liar and will therefore very likely intend to and actually punish the student for misbehavior. Moreover, the teacher will justify his or her behavior in a goal-directed manner (cf. Kunda, 1990). Thus, it's not biased perception that is problematic, but rather the consequences concerning intention and behavior, the justification of the behavior, and following behavior.

Research from deception detection indicates that teachers tend to judge students' statements as being true, i.e., showing a so called truth bias (Reinhard, Dickhäuser, Marksteiner, & Sporer, 2011). Thus, one could assume that teachers are generally more defense motivated (e.g., defending their attitude that their students are good people) than accuracy motivated, or pursue a directional goal (e.g., to avoid wrong accusation) rather than an accuracy goal. This defense motivation or directional goal can lead to a truth bias: in order to defend their attitude that their students are good people or in order to pursue their directional goal to avoid wrong accusation, teachers tend to judge their students' statements as true. The truth bias can be explained by the fact that teachers seem to be more concerned with avoiding wrongful accusation than detecting deception when it comes to cheating on a test (Reinhard, Marksteiner, & Dickhäuser, 2011). These two tendencies (avoiding wrongful accusation and detecting deception) can be seen as two forms of defense motivation (according to Chen & Chaiken, 1999) or two directional goals (according to Kunda, 1990). While the tendency to

avoid wrongful accusation might lead – as stated above – to a truth bias, the latter could lead to a lie bias (i.e., the tendency to judge statements as being invented).

### The present study

In Study 1, teachers are asked to describe in what situations they had actually interviewed or would theoretically interview students about lying to them. Teachers' perceptions of each described situation concerning importance of deception detection and frequency of occurrence was investigated. Regarding the functioning of schools (Huiskens, 2007) we predict that teachers will mostly describe (actually experienced) situations with rather light consequences for others compared to severe consequences (Hypothesis 1). Moreover, because of the availability heuristic (Tversky & Kahneman, 1973), we assume that the situations described most often are also perceived as more frequently occurring than others (Hypothesis 2). Furthermore, because of the cultivation effect (Shrum & O'Guinn, 1993) we hypothesize that bullying situations will also be described as more frequently occurring (Hypothesis 3). According to the findings on the belief in a just world (Lerner, 1980), implicit egotism (see Kassin et al., 2011, for more details), and self-serving attributions (McAllister, 1996) we assume that teachers will state that deceitful situations more often occur to their colleagues than to themselves (Hypothesis 4). Moreover, we hypothesize that situations with severe consequences for others (cf. Rigby, 2003) will be judged as more important in regard to deception detection (Hypothesis 5).

### Study 1

#### Method

*Participants.* In total, 41 teachers (68.3% female) participated; three were already retired. On average, participants were 40.95 ( $SD = 12.46$ ) years old and had been in service for 10.18 ( $SD = 11.01$ ) years (Min = 1, Max = 37; one person did not answer the question). More than half of the participants (53.7%) taught at a Grammar School (Gymnasium) and

around one third (34.1%) taught at a vocational school (berufliche Schule). The rest (12.2 %) were teachers at other types of schools. The schools were all located in Germany.

*Procedure.* Participants received either an online link via E-Mail or a paper-pencil questionnaire. Both versions (digital and printed) were identical. They received no reimbursement for participation, but were offered the opportunity to enquire about the results of the study. On the first two pages of the questionnaire, participants were given a short overview of the procedure of the study. Afterwards, demographical questions about occupation, gender, age, working experience (in years), type of school and subjects taught were to be answered. On page 3 participants were instructed to describe three situations where they actually had or hypothetically would interrogate a student in order to find out if the student was lying or telling the truth. The instructions were as followed:

The present study aims at gaining detailed insight into what kind of situations teachers hypothetically would or actually have interrogated students to find out whether they are lying or telling the truth. Below, we would like to ask you to describe in detail three of these kinds of situations and evaluate the situations on different scales.

Then, participants were asked to describe the situations in their own words and to specify for each situation if it was one they actually had experienced or if it was a hypothetical one which they never had experienced in person. They were also asked to specify on a scale from 1 (= not at all important) to 10 (= extremely important) for each situation how important the detection of deception in this particular situation was. Moreover, they indicated for each situation (1) on a scale from 1 to 5 (1 = rarely, 5 = often) how frequently the described situation occurs in everyday school life and (2) how often they, or a colleague had already experienced the described situation (1 = rarely, 5 = often). Finally, participants were thanked for participation and were given the opportunity to receive further information.

Results

*Situation Categories.* In total, 111 situations were described, most of which (67.6%) participants reported as having actually experienced. All situations were categorized by two independent raters (Cohen’s kappa = .94) in the following categories: (1) *use of unfair means*, (2) *aggressive behavior*, (3) *theft*, (4) *absent without permission*, (5) *bullying*, (6) *vandalism*, and (9) *rest category*. For an overview see [Table 1](#).

Table 1  
*Categorization of the described situations overall and depending on experience status (actually experienced vs. hypothetically) in Study 1*

Category	Categorization		
	Overall	Experience status	
	N (%)	Actually experienced N (%)	Hypothetical N (%)
Use of unfair means	29 (26.1)	21 (28.0)	8 (24.2)
Aggressive behavior	8 (7.2)	4 (5.3)	4 (12.1)
Theft	13 (11.7)	5 (6.7)	7 (21.1)
Absent without permission	28 (25.2)	22 (29.3)	5 (15.2)
Bullying	11 (9.9)	7 (9.3)	4 (12.1)
Vandalism	7 (6.3)	5 (6.7)	2 (6.1)
Rest category	15 (13.5)	11 (14.7)	3 (9.1)
In total	111 (100)	75 (100)	33 (100)

*Note.* For three situations participants didn’t indicate if the situations were actually experienced or hypothetical.

The most frequently described situations overall were *use of unfair means*, *theft*, *absent without permission*, *bullying*, and situations categorized to the *rest category*. As expected (Hypothesis 1), the most frequently described actually experienced situations were *use of unfair means*, *absent without permission* and the situations categorized to the *rest category*. Both situations (*use of unfair means* and *absent without permission*) can be seen as having rather light consequences for others or no consequences at all for others compared to the other described (actually experienced situations).

*Perceived frequency of occurrence.* On average, the situations were overall perceived as  $M = 3.18$  ( $SD = 1.51$ ) frequently occurring. This mean did not differ significantly from the scale midpoint 3,  $p = .10$ . The situations that were perceived as most frequently occurring were use of unfair means ( $M = 3.25$ ,  $SD = 1.11$ ), absent without permission ( $M = 3.39$ ,  $SD = 1.17$ ), bullying ( $M = 3.27$ ,  $SD = 0.79$ ) and the situations categorized to the rest category ( $M = 3.20$ ,  $SD = 1.52$ ). These results support Hypothesis 2 and Hypothesis 3. Moreover, the results of paired t-Tests indicate that participants perceive the frequency of occurrence of all situations as lower for themselves ( $M = 2.88$ ,  $SD = 1.09$ ) compared to colleagues ( $M = 3.20$ ,  $SD = 1.03$ ),  $t(83) = -3.03$ ,  $p = .003$ , but not compared to teachers overall ( $M = 3.05$ ,  $SD = 1.15$ ),  $t(83) = 1.52$ ,  $p = .13$ . Those situations were also perceived to occur more frequently among colleagues compared to teachers overall,  $t(83) = -2.19$ ,  $p = .03$ . An overview of the results can be seen in [Table 2](#).

Table 2

*Perceived frequency of occurrence of situation overall, by oneself, and by colleagues in Study 1*

Category	Perceived frequency of occurrence of situation								
	Overall ( <i>N</i> = 110)			By oneself ( <i>N</i> = 84)			By colleagues ( <i>N</i> = 84)		
	<i>M</i> ( <i>SD</i> )	Min	Max	<i>M</i> ( <i>SD</i> )	Min	Max	<i>M</i> ( <i>SD</i> )	Min	Max
Use of unfair means	3.25 (1.11)	1	5	3.04 (1.19)	1	5	3.30 (1.06)	1	5
Aggressive behavior	2.88 (1.25)	1	5	2.71 (1.25)	1	5	3.14 (1.35)	1	5
Theft	2.85 (1.14)	1	5	2.09 (0.83)	1	4	2.91 (0.83)	2	4
Absent without permission	3.39 (1.17)	1	5	3.33 (0.98)	2	5	3.47 (0.92)	2	5
Bullying	3.27 (0.79)	2	4	2.40 (1.08)	1	4	3.30 (0.95)	1	4
Vandalism	2.86 (0.90)	1	4	3.00 (0.58)	2	4	2.71 (0.95)	1	4
Rest category	3.20 (1.52)	1	5	3.18 (1.08)	2	5	3.18 (1.25)	1	5
In total	3.18 (1.51)	1	5	2.88 (1.09)	1	5	3.20 (1.03)	1	5

For most situations participants assume that they will occur more often in another teacher's classroom than in their own. Only in situations where students vandalize, teachers perceive the frequency of occurrence as higher for themselves ( $M = 3.00$ ,  $SD = 0.58$ ) than for someone else ( $M_{\text{Overall}} = 2.86$ ,  $SD_{\text{Overall}} = 0.90$ ;  $M_{\text{ByColleague}} = 2.71$ ,  $SD_{\text{ByColleague}} = 0.95$ ). Thus, the results partially support Hypothesis 4.

*Perceived importance of deception detection.* On average, it is  $M = 4.44$  ( $SD = 0.75$ ) important to detect whether a student is lying or telling the truth. This mean was significantly lower than the scale midpoint 5.5,  $t(108) = -14.84$ ,  $p < .001$ . The situation where deception detection was

perceived as being mostly important was vandalism ( $M = 4.86$ ,  $SD = 0.38$ ), aggressive behavior ( $M = 4.75$ ,  $SD = 0.46$ ), bullying ( $M = 4.73$ ,  $SD = 0.47$ ) and the rest category ( $M = 4.67$ ,  $SD = 0.48$ ). These results support Hypothesis 5. Next, deception detection was perceived as relatively less important when it comes to absent without permission ( $M = 4.17$ ,  $SD = 0.91$ ), use of unfair means ( $M = 4.32$ ,  $SD = 0.77$ ) or theft ( $M = 4.31$ ,  $SD = 0.86$ ). See Table 3 for an overview of perceived importance.

Table 3

*Perceived importance of detecting deception overall and depending on experience status (actually experienced vs. hypothetically) in Study 1*

Category	Perceived frequency of occurrence of situation				
	Overall ( $N = 110$ )			By oneself ( $N = 84$ )	
	$M$ ( $SD$ )	Min	Max	Actually experienced $M$ ( $SD$ )	Hypothetical $M$ ( $SD$ )
Use of unfair means	4.32 (0.77)	3	5	4.24 (0.77)	4.57 (0.79)
Aggressive behavior	4.75 (0.46)	4	5	4.50 (0.58)	5.00 (0.00)
Theft	4.31 (0.86)	3	5	4.40 (0.89)	4.43 (0.79)
Absent without permission	4.17 (0.91)	2	5	3.98 (0.93)	4.80 (0.45)
Bullying	4.73 (0.47)	4	5	4.57 (0.54)	5.00 (0.00)
Vandalism	4.86 (0.38)	4	5	4.80 (0.45)	5.00 (0.00)
Rest category	4.67 (0.48)	4	5	4.64 (0.51)	4.67 (0.58)
In total	4.44 (0.75)	2	5	4.32 (0.77)	4.72 (0.58)



The standard deviation indicates how consistent the importance ratings were across teachers. Half of the situations have a standard deviation below 0.50, which can be interpreted as of relatively high consistency compared to the three situations where the standard deviation is above 0.75 (use of unfair means, theft, absent without permission). In those three situations participants' evaluation of the perceived importance of deception detection varied from average importance to high importance. The pattern is similar across experienced and hypothetical situations.

## Discussion Study 1

Study 1 explored situations where teachers assumed students would lie/had lied to them. Over 100 situations were described, most of which were actually experienced. All situations were categorized (use of unfair means, aggressive behavior, theft, absent without permission, bullying, vandalism, and rest category). As expected, the use of unfair means and absent without permission were most frequently described. Both situations can be seen as having rather light consequences for others or no consequences at all for others compared to the other described (actually experienced situations). Thus, Hypothesis 1 can be seen as being confirmed.

Moreover, the situations overall were perceived as occurring with average frequency. As expected, the situations that were perceived as most frequently occurring were use of unfair means, absent without permission, bullying and the situations categorized to the rest category. Thus, the results support Hypothesis 2 and Hypothesis 3 and are in line with the assumption that accessibility (see [Tversky & Kahnemann, 1973](#), for more details) can be seen as a prominent factor for frequency of occurrence ratings. Moreover, participants perceive the frequency of occurrence of all situations as lower for themselves compared to colleagues (Hypothesis 4). Thus, it seems as though they assume that the mentioned situations occur more frequently in a colleague's classroom than in one's own classroom. These results may be explained by teachers' belief in a just world ([Lerner, 1980](#)) and implicit egotism (see [Kassin et al., 2011](#), for more details): A teacher might believe, that everyone earns what they deserve (i.e., belief in a just world). But at the

same time he or she might be convinced that he/she is a better person (i.e., implicit egotism) than others are. Thus, deceitful situations might happen more often to colleagues than to him. Only in situations where students vandalize, teachers perceive the frequency of occurrence as higher in their own classroom than in someone else's. Thus, the results concerning vandalism can't support the hypothesis. One explanation might be that the described vandalism-situations don't involve the teacher directly while in the other situations the teacher himself or herself or one of his or her students might be directly involved in the incident. Therefore, being a good person might not play such an important role in this kind of situation and neither might the concept of the belief in a just world or implicit egotism.

On average, participants rated the importance of detecting whether or not a student is lying as rather low. The situations where deception detection was perceived as being mostly important were all situations where either another person or an object was affected, i.e., vandalism, aggressive behavior, and bullying (Hypothesis 5). Perceiving situations with severe consequences as important concerning deception detection can be seen as a proper reaction to these kind of deceitful situations, since bullying and aggressive behavior can affect psychological and physiological factors (cf. [Rigby, 2003](#)).

Study 1 has a rather explorative character and uses a qualitative as well as a quantitative approach, because we rather focused on the kind of situations teachers had actually experienced or in what kind of situations they would hypothetically investigate whether a student was lying to them or not. As stated above, those situations were categorized. Thus, the comparison of the ratings between the different situations would be possible, but the ratings would base not on one and the same situation. Therefore, the explanatory power of the results would be rather weak. In order to give the comparison a higher informative value, in Study 2 we used standardized situations. Thus, the ratings would be based on one and the same situation.

As in Study 1, regarding the functioning of schools (cf. [Huisken, 2007](#)), we predict that teachers will perceive situations with rather light consequences for others as more frequently occurring than situations with severe consequences (Hypothesis 1). Also like in Study 1, according to the cultivation effect ([Shrum & O'Guinn, 1993](#)) we

hypothesize that bullying situations will also be described as more frequently occurring (Hypothesis 2). Moreover, in Study 2 we also asked for importance ratings but specified them in line with theoretical assumptions of the HSM (Chen & Chaiken, 1999) and Kunda (1990). Because of the tendency of teachers to judge student statements as being true (Reinhard, Dickhäuser et al., 2011) and because they are more concerned about avoiding wrongful accusation (compared to detecting deception; Reinhard, Marksteiner et al., 2011) we assume that teachers will assess the goal to avoid wrongful accusation as more important than the goal to detect misbehavior (Hypothesis 3). Again, regarding severe consequences following certain reactions (cf. Rigby, 2003) we predict that teachers will give, for all goals, higher importance ratings for situations with severe compared to light consequences (Hypothesis 4).

## Study 2

### Method

*Participants.* In total, 124 teachers (54.8% female) participated in this second study. Two of them were already retired. On average, participants were 44.36 ( $SD = 11.95$ ) years old and were in service for 15.18 ( $SD = 11.84$ ) years (Min = 0, Max = 40.75; one person was still a student teacher). About one third of the participants (30.6%) taught at a Gymnasium and around one third (33.9%) taught at an occupational school (berufliche Schule). The rest of the participants were teachers at Realschule (16.1%), Werkreal-/Hauptschule (12.9%) or taught elsewhere (6.5%). The schools were all located in Germany.

*Procedure.* As in Study 1, participants were sent either an online link or a paper-pencil questionnaire with identical in content and received no reimbursement for participation but the opportunity to receive feedback.

First, participants were given a short overview of the procedure of the study. Afterwards, demographical questions about occupation, gender, age, working experience (in years), type of school and taught subjects were asked. Next, participants were presented seven deceitful situations, in which one or more students misbehaved. Each situation description began with the sentence “Imagine you are a teacher of a class in which...”. The situations were presented in a randomized order to

prevent order effects (see [Cozby, 2009](#), for more details). The situations were developed in line with the results of Study 1. In one situation (*use of unfair means*) participants had to imagine that their students had written an exam and they suspected some students to have cheated. To find out if they had used unfair means they interviewed the suspected students. In another situation they had to imagine that one student injured his or her arm because he or she was pushed by another student but doesn't know who it was. To find out the details of the situation the teacher asks several students who were around when it happened (*aggressive behavior*). Yet another situation described how the teacher's USB-stick was stolen (*theft*). Furthermore, one situation was about some students who arrived late at class and the teacher interviews them about their late appearance after class (*absent without permission*). Two situations described bullying incidents. One was about a student who finds a letter with threatening content addressed to him in his bag and asks the teacher for help (*bullying*). The other was a more general bullying-situation where a student is harassed verbally and through ostracism over several months (*bullying over longer period*). One situation dealt with *vandalism*: The teacher arrives at his/her classroom and has to discover that some tables were damaged with colored pens. To resolve the incident, the teacher interviews some students.

As in Study 1, participants specified for each situation how important the detection of deception was. Then, three statements describing three different goals were presented which had to be rated in matters of (1) how important it was for the teachers to pursue this goal in the specific situation (rating pursue goal) and (2) how important it was to reach this goal in the specific situation (rating reach goal). The first goal was "to give an accurate and objective judgment" (goal: accurate judgment), the second "to not wrongly accuse a student to have misbehaved" (goal: avoiding wrongful accusation), and the third goal "to detect misbehavior of a student" (goal: detecting misbehavior). Moreover, they were asked to indicate for each situation on a scale from 1 to 7 (1 = rarely, 5 = often) how frequently the described situation occurs in everyday school life. In the end, participants were thanked for participation.

## Results

*Perceived frequency of occurrence.* A Kolmogorov-Smirnov test of normality shows that the distribution for the dependent variable of perceived frequency of occurrence was non-normal for all situations, all  $ps < .001$ . The results of a Friedman's ANOVA showed that the perceived frequency of occurrence was significantly different between the seven situations,  $\chi^2(6) = 217.98, p < .001$ . Wilcoxon tests were used to follow up this finding. A Bonferroni correction was applied and so all effects are reported at a .0024 level of significance. The results are shown in Table 4 and indicate that *theft* also occurs least frequently ( $M = 2.10, SD = 1.31$ ) compared to the other scenarios, all  $ps < .002$ . As expected (Hypothesis 1), *absent without permission* and *use of unfair means* are seen as most frequently occurring, all  $ps < .002$ . Also as hypothesized (Hypothesis 2), *bullying over longer period* was perceived as more frequently occurring as *use of unfair means* and *absent without permission*. Moreover, *vandalism* was also seen as most frequently occurring compared to the other means. Furthermore, the results indicate that *bullying* and *aggressive behavior* are rated as occurring less frequently (see Table 4 for means).

Table 4

*Perceived frequency of occurrence and perceived importance of pursuing and reaching a certain goal (accurate judgment, avoid wrongful accusation, detecting misbehavior) for all situations in Study 2*

Category	Dependent measurements			
	Goal			Perceived frequency of occurrence
	Accurate judgment	Avoid wrongful accusation	Detecting misbehavior	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Use of unfair means	3.92 <sup>a</sup> * (1.20)	4.02 <sup>a</sup> * (1.14)	3.63 <sup>a</sup> ° (1.22)	4.21 <sup>c</sup> (1.68)
Aggressive behavior	4.44 <sup>c</sup> * (0.78)	4.51 <sup>c</sup> * (0.69)	4.28 <sup>c</sup> ° (0.91)	2.96 <sup>b</sup> (1.58)
Theft	4.40 <sup>bc</sup> * (0.87)	4.46 <sup>bc</sup> * (0.77)	4.19 <sup>bc</sup> ° (0.94)	2.10 <sup>a</sup> (1.31)
Absent without permission	4.00 <sup>a</sup> ° (1.08)	4.31 <sup>abc</sup> * (0.90)	3.51 <sup>a</sup> ~ (0.92)	4.60 <sup>c</sup> (1.65)
Bullying	4.43 <sup>bc</sup> * (0.85)	4.46 <sup>bc</sup> * (0.83)	4.30 <sup>c</sup> * (0.91)	3.16 <sup>b</sup> (1.59)
Bullying over longer period	4.53 <sup>c</sup> * (0.71)	4.53 <sup>c</sup> * (0.69)	4.36 <sup>c</sup> ° (0.81)	4.45 <sup>c</sup> (1.64)
Vandalism	4.12 <sup>ab</sup> *° (1.04)	4.21 <sup>ab</sup> * (1.05)	3.97 <sup>b</sup> ° (1.15)	4.36 <sup>c</sup> (1.58)

*Note.* Indices <sup>a</sup>, <sup>b</sup>, <sup>c</sup>, and <sup>d</sup> indicate significant differences between rankings *within each column* according to the results of the Wilcoxon tests. Indices \*, °, ~ indicate differences between rankings *within each row* according to the results of the Wilcoxon tests.

*Goal: accurate judgment.* The two ratings (pursuit goal and reach goal) for each of the seven situations were summed up to indices (all  $r_s > .66$ ) by first adding both ratings and then dividing the result by two. Importance of pursuing/reaching the goal of an accurate judgment was for all situations non-normally, all  $p_s < .001$ . Friedman's ANOVA showed that the importance of pursuing/reaching the goal of making an accurate judgment significantly varied across the seven different situations,  $\chi^2(6) = 43.91$ ,  $p < .001$ . All effects are reported at a .0024

level of significance. The results (Table 4) indicate that the *use of unfair means* and *absent without permission* are rated as situations in which it is relatively less important to make accurate judgments, while *aggressive behavior* and *bullying over a longer period* are rated as situations in which it is relatively important to make an accurate judgment. *Theft* and a letter with violent content (*bullying*) are seen as situations in which – compared to the other situations – it is of average to high importance to make an accurate judgment, whereas *vandalism* is a situation in which - compared to the other situations - it is of average to low importance to make an accurate judgment.

*Goal: avoid wrongful accusation.* Again, the two ratings (pursuit goal and reach goal) for each of the seven situations were summed up to indices (all  $r_s > .72$ ) by first adding both ratings and then dividing by two. Importance of pursuing/reaching the goal of an accurate judgment was for all situations non-normal, all  $p_s < .001$ . Friedman's ANOVA showed that the importance of pursuing/reaching the goal to avoid wrongful accusation was significantly different between the seven situations,  $\chi^2(6) = 23.58$ ,  $p = .001$ . The results (Table 4) indicate that, again, *use of unfair means* is rated as a situation in which it is considered as relatively unimportant to avoid accusing a student wrongfully, while (like for the goal of making an accurate judgment) *aggressive behavior* and *bullying over longer period* are rated as situations in which it is of relatively high importance to avoid wrongful accusation. And much like for the goal of making an accurate judgment, *theft* and *bullying* are seen as situations in which – compared to the other situations – it is of average to high importance to avoid wrongful accusation, whereas – again – *vandalism* is a situation in which - compared to the other situations - it is of average to low importance to make an accurate judgment. But this time, *use of unfair means* is seen as being of low to average to high importance to avoid wrongful accusation.

*Goal: detecting misbehavior.* As before, the two ratings (pursuit goal and reach goal) for each of the seven situations were summed up to indices (all  $r_s > .72$ ) by first adding both ratings and then dividing the result by two. Importance of pursuing/reaching the goal of detecting misbehavior was non-normal for all situations, all  $p_s < .001$ . Friedman's ANOVA showed that the importance of pursuing/reaching the goal to



avoid wrongful accusation was significantly different between the seven situations,  $\chi^2(6) = 93.55$ ,  $p < .001$ . The results (Table 4) indicate that, much like for the goal of making an accurate judgment *use of unfair means* and *absent without permission* are rated as situations in which it is of relatively little importance to detect whether the student is lying or not, while (similar to the two goals) *aggressive behavior*, *bullying* and *bullying over longer period* are rated as situations in which it is of relatively high importance to detect a student's misbehavior. And, much like for the other two goals, *vandalism* is a situation in which – compared to the other situations – it is of average importance to detect a student's misbehavior. Again, *theft* is seen as a situation in which it is – compared to the other situations – middle to highly important to detect whether a student has actually stolen something or not.

*Between-goal comparison.* Before, we made a within-goal comparison to investigate what situations were perceived as being of higher or lower importance concerning the pursuing and reaching one of the three goals. Now we applied a between-goals comparison to test what goal was perceived as more or less important to pursue or reach within each situation. The results of several Friedman's ANOVAs showed that the importance of pursuing/reaching one of the goals was significantly different for each situation, all  $ps < .027$ . All effects are reported at a .0167 level of significance. The results (Table 4) indicate that for most situations it is perceived as being of relatively high importance to pursuit and reach the goal of making an accurate judgment and to avoid wrongful accusation; participants perceived the goal to detect misbehavior as relatively unimportant (see Table 4 for means and standard deviations). In the situation *absent without permission*, participants perceived the goal to avoid wrongful accusation as most important ( $M = 4.31$ ), in making an accurate judgment as second most important ( $M = 4.00$ ), and to detect misbehavior ( $M = 3.51$ ) as least important. Thus, Hypothesis 3 is partially supported. When it comes to *bullying*, participants perceived all goals as equally important ( $M_{\text{accjudg}} = 4.43$ ;  $M_{\text{wrongacc}} = 4.46$ ;  $M_{\text{detectmis}} = 4.30$ ). Thus, Hypothesis 4 can be seen as confirmed.



## Discussion Study 2

In Study 2, we used standardized situations in order to compare ratings between situations. Teachers were asked to rate those situations concerning perceived frequency of occurrence and importance of reaching and pursuing a certain goal.

As expected, *absent without permission* and *use of unfair means* are seen as most frequently occurring, supporting Hypothesis 1 which assumed that teachers will perceive situations with rather light consequences for others as more frequently occurring than situations with severe consequences. *Absent without permission* and *use of unfair means* are both misbehaviors where another student is not directly addressed. The severity of the consequences was not rated but one could assume that especially these two mentioned situations have rather light consequences. For example, a student who is attending class too late or not at all misses some taught knowledge but he or she can easily make this up by studying on his or her own. Also, as hypothesized (Hypothesis 2), *bullying over longer period* was perceived as frequently occurring as *use of unfair means* and *absent without permission*. While the latter two misbehaviors seem to have rather light consequences for the student him- or herself and none direct ones for others, *bullying over a longer period* has severe consequences especially for the bullied ones (cf. Rigby, 2003). If this misbehavior occurred very frequently in everyday school life, it would lead to a disfunctioning of the school (cf. Huiskens, 2007). So why would it be perceived as rather frequently occurring? One cognitive explanation is the cultivation effect (Schrum & O'Guinn, 1993), as already stated above, which assumes that media reports about a certain topic like bullying would make this kind of misbehavior cognitively accessible and will therefore positively influence the perceived frequency of occurrence ratings. Moreover, vandalism was also seen as frequently occurring compared to the other means. This finding can also be explained by the cultivation effect: vandalism seems to be also a prominent topic in media reports (Wawrzitz, 2011, p. 8).

Concerning the three goals, the results of within-goal comparisons indicate that for all three goals use of unfair means and absent without permission are rated as situations in which it is – in the eyes of teachers

– of relatively little importance to make accurate judgments, avoid wrongful accusation, and detect misbehavior, while aggressive behavior and bullying over a longer period are rated as situations in which it is relatively important to make accurate judgments, avoid wrongful accusation, and detect misbehavior. Thus, on the one hand it seems teachers perceive situations where there might be long term consequences for other students, such as bullying and aggressive behavior, as situations in which it is seen as relatively important to pursuit and reach these goals. On the other hand, situations where there are only (direct) consequences for misbehaving students (like use of unfair means and absent without permission) are perceived as relatively unimportant situations. This finding supports Hypothesis 4 which states that teachers will give for all goals higher importance ratings for situations with severe compared to light consequences. More interestingly, the results indicate that for most situations it is perceived as being of relatively high importance to pursuit and reach the goal to avoid wrongful accusation (and of making an accurate judgment) while participants perceived the goal to detect misbehavior as relatively unimportant. These findings support Hypothesis 3 which stated that teachers will assess the goal to avoid wrongful accusation as more important than the goal to detect misbehavior. This can be explained by the truth bias (Reinhard, Dickhäuser et al., 2011): The truth bias might be a result of the teachers' tendency to care more about the teacher-student-relationship which can be protected by avoiding accusing the student of misbehaving. This assumption is supported by the results of Reinhard, Marksteiner et al. (2011) which indicate that teachers are more concerned about wrongfully accusing a student of misbehaving than finding out if a student is lying or not.

### **General Discussion**

As stated above, Study 1 explored in what kind of deceitful situations teachers had actually interviewed or would theoretically interview students about lying to them. In Study 2, we investigated how deceitful situations are perceived with respect to importance of detecting attempts of deception and frequency of occurrence.

As expected, in Study 1 use of unfair means and being absent without

permission were most frequently described. Both situations can be seen as having rather light consequences for others, or no consequences at all for others compared to the other described (actually experienced situations). Also, as expected, in Study 1 those two situations and bullying were seen as the most frequently occurring situations. This is in line with the findings of Study 2 where also being absent without permission, use of unfair means, and bullying (over longer period) are seen as most frequently occurring. The first two situations have rather light consequences, if any, for another student and, thus, are not expected to affect the functioning of everyday school life. Bullying, which doesn't fall into the category of light consequences for others, is also perceived as frequently occurring. The explanation lies within the cultivation effect which states that media reports influence the perception of frequency of occurrence of crime. Since bullying seems to be a prominent topic in media, it should be cognitively accessible and, therefore, rated as often occurring.

In Study 1, the situations bullying, aggressive behavior, and vandalism were perceived as situations where it is most important to detect whether a student is lying or telling the truth. This is in line with the findings of Study 2, where aggressive behavior and bullying over a longer period are rated as situations in which it is perceived to be of relatively high importance to make an accurate judgment, avoid wrongful accusation, and detect misbehavior. These findings can be explained by the common feature that these situations share: In bullying situations as well as in situations where aggressive behavior occurs, one or more students misbehave in a manner that affects another student who might suffer from severe physical and/or psychological consequences (cf. [Rigby, 2003](#)). Thus, it seems to be highly appropriate for teachers to give high importance ratings for these kinds of situations.

### **Practical implications and future research**

As the results of Study 2 indicate, teachers' ratings of importance, the detection of truth and lie, the importance of avoiding wrongful accusation, and the detection of misbehavior are highest for bullying and aggressive behavior which shows the high importance of pupils' welfare in school. Furthermore, the results of Study 1 indicate that lower

and middle grade students seem to lie more frequently when they show violent behavior like aggressions, or bullying than adolescents do, and since the results of Study 2 indicate that those situations are rated highest with respect to the importance of detection shows that teachers will be likely to try to detect this type of behavior. Thus, they will put greater effort into dealing with detection of pupils' misbehavior in lower and middle grade levels. And as these age groups seem more likely to show behavior that affects other pupils' psyche or physical well-being (e.g., Rigby, 2003), teachers are well-advised to pay attention to pupils who complain about this type of behavior. As a result, teachers are well-advised to interview the relevant persons in order to make an accurate judgment and to detect truth or lie. This can have repercussions on pupils' willingness to trust their teachers, as they know that teachers are likely to try to detect bullying or violent behavior in order to protect their pupils from physical or psychological harm.

Moreover, the results of Study 1 indicate that adolescents rather tend to lie when they engage in the use of unfair means, or are absent without permission (non-violent misbehavior) and, thus, rather seem to harm themselves and not others with their (mis)behavior. In this case, teachers are asked to take precautionary measures, e.g., to try to prevent the use of unfair means that could be used in examinations and to correct essays for plagiarism. In the case of being absent without permission, teachers should try to find out if the pupil has been absent without permission habitually. Furthermore, it might be a good rule to oblige pupils to give the teacher a medical certificate in case of illness and to contact the pupils' parents in the case of repeated absence.

The fact that most teachers expect middle grade students to lie suggests that there is a necessity for teachers to possess the ability to detect when their pupils are lying. Thus, they could attain information about the pupils involved from another teacher in order to find out if a pupil is lying or not. If the other teacher believes that a pupil tends to lie or tell the truth, the teacher can compare the other teachers' opinion with his or hers and might thus be more likely to make the right judgment.

Future research should focus on perceived versus actual features of deceitful situations. Knowing how often deceitful situations really occur, or if they are more typical for boys or for girls, and comparing these findings with perceived typicality might reduce inappropriate

reactions. This reduction can be yielded by making differences between actual and perceived features salient. Moreover, future research should focus on the motives that underlie judgment goals like those in Study 2. Those judgment goals can bias perception and – as stated above – lead to rather inadequate or unfair behavior. Thus, knowing the motives for these goals might help reducing biased social information processing.

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## **The Sociocultural Psychology as a Postformal Theory of Academic Achievement: Interrogating Formal Education**

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# **The Sociocultural Psychology as a Postformal Theory of Academic Achievement: Interrogating Formal Education**

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## **Abstract**

The present paper interrogates the dominance of formal education. As formal education system relies on ability based academic achievement as a goal, exploring post-formal approaches, such as sociocultural notion of academic achievement is the hallmark of present paper. An attempt is made to interrogate the existing cultural dominance in formal education referring to the need of ability stereotyped groups, not discarding formal education totally. Taking the route from sociocultural experience of children, paper also explores their process of social identification with the present educational system. The way students identification gets constructed and co-constructed, either acknowledges or discards the achievement domain of education, is the major point of contention. Overall, the paper tries to answer the basic psychological question that “Why particular form of education and achievement under the mainstream discourse of education is legitimized and valued in the social psychological representations?”

**Keywords:** academic achievement, sociocultural psychology, formal education, postformal education

# **La Psicología Sociocultural como Teoría Postformal del Rendimiento Académico: Interrogando la Educación Formal**

Chetan Sinha  
*Christ University*

## **Resumen**

Este artículo se cuestiona la dominación de la educación formal. Dado que la educación formal se basa en la habilidad de rendimiento académico como objetivo, la exploración de enfoques post-formales, como la noción socio-cultural de rendimiento académico es el aspecto central de este trabajo. Se pretende interrogar la dominancia cultural existente en la educación formal en lo que se refiere a la necesidad de contar con grupos estereotipados por cuestión de habilidad, sin descartar totalmente la educación formal. A través del camino marcado por la experiencia socio-cultural de las niñas y niños, este artículo también explora su proceso de identificación social con el sistema educativo actual. La forma cómo la identificación de estudiantes se construye y co-construye o reconoce o rechaza el aspecto de rendimiento de la educación es un aspecto de máxima disputa. En general, el artículo intenta responder a la siguiente pregunta psicológica básica: “¿Por qué una forma particular de educación y rendimiento bajo el discurso dominante en educación es legitimada y valorada en las representaciones psicológicas sociales?”

**Palabras clave:** rendimiento académico, psicología sociocultural, educación formal, educación post-formal

*The opposites of great truths may also be true; it is only the opposites of small truths that are false* (Neil Bohr, the great quantum physicist)

The most basic question often repeated in the educational discourse is that ‘why some students get difficulty in adjusting with school environment resulting in either dropout or low academic performance?’ The answer to this question has been explored through various approaches via, cognitive (Kintsch, 1988), motivational (Dweck & Master, 2008), contextual (see Sirin, 2005) and cultural (Kityama & Uskul, 2011). Cognitive approach insisted on development of mental structure where various information processing activities happens pertaining to the task given, for example, intellectual ability of the student in mathematical tasks. Motivational approach conceptualized factors that influence learning, such as factors that directs or limits choice of action and factors that affect intensity of engagement with the task (see Winne & Nesbit, 2010). Contextual approach emphasized the immediate social context of learner which either hamper or promote learning, for example, social class or socioeconomic status. And cultural approach emphasized the use of artifacts in a social space through which children are socialized. Many theorist visualized the role of context and culture as observed to be the real causal factors where the chances of explaining psychological processes was expected to be better. However, it was observed that these two factors have been interrogated as a separate entity rather than as macro level forces shaping the individual level phenomenon. Contrary to this, the mainstream psychology separated its form and structure from social experiences and history of people from diverse background (for other views see Winne & Nesbit, 2010). In this regard, present work pondered on sociocultural position as a critical postformalist catapult aiming at understanding and interrogating formalist legacies dominating the discourse of academic achievement and education.

Recent direction for introducing continuous and comprehensive evaluation system (CCE) in Indian schools is an attempt to relieve students from the burden and stress of exam has important policy implication. This is done by more uniform and comprehensive patterns in education for the children all over the nation. Though CCE is expected to improve students’ classroom performance by identifying students’ learning difficulties by regularly employing suitable remedial measures for enhancing their learning performance, still the pedagogy

and curriculum is regulated by the formalists' agenda of mainstream education. This drive towards the homogenization and nation building in contemporary society through an effort to control diversity in a school seems to be regulated by prevailing societal values representing the dominant identities in power.

However, there is a prospect in revisiting to the failed attempts of improving students' performance, by interrogating existing structure and history of society. The issues of identity and sociocultural experiences of students from disadvantaged background have not been addressed openly, thus limiting education to increase in literacy rate only. The scheme of continuous and comprehensive evaluation depends upon the discretion of schools to plan their own academic schedules as per specified guidelines on CCE. However, the possibility of negligence of low performing students who do not fit into the school value system can't be denied.

Academic performance of students, as represented by the dominant society, preferred to value cognitive ability as it appeared legitimate in the technocratic world motivated by the values of economic gains. The third world countries (e.g. India) were the colony of the western power that came to understand orients for their political and economical expansion. Due to their powerful and structured economy the notions of the methodologies were observed to be superior for controlling the colonial nations (see [Said, 1978](#)). Thus, the western interlocutor prioritized and legitimized western values to be better than the indigenous. This took historical turn by recognizing new divide in the social structure as elite and non elite. The mode which was creating this divide was based on the various metaphors of intelligent quotient (IQ), where privileged were considered as moral, intelligent, hardworking and gracious as compared with the underprivileged. Any other opinion how much empirically validated was rejected unless accepted by the scientific community. This formalist approach highlighted individualistic agency responsible for prevailing inequality in ability and academic achievement. In other words, it gave importance to the permanent aspects of one's ability rather than shaping it through adequate environment (see [Dweck & Leggett, 1988](#)). It also goes beyond the entity and malleable notions of ability to the reproduction of

inequality legitimizing dominant identity as genuine.

The criticism of formalist approach is not new (Kincheloe, 1999, Kincheloe & Horn, 2007). The formalist approach represented a paradigm of thought that ruled the educational system and was the powerful criterion under which various facets of human agencies were judged. The other approaches whose metatheory derived its aspects from the experience of oppression in the history by dominant culture were either not prioritized or abandoned. The Postformalists' perspective got space in academic circle via the dominant discipline like sociology and political science under the umbrella of postmodern thoughts. However, when the call for intervention arises, the formalist conception of ability became more prominent. This defines the power structure of society which is regulated by political dynamics driven by power ideology. The sociocultural apparatus shaped through the diversity of experience has different metatheory of assessment when compared with the universal model of academic achievement. The social constructivist viewpoint of Vygotsky (1978) and his contemporaries acknowledged the social and political dynamics of micro human behaviour. It was based on the assumption that human activities are embedded in cultural contexts, mediated by artifacts like language and other symbolic systems, and can be better understood by exploring the history of development (John-Steiner & Mahn, 1996). Emphasizing the sociocultural facets of children may offer better insight into the problems of formalist approach and create a platform for understanding postformalist agenda.

The formalist approach to ability and academic achievement became universal phenomenon and took the form of grand truth worldwide. The problem of the democratic education as expressed by the formalist may be derived from the dominant value system considered as legitimate. Any opposite patterns of thought is not valued until its grandiosity gets fixated by the other truth emerging out from actors' viewpoint and experience (see also Steele, 2010). The challenge of sociocultural psychology towards the psychometric tools of formalist created alternative inputs to the politics of psychology and its philosophy.

### **Social constructivism and sociocultural model: Let the postformalist come in**

Psychologists have long been interested in knowing the causal factors behind high and low performance of students in the classroom. These causal factors dominated the construct academic achievement positioning them in the dominant worldviews in many ways, two of which were quite prominent representing traditional and realist epistemology, namely, the organismic and mechanistic nature of human agency (Prawat, 1996). The Organismic view holds Piagetian or schema-driven brand of constructivism in which self organization was an inherent feature of the organism, a tendency most evident in the activity of the human mind which was nurtured under the paradigm of rationalism. Themechanistic world view was tailored under the academic regime of realism which was philosophical antithesis of Piagetian constructivism. These worldviews were observed to be more individualistic rather than social in orientation and was placed under the deficit model of achievement (for other view see Kitchener, 1991). Apart from the traditional and realist worldviews, the alternative worldviews comprised sociocultural model, symbolic interactionist model and ‘mind in society’ model. These alternative worldviews were more context driven, and were positioned under the postmodernist paradigm of social constructivism rejecting the formalism completely (see Blumer, 1969; Cobb & Yackel, 1996; Gergen, 1985; Harre, 1986; John-Steiner & Mahn, 1996; Toulmin, 1995; Vygotsky, 1978).

Social constructivist perspectives focused on the interdependence of social and individual processes in the co-construction of knowledge (Palincsar, 1998). The social constructivist comprises mainly of Piagetian and Vygotskian explanation. However, presently the focus shall be on Vygotskian notion of academic achievement and also an effort will be made to interlink and differentiate it from other perspectives. Apart from these perspectives of education, rest shall be presumed to be inherently the area of formalist agenda of mainstream educational psychology (Gallagher, 1999; Kincheloe, 1999). The reason behind this categorization as formalist and post-formalist educational psychology is manifold. One of the reasons which impelled the present discussion in this direction is not universal but more or less based on

sociocultural understanding of academic achievement. The formalist forms of education, though, fiercely debated under diverse disciplinary circle compared the students of ability stereotyped group under the same mainstream and middle class educational value system.

It was obliquely stated that those who were not fitting under the formalist system of education were enough to be projected as deficit in ability, thus strengthening the existing legitimizing myths portrayed by the traditional class and culture (See Beteille, 2007; Tyler, 2006). These formalist approach dominant in educational system due to colonial impacts demeans the cultural and linguistic diversity of historically marginalized students (John-Steiner & Mahn, 1996) and became reified as common sense knowledge. This representation of education in the form of academic achievement disregarded other aspects and paradigms of education. For example, category of students involved in proper education, their achievement as compared to underachiever or low achiever, their cultural representation in schools, their social identification never had become part of people's understanding of academic achievement. Urgent need to understand other aspects of education and their representation is the need of present hour.

A very practical illustration of present educational system is its classroom effect which has sustained the authority of past educational system in its discourses. In this sense, the representations of formalist education weakens the position of students' from marginalized and low socioeconomic status (SES) background and labeled their under performance in the school as deficit and not as different from the children from un-marginalized and high-SES background (see Meacham, 2001). Some cultural arguments problematically define certain ethno-racial identities and cultures as subtractive from the goal of academic mobility while defining the ethnic cultures and identities of others as additive and oriented toward this goal (Warikoo & Carter, 2009). This has shown that dominant formalist force accepted the superiority of the students coming from privileged socioeconomic background (Kincheloe & Steinberg, 1993). In the process of judging students' academic achievement, larger educational context was never interrogated. Meacham (2001) argued from Vygotskian perspective that 'a culturally diverse learning environment, in contrast to the tradition of deficit, may embody important advantages in higher-order conceptual



development' (p. 190). The exploration of factors beyond the individual and structural dimensions in terms of children viewpoint about themselves in particular social context and situations has been major concern of sociocultural theory. The understanding of these dimensions may hold the possibility of mitigating the gap in terms of cultural practices of marginalized communities and those assumptions of the school regarding learning, which were expected to be beneficial for literacy achievement (Heath, 1983; Moll, 1992; Moll & Whitmore, 1993). Thus, totally rejecting formalism, as supported in the postformalist formulation of education may overlook the link between policy and practice. In this context, Sharma (2012) posited that children who belong to extremely marginalized communities may get certain sense of empowerment through the knowledge of letters and limited access to any kind of formal education.

At the outset, it seems that people of minority and disadvantaged background when come in contact with the outgroup context justify their present status as legitimate (See Jost & Banaji, 1994; Jost, Banaji & Nosek, 2004). This justification of underachievement by people of disadvantaged background undermines their sociocultural experience as deficit and not equally important. This may project marginalized members as uncultured and bastion them with imposition of education that is not representative. This demerit of formal education doesn't reduce its charm among policy makers and educators. However, linking of several aspects of formal and post formal education enrich the substance of education which are the fundamental right of every child. On the other hand, Govinda and Bandopadhyay (2012) recently pointed towards the multifold expansion of educational infrastructure for the improvement of accessibility and availability of education, the way system has grown seems to be contributing to further social divisions in the country. The nature of social division attribute to discriminatory factors causing more psychological harms rather than perception of equality. Therefore, varied paradigms comprising implicit processes of self and cognition due to one's experiences with the contexts and practices of artifacts also need to be vigorously debated.



### **Factual understanding of sociocultural theory and literacy acquisition**

Literacy acquisition has been the central concern of sociocultural theory (John-Steiner & Mahn, 1996, p. 202). Scribner and Cole (1981) in their analysis of relation between literacy and cognitive development of a child expressed possibility that literacy acquisition can be independent of schooling and have contextual implication in the development of cognitive competencies. Sociocultural approaches emphasize the interdependence of social and individual processes in the co-construction of knowledge (John-Steiner & Mahn, 1996, p. 191). One reason attributed was that, “children from working-class and lower-socioeconomic-class homes do not ascribe the same importance to the mental functions required by intelligence tests or achievement tests and academic work in the same way as do middle- and upper-middle-class students” (Kincheloe, 1999, p.2). Studies showed that school failure resulted from the cultural inferiority of the poor or the marginalized and teaches us that power relations between groups (based on class, race, ethnicity, gender and so on) must be reconsidered when students’ performance is studied (e.g. Zweigenhaft & Domhoff, 1991). Also, it was posited that, working-class and poor students often see academic work as unreal, as a series of short-term tasks rather than something with a long-term relationship to their lives (Kincheloe, 1999).

The social context and power relations of the culture at large and the school culture in particular may be essential in understanding the class and cultural dynamics of student performance (Block, 1995). Kincheloe (1999) emphasized socio-political cognitive theory which tried to understand the way consciousness and subjectivity is shaped by the society. This emphasis on socio-political theory rejects the Cartesian-Newtonian mechanistic world view that is embedded in the cause-effect, hypothetical-deductive system of reasoning. Lev Vygotsky theorized in the 1930s that individuals do not develop in isolation but in a series of interconnected social matrices in which cognition is viewed as a social function (Kincheloe, 1999, p. 9).

In a socio-psychological context, Vygotsky’s work creates a space where integration between macro social forces and micro psychological forces takes place. Analysis of these integrated spaces becomes a central

activity for a democratic post-formal educational psychology concerned with the way identity is formed by large social forces and mediated by individuals operating in specific environment (Kincheloe, 1999, p.4). Such understanding allows us to imagine pedagogies that move individuals to greater understanding of themselves and their relation to the world, to higher orders of thinking, previously unimagined (Vygotsky, 1978; Marsh, 1993; Driscoll, 1994; Werstch & Tuviste, 1992; Weisner, 1987).

The most fundamental concept of sociocultural theory is that the human mind is mediated (Lantolf, 2000, p.1). Sociocultural revolution focused on learning in out-of-the school context and on acquisition of skills through social interaction (Voss, Wiley, & Carretero, 1995). Failure of educational system has resulted into new revolutions which very much deviated from the established framework of looking at education. Vygotsky (1978) argued that human being do not act directly on the physical world but with the help of cultural tools and labor activities. This gives us the freedom of self to operate on its ecology and systems and to change it. The use of symbolic/cultural tools or signs, to mediate and regulate our interaction and operation with the others is the major characteristic of sociocultural model of human experience.

### **Recent development in sociocultural theory in postformalist context**

Child's mind is, as pointed by sociocultural theorists, culturally shaped and has the flexibility to grasp the utility of the artifacts in the social settings in the form of experiences, thus developing new identities. In the process of understanding children in their school contexts, Vygotsky reasoned that adequate approach to the study of higher mental abilities is through genetic analysis (Palincsar, 1998). Sociocultural theory recognized four genetic domains viz., phylogenetic domain, sociocultural domain, ontogenetic domain and microgenetic domain, though, most of the research has been carried out in the ontogenetic domain (cf Lantolf, 2000). For example, focusing on exploring the ways in which abilities such as voluntary memory are formed in children through the integration of meditational means into the thinking process (Lantolf, 2000). However, these four aspects were found to be interwoven together in the development analysis from Vygotskian

perspective (Palincsar, 1998). Hence, it was with the application of ontogenetic analysis that the complex interplay of meditational tools, the individual, and the social world is explored to understand learning and development and the transformation of tools, practices, and institutions (Palincsar, 1998). According to Lantolf (2000) their mental system had been reformed as a result of their participation in a culturally specified activity known as schooling (p. 5). A well established fact of child cognitive development fragmented in the stages were challenged by the notion that learning is not the result of pre-established stage of certain form of maturation but rather as result of social interactions and socially learned phenomenon giving impetus to the inner development of child.

The social context ascribes varied meaning to the individual or group performing the task due differences in motives and goals underlying the behaviour (Lantolf, 2000). Activities in different settings (e.g., classrooms) do not seems to unfold smoothly but there may be chain of one activity reshaping itself into another activity in the course of its unfolding (Lantolf, 2000). Shift in activity may increase the need to discover different meditational tools for carrying out new activities with the help of identifies group or peer. In this regard, Palincsar (1998) pointed that “the peer collaboration resembled interactions between teachers and children, resulting in the generation of new story elements and more mature forms of activities. Thus facilitative aspects of peer interactions in the form of shared perspectives imparted more meaning to sociocultural psychology of children.

### **Social class and sociocultural experience**

Behaviorist and latter constructivist agenda was limited to discourse of teaching and learning, pontificating the framework of individual agency based on maturation and rewards, thus ignoring cultural-historical-political forces. In the classroom discourses, students form a shared identity with each other which can be very effective factors to be utilized for practical learning through dialogues and discussion. Gee (1990) suggested that as researcher and teacher we must go beyond mere recognition of discourses’ role in producing or potentially challenging hierarchies of power. Therefore, it becomes foremost to

look into the basic tenets of child which had its genesis in the sociocultural configuration and experiences (Cohen, 2009). This sociocultural format has been dominantly synchronized by the Childs' SES whose definition has become more contextual rather than unequivocal as in earlier formalists rudiments.

It was observed that despite expansion in educational reforms and access to education, the subtle form of discrimination still continues. The exclusion and blatant sort of discrimination faced by children depends upon their position in the social ladder both because of their social identity and their role in a domain. Burkit (2008) pointed toward social class as a fit for certain category of capitals essential in ones understanding of social selves. Categorization of SES as objective criterion for measuring ones hierarchical position is based on set of variables which is clustered and complementary. Thus, for the French sociologist Pierre Bourdieu, the social class differences and distinctions between individuals that influence their biographical trajectories and identities were not just based in the ownership or non-ownership of material capital, or in the person's relation to the division of labour, but also depend upon the possession of cultural, social and symbolic capital (Burkit, 2008). These capitals can be associated with Vygotsky's sociocultural and postformal theoretical assumptions given long before Bourdieu's thesis. However, these associations of capitals decide the social position of the individual in any social situations such as classroom. According to Bourdieu (1993) each individual occupies a position in a multidimensional social space or field where he or she is not defined only by social class membership, but by every single kind of capital he or she can articulate through social relations. These invisible and visible accumulations of capital include the value of social networks, which Bourdieu showed could be used to produce or reproduce inequality.

The argument tried to differentiate the cultural control from the sociocultural experiences where social class as a cultural perception and practice seems to have its genesis in the history of legitimate ideology. To simplify it further, the perception of one's objective position on the socioeconomic ladder can be a derivative of one's self concept, values and beliefs depending upon the reciprocal interaction of cultural variations or social environments with one's individualistic self. The

notion of individualistic self used here draw from phylogenetic reality of individual which at one hand categorize as prototype of human being and at other as a individual having experience gained from own human agency. This complex structure of human and society impels Snibbe& Markus (2005) to remark that, "Cultural models are sets of assumptions that are widely (though not universally) shared by a group of people, existing both in individual minds and in public artefacts, institutions, and practices. At the individual level, these cultural models provide implicit blueprints of how to think, feel, and act. When people act according to these blueprints, they reproduce the public models, thereby perpetuating the cultural context from which both were derived."(p. 704). Above definition of cultural model can also add to its three major forms, namely, religion, SES and region (Cohen, 2009), where SES has been seen as of major practical importance. The American Psychological Association's Task Force on Socioeconomic Status (2006) recently noted that differences in socioeconomic status and social class have important implications for human development, well-being, and physical health. In research on socioeconomic status and social class, these are commonly operationalized as combinations of variables such as income, education, and occupational prestige. When investigating social class and socioeconomic status, many investigators also probe subjective social class, or individuals' estimation of their own social class (Cohen, 2009, p. 197). People may perceive their social class to be different from what objective indicators might suggest (Cohen, 2009). Thus, socioeconomic and class inequality may be perceived not only in terms of tangible resources such as income but also in terms of structural aspects such as power, privilege, and social capital (American Psychological Association, Task Force on Socioeconomic Status, 2007; Cohen, 2009).

Cohen (2009) highlighted that, "whereas much attention has been paid to the effects that socioeconomic status and social class have on domains such as health, development, and well-being, psychologists have not often taken a culturally informed approach or considered the rich culturally textured beliefs, values, and practices of higher versus lower social class individuals" (p. 197). Snibbe & Markus (2005) through various experiments had shown how people of low and high socioeconomic status differ in their views of agency. It was found that

high socioeconomic status people are more able to control their environments and influence others whereas those of low socioeconomic status are more likely to have to adapt to their surroundings and maintain their integrity because of their inability to directly control their environments (Snibbe & Markus, 2005). Thus, Snibbe and Markus claimed that the culture of high socioeconomic status valued control and agency, whereas the culture of low socioeconomic status valued flexibility, integrity, and resilience (Cohen, 2009). Thus, it can be concluded that children of different socioeconomic status are enculturated to have different values (Snibbe & Markus, 2005).

Providing meaningful education for all children sets the agenda for more diverse form of education to the child (Palincsar, 1998). In this context, Moll (1992) asserted that “in studying human beings dynamically, within their social circumstances, in their full complexity, we gain a more complete and a much more valid understanding of them (p. 239). Failure of the school to serve children from all diverse background (e.g. SES) have been explained through the following sociocultural explanations viz., a) discontinuities between the culture (values, attitudes, beliefs and SES) of the home and school (Gee, 1990; McPhail, 1996), b) mismatches in the communicative practices between children of lower class and SES and mainstream teachers who represent monolithic value system of middle social class that lead to miscommunication and misjudgment (Heath, 1983), c) the internalization of negative stereotypes by minority groups *or people of working class* who have been marginalized and may see school as a site for opposition and resistance (Steele, 1992), and, d) relational issues, such as the failure to attain mutual trust between teachers and students (Moll & Whitmore, 1993) and a shared sense of identification between the teacher and the learner (Litowitz, 1993). Adding to the above sociocultural explanations of mismatches between value assumption of child and the school, the children co-construct their knowledge system in the social processes with their use and familiarity with the artifacts. Thus, we may call for alternative views that reconsider tradition and scheme of schools and provide major overhauling through awareness. This is required to have a shift in the perceptions of an observer and to value the agency of the child which is actor and bearer of the oppressive situations. Therefore it becomes important in understanding child’s



appropriation of his/her cultural values and to provide better education from the diverse perspective.

### **Sociocultural experience in text: Reconsidering tool for literacy and pedagogy**

According to Giroux (2010), critical pedagogy is situated as a political and moral project. Its proponents recognize that pedagogy is always political because it is connected to the formation and acquisition of agency. As a political project, it illuminates the relationships among knowledge, authority, and power drawing attention to questions concerning who has control over the conditions for the production of knowledge, values, and skills. Moreover, it sheds light on the ways in which knowledge, identities, and authority are constructed within particular circuits of power. Most importantly, it draws attention to the fact that pedagogy is a deliberate attempt on the part of educators to influence how and what knowledge and subjectivities are produced within particular sets of social relations. Ethically, critical pedagogy stresses the importance of understanding what actually happens in classrooms and other educational settings. This was done through raising questions regarding the choice, direction and desirability of knowledge. It also takes seriously the important relationship between how we learned and acted as individual and social agents. In this instance, critical pedagogy was concerned with teaching students not only how to think but also how to assume a measure of individual and social responsibility—that is, what it means to be responsible for one's actions as part of a broader attempt to be an collectively engaged citizen.

### **Prospects and conclusion**

We discussed about the role of sociocultural psychology as a postformal approach. The challenges associated with the formal education in terms of increasing achievement gap is not new and more serious attempt is required to understand the existing reform policies in education. The present work, however, highlighted the nuances and merits associated with formal and post formal viewpoints only, and highlighted the need

for understanding sociocultural aspects of human psychology. The necessity to understand the problems and prospects of both the perspectives may provide better picture of educational system. In recent times, lot of researchers have attempted to look into the arguments presented in this paper through different cultural contexts, yet many questions still remained to be answered. As it is evident from the review presented here, this topic is one with manifold aspects to its ranging from broad ones such as cultural issues, government policies and plans to subtle nuances such as teaching strategies and curricula. Hence future researchers may consider the employment of collaborative effort from social scientists belonging to various disciplines so that the different issues associated with the subject maybe dealt appropriately. The need also arises to understand the tenets of social class and SES as structure under which various other identities gets represented and constructed depending upon the volatility of social context and situation. The universal aspect of social class may not only mutually constitute the individual and structural factors but also convey about the construction of selves depending upon the situation of the domain, that is system of education and classroom affects. Giroux (2010) pointed in migratory context of America that it is time for Americans to take note of the fundamental importance of retaining educational theories and pedagogical practices that produce the knowledge, values, and formative culture necessary for young people to believe that democracy is worth fighting for. Taking the recourse from Giroux (2010) and Portes (2005), intentions are to develop awareness program to reinvent the society, so that its education system may understand real meaning of democracy and stay away from its myths sidelining itself from corrosive and oppressive corridors. The generation of empowerment among marginalized both in perceptions and objectivity may then reflect the possibilities of diversity inclusion.

Thus, the need is to respect diverse form of education suitable for everyone's sociocultural experience without legitimizing one form of educational culture and methodology. It may be more justifiable to acknowledge the promises associated with both formal and post formal educational system. That may create more democratic framework for education where no child is neglected for being not fitting into the systems and values of other identities.



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## The Strategy Factor in Successful Language Learning

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# Review

Griffiths, C. (2013). *The Strategy Factor in Successful Language Learning*. Bristol: Multilingual Matters.

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Since the mid 1970s there has been a growing interest in the analysis and classification of strategies that advanced multilingual speakers apply in order to develop and improve their language skills. Many authors including Rubin (1975), Bialystok (1981), O'Malley and Chamot (1990) and Cook (1991) have explored the complex and to a great extent unknown universe of language acquisition from this perspective. However, there seems to be no consensus as regards the role of linguistic and communicative strategies in language learning or even in the definition of basic terminology or in identifying key conceptual aspects that would pave the way for new theoretical approaches.

In *The Strategy Factor in Successful Language Learning* Carol Griffiths (2013), a renowned expert in the field of English language teaching and teacher education, intends to cast some light in the learning strategy field from the premise that learners “may be empowered to manage their own learning” if they are trained “to work out the answers for themselves” through effective strategies (p. 1). To this end, the author clarifies fundamental concepts such as strategy, skill and style through an extensive literature review and examines the correlation between strategy use, strategy type and strategy frequency and successful language learning in different contexts and for different purposes. In so doing, Griffiths places the learner at the heart of the learning process and draws on responsibility and autonomy as central



factors in the learning of new languages from a cognitive perspective. In this sense, the author upholds that strategies are learnable and teachable. This view contrasts with more traditional methods, namely the grammar-translation method or audiolingualism, which is based on behaviourist principles and which, therefore, minimises the role of the learner in their own learning process.

The book is divided into four main chapters, each dealing with essential issues within this multilayered discipline. Chapter 1 addresses controversy by proposing well-informed definitions and possible solutions to terminology inconsistencies, sound strategy classification, and underlying theory from the literature; chapters 2 and 3 seek to answer basic questions concerning the role of age, choice, purpose, motivation, time or affect along with other psycholinguistic aspects regarding the effectiveness of strategic learning and to approach strategy research from the point of view of the learner by means of quantitative and qualitative studies; finally, chapter 4 reviews pedagogical research, studies of strategy-based instruction, content, methodology, and teacher perceptions, which can be especially relevant for teacher training purposes.

Through well-organised prose and a highly readable style, Griffiths does not simply discuss the main theoretical concepts of strategic language learning theory. Instead, she provides the reader with evidence based on empirical studies, reinterprets the existing literature, analyses the implications of the data presented in the light of pedagogical research findings, and indicates under-researched areas for further study. For this reason, the target audience may range from undergraduate students and student teachers who wish to look into basic language learning research to teacher educators, in-service teachers, and researchers. It may also prove to be useful for language learners who wish to find out about the complexities of language acquisition from a strategy-based approach and to develop their own strategies.

Nonetheless, it should be noted that the research perspectives on language acquisition explored mainly focus on the acquisition of traditional varieties from the point of view of the native speaker and that new trends on multilingual research in the face of the increasing number of lingua franca English speakers are perhaps overlooked. Throughout

the book there are numerous references to native-like speech production, pronunciation, and grammar control as the implicit goals of language learners, which might be true in some cases. However, little attention is paid to the fact that effective communication as opposed to mastery might be one of the main aims of developing language speakers, many of whom might already speak more than one or two languages by the time they start learning a new one. Hence, the strategies that might be relevant to these kinds of speakers will differ from those of the learners described in the book.

In any case, this book offers an interesting classification of learning strategies, clear and concise descriptions of ambiguous terminology which is being used inconsistently, an analysis of numerous research studies, qualitative and quantitative evidence, and a hands-on approach to language teaching and learning written in a pedagogical style. Thus, it is safe to say that Griffiths has made a major contribution to this complex area of knowledge and that her work will undoubtedly prove to be useful to a wide range of readers.

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