Demographic Variables in Children's Self-Regulation Lynda R. Hutchinson, Nancy E. Perry, Nikki Yee, Lorena Restrepo, Benjamin Dantzer, & Daryl Lo

INTRODUCTION AND RESEARCH OBJECTIVES

Objectives

- We present data from the first wave of a longitudinal study examining children's development of selfregulation (SR) and how features of classroom processes can affect it.
- We focus on: (a) how demographic variables— age, sex, and culture—are related to SR and achievement; and (b) how some children struggle with SR.

Self-Regulation

- SR describes how individuals control thoughts and actions to achieve goals and respond to environmental stimuli (Zimmerman, 2008).
- It involves basic executive functions (Diamond & Lee, 2011) plus higher order functions (Perry, 2013), and is implicated in cognitive, neurological, social, emotional, and behavioral development.
- SR is a significant source of individual differences (Zimmerman & Schunk, 2011), and a key predictor of children's early and ongoing success in school (Diamond & Lee, 2011).
- Children who are successfully self-regulating use emotional regulation (ER, Eisenberg & Spinrad, 2004), selfregulated learning (SRL, Perry, 2013) and socially responsible self-regulation (SRSR, Hutchinson, 2013) to complete academic tasks, meet behavioral expectations, and relate to teachers and peers.
- Also, successfully self-regulating children use co-regulation (expert guidance from teachers and peers), and shared regulation (pooling expertise with similarly capable peers) to learn and achieve in school (Grau & Whitebread, 2012). Our study distinguishes between solo and social regulation.
- Some studies (e.g., Diamond & Lee, 2011) indicate demographic variables are associated with children's developmental trajectories with respect to SR. For example, teachers tend to give young boys lower ratings of SR than girls (Rudasill & Rimm-Kaufman, 2009). We examine these variables further.
- Fortunately, research indicates SR is malleable and can be supported through classroom tasks, instructional practices (e.g., support for autonomy), and interpersonal relationships (Perry, 2013). This is a key focus of our study, especially for students who are "at risk" in their development of SR.

METHODOLOGY

Participants

- In the first year of the study, twenty teachers (0 males) provided ratings of 189 children in their kindergarten classrooms (76 girls; Mean Age = 6.01 years; SD = .42 years). In the second year of the study, 22 teachers (0 males) participated — when these children were in grade 1.
- Participating children's ethnic backgrounds were grouped according to the United Nation's regions of the world. Approximately 36% were European, 24.3% Asian Pacific; 9.5% were Western European, .5% reported Latin American and Caribbean; .5% reported African, 11.6% were Other.

Measures

Self-Regulation In School Inventory (SRISI)

- An eight-item version of the teacher-report measure, the SRISI, was employed to provide an indirect assessment of children's SR with items representing solo regulation ($\alpha = .81$; .95% CI = 76-.85) and social regulation ($\alpha = .91, 95\%$ CI = .89-.93; Hutchinson & Perry, 2015).
- Teachers responded using a 7-point Likert scale with endpoints ranging from 1 (never true) to 7 (always true). Children receiving ratings one standard deviation below the sample mean were identified "at risk" in their development of SR.
- Also, teachers provided an overall rating of children's academic achievement using a 7-point response scale corresponding to the BC Ministry of Education's grading standards.

Classroom Observation Instrument

Classroom observations described events and activities in children's classrooms (Perry, 2013). The observations were analyzed for evidence of eight categories (e.g., complex tasks, choices, control over challenge, self-evaluation, teacher and peer support, accommodation for individual differences, and embedded assessment) that distinguish high and low SR classrooms.

Procedures

- Parents provided demographic information (e.g., sex, birthdate, ethnicity) about participating children as well as descriptions of their strengths and challenges.
- Children's kindergarten teachers rated their SR at the end of the school year (June-July 2014)
- Then, classroom observations were conducted in children's grade 1 classrooms at three points during the 2014-15 school year.

Descriptive Statistics for the SR and A			
	Kindergart		
	(<i>N</i> =		
	Mear		
Solo regulation	4.48		
Social regulation	4.98 (

SR, and Achievement Variables

- Results of a multivariate path analysis confirmed that solo and social regulation (β = .21 SE= and statistically significant predictors of academic achievement.
- No other statistically significant relationships were observed and achievement variables.



• In contrast to previous research, statistically, boys in our study were not more likely than girls to receive low ratings of SR. • Children who struggle with SR struggle with both solo and social aspects.

Classroom practices appear to be supporting "at risk" children to develop SR.





Parent and Teacher Reports of Strengths and Challenges in the Subsample of Kindergarten and Grade

Theme	Strengths	Challenges	Parents	Teachers
Executive functioning	Good memory.	Difficulty following instructions, focusing attention, sitting still.	\checkmark	✓
notional regulation	Expresses feelings.	Aggression, frustration.	\checkmark	\checkmark
Motivation for learning	Eager to learn	Taking risks with attempts at new school work or new situations.	✓	•
Temperament/ personality	Happy, outgoing, flexible, social [extraverted].	Strong willed, not always social [introverted].	\checkmark	
osocial and social responsibility	Caring, thinks of others.	Competes with others in social situations. Asking for/accepting help.		

Description of Marlene's Canadian Animals Task

dren we luations	Task Descriptio ere working in collaborative groups — s of their progress on their animal proje	n they were conducting self and group ect using class generated evaluation		
eria. dren assigned themselves different jobs/roles for the task.				
	Choice & Control Over Challenge	Self-Evaluation		
ition	 Chose which animal to study. 	 Children used class generated criteria to evaluate how they worked in their group. 		
ntion	 Chose jobs for the task (negotiated within groups). Chose who to work with. 	 Evaluation criteria described solo and social dimensions of regulation: Kind and loyal (social) Hard worker (solo) Good listener (solo & social) 		
	Peer Support	Teacher Support		
ntion	 Children were asked to share their evaluations with peers — how they applied the evaluation criteria. Marlene discussed strategies children could use to seek help efficiently (e.g., "Who can you ask before the teacher?") 	 "Maybe you did really well in one area [of evaluation] but you will need to focus on something else next time" "When we work in groups there are lots of things to think about" 		
	Embedded Assessments	Accommodations for Individual Differences		
ition	 Students evaluated their individual (solo) work and learning based on the three evaluation criteria. 	 Children could change jobs if they found something about their work was too difficult. Students had opportunities to choose animals for the project—this could accommodate varying interests of children. 		
ition	 Students evaluated their group based on the three criteria. 	 Children had to agree that they could reassign jobs. 		