

EARLY LEARNING PROJECT

TABLE OF CONTENTS

- 2 What is classroom climate? Why is it important?
- 3 Classroom climate: Results
- 4 Strategies for classroom climate
- 5 What is behavioural regulation?
- 6 Behavioural regulation continued
- 7 Behavioural regulation: Results
- 8 Strategies for behaviour regulation
- 9 Academic skills: What are they? Why are they important?
- 10 Academic skills: Results
- 11 Strategies for academic skills
- 12 Thank you, about the PEERS Lab, references



WHAT IS THE EARLY LEARNING PROJECT?

The Early Learning Project (ELP) explores how young children's interactions with teachers and peers affect their social, academic, and emotional development over time.

This study began in Winter 2023 and included 68 preschool children, their caregivers, and 11 teachers. Participants were recruited from 25 preschool classrooms. In Spring 2024, we followed up with 35 of these children to further examine their development. In Spring 2025, 29 children were followed up with for a third and final time.

This newsletter highlights our findings on how classroom interactions relate to children's behavioural self-regulation and academic skills.

Strategies for supporting class climate, behavioural self-regulation, and early academic skills are included.

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the PEERS Lab Team.

WHAT IS CLASSROOM CLIMATE?

Classroom climate is the physical and social environment in which children learn. It is measured through the quality of interactions children experience with peers and educators. A positive climate is one where children experience warm and satisfying interactions and relationships; a negative climate is a classroom with less satisfying interactions between students, peers, and educators.¹ In this study, we measured classroom climate in Spring 2023 through unobtrusive classroom observations. Research assistants visited classrooms and overserved interactions between educators and children.

WHY IS CLASSROOM CLIMATE IMPORTANT?

Classroom climate is an important factor in childhood development.¹ Children in classrooms with positive classroom climates experience more academic engagement and peer acceptance.² Although each individual child has a different relationship with their teacher and educators, class climate is experienced by the whole group collectively.²

Classrooms with a positive classroom climate help children gain a strong sense of belonging and create strong educator-child relationships.

CLASSROOM CLIMATE CAN BE DIVIDED INTO THREE CATEGORIES:

EMOTIONAL SUPPORT

Emotional support is based on warm interactions and positive feedback between educators and children. Emotional support is also assessed by the degree to which children appear to enjoy each other's company.¹

INSTRUCTIONAL SUPPORT

Instructional support is the degree to which educators introduce engaging activities to enhance learning and promote critical thinking. It is gauged by the frequency and quality of educator feedback toward their children's learning.¹

CLASSROOM ORGANIZATION

Classroom organization is how educators organize and plan their time, behaviours, and attention. Classroom productivity, behaviour management, and use of learning formats are broad examples of classroom organization.¹



CLASSROOM CLIMATE: RESULTS



Most preschool classrooms had high emotional support. This means that classrooms were described as having an enjoyable and positive atmosphere.



Classrooms were also seen to have high classroom organization. This means that educators were effective in planning classroom activities as well as managing and minimizing disruptive behaviours.



Of the three categories, classrooms often scored lowest on instructional support. Since these observations occurred in preschool classrooms, it is possible that there were fewer structured learning opportunities as this is developmentally appropriate. It is likely that more instructional support would have been observed in following years.³



Connections between categories were found: A classroom's level of emotional support was connected to classroom organization. This means that a classroom's level of emotional support was similar to its level of classroom organization.





STRATEGIES FOR CLASSROOM CLIMATE

When children engage in small group work, it provides opportunities for them to learn and communicate alongside their peers and interact with their educator more often.¹



SMALL GROUP ACTIVITY: BOARD GAMES

- Simple board games, such as chutes and ladders, are a great small group activity for young children and have the potential to improve all three categories of the classroom climate.
- Sort children into small groups and supply each group with a game.
- Children will have the opportunity to problem solve and communicate with each other while engaging in some friendly competition.
- Educators can give groups feedback and encouragement on their game playing.



WHAT IS BEHAVIOURAL REGULATION?

Behavioural regulation involves managing one's behaviours in pursuit of a goal and allows children to monitor, control, and adjust their behaviours; all crucial skills upon entry to formal schooling.¹



WHY IS BEHAVIOURAL REGULATION IMPORTANT?

Behavioural regulation informs many other skills such as working memory, self control, and attention. These skills are essential to learning, engaging in social interactions, and following instructions. Behavioural self-regulation allows children to better navigate new and challenging situations¹. Children with strong behavioural self-regulation skills tend to also have strong academic skills in reading and math.⁵

HOW DID WE MEASURE BEHAVIOURAL SELF REGULATION?

We measured behavioural regulation with two tasks: Head-Toes-Knees-Shoulders (HTKS)⁶ and the Emotional Stroop Task (EST)⁷. Both of these tasks are opposite games and require children to use behavioural self-regulation to do the opposite of what researchers instructed them to do. On the next page, you can find out more on these tasks.

HEAD-TOES-KNEES-SHOULDERS (HTKS):

Children were told to touch their head, shoulders, knees, or toes; however, the child is instructed to touch the opposite of what is said. In the first stage, if children are asked to touch their toes, they touch their head and vice versa. This task has four levels with increasing difficulty.



EMOTIONAL STROOP TASK (EST):

First, the child learns the rules of the game and is instructed to say the opposite of what is on the card. Children were shown an image of a happy face, sad face, sun, or moon. After some practice trials, the child is shown many of these cards in a row and must remember to use the opposite rule.

This task is a measure of inhibition and working memory. Similar to the opposite rule in HTKS, children must inhibit saying what is actually on the card. Working memory is crucial to remembering the rules of the game throughout the task.

BEHAVIOURAL REGULATION: RESULTS



EST and HTKS scores were connected in preschool and grade one. This means that, at these time points, children's scores on both tasks were similar. This pattern was not found in kindergarten. Kindergarten is a unique transitional period for children where children are learning to navigate formal schooling. It is possible that this transitional period led to brief changes in behavioural self-regulation.⁸



On both tasks of behavioural regulation (HTKS & EST), children showed gradual improvement each year: In preschool, children generally showed low performance. However, in kindergarten and grade one, children performed much better. This is what we expected! Other studies have found that preschool aged children are in the early stages of developing behavioural self-regulation.⁹



At all time points, children did better on the EST compared to HTKS. This may be due to the increasing levels of difficulty of the HTKS and the rule switch at each level.



Boys and girls performed similarly on EST and HTKS. Since there is mixed evidence regarding gender differences on behavioural self-regulation in young children, we would not necessarily expect to see gender differences.



The instructional support category of class climate was connected to children's HTKS performance in preschool. It might be that when teachers support children's abilities in developing concepts and modelling language that children also experience improvement in their behavioural self-regulation abilities.



STRATEGIES FOR BEHAVIOURAL REGULATION

Movement based activities are fun and effective ways to promote behavioural self-regulation. All forms of movement involve communication between the brain and body. By incorporating “rules” into movement, children must intentionally control their behaviour which promotes better self-regulatory skills.⁷⁰

DO THIS, DO THAT

- Situate yourself so children can see you, or the leader of the game, clearly.
- In this game, the person who is the leader will perform an action while saying “do this” or “do that.”
- When the leader says “do this,” the group copies the action. But, when they say “do that,” they must freeze. If players don’t freeze, they are out of that round of the game.
- Rotate who plays being the leader.

FREEZE DANCE

- Children dance to music as it plays.
- Pause the music at random.
- When the music stops, each child must freeze and stay still until the music continues.



WHAT ARE ACADEMIC SKILLS?

Academic skills are abilities that allow children to engage with classroom content.¹¹ Academic skills can be specific (such as numeracy and literacy), or they can be broad (such as critical thinking skills).

WHY ARE ACADEMIC SKILLS IMPORTANT?

Positive development of academic skills has been shown to increase a child's school engagement over time and lead to more positive experiences in school. Additionally, better academic skills in kindergarten have been connected to better peer acceptance in grade one.¹¹

HOW DID WE MEASURE ACADEMIC SKILLS?

CHILDREN COMPLETED TWO MEASURES OF EARLY ACADEMIC DEVELOPMENT



Bracken Expressive (BE)¹²

Children were asked to recognize and verbally express colours, numbers, and letters. We also assessed children's knowledge of size comparisons and opposites. For example, when shown two pictures of a river, children were asked to identify the most shallow one.



Early Cognitive Academic Task (ECAD)¹³

Children were asked to identify words and numbers. For example, among a row of other words, children were asked to identify and point to a target word. We also assessed children's estimation skills and children were asked to do things such as guess the number of pancakes in a stack.

EARLY ACADEMIC SKILLS: RESULTS



On the ECAD, children generally showed the lowest performance in preschool and improved in kindergarten. Scores were similar in kindergarten and grade one. This was expected; in preschool, children are at the very early stages of developing their academic skills. Children showed more consistent and steady improvement on the Bracken Expressive.



Boys and girls performed similarly on tests of academic skills. In early childhood, boys and girls tend to show similar abilities in academic skills.¹⁴



Children's performance on the entire Bracken Expressive measure was related over time. Children who performed well on the Bracken Expressive also did better on the ECAD. This shows that children's academic performance was consistent across different tasks.



Instructional support in the classroom was connected to children's letter-word and number skills and their abilities to make size comparisons. This is important as it shows that when educators encourage critical thinking and creativity, it may help promote academic skills.



STRATEGIES FOR PROMOTING EARLY ACADEMIC SKILLS

NUMERACY SKILLS: HOW MANY STEPS?

- This is a simple game which involves asking children to estimate a certain distance.
- For example, ask students to estimate how many steps it will take them to walk from their desks to the window.
- After children have made their estimation, have the children walk the distance and compare their estimation with their actual amount of steps.

Incorporating play-based math lessons have been shown to increase children's motivation to participate. Learning math through play has been shown to positively impact math achievement in preschool.¹⁵



LITERACY SKILLS: ALPHABET SORTING

- Provide children with pictures or small toys; each starting with different letters.
- Ask children to sort the items alphabetically according to the first letter of the name of each object.
- This can be done individually or in small groups.

Alphabet knowledge refers to children's ability to identify letters and sounds. Fun activities like this provide the foundation for emergent literacy skills such as reading, writing, and phonics.¹⁶

THANK YOU!

This project would not have been possible without the involvement of participating schools: We sincerely thank all staff and volunteers involved! We would like to thank the caregivers of our participants for enrolling their children in this study. We would also like to thank the children for participating! Our research team enjoyed spending time with them and we learned a great deal.

ABOUT THE PEERS LAB

Dr. Wendy Hoglund and the PEERS Lab study social and emotional development, and academic adjustment in childhood and adolescence. We are especially interested in how relationships with peers, parents, teachers, and setting-level processes (e.g., classroom quality) impact developmental competencies of children and adolescents. To learn more about the lab, please visit our website at <https://sites.psych.ualberta.ca/PEERSlab/>. Please direct any questions or concerns regarding the Early Learning Pilot Project, or our other projects, to the Lab Director, Dr. Wendy Hoglund, at hoglund@ualberta.ca

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