SCHOOL READINESS

School Transitions/School Readiness: An Outcome of Early Childhood Development ~ Perspective: Children's Social and Scholastic Development — Findings from the Pathways Project

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Introduction

The Pathways Project was a 15-year longitudinal study funded by the National Institutes of Health. Its goal was to enhance our understanding of multiple factors—including those associated with the child, family, school, and peers—that influence children's development and adjustment as they begin kindergarten and continue through their formal schooling. The study was called the Pathways Project because it was designed to identify the pathways that children

establish early in their educational journeys and follow as they progress through school, while examining the stability of these trajectories over time, which included both continuity and change. Additionally, the study examined the relationship between these trajectories and children's developing psychological, social, and academic adjustment. Throughout the Pathways Project, data were collected annually on children's adjustment and progress from kindergarten through 12th grade and beyond. Participants, including both children and their families, were tracked across geographical moves and changes in school systems.

The Concept of School Readiness

School readiness has been defined in various ways. However, it generally encompasses three key elements: the individual child's preparedness for schooling, the school's preparedness and ability to engage and accommodate children, and the capacity of families and communities to provide optimal support for early childhood development.[1] This concept has gained importance due to a growing body of evidence linking various aspects of readiness to children's later health and development across several areas. These areas include academic performance, social-emotional competence, vocational success, and mental health.[2,3]

Subject

The Pathways Project had several objectives, with a significant focus on understanding how early childhood, family dynamics, peer relationships, and school characteristics influence children's initial attitudes toward school and their level of classroom participation, including their engagement in academic and social tasks. Another key aim was to analyze how children's early classroom behaviors and their interactions with peers and teachers relate to indicators of both short-term and long-term success in school, as well as their social-emotional competence and mental health. This goal involved examining early individual differences in these characteristics and social connections, how they change over time (i.e., their trajectories), and their relationship to ongoing and future indicators of children's school and socioemotional adjustment. The project's aims aligned with well-established national initiatives focused on school readiness, preventive education, and the assessment of children's educational progress. Findings from the Pathways Project have been published in many scientific journals and reported by national and international news media.

Problems

We began our research by examining the earliest level of formal schooling to understand how children transition to kindergarten. We aimed to identify factors that might lead them toward successful or unsuccessful social, psychological, and academic adjustment. Additionally, we examined how early school experiences influence children's trajectories relative to their educational engagement and success in later grades.

In recent years, we have focused on the relationships among both temporary and lasting characteristics of children, families, peers, and school environments, and how these factors relate to school adjustment and success during the middle and high school years. Throughout this project, we have been guided by key questions, such as: "What helps children adapt to new challenges and succeed in school? What child, classroom, and family factors are likely to promote or hinder children's success in school?"

Our goal is to address these questions and provide findings that will benefit parents, teachers, and school administrators.

Research Context

Our primary research contexts included the child, the school, the classroom, and the family. We examined various factors within these contexts that may affect children's success in school and life, including children's characteristics and their relationships within families, peer groups, classrooms, and schools.

We work from the perspective that every child brings a unique set of attributes to school, such as gender, age, cognitive and social characteristics and abilities, language skills, and prior experiences. These factors have been hypothesized to influence how children interact with classmates, teachers, and the school environment. Among these attributes are specific dispositions and social skills, which may manifest as traits such as independence, curiosity, aggressiveness, kindness, and other forms of prosocial behavior.

We recognize that a child's responses to school are influenced by the relationships they build with others and the experiences they have within those relationships, whether positive or negative. In this investigation, we have examined the dynamics of the relationships children have with family members, friends, classmates, teachers, and other adults.

Children have different instructional needs, and their success in school largely depends on the educational environments they experience as they move from home to school and advance through each grade. In the Pathways Project, we attempted to document and analyze these factors annually throughout the study.

Key Research Questions

Our research into children's development covers many areas, with one of our guiding principles being that school adjustment relies on more than just the obvious predictors, such as the child's intellectual aptitude, language skills, and family background. While these factors are known to be significant, particularly for younger children, we believe they alone do not provide a complete understanding of what contributes to healthy social, psychological, and academic adjustment in school settings over the long term.

To illustrate, we think a complex series of factors influences children's success in school. First, the way children interact with their classmates and how peers treat them can significantly impact the relationships they form in the classroom. Behaviors, such as whether children are active or passive, cooperative or argumentative, and helpful or demanding, while working or playing with classmates, were hypothesized to have important consequences for their relationships with both peers and teachers.

Second, we hypothesized that, once relationships with teachers and classmates are established, the quality of these relationships and the experiences they provide may affect how much children engage and participate in the school environment.

Third, we hypothesized that as children's school attitudes and participation form and develop, these factors influence their academic progress. Children who enjoy school and actively participate in classroom activities tend to show greater academic gains than those who dislike school and engage less.

We define success in school as a straightforward concept that includes several aspects of children's school adjustment. A child can be considered successful in school when they: (a) develop positive attitudes and feelings about school and learning, (b) form supportive social ties with teachers and classmates, (c) feel comfortable and relatively happy in the classroom rather than anxious, lonely, or upset, (d) are interested and motivated to learn and participate in classroom activities (engagement), and (e) achieve and progress academically each school year.

Recent Research Results

The following is a summary of five guiding premises and associated project discoveries:

Premise 1. The early behavioral dispositions that children display in school precede their psychological and academic adjustment in this environment.
Although aggression and anxious-withdrawal are "known" risk factors for dysfunction,[4,5] they have rarely been prospectively investigated in school contexts from early childhood through adolescence or distinguished as antecedents of children's psychological and academic adjustment. Therefore, a continuing aim has been to examine the presence, co-occurrence, and stability of these dispositions, as well as the links between these tendencies and children's adjustment.

Exemplary discoveries

Our findings show that aggressive dispositions were moderately stable from kindergarten to grade 6 (e.g., $r = .56$), whereas anxious-withdrawn behaviour was not stable until grades 2 ($r =.36$) and 3 ($r =.51$).[6,7] Additional findings revealed that children disposed toward one or both of these dispositions could be classified into three distinct risk groups, including aggressive, anxious-withdrawn, and both aggressive and anxious-withdrawn (comorbid).[8] Predictive analyses showed that aggressive children who exceeded a risk criterion in kindergarten exhibited *increases* in psychological and school maladjustment two years later.[9] Anxious-withdrawn dispositions predicted early and later increases in internalizing problems.[10] Overall, the findings corroborate the premise that aggression and anxious-withdrawal are risks for later psychological and school maladjustment.

Premise 2. The nature of the relationships that children form with classroom peers antecedes their psychological/ school adjustment.
Few have examined the adaptive significance of the multiple forms of relationships children participate in simultaneously in classrooms. We examined this premise by investigating the stability of children's classroom relationships, as well as concurrent and longitudinal links with psychological and school adjustment, and the extent to which different relationships were distinctly versus contingently predictive of specific forms of adjustment. Except for victimization, the types of relationships children formed in kindergarten remained moderately stable through grade 6 (e.g., peer acceptance, $r = .47$; peer rejection, $r = .37$; mutual friendships, $r = .30$).[7,9,10]

From K to grade 1, peer rejection predicted lower psychological and school adjustment, whereas peer acceptance and friendship predicted better adjustment in both domains.[11] The premise that relationships differentially or contingently contribute to adjustment was examined by investigating links between participation in different types of peer relationships and changes in children's adjustment.[11,12] Victimization, for example, more than other relationships, forecasted decrements in emotional adjustment that were not predictable from other forms of relationships. Peer acceptance was uniquely linked with gains in children's class participation and achievement.[11]

It was further discovered that when examining longer intervals (ages 5 to 12), the consistency with which children experienced peer rejection was linked to their classroom engagement. The results indicated that children were more cooperative in classroom activities during periods when their classmates did not reject them, but they became significantly less cooperative during times when they faced rejection.[13]

Other findings have illuminated the connection between how rejected children are treated by their peers and their school engagement. A study examining school engagement from kindergarten to Grade 5 showed that peer rejection encountered in kindergarten predicted a decline in classroom participation and an increase in school avoidance by Grade 5.[14] Notably, the type of peer maltreatment that children faced throughout their school years influenced these patterns. Specifically, chronic peer exclusion mediated the relationship between early peer rejection and later classroom participation, while chronic peer abuse primarily mediated the connection between early rejection and increased school avoidance.[14]

These findings, suggesting that peer victimization (e.g., exclusion, verbal, and physical abuse) mediates the link between peer rejection and children's school adjustment, led us to examine further the role of victimization in children's school adjustment, particularly in relation to their overall academic achievement. We achieved this by examining patterns of continuity and change in school-based victimization throughout formal schooling (Grades K-12) and determining whether specific temporal patterns of victimization (i.e., differential trajectories) were associated with children's academic performance.[15]

Although it was the norm for victimization prevalence and frequency to decline across formal schooling, five trajectory subtypes were identified, capturing differences in victimization frequency and continuity (i.e., high-chronic, moderate-emerging, early victims, low victims, and

nonvictims). Consistent with a chronic stress hypothesis, high-chronic victimization consistently was related to lower—and often prolonged—disparities in school engagement, academic self-perceptions, and academic achievement. For other victimization subtypes, movement into victimization (i.e., moderate-emerging victims) was associated with lower or declining scores on academic indicators. In contrast, movement out of victimization (i.e., early victims who desisted) was associated with higher or increasing scores on these indicators, indicating "recovery."[15]

This evidence suggests that early and ongoing peer victimization, perhaps even more than peer rejection, is linked to early and lasting (i.e., long-term; accumulative) declines in school engagement and achievement. This may partly be because, unlike peer rejection (being disliked by classmates), peer victimization represents a more direct and potentially harmful form of peer relationship. It often manifests as exclusion, verbal abuse, or physical maltreatment, which may cause children to develop coping patterns that are contrary to school attendance (e.g., school avoidance, refusal) and reduced participation in classroom learning activities. Given this, it is perhaps not surprising that chronic victimization, which for some children begins in kindergarten and continues throughout their educational journey, may ultimately have a significant impact on their overall academic attainment.

Overall, our findings and those of other investigators corroborate the inference that school adjustment is influenced by the diverse experiences children encounter in different peer relationships, and that certain relationships have greater adaptive significance depending on the type of adjustment being examined.

Premise 3. There are predictable links between early behavioural dispositions and the types of relationships children form in classrooms.
To investigate this premise, we observed children's behaviour as they began school with unfamiliar peers, and assessed their emergent peer relationships over a two- to five-year period. It was hypothesized that aggressive dispositions would lead to the formation of adverse relationships, anxious-withdrawn dispositions to isolation, and prosocial dispositions to positive relationships. Results from kindergarten to grade 2 and grade 5 have shown that, compared to normative matched controls, children with aggressive dispositions were more likely to develop early-emerging and sustained peer rejection.[8,9,12] In contrast, those with anxious-withdrawn dispositions tended to remain friendless. Growth curve analyses over grades K-4 showed that anxious-withdrawn children became increasingly excluded from peer activities over time.[10] These findings corroborated the premise that aggressive and withdrawn dispositions antecede the

onset and duration of children's relationship difficulties. Prosocial dispositions, as expected, foreshadowed positive relationship trajectories.

Premise 4. The contributions of children's classroom relationships to psychological and school adjustment are not entirely redundant with those attributable to their behavioural dispositions.

Two somewhat separate literatures have developed around premises 1 and 2 (i.e., later dysfunction is attributable either to "risky" behavioral dispositions or to participation in "problematic" relationships). For decades, many investigators have regarded the explanatory power of one of these two "main effects" perspectives as dominant over the other.[16] An aim for this project was to move beyond "main effects" perspectives by utilizing a child-by-environment model in which risk/protective factors are seen as originating within the child *and* the relational environment.

In two prospective longitudinal studies with kindergarten samples, we found that children whose interactions were more prosocial during the first 10 weeks of kindergarten tended to develop mutual friends and higher levels of peer acceptance by week 14.[6] In contrast, children whose interactions were characterized by aggressive behaviour became more disliked by classmates and had fewer friends. Direct paths were found between children's classroom relationships and participation, with the strongest of these emanating from negative relationship features (i.e., peer rejection), lending support to the hypothesis that such features impede subsequent adaptive classroom participation and achievement. It would appear that young children's use of force or coercive tactics is likely to subvert others' aims and interests, causing peers to develop adversarial reactions (e.g., rejection). Once formed, relationship adversity appears to impede children's classroom participation and achievement.

Additional investigations were conducted to explicate the possible functions of classroom peer relationships for aggressive children. Principal aims were to determine whether aggressive children's participation in different types of classroom relationships might increase (e.g., exacerbate) or decrease (i.e., compensate for) their probability of developing psychological and school dysfunction. One example of this line of work is a prospective longitudinal study in which we assessed not only children's aggressive dispositions but also relationship risks (i.e., classroom peer rejection and victimization) and protective factors (i.e., classroom peer acceptance and mutual friendships) over two years.[9] Children who manifested higher levels of aggression as they began kindergarten evidenced significant increases in maladjustment in later grades on nearly

all of the investigated indices of psychological and school functioning. Further, corroboration was found for the premise that positive relationships buffer children from psychological and school maladjustment. After accounting for children's initial aggressive risk status, early peer acceptance predicted relative declines in attention problems and misconduct, as well as relative gains in cooperative participation and school liking. This evidence suggests that acceptance by classmates provides children with a sense of belonging and inclusion in peer activities, which decreases the likelihood that they will engage in resistant behavior patterns, form negative school attitudes, and disengage from school tasks.

Similar results were found for mental health outcomes (i.e., internalizing and externalizing problems) when children's early aggressive and withdrawn behavior patterns were examined alongside peer rejection across a longer interval of schooling (Grades K to 5, and K to 8). For children who exhibited an early propensity toward aggressive behavior, exposure to peer rejection across grades increased the likelihood that they would display externalizing symptoms, such as rule-breaking and conduct problems.[17,18] For children showing early signs of withdrawn behavior, experiencing peer rejection made it more likely that they would develop internalizing issues, such as anxiety and depression, starting in early childhood and increasing over time.[19]

Premise 5. In addition to behavioural risks, chronic rather than transient exposure to relational adversity (e.g., peer rejection, victimization), deprivation (e.g., friendlessness) or advantage (e.g., peer group acceptance) has greater consequences for children's psychological and school adjustment.

Few researchers have investigated whether children's future adjustment varies as a function of sustained versus transient participation in peer relationships, and no one has investigated whether a history of peer relationship difficulties shapes adjustment beyond the more immediate strains of contemporary peer relationships. To address these limitations, we investigated how enduring relational adversity (e.g., chronic rejection, victimization) and/or advantage (e.g., stable peer acceptance, friendships) interfaced with children's aggressive dispositions to influence their adjustment.[9] Variable-oriented analyses yielded findings consistent with an additive child-by-environment model: with few exceptions, participation in peer relationships predicted adjustment beyond children's aggressive risk status. Some evidence supported a moderated child-by-environment model, in that relational adversity or advantage appeared to exacerbate or compensate for dysfunctions linked with aggressive dispositions. Moreover, compared to early onset, the chronicity of children's aggressive risk status and history of exposure to relational

stressors/supports bore a stronger association to changes in maladjustment. Person-oriented analyses comparing children who were aggressive but had different relational risk/support histories (ARR group: higher ratio of relational stressors to supports; ARS group: higher ratio of supports to stressors) and children who were not at risk (RF group: risk free) revealed that only the ARR group showed significant increases in psychological and school maladjustment trajectories across the early grades. Even more intriguing was the finding that children in the ARS group evidenced significant decrements in maladjustment over the same period. These findings corroborated the inference that a powerful behavioural risk (aggressiveness) can be exacerbated by chronic relational risks but buffered by stable relational supports, illustrating the importance of research on children's relationship histories.

Finally, Ladd and Troop[12] examined the contributions of aggressive and anxious behavioural dispositions *and* histories of peer relationship adversity and deprivation from early (K) to middle-childhood (grade 4). Estimation via SEM of hypothesized and alternative models showed that chronic friendlessness, rejection, and victimization were positively and directly linked with later forms of maladjustment. Because these paths were adjusted for children's behavioural dispositions and concurrent peer relationships, the results constitute a more stringent test of chronic relationship adversity models.

Conclusions

Our findings corroborate multiple theoretical positions. First, the direct link between children's early behavioural dispositions and later maladjustment is consistent with "child effects" models, in which it is argued that early-emerging behavioral dispositions directly contribute to later maladjustment. Second, a tenet of environmental perspectives is substantiated by evidence indicating that children's chronic peer relationship experiences, not just their dispositional characteristics, are directly linked with later maladjustment. However, in contrast to these "main effects" perspectives, it can be argued that our findings fit best within a child-by-environment model. Differences in children's peer relationships and particularly their histories of relationship adversity, deprivation or advantage—elements of their school and rearing environments—were found to: (a) contribute additively to the prediction of maladjustment, beyond that forecasted by behavioural dispositions, and (b) in several cases, mediate the link between early dispositions and later maladjustment.

Novel Inferences Corroborated by Project Findings

- Early behavioural dispositions antecede children's adjustment. These same behavioural dispositions are precursors of the relational ecology (i.e., the form/nature of relationships) that children develop in school.

- Although children's dispositions and peer relationships are significant antecedents of future adjustment, the predictive power of either factor alone is less than their additive or contingent contributions.

- Enduring relationship adversity (e.g., peer rejection), deprivation (e.g., friendlessness), or advantage (e.g., peer acceptance) are more closely associated with children's adjustment trajectories than are more transient or proximal experiences within these same relationship domains.

- Risky behavioural dispositions may be exacerbated by enduring relationship adversity (e.g., chronic victimization), and buffered by stable relationship advantage (e.g., stable peer group acceptance).

Implications for Policy and Service

Applications: Implications of Pathways Project Findings for Educators and Schools

The policy recommendations discussed here mainly rely on findings from kindergarten and early elementary years. However, as noted in this article, more evidence related to later grades and extended schooling has started to emerge, providing insights into potential long-term connections between early behavioral and relational indicators of school readiness and later academic success and adjustment.

How can we place children on trajectories that lead to successful (as opposed to unsuccessful) trajectories toward social, psychological, and scholastic competence? Our findings suggest that there may be a number of ways that parents, teachers, and school administrators can help children find successful pathways to health and well-being during the school years. The following service and policy recommendations are consistent with evidence obtained from the Pathways Project:

- Increase the probability that children will form *positive feelings/attitudes toward school* as they enter kindergarten. In our samples, 25 to 35% of children had mixed or negative attitudes toward school by the second month of kindergarten. Additionally, once children

formed a negative impression of school, their attitudes often became substantially more negative as they progressed from one grade to the next. Thus, before children start school, it is important to establish effective communication with their families and preschool or childcare teachers that helps children develop realistic expectations about: (a) the purpose of school and (b) what they will be expected to do in kindergarten or grade 1. This includes both social tasks, such as making friends and building a relationship with the teacher, as well as academic tasks, like actively participating in classroom learning activities.

- As children enter kindergarten, family members and school personnel should pay attention to (and try to improve, if necessary) children's feelings toward school and the *quality of the relationships they form with classmates and teachers.* Our work suggests that, among young children, much of the "glue" that helps children identify with or become "attached" to the school environment is social rather than scholastic in nature. With respect to this, a pivotal "cycle" or chain of events are implied by our findings: (1) As children enter kindergarten, those who act cooperatively toward others and refrain from aggressive or antisocial acts develop more supportive classroom social relationships with peers and teachers. (2) Those children who do develop secure and supportive ties become more interested and involved in learning activities and are better able to cope with challenges in the classroom. (3) The engagement that seems to grow out of children's supportive peer and teacher relationships promotes higher levels of learning and translates into greater gains in achievement over the school year. To help children profit from this cycle, it would be beneficial to institute relationship-formation activities early in the school year that would be designed to: (a) help children learn prosocial skills and refrain from aggressive/antisocial behaviours; (b) encourage every child to make at least one friend in their classroom, and (c) establish supportive interactions with their classroom peers and teachers.

- Enroll children in early childhood programs that help them develop social and relationship skills before they enter grade school. Children who already possess friendship-making skills and cooperative behaviours have an increased chance of forging supportive relationships at school that may help them succeed in kindergarten and the primary grades. Helping preschool children develop positive social behaviors and experiences in forming constructive peer relationships, such as friendships, through informal playdates or other home- or community-based activities may also be advisable.[20,21,22,23]

- Soon after children enter kindergarten, they should be encouraged to take an active and cooperative role in classroom activities. Our work suggests that young children must behave in a way that engages the learning environment to benefit from it. Children who avoid ("move away") or resist ("move against") the social or academic challenges of early schooling appear to be at high risk for school disengagement and underachievement. Both *active* participation in classroom activities (e.g., getting involved, showing initiative) and cooperation/compliance with the culture of the classroom (i.e., adhering to the social rules and role expectations of the classroom) are strong predictors of early achievement.

- Implement programs or activities that prevent children's exposure to significant stressors, such as "bully-free" classrooms and group activities where peers are not allowed to harass or reject others. Programs of this nature are strongly recommended because adverse peer experiences appear to have long-lasting negative social and psychological effects on children, often alienating them from schooling (e.g., leading to negative school attitudes, increasing school avoidance and absences, and limiting gains in achievement). For instance, many programs have been designed to address these problems in schools, including Positive Behavioral Interventions and Supports' Bullying Prevention (BP-PBIS)[24], Second Step's anti-bullying program (SS-SEL)[25], Olweus Bullying Prevention Program (OBPP)[26] and Salmivalli's KiVa[27]. Such programs offer coaching methods for helping children develop social skills, cooperative group activities for promoting tolerance and peer acceptance.

In conclusion, we hope that the findings from the Pathways Project will assist families and schools in anticipating children's needs as they enter school and progress through the elementary, middle-, and high-school years. By doing so, we will be better positioned to give children a strong start toward a quality education, allowing more children to gain the maximum benefits from their school experiences.

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