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Links Between Developmental Changes in Kindergarten Behaviors and Later Peer Associations

par
Anne-Julie Allard

École de psychoéducation
Faculté des arts et des sciences

Mémoire présenté à la Faculté des études supérieures
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Résumé

Ce mémoire de maîtrise a permis d'étudier, dans un premier temps, l'influence de l'habileté générale de l'enfant à s'entendre avec ses pairs, évaluée par les enseignants de maternelle, en regard de l'affiliation ultérieure avec les pairs populaires, déviants et rejetés à la fin du primaire. De plus, ce mémoire a permis d'étudier l'influence de l'évolution comportementale de l'enfant à la maternelle sur l'affiliation ultérieure avec les pairs populaires, déviants et rejetés à la fin du primaire. De cette étude composée de trois cohortes comprenant 1369 enfants des quartiers les plus défavorisés de Montréal, il en ressort que : (a) la perception des enseignants de maternelle quant à l'habileté générale de l'enfant à s'entendre avec ses pairs est une mesure sensible permettant de prédire ultérieurement l'affiliation avec les pairs populaires, déviants et rejetés ; et (b) l'évolution naturelle de certains comportements sociaux, cognitifs et émotionnels à la maternelle permet de prédire l'affiliation ultérieure avec les pairs populaires, déviants et rejetés.

Mots-clés : association avec les pairs, développement psychosocial, études longitudinales, comportements sociaux, maternelle, perception des enseignants.

Summary

The main objective of this master degree article was to first verify the influence of kindergarten teacher-ratings of child ability to get along with peers upon later association with popular, deviant, and rejected peers at the end of primary school. Second, this article verified the influence of early child behavioral change upon later affiliation with popular, deviant, and rejected peers at the end of primary school. Using a sample of three cohorts composed of 1369 French kindergarten children from poorest Montreal neighbourhoods, issues of this article are: (a) teacher-ratings are a sensitive measure to verify the influence of the child general ability to get along with peers upon later association with popular, deviant, and rejected peers; and (b) early natural occurring change in child social, cognitive, and emotional behaviors are associated with later affiliation with popular, deviant, and rejected peers.

Keywords: peer affiliation, developmental change, teacher-ratings, social behaviors, longitudinal studies, kindergarten.

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Liste des sigles et des abréviations

ADHD =	Attention Deficit and Hyperactivity Disorder
EVIP =	Échelle de Vocabulaire en Images Peabody
MLEPS =	Montreal Longitudinal-Experimental Preschool Study
NKT =	Number Knowledge Test
NLSCY =	National Longitudinal Study of Children and Youth
PPVT =	Peabody Picture Vocabulary Test
SBQ =	Social Behavior Questionnaire
SES =	SocioEconomic Status

Remerciements

Ma gratitude envers ma directrice de maîtrise, Linda Pagani, n'a d'égale que sa générosité. Travaillant toujours sans relâche, elle m'a appris ce que sont la persévérance et la détermination. Je suis profondément reconnaissante envers Linda pour son soutien et sa disponibilité. Toujours présente, elle m'a poussée à relever des défis et à développer ma confiance en mes capacités. Je conserve de mon travail auprès d'elle d'incalculables apprentissages tant au plan professionnel que personnel.

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Introduction

Contexte théorique

Selon Erikson (1989), le développement psychosocial de l'enfant est basé sur la confiance qu'il a envers lui-même et envers son environnement. L'enfant apprend à faire confiance aux autres en fonction du degré de satisfaction de ses besoins essentiels. Selon sa théorie sur le développement psychosocial, il y aurait huit âges dans le cycle de la vie humaine, auxquels correspondent huit stades psychologiques majeurs. Ces stades se présentent sous forme de conflits entre un pôle positif et un pôle négatif et doivent être résolus via les interactions sociales. Dès son plus jeune âge, l'enfant apprend à interagir avec lui-même et avec son environnement. C'est à même ces stades que prendrait racine le développement psychosocial de l'individu.

Par les défis d'autorégulation et les conflits psychosociaux entre l'individu et son environnement, l'enfant entreprend le processus de socialisation. En effet, au fil du temps, l'enfant apprend à interagir avec les autres et à combler les attentes de son environnement. Entre zéro et 24 mois, si l'enfant fréquente un milieu de garde, les interactions avec les pairs sont fréquentes, mais moins transactionnelles et c'est la relation exclusive avec les parents qui prime. Les parents et la famille demeurent ainsi le véhicule primaire de la socialisation. Vers l'âge de deux ans, l'enfant commence à s'éveiller aux autres éléments de l'environnement, mais cette relation avec les parents demeure primordiale. À cet âge, l'enfant entre en interaction avec les pairs essentiellement par curiosité et imitation et c'est à ce moment qu'apparaît le jeu parallèle. C'est seulement un peu plus tard, à l'âge préscolaire, qu'apparaît le jeu coopératif étant donné le développement du langage verbal et de la motricité. L'enfant se montre alors plus soucieux des désirs et sentiments de ses compagnons de jeu. Enfin, entre 7 et 9 ans, l'enfant est soucieux de la place qu'il occupe dans son groupe de pairs

et le groupe d'amis revêt une importance capitale. Toutefois, à l'adolescence, l'intérêt devient plus marqué pour les interactions dyadiques et les relations plus intenses (Sullivan, 1953).

L'apprentissage de la socialisation confronte l'enfant à sa place dans le groupe de pairs et à plusieurs phénomènes sociaux pouvant amener son lot de conséquences positives ou négatives. En effet, Les enfants ne parvenant pas à établir des liens sociaux significatifs et de qualité avec leurs pairs sont parfois privés d'expériences pouvant s'avérer cruciales pour leur adaptation psychosociale ultérieure (Ladd, 1990). De fait, l'enfant accepté par ses pairs sera moins enclin à vivre des difficultés d'adaptation et connaîtra un meilleur ajustement psychosocial (Nelson & Aboud, 1985). L'enfant rejeté de ses pairs souffrira peut-être de troubles internalisés ou externalisés qui sont liés à des perspectives d'avenir plus sombres comme le décrochage scolaire, le chômage et la dépression (Coie, Lochman, Terry & Hyman, 1992). Par le fait même, l'enfant affilié à des pairs déviants pourra lui aussi connaître des difficultés d'adaptation de l'ordre de la consommation excessive de stupéfiants ou de l'implication dans des activités illicites (Loeber & Stouthamer-Loeber, 1998). Bref, les relations sociales négatives avec les pairs seraient ultérieurement associées à diverses conséquences négatives pouvant mener, entre autre, à la détresse psychologique (Troop-Gordon & Ladd, 2005). En effet, lorsque la qualité et la quantité des interactions sociales sont compromises, l'enfant serait plus à risque de développer des difficultés d'adaptation d'ordre psychologique ou social (Sullivan, 1953).

Une question peut alors se poser : de quelle façon les enfants s'affilient les uns avec les autres? Il s'avère qu'une des principales modalités d'affiliation avec les pairs soit l'homophilie. Ce concept renvoie à l'idée que les enfants ont tendance à s'affilier

avec des pairs ayant des caractéristiques similaires. Ce processus serait couramment observé, par exemple, dans le cas de l'affiliation à des pairs déviants et ce, dès l'âge préscolaire (Snyder, Schrepferman, Oeser, Patterson, Stoolmiller, Johnson & Snyder, 2005). De plus, les enfants pourraient s'affilier sur la base de similarités au niveau du statut social par un principe de sélection mutuelle. Les enfants pourraient se lier entre eux par faute d'alternative (sélection passive : Poulin & Boivin, 2000) ou compte tenu des bénéfices encourus par l'affiliation (sélection proactive : Poulin & Boivin, 2000).

À cet effet, l'école semble être un agent de socialisation pertinent pour l'observation de ces phénomènes d'affiliation avec des pairs déviants, populaires ou rejetés. Dès leurs premières années passées à l'école, les enfants font face à un premier défi : se retrouver sous l'autorité d'un adulte autre que la figure parentale significative puisqu'ils passent beaucoup de temps en présence de l'enseignant. Ce faisant, les enseignants observent les enfants et remarquent certaines différences entre ceux-ci et ce, dès le début de la scolarisation (Epkins, 1993). En effet, les enseignants occupent une position unique pour observer les enfants en interaction sociale et pour remarquer certaines divergences comportementales. Les observations des enseignants pourraient donc s'avérer utile dans la récolte d'informations sur le développement socio-émotionnel de l'enfant. Toutefois, cette évaluation par les enseignants n'est pas une mesure d'ordre clinique et est beaucoup moins utilisée comparativement aux mesures de type sociométrique. Est-ce que la perception des enseignants de maternelle pourrait être une mesure aussi sensible que les mesures sociométriques dans la prédiction de l'association ultérieure avec les pairs ?

De plus, l'émergence d'un champ d'étude s'intéressant à la préparation des enfants à l'entrée à l'école est observée depuis quelques années. Que doit avoir appris

l'enfant avant son entrée à l'école pour qu'il soit assuré d'un avenir scolaire et social positif? Que doit apprendre et développer l'enfant à la maternelle pour être en mesure de connaître ultérieurement une meilleure adaptation psychosociale?

Les tenants de ce champ d'étude sur la préparation à la scolarisation affirment qu'une constellation de comportements et d'habiletés rendent l'apprentissage difficile chez les enfants. Questionnés à ce sujet, les enseignants de maternelle prétendent que les facteurs associés à une transition ardue à l'école sont la faiblesse des facultés académiques, les lacunes au plan des habiletés sociales, la difficulté à suivre les directives, le manque d'autonomie et l'incapacité à interagir en groupe (Rimm-Kaufman, Pianta & Cox, 2000). Ainsi, beaucoup d'efforts sont investis par les milieux scolaires dans le but de promouvoir un développement social et académique positif chez l'enfant. Ces efforts apparaissent justifier puisque selon la littérature sur la préparation à l'école, l'ajustement psychosocial positif chez l'enfant passe par l'apprentissage de l'autorégulation comportementale et émotionnelle (Entwisle, Alexander & Steffel Olson, 2005). Ces constatations tirées du domaine de la préparation à la scolarisation portent à croire que l'évolution comportementale des enfants de maternelle pourrait jouer un rôle dans leur adaptation ultérieure.

Comme le constate Duncan et al. (sous presse), malgré qu'il y ait des raisons empiriques de croire que la réussite scolaire et l'ajustement comportemental et émotionnel soient liés aux différences individuelles des enfants au plan académique et au plan de l'autorégulation des comportements et des émotions, peu de recherches ont tenté de soutenir cette hypothèse. Qu'en est-il de l'influence de l'autorégulation comportementale et émotionnelle de l'enfant de maternelle sur l'affiliation avec les pairs

à long terme et ce, si les comportements socioémotifs évoluent naturellement vers le positif ou le négatif?

Links between developmental change in kindergarten behaviors and later peer association

Cet article de nature empirique a pour premier objectif de vérifier si la perception des enseignants de maternelle, quant à l'habileté générale de l'enfant à s'entendre avec ses pairs, est une mesure sensible dans la prédiction de l'association à long terme avec les pairs populaires, rejetés et déviants. Ce premier objectif peut s'illustrer de la façon suivante :

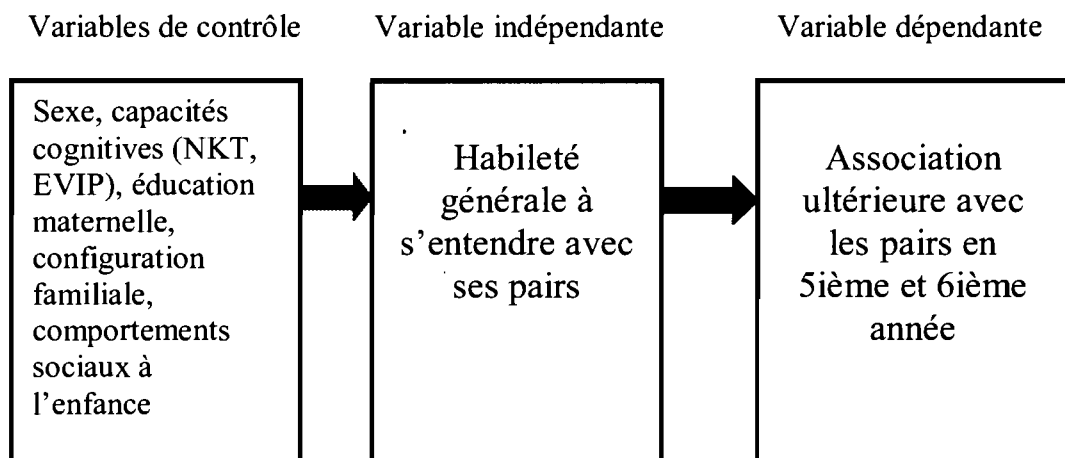


Figure 1. Illustration du lien entre l'habileté générale de l'enfant à s'entendre avec ses pairs et l'affiliation ultérieure à la fin du primaire.

De plus, le deuxième et principal objectif de ce mémoire est de vérifier l'influence d'un changement comportemental, entre le début et la fin de la maternelle, sur l'association ultérieure avec les pairs populaires, rejetés et déviants. Ce deuxième objectif peut être illustré de la façon suivante :

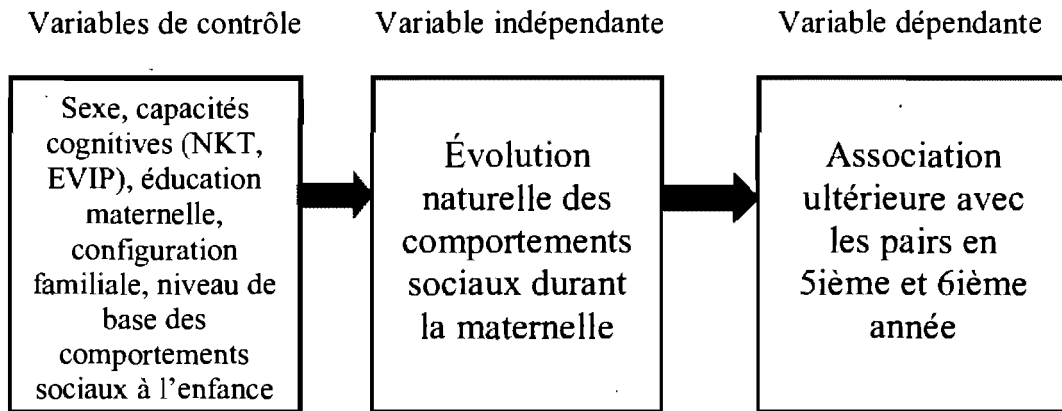


Figure 2. Illustration du lien entre le changement comportemental de l'enfant à la maternelle et l'affiliation ultérieure avec les pairs à la fin du primaire.

Le but de cette étude est donc de mettre en lumière l'évolution naturelle des comportements des enfants à la maternelle dans une volonté de nourrir l'intervention psychosociale. En sachant quels comportements, dans une perspective développementale et d'autorégulation, sont liés à une meilleure adaptation ultérieure chez l'enfant, les interventions pourront certainement investir temps et argent au bon endroit.

Ma contribution comme première auteur de l'article a été d'effectuer la recension des écrits, les analyses statistiques ainsi que la rédaction de toutes les sections. Linda Pagani, directrice de recherche et coauteur de cet article, m'a guidée dans l'élaboration de la structure du texte, m'a aidée à clarifier les idées présentées et m'a donnée de pertinents commentaires sur les nombreuses versions antérieures de ce produit final et ce, toujours dans le but de pousser la réflexion et d'améliorer la qualité de cette étude.

Prochaine section du mémoire

Les deux prochains chapitres présenteront dans un premier temps, l'article intégral de ce mémoire et dans un deuxième temps, la conclusion générale de ce mémoire de maîtrise.

**Links Between Developmental Change in Kindergarten
Behaviors and Later Peer Associations**

Par Anne-Julie Allard et Linda Pagani

Abstract

The current study examined the link between the nature and course of early behavioral characteristics and later peer associations during early adolescence. Going above and beyond the influence of early cognitive skills, child and family characteristics, we aim to examine whether a change in early child behaviors rated by kindergarten teachers, will have an impact on later peer affiliation at the end of primary school. As a first step, to verify the reliable nature of the teacher-ratings used in this study, we test the influence of getting along with peers upon later peer affiliations. Participants were 1369 French language children from the poorest neighborhoods of Montreal assessed yearly from kindergarten to grades 5 and 6. Kindergarten teachers assessed children on general ability to get along with peers, on socio-cognitive behaviors (hyperactive, aggressive, prosocial, inattentive, and emotionally-distressed), and on peer status (popular, deviant, and rejected) through Social Behavior Questionnaire (SBQ). Multiple linear regression analyses revealed that kindergarten teacher ratings on children ability to get along with peers are a reliable measure in the prediction of later peer affiliations. Change model analyses revealed that a naturally occurring change in hyperactive, aggressive and inattentive behaviors during kindergarten years predicts later peer outcomes. Maturation, socioeconomic background, and school entry are evoked to explain the current findings on the developmental change.

Keywords: social behaviors, peer acceptance, deviant peers, peer rejection.

Links Between Developmental Change in Kindergarten Behaviors and Later Peer Associations

This paper focuses upon the relationship between children's kindergarten behaviors and later peer associations. Specifically, the purpose of this study is to examine whether a change in aggressive, prosocial, hyperactive, inattentive, and emotionally-distressed behavior during kindergarten would have an impact upon later affiliation with popular, deviant, and rejected peers. Socioeconomically at-risk children with better social skills are less likely to experience social maladjustment associated with school dropout, low educational attainment, and difficult social conditions during their life course (Schneider, 2000). Information on the influence of developmental change will have implications for the focus of interventions that aim to promote child adjustment via early behavioral change.

Literature review

Classic social learning theory emphasizes the importance of learning through observation and imitation of the behaviors displayed by others (Bandura, 2007). Sullivan's (1953) developmental model of interpersonal relationships defines children's peer companionships during early childhood and early school-age years as structured largely around play and common activities. Bandura notes that important learning comes about, often completely and exactly, through the act of watching and imitating a model.

Between age 7 to 9, children become progressively more concerned about their place within the peer group as a whole of sense of fitting into the group becomes gradually more important (Sullivan, 1953). In early adolescence, the central characteristic of the peer group moves from the group to the dyad. Sullivan (1953) argues that the peer organization is necessary for the development of a sense of well-

being. This Sullivan's theory on peer relationships brings us to interrogate ourselves more precisely on the behavioral characteristics that influence the nature and course of peer affiliations.

Associating with popular, deviant, and rejected peers

Research has clearly demonstrated the buffering effects of positive peer relationships in childhood, including reduced levels of anxiety and depression, loneliness, and aggressive behavior (Erdley, Nangle, Newman & Carpenter, 2001). In addition, positive peer relationships are associated with increased self-esteem and superior social problem-solving (Nelson & Aboud, 1985).

Peer rejection in childhood is associated with a host of adverse immediate and long-term consequences (Kupersmidt & Dodge, 2004). Social and public health costs of peer rejection in childhood include school truancy, school suspension, delinquency, school dropout, and involvement with law enforcement in adolescence (Coie, Lockman, Terry & Hyman, 1992).

Deviant peer affiliation may also serve as a favorable ground for conflict and coercive interactions, given the frequent low quality of children's relationships with deviant peers (Criss, Pettit, Bates, Dodge & Lapp, 2002; Deptula & Cohen, 2004). Antisocial peer affiliation and deviancy training in development maintain the acquisition of conduct problems, such as stealing, drug use, vandalism, and truancy (Loeber & Stouthamer-Loeber, 1998).

From the above, we conclude that peer acceptance, peer rejection, and deviant peer affiliation could have different life course consequences. At this point, we could ask ourselves, which factors could predict later peer affiliation? School entry represents the earliest moment when children are regularly grouped into social units with a structure

and function aimed at learning. It is also a time when young children dramatically advance in their comprehension of other people and the intentions, desires, emotions, and beliefs that cause people to act as they do. These achievements are important because individual differences in social and emotional understanding are associated with social competence and mental health (Thompson, Goodvin & Meyer, 2006).

Early social-emotional competence could be the key for children's positive social development. In the context of this paper, social competence refers to the ability to implement developmentally-appropriate social behaviors that enhance one's interpersonal relationships (Schneider, 2000). In the present study, teacher's estimates of children's getting along with peers at school entry are first used to confirm a predictive relationship with later peer affiliation, as suggested by previous literature. As our main focus, we have chosen specific kindergarten behaviors that indicate social-emotional and cognitive self-regulation competence. Using a different approach from previous literature, we test whether a change in these social behaviors during kindergarten year, as rated by teachers, predicts later peer affiliation.

Externalizing problems and peer relationships: hyperactive and aggressive children

One child characteristic that can probably explain differences between the way children get along with others is aggression (Rubin, Bukowski & Parker, 1998). Children who are highly aggressive are expected to choose and be selected as friends by peers who are also aggressive and antisocial (Cairns, Cairns, Neckerman, Gest & Garipey, 1988). The mutual friendship between aggressive adolescents, a period often characterized by unsupervised conduct, provides a rich training ground for deviant behaviors (Osgood, Wilson, Bachman, O'Malley & Johnson, 1996). Also, Newcomb, Bukowski, and Pattee (1993) found that rejected children show elevated levels on three

forms of aggression: 1) disruptiveness, 2) physical aggression, and 3) negative behavior. Briefly, it seems that aggression, which is a principal component or symptom of externalizing problems, represents a common factor of peer rejection and deviant peer affiliation but also of popularity. Specifically, Lafontana and Cillessen (2002) found that dominant and aggressive children could be also perceived as popular for those who fear victimization and exclusion. Those who are fearful also wish to facilitate getting along with peers at all costs. Given the importance of perceived popularity among young adolescents, popularity could lead to aggressive behaviors. Children's reliance on aggressive behavior has been found to increase after they achieved high social status as a means of protecting their reputations, creating a sense of elitism, or combating the resentment directed toward them from less popular peers (Cillessen & Maheux, 2004).

In addition, another component of externalizing problems in childhood is hyperactivity. This behavior is also linked with peer rejection and deviant peer affiliation. Children with high levels of hyperactivity-impulsivity might be vulnerable to peer rejection, and as a result, might be more likely to affiliate with peers out of the social mainstream in behavior and attitude (Marshal & Molina, 2006). Over half of children with ADHD are peer-rejected, relative to 15% of comparison children (Hoza et al., 2005). Findings on antisocial behavior suggest that childhood-onset antisocial behavioral development could be associated with neuropsychological variation in childhood and expressed as ADHD problems (Van Lier, Wanner & Vitaro, 2007). Findings also suggest that children who exhibit antisocial behavior are particularly vulnerable to negative peer influences (Vitaro, Tremblay, Kerr, Pagani & Bukowski, 1997). Given that affiliation with deviant peers is associated with developmental increases in children's own antisocial behavior, we can conclude that hyperactive

behavior is reliably linked with peer rejection and affiliation with deviant peers (Lacourse, Nagin, Tremblay, Vitaro & Claes, 2003).

Internalizing problems and peer relationship

Depression and emotional distress could lead to interpersonal difficulties (Cohen, Reinherz & Frost, 1993). Findings in the field of child emotional distress suggest that affected children are more likely to be rejected by peers (Kennedy, Spence & Hensley, 1989). Their concomitant in terms of excessive anxiety, reassurance-seeking, and negativism could potentially induce negative evaluations from others, interpersonal disruptions, and relationship strain (Joiner, & Schmidt, 1998; Joiner, Katz & Lew, 1997). By contrast, epidemiological data indicate that at least 40% of children and adolescents suffering from internalizing problems also suffer from externalizing difficulties (Angold, Costello & Erkanli, 1999). Not surprisingly, children and adolescents with deviant friends show higher level of depression and emotional distress (Brendgen, Vitaro & Bukowski, 2000). In short, emotional distress could be linked with deviant peer affiliation, and peer rejection. There is no evidence thus far linking it with popularity. Popularity is characterized by high level of optimism which is supposed to decrease loneliness and distress (Eronen & Nurmi, 2001). Nevertheless, a high level of optimism (indicating no emotional distress) has shown no link with popularity. Optimism and good temperament have been shown to predict positive academic attainment by age 22 (Entwisle, Alexander & Steffel Olson, 2005).

Positive social relationship: prosociality as an indicator of social acceptance

At the opposite side of deviance and rejection spectrum, Rubin et al. (1998) tells us that popular children are particularly skilled at initiating and maintaining qualitatively constructive companionships. Popular children are more likely to be supportive, to act

dynamically with others, to show leadership skills, and to take part in constructive play. Also, Wright, Giammariono, and Parad (1986) tell us that prosociality represents common personal and behavioral characteristics of popular children. Specifically, popular children initiate more contacts, are more helpful, are better communicators, and they display more interest in activities. Finally, Coie and Dodge (1988) have also shown that popular children are more socially skilled, prosocial, cooperative, and are good leaders.

Attention as a dimension of cognitive self regulation

Could attention represent an essential component of peer relationships? Its value as an influential personal characteristic in child development has been established (Rueda, Posner & Rothbart, 2004). Moreover, Hinshaw (1992) sees it as a separate behavioral dimension that correlate with externalizing problem. Difficulties related to attention problems from childhood through to adulthood often translate into difficulties in planning, self-monitoring, and behavioral, and emotional self-regulation (Kordon & Kalh, 2004). These represent symptoms of executive function impairments. Findings suggest that cognitive ability and attention both contributed to the prediction of child behavior and peer relationships (Bellanti et al., 2000). Children who are less attentive are rated by peers as less likeable than children without attention difficulties (Carlson, Lahey, Frame, Walker & Hynd, 1987; Maedgen & Carlson, 2000). Attention difficulties in childhood could thus be associated with peer rejection. In addition, children with very low levels of attention are vulnerable to the social failure pathway to deviancy in adolescence (Marshal & Molina, 2006). Especially, severe attention difficulties can cause academic problems that lead to deviant peer affiliation (Molina, Smith & Pelham, 2001). Because there are little or no studies on the link between the nature and course of

attention and peer affiliations, it will be useful and original to verify this characteristic of this relationship. However, more importantly, examining the impact of a developmental change in attention, and also in social behaviors examined in this study, will shed light on their role as a risk factor for later peer associations.

Optimal behavioral development could enhance one's interpersonal relationships. Conversely, social maladjustment could lead to school dropout, low educational attainment, and difficult social conditions over the life course (Schneider, 2000). In principal, a developmental change in personal characteristics, which occurs in early childhood, might affect one's later life course, and possibly affect later peer affiliation outcomes. At present, there is little or no research that has focused upon changes in behavioral development and their influence on later social connections. In the area of school readiness, for example, Duncan et al. (in press) found that an increase in children's cognitive skills and attention during the kindergarten year predicted long-term benefits in achievement by third grade. Studies on psychosocial interventions in early child development are based upon the assumption that a developmental change toward the better promises more adjustment over the long-term. As such, we next focus on the documented influence of psychosocial interventions upon child development outcomes in order to support any ideas we might have about developmental change.

Interventions targeting aggressive behaviors, hyperactivity disorder, and attention deficit

Early interventions are relevant to notions of developmental change because, for example, it has been established that the development of early disruptive behaviors lead to chronic antisocial behavior (Tremblay, Pihl, Vitaro & Dobkins, 1994). Longitudinal studies which have traced the developmental course of child externalizing behaviors

estimate that approximately 50% continue to show these difficulties throughout the school-age period and into early adolescence (Vitaro, Pederson & Brendgen, 2007) and adulthood (Farrington & Welsh, 2007). Externalizing problems, especially in their more serious forms during school-age and adolescence, are extremely costly to society in terms of damaged property and social disruption. The period from infancy to preschool is one of the most critical periods in development. During these years, many developmental trajectories leading to adaptive or maladaptive outcomes begin (Vitaro et al., 2007).

Disruptive behaviors during preschool and early grand school period predict antisocial behavior at adolescence (Robins, 1966). Ideally, prevention of antisocial behavior should start during early childhood (Tremblay, LeMarquand & Vitaro, 1999). Typically, preventive interventions hope to affect behavioral development by teaching children socio-cognitive skills and enhancing parental skills. For example, Lacourse and his colleagues (2002) have tested a preventive intervention aimed to decrease conduct disorder represented by physical aggression, vandalism, and theft. Results show that an intensive preventive intervention based on parent training and social skills training between ages 7 and 9 changes the long-term development of physical aggression, vandalism, and theft for boys from low socioeconomic areas that were disruptive at kindergarten.

Attention is often measured from the comorbid perspective of ADHD. Interventions on attention deficit and on hyperactive behavior are relevant to the notions of developmental change and its benefits. More specifically, ADHD from childhood to adulthood could lead to problematic outcomes such as lower educational performance, lower attainment, and more school dropout. There is also higher probability of adult

unemployment. Adults with ADHD have fewer friends, more trouble keeping friends, and more social problems (Barkley, Fischer, Smallish & Fletcher, 2006). Parent training is one of the most commonly used treatments aimed to reduce attention deficit symptoms and hyperactive behaviors. Barkley's (1987) intervention program, based on parent training, aimed to decrease ADHD symptoms. Results suggest benefits toward reducing hyperactive and inattentive behaviors of 6-to-7 year-old boys (Pollard, Ward & Barkley, 1983).

Intervention targeting internalizing problems

Interventions on internalizing problems are also illustrative and supportive of the importance of statistically modeling the effects of developmental change. Social maladjustment and the stability of emotional distress symptoms could lead to persistent difficulties. These are associated with more substance abuse in adolescence (Loeber, Stouthammer-Loeber & White, 1999). Emotional distress could lead to depression and multiple problems such as interpersonal difficulties, decreased psychological well-being, career dissatisfaction, and active major depression in young adulthood (Giaconia, Reinherz, Paradis, Hauf & Stashwick, 2001). Cognitive behavioral therapy has been efficacious in the treatment of child internalizing problem as anxiety and emotional distress (Compton et al., 2004). For example, an evaluation of a cognitive behavioral intervention on child internalizing symptoms indicates that simple cognitive-behavioral therapy and cognitive-behavioral therapy added to parent training helped to decrease symptoms of child anxiety and emotional distress (Berstein, Layne, Egan & Tennison, 2005). This decrease putatively reduced the long-term risks associated with childhood emotional distress.

Intervention aimed to improve prosociality

Finally, interventions targeting prosocial behaviors are also relevant to the importance of developmental change and its benefits. More specifically, prosocial tendencies have a salutary influence on aggression by buffering, for example, the aggressive child from peer rejection (Bierman, Smoot & Aumiller, 1993), criminal behavior (Pulkkinen & Tremblay, 1992), and eventual long-term unemployment (Kokko & Pulkkinen, 2000). Prosociality represents also a protective factor against school dropout (Vitaro, Brendgen, Larose & Tremblay, 2005). Thornton, Craft, Dahlberg, Lynch, & Baer' (2000) *Second Step* represents an intervention which addresses the socioemotional skills of children and youth in grades pre-kindergarten through middle school and seeks to enhance their social environment by providing students with social cognitive skills (Bandura, 1986) that enable them to negotiate situations of interpersonal conflict in a non-violent manner. This social-cognitive training skills intervention has shown significant improvement in prosocial behavior, which could be helpful for later one's life adjustment.

Typically, early childhood psychosocial interventions targeting an optimal behavioral change hope to ultimately increase social adjustment in one's life course because psychosocial maladjustment lead to deleterious consequences. In summary, we think that basic verification of the influence of an early behavioral change upon later child characteristics, like peer affiliation, would be informative to those planning preventive interventions. Effectively, assuming the existence of a relation between an improvements or deteriorations in early social behaviors and later child outcomes without doing prior verifications could be wasted time and extremely costly. We contend

that a verification of the possible influence of a naturally occurring behavioral change upon peer affiliations would be supportive to those interested in prevention.

Objectives and hypotheses

The relationship between early socio-emotional development and later peer relationships has been established in the preceding literature review. The majority of studies control for a number of variables in an attempt to account for omitted variable bias. However, they have yet to condition out cognitive skills, as a competing explanatory variable. That is, cognitive skills could account for the relationship between early child behavior and later peer relationship. This paper will examine the link between the nature and course of early behavioral characteristics and later peer associations during early adolescence. Going above and beyond the influence of early cognitive skills, and child and family characteristics, we aim to examine whether a change in early child behavior (aggressive, prosocial, hyperactive, inattentive, and emotionally-distressed behaviors), rated by kindergarten teachers, will have an impact on later peer affiliation at ages 11 and 12.

On a methodological note, previous literature has mainly drawn upon sociometric measures to test similar questions. As a first step, to verify the reliable nature of the teacher-ratings used in this study, we test the influence of getting along with peers upon later peer affiliations. The use of one general question has never been studied in the past literature. As such, its use provides a test of robustness of both the behavior and peer relationship and the use of teacher-ratings as less precise methods.

Developmental psychopathology, by definition, represents a literature that emphasizes the nature and course of behavior within the context of normal and abnormal development. The literature addressing the link(s) between early behavioral

development and later peer affiliations has yet to fully meet this requirement. Upon establishing the robustness of the link between getting along with peers and later peer affiliations, we next examine the influence of a change in teacher-rating behaviors over the kindergarten year. If a developmental change (improvement or deterioration) in behavior influences friendship affiliations, we then can begin to estimate the potential impact of the effect size of an intervention that is meant to affect early behavioral development in order to change the course of later risks associated with peer affiliations.

First, we hypothesize that ability to get along with peers rated by teachers at the end of kindergarten will be positively associated with later peer affiliations, at the end of primary school, with popular, deviant, and rejected peers. Second, we expect that a positive change in behaviors during kindergarten will have a salutary influence upon associations with popular, deviant, and rejected peers at the end of primary school.

In order to generate more compelling results, we will account for family and child characteristics that could have a direct or indirect relationship with the variables in this study. Externalizing problems during childhood predict later maladjustment for males, whereas more internalizing problems represent a risk factor for females (Schneider, 2000), it will be important to consider the influence of the gender on social relationships. Given the association between cognitive skills and behavior, we control for kindergarten entry verbal and mathematical skills (Fergusson & Lynsky, 1997). Finally, we will control for maternal education and family configuration, in light of findings suggesting that these variables predict psychosocial adjustment and achievement which, in turn, could influence the relation between early behaviors and later peer affiliation (Pagani, Boulerice, Vitaro & Tremblay, 1999).

Method

Participants and procedure

This study uses data from the Montreal Longitudinal-Experimental Preschool Study (MLEPS), launched in 1997, comprising five cohorts with French language children from the poorest neighborhoods of Montreal launched from 1997 to 2001. Selection of the participants has been based upon a Ministry of Education evaluation. All the areas of Montreal territory are evaluated on their socioeconomic characteristics and each school receives a mark between 0 and 30 based upon that evaluation. Schools who receive a mark between 20 and 30 are considered as upper class. Schools who receive a mark between 10 and 20 are considered as middle class. Schools who receive a mark between 0 and 10 are considered as poorest neighborhoods of Montreal. Children of those last schools compose our sample.

The original sample of 4- and 5-year-olds was obtained only after a multilevel consent process involving school board officials, local school committees, and parents and teachers agreements after informing them about the longitudinal nature of the project. Our project uses the sample of children from MLEPS that began kindergarten in fall of 1998 and in fall of 1999. Initial (N = 1369) and follow-up (N= 1102) data were collected from multiple sources, including direct cognitive assessments of children, and surveys of parents and teachers. Follow-up measures in grades 5 and 6 represent 80% of the initial sample. Attrition analyses do not reveal significant differences between valid and invalid data.

Independent measures: classroom behaviors

Peer relationships. At the end of kindergarten, using Social Behavior Questionnaire (SBQ), teachers rated participants on one item regarding “getting along

with classmates". Their response options, ranging on a Likert scale, went from excellent, good, average, weak, to very weak.

Social Behavior Questionnaire (SBQ, Tremblay et al., 1991). Using beginning and end of kindergarten teacher-ratings, the SBQ was developed by Tremblay, Offord, and Boyle for the NLSCY. The items assess children's behavioral adjustment and originate from the Ontario Child Health Study (Directed by David Offord) and the Montreal Longitudinal-Experimental Study of Kindergarten Boys (Directed by Richard E. Tremblay). Item response options, ranging on a Likert scale, are from never/false, sometimes or often/true. Norms (NLSCY) are available from ages 4 to 11: emotional distress (8 items, alpha at age 4 = .85); physical aggression (6 items, alpha at age 4 = .87); hyperactivity (8 items, alpha at age 4 = .93); attention (4 items, alpha at age 4 = .82) and prosociality (10 items, alpha at age 4 = .92). This early childhood behavioral assessment takes 15 minutes to complete and represents a good predictor of later psycho-social adjustment (Dobkin, Tremblay, Mâsse & Vitaro, 1995; Haapasalo & Tremblay, 1994; Tremblay, Pagani-Kurtz, Mâsse, Vitaro & Pihl, 1995; Tremblay, Pihl, Vitaro & Dobkin, 1994).

Dependent measures: Peer affiliations in Grades 5 and 6

In grades 5 or grade 6, participants were rated by their teachers on their peer associations. The items were been regrouped into three scales representing the kind of peers participants typically associate with at school. Responses ranged from never/false, sometimes, always/true. We obtained satisfactory to excellent cronbach alphas: popular (is popular with high achieving fiends; is popular with athletic friends; gets along with peers or classmates; cronbach alpha = .66), deviant (hangs out with kids who get in trouble; does delinquent activity with friends; is popular with deviant friends;

crohnbach alpha = .83), and rejecting peer (felt rejected by his/her peers or classmates; you witnessed incidents or peer rejection; crohnbach alpha = .86).

Control measures: Child and family

In all analyses, we control for family configuration (sole parenting versus intact family), and maternal education (not finishing high school versus finishing), as reported by the mother at the beginning of kindergarten. We also control for child characteristics as sex and kindergarten socio-cognitive behaviors.

Peabody Picture Vocabulary Test (PPVT). To control for cognitive verbal skills, the French EVIP-PPVT (EVIP-PPVT, Forms A and B, French adaptation by Dunn, Thériault-Whalen & Dunn, 1993: Échelle de vocabulaire en images Peabody) was individually administered in kindergarten to assess children's receptive verbal skills, which represent an important indicator of intellectual development and school readiness. Trained examiners administered this test at the beginning of junior kindergarten. Individual administration takes approximately 8-10 minutes. Every item is shown in four possible images. The child must indicate which image corresponds to the correct answer. The scale comprises five practice items, followed by 170 items that are ordered in increasing difficulty. The child responds to a series of items that are at a specific level of difficulty. Performance bases and ceilings vary among children, according to age and ability. In the US, the Peabody has been frequently used in evaluative studies of Head Start programs. It correlates significantly with measures of reading, language, and general achievement (Altepeter & Handal, 1985; Vance, Kitson & Singer, 1985) and very few items have been found to be culturally biased against ethnic populations when used to indicate extensiveness of receptive vocabulary (Argulewicz & Abel, 1984; Reynolds, Willson & Chatman, 1984). The French EVIP-PPVT was standardized with a

sample of 2,038 French-Canadian children (from ages 2 to 18). The raw scores are converted according to standardized scores (mean = 100; standard deviation = 15). Reliability was established using the split-half method with Spearman-Brown correction for each age group and for both Forms A and B. ($r = .66$ and $.85$, respectively). Test-retest reliability of the parallel forms was $.72$ at a one week interval. As with the original English version, correlations with other French vocabulary tests and other intelligence tests are high (Dunn et al., 1993).

Number Knowledge Test (NKT). To control for cognitive mathematic skills, our version of the NKT was used as a short-version of individually administered assessment of children's informal knowledge of number and conceptual prerequisites of pre-arithmetic operations. Norms were developed by Robbie Case for age levels corresponding from 4 through 10 for both low- and middle-income children from Ontario, Massachusetts, Oregon, and California. Our short-version was developed in collaboration with Robbie Case, and is predictive of academic performance in grade 3 (Duncan et al., in press). The NKT has been found to predict third grade academic performance as well as the PPVT. It also predicts third grade reading as well as it predicts math. Trained examiners administered this test at the beginning of junior kindergarten. The test measures the following conceptual prerequisites: (1) knowledge of the number sequence from 1 to 10; (2) knowledge of the one to one correspondence in which a sequence is mapped onto objects being counted; (3) understanding the cardinal value of each number; (4) understanding the generative rule which relates adjacent cardinal values; (5) understanding that each successive number represents a set which contains more objects. In a recent psychometric study, the test was shown to have a higher loading than another test on prekindergarten mathematics factors (Robinson,

Abbott, Berninger & Busse, 1996). Total time for individual administration and scoring of this test is 15 to 20 minutes. From previous collaborative study with Robbie Case, we have norms for 6000 French-speaking Quebec children.

Data Analytic strategy

We first conducted a series of ordinary least squares (OLS) multivariate regressions to verify the reliability of the kindergarten teacher-rating approach to the relationship between children's ability to get along with peers (GAP) and later peer associations at the end of primary school, while controlling for any possible direct or indirect influences of family and child characteristics. The analytic strategy relates peer characteristics measured at the end of primary school (PRIM) to our general measure of peer relations, rated by teachers at school entry.

The estimating equation is as follows:

$$\text{PeerChar}_{i\text{PRIM}} = a_1 + \beta_1 \text{GAP}_{i\text{SK}} + \gamma_1 \text{FAM}_i + \gamma_2 \text{CHILD}_i + e_{it}, \text{ where,}$$

$\text{Peer Char}_{i\text{PRIM}}$ = affiliation with popular, deviant, and rejected peers (separate OLS regressions per dependent variable);

$\text{GAP}_{i\text{SK}}$ = ability to get along with peers rated by teachers at the end of kindergarten;

FAM_i = maternal education and family configuration;

CHILD_i = sex, cognitive skills (NKT and PPVT), child social behaviors (hyperactive, attentive, prosocial, aggressive and emotionally-distressed);

a_1 and e_{it} represent a constant and stochastic error term, respectively.

Second, we examined whether a developmental change in behavior (hyperactive, attentive, prosocial, aggressive and emotionally-distressed), controlling for the aforementioned child and family characteristics, has an influence on the kind of peer groups the child associates with at the end of primary school. For this, we added a

baseline control for each behavior using beginning of kindergarten scores (e.g, hyperactivity at the beginning of kindergarten for change model on hyperactive behavior in kindergarten), reducing interpersonal variation on this variable at kindergarten entry. This will allow us to study the influence of a developmental change on a particular variable without the confounding influence of individual differences at baseline. First, we generated change scores (ΔBEH) that estimate the variation in child social behaviors during the kindergarten year. We generated these by subtracting scores of the beginning of kindergarten from scores of the end of kindergarten. We then used change scores as predictors in a series of OLS regressions, while discounting the influence of the aforementioned child and family characteristics at kindergarten entry.

This series of OLS regression is estimated by the following equation:

$$\text{PeerChar}_{i\text{PRIM}} = b_1 + \delta_1 \Delta\text{BEH}_i + \delta_2 \text{BEH}_{i\text{FK}} + \gamma_1 \text{FAM}_i + \gamma_2 \text{CHILD}_i + \eta_{it}$$

Where, $\text{PeerChar}_{i\text{PRIM}}$ = affiliation with popular, deviant and, rejected peers (separate OLS regressions per dependent variable);

ΔBEH_i = behavioral change;

$\delta_2 \text{BEH}_{i\text{FK}}$ = behavioral baseline at beginning of kindergarten;

$\gamma_1 \text{FAM}_i$ = maternal education and family configuration;

$\gamma_2 \text{CHILD}_i$ = sex and cognitive skills (NKT and PPVT);

b_1 and η_{it} represent a constant and stochastic error term, respectively.

Results

First, Tables I and II report descriptive statistics and relationships among variables. Almost all variables are significantly correlated and show low ($r = .20$) to medium ($r = .50$) Pearson correlation coefficients.

Unique contribution of getting along with peers in predicting later affiliation with popular, deviant, and rejected peers

Table III reports that the general ability to get along with peers, measured by teachers at the end of kindergarten, positively predicted affiliation with popular peers at the end of primary school ($\beta = .25, t(11,39) = 4,40 p \leq .01$). This variable also showed an inverse association with deviant peers at the end of primary school ($\beta = -.18, t(11,39) = -3,10 p \leq .05$). Finally, this variable negatively predicted affiliation with rejected peers at the end of primary school ($\beta = -.24, t(11,39) = -4,19 p \leq .01$). These three relationships are above and beyond the competing influence of theoretically and statistically pertinent family and child characteristics.

Influence of developmental change upon affiliation with popular, deviant, and rejected peers

Tables IV and V, VI, VII report descriptive statistics of change scores on each social behavior and results of the series of OLS regression (using change scores as predictors) on the three outcomes, respectively. First, an increase in hyperactive behavior ($\beta = -.15, t(11,40) = -2,84 p \leq .01$) during kindergarten year negatively predicted the affiliation with popular peers at the end of primary school. In other words, a little increase in hyperactive behavior during kindergarten decrease the probability that children associate with popular peers at the end of primary school. Also, a decrease in inattention ($\beta = .17, t(11,40) = 3,40 p \leq .01$) during kindergarten year positively predicted association with popular peers in grade 5 and 6. Second, Table VI reports that an increase in both hyperactive ($\beta = .13, t(11,40) = 2,50 p \leq .01$) and aggressive behavior ($\beta = .13, t(11,40) = 2,53 p \leq .01$) during the kindergarten year positively

predicted later deviant peer affiliations at the end of primary school. Finally, Table VII reports that an increase in hyperactive behavior ($\beta = .11, t(11,40) = 2.03, p \leq .05$) during the kindergarten year positively predicted the affiliation with rejected peers at the end of primary school. However, a reduction in inattention ($\beta = -.13, t(11,40) = -2.38, p \leq .05$) during the kindergarten year was negatively associated with later affiliation with rejected peers in grade 5 and 6.

Discussion

We sought to replicate previous findings based on socially sensitive sociometric methods regarding early social characteristics and later peer affiliations. Links between child social behaviors and peer associations are well established, yet there is little research that has modeled the influence of kindergarten teacher-ratings upon later child peer affiliations. The first conclusion from this study confirms the reliable nature of the predictive power of nonsociometric means at school entry. Specifically, we found that kindergarten teacher-ratings of children's social competence predicted later peer affiliations at the end of primary school, suggesting developmental continuity in social competence.

Second, as an extension of previous work, we sought to measure the impact of developmental change in early child social, cognitive, and emotional behaviors and self-regulation skills, which have been found to influence social relations, adjustment, and later peer affiliation characteristics (Fitzsimons, 2006). Early characteristics not only predict later characteristics, they also address the issue of developmental change. The school readiness research has drawn upon the idea of change in questions about what matters most at and prior to school entry and later achievement (Duncan et al., in press).

We hypothesized that a change toward the better prior to formal school entry would better children's chances of having more positive peer affiliations toward the end of primary school. As expected, we found that, according to kindergarten teacher-ratings, developmental change in behavioral self-regulation predicted what kind of friends children associated with by the end of primary school. Once again, we must emphasize that our findings do not reflect sociometric measures and that our hypotheses were tempered by that limitation. Nevertheless, teacher-ratings remained sensitive in detecting the influence of change, above and beyond a number of conservative controls as maternal education, sole parenting, and baseline for each child behavior.

The most interesting finding of this research is certainly about the change. Kindergarten teachers reported an early developmental change in hyperactive, inattentive, prosocial, aggressive, and emotionally-distressed behaviors. A naturally occurring change in child hyperactivity, inattention, and aggression predicted later peer outcomes as well as later social adjustment or maladjustment. How could we explain that developmental change? It could be that the kindergarten experience helped some kids settle down and adapt to the social demands of the classroom. Maybe not because we observe an improvement in children's hyperactive, aggressive, and emotionally-distressed behaviors over the kindergarten year. What could explain the change? Is it the specific background of low socioeconomic status of children in our sample? Is it the quality of teachers-child relationship? Or, is it a simply natural maturation?

Maturation processes could explain the naturally occurring change in child aggressive behavior during kindergarten year. Generally, aggressive behaviors occur early in the child life course and get to his higher level by the second year of life. Aggression decreases a little bite and remains stable at a moderate level until

preadolescence where physical aggressive behaviors habitually decrease (Côté, Vaillancourt, LeBlanc, Nagin & Tremblay, 2006). However, it is not all the kindergarten children moderately aggressive who will suffer from later negative outcomes.

Aggressive children with specific background as attention problems, family conflict, low school commitment and attachment, low family involvement, low parental education, parental depression, are more at risk for later social maladjustment (Harachi et al., 2006). Hyperactive behaviors are also submitted to maturation process. Research on childhood trajectories of hyperactive behaviors reveal that children level of hyperactivity remains quite stable during childhood, pre-adolescence, and adolescence. Hyperactive children experiencing lower emotional support and lower intellectual stimulation by parents in early childhood predict membership in the higher class of hyperactivity as well as later negative outcomes (Jester et al., 2005). Finally, children develop their attention process through childhood and particularly rapidly from birth to 5 years old (Ruff & Rothbart, 1996). Low attentional regulation and low impulsivity in childhood predict the occurrence of internalizing symptoms as well as low school performance, which are linked with peer rejection and deviant peer affiliation (Eisenberg et al., 2001). An improvement in attentive behaviors, as viewed in our sample, could explain why a change toward the better in cognitive self regulation skills is linked with later affiliation with popular peers.

It is well recognized that social and behavioral competencies in the early grades are considerable predictors of early school success and of subsequent outcomes (Entwisle & Alexander, 1999). Longitudinal studies of young children reveal that social and behavioral problems in childhood (inattention, poor impulse control, difficulties following direction and conforming to classroom rules, disruptive behaviors, and

aggression) predict continuing problems in middle childhood (Duncan, Brook-Gunn & Klebanov, 1994; Pagani, Boulerice & Tremblay, 1997; Ladd & Burgess, 1999). As such, children in our sample are more at risk for developmental continuity of behavior and school adjustment difficulties. Fewer are likely to have entered school system with well developed resources to meet their educational and socioemotional needs (Lavigne et al., 1996). Low socioeconomic status (SES) of children in our sample and the effect of grouping similar peers in kindergarten could explain the naturally occurring change toward the worse for aggressive and hyperactive behaviors because low SES children are more frequently exposed to stressful negative life events (Dodge, Dishion & Lansford, in press; Brady & Matthews, 2002) and show greater exposure to violence (Selner-O'Hagan, Kindlon, Buka, Raudenbush & Earls, 1998). It is likely children in our sample started kindergarten with their specific history of social and behavioral problems, related to their low SES status. Nevertheless, despite the chances of supporting a null hypothesis – our results show early childhood behavioral improvement does have long-term value.

School entry represents an important transition in a child's life course. Children are grouped into social units probably for the first time, with new peers, and under the authority of someone else than their parents or early childhood caregivers. Does the kindergarten school experience buffer the negative effect of social and behavioral problems of at risk children? Beyond the role of teaching academic skills, teachers are responsible for regulating activity level, communication, and contact with peers (Howes & Hamilton, 1993). Teachers are also responsible to provide behavioral support and teach coping skills to children (Doll, 1996). Positive interactions between the kindergarten teachers and children predict more positive outcomes for high-risk and

low-risk children (Pianta, LaParo, Payne, Cox & Bradley, 2002). In contrast, conflict relationship between kindergarten teacher and children has been found to predict a decline in children's prosocial behavior and to gains in peer-perceived aggressive behavior (Birch & Ladd, 1998); to an increase in problem behaviors, and to a decrease in competence behaviors over time (Pianta, Steinberg & Rollins, 1995). The developmental change in child social behaviors in this study could be explained by the quality of the relationship between kindergarten teacher and the child. Some children have succeeded in developing prosocial and attentional skills while others have failed to do so, and as a result, have developed more aggressive, hyperactive, and emotionally-distressed conducts. Some children could have had positive relationship with their kindergarten teacher while others not.

This study sheds light on the developmental influence of early behavioral skills upon later peer affiliations outcomes. The discussion on the influence of natural maturation, on the influence of low SES, and on the influence of the quality of kindergarten teacher, and child relationships upon the naturally occurring change bears another question: Does kindergarten appear to be well adapted to the specific needs of children? Does kindergarten help enable children socioemotional skills relevant to positive peer interactions as well as later psychosocial adjustment and psychological well-being? The answer could be yes and no. It could be yes for the children who have succeeded to develop better attentional and prosocial skills and it could be no for the children who have shown naturally increase in aggressive and hyperactive behavior. Children are likely to benefit from a kindergarten program if it is individualized and adapted to their specific needs and risks.

This study is not without limitations. First, we are limited by sample attrition. The characteristics of those who were not retained were more at risk. Because of this natural attrition, our sample was set up for failing to detect an effect (given they were less at risk). We implemented ample controls for possible omitted variable bias. Further, deviant and rejected peers outcomes are not normally distributed, and could induce alpha errors. Lastly, family poverty characteristics of the sample, perhaps our results do not represent the more general relationship between early social behavior characteristics and later social relations because of the multiple risk factors experienced by the population which our sample was drawn. Our study seems to be powerful because of the size of our sample. The fact that ability to get along with others is linked with belonging to a popular, deviant, and rejected peer group could probably be generalized to the population of children from low socioeconomic status families. Also, the results we have obtained represent an innovation in studying peer relationships and this makes our study interesting and noteworthy. Finally, we used a low socioeconomic status sample and future studies are warranted with a more representative sample of the general population of rural and urban children.

Although the majority of studies on this subject use sociometric measures, we encourage the use of multiple data sources to explore the robust nature and course of individual characteristics and later social relationships. We encourage future research to shed light on the background characteristics of kindergarten children who experience positive and negative behavioral and emotional regulation improvements which were found related to important later peer outcomes. Schools can offer specific classroom experiences adjusted to kindergarten children own characteristics and future research could try to shed light on the particular setting of those well adapted school experiences.

Finally, this study strongly supports another benefit of applied early psychosocial interventions. Future research could place more effort in the creation of intervention programs that specifically target hyperactive, aggressive, and attentive behaviors, given that these are relevant to later peer and deviance outcomes at the transition from primary to secondary school.

Table 1: descriptive statistics of control, independent and dependent variables

Variables	Mean	Standard deviation
Sex	1.50	0.50
Family configuration	1.77	0.42
Maternal education	7.26	16.27
NKT	13.21	3.79
PPVT	59.55	24.13
Ability to get along	2.01	1.00
Hyperactivity	12.88	2.84
Inattention	6.22	2.49
Prosociality	18.22	5.11
Emotionnally-distressed	13.44	2.02
Aggression	16.90	2.82
Popular peer	1.77	0.55
Deviant peer	2.61	0.54
Rejected peer	2.69	0.53

Table II: Correlation matrices

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Hyperactivity														
2. Inattention	-.670**													
3. Prosociality	-.219**	.243**												
4. Agression	.615**	-.383**	-.211**											
5. Emotionally-distressed	.282**	-.341**	-.161**	.250**										
6. Ability to get along	-.504**	.422**	.259**	-.486**	-.211**									
7. Deviant peer	.317**	-.231**	-.118**	.302**	.065	-.330**								
8. Popular peer	-.247**	.278**	.145**	-.165**	-.054	.324**	-.157**							
9. Rejected peer	.263**	-.250**	-.125**	.184**	.065	-.311**	.190**	-.471**						
10. NKT	.132**	-.283**	-.135**	.057*	.095**	-.137**	.038	-.217**	.126**					
11. Peabody	.028	-.113**	-.199**	.009	.019	-.036	-.038	-.064	.003	.446**				
12. Sex	.286**	-.211**	-.211**	.211**	.046	-.170**	.237**	-.033	.069	.054	.037			
13. Sole parenting	.087**	-.103**	-.017	.088**	.087**	-.129**	.132**	-.059	.059	-.018	-.065*	-.041		
14. Maternal education	-.006	.006	.064	.032	.073*	-.064	.046	-.016	.002	-.065	-.085*	-.015	-.005	

Tables III : Links between ability to get along with peers, rated by kindergarten teachers, and later peer affiliations

Variables	Standardized coefficient Beta (β)	R	R ²
Popular peer	0.25**	0.42**	0.18**
Deviant peer	-0.18**	0.41**	0.17**
Rejected peer	-0.24**	0.40**	0.16**

** Beta is significant at the 0,01 level (2-tailed)

Table IV : descriptive statistics of change scores

Variables	Mean	Standard deviation
Hyperactivity	0.08	2.21
Inattention	-0.16	2.21
Prosociality	1.42	5.07
Aggression	0.32	2.23
Emotionnally-distressed	0.74	2.02

Table V : Link between developmental change in kindergarten behaviors and later association with popular peers

Variables	Standardized coefficient Beta (β)
Hyperactivity	-0.15**
Inattention	0.17**
Prosociality	0.02
Aggression	-0.03
Emotionally distressed	-0.03

** Beta is significant at the 0,01 level (2-tailed)

Table VI : Link between developmental change in kindergarten behaviors and later association with deviant peers

Variables	Standardized coefficient Beta (β)
Hyperactivity	0.13**
Inattention	-0.02
Prosociality	-0.05
Aggression	0.13**
Emotionally distressed	-0.01

** Beta is significant at the 0,01 level (2-tailed)

Table VII : Link between developmental change in kindergarten behaviors and later association with rejected peers

Variables	Standardized coefficient Beta (β)
Hyperactivity	0.11*
Inattention	-0.13*
Prosociality	-0.03
Aggression	0.08
Emotionally distressed	0.03

* Beta is significant at the 0,01 level (2-tailed)

Conclusion

Synthèse de l'article

L'objectif principal de ce mémoire de maîtrise était de vérifier le lien entre le développement psychosocial des enfants à la maternelle et l'affiliation ultérieure avec les pairs à la fin du primaire. Par la même occasion, cette étude a voulu tester la sensibilité d'une mesure non-sociométrique afin de vérifier le lien entre l'habileté générale de l'enfant de maternelle à s'entendre avec ses pairs et l'affiliation ultérieure avec ceux-ci à la fin du primaire également.

Cet article offre un point de vue unique sur la question de l'effet d'un changement développemental sur l'adaptation psychosociale de l'enfant via l'affiliation ultérieure avec les pairs. En effet, l'évolution naturelle des comportements hyperactifs, agressifs et inattentifs des enfants à la maternelle influence significativement l'affiliation ultérieure avec des pairs populaires, déviants ou rejetés. À une moindre échelle, cet article a permis de mettre en lumière la sensibilité de la perception des enseignants de maternelle comme mesure des comportements sociaux, cognitifs et émotionnels des enfants puisque la mesure utilisée est significative lorsque mise en lien avec l'affiliation ultérieure avec les pairs à la fin du primaire.

Lacunes des études antérieures et solutions pour y remédier dans le cadre de cette étude empirique

À la suite d'un large survol de la littérature scientifique, force est de constater que les auteurs ont souvent traité du lien entre les comportements sociaux à la maternelle et l'affiliation ultérieure avec les pairs en n'utilisant qu'une seule mesure à un temps donné pendant la maternelle (Cairns, Cairns, Neckerman, Gest & Garipey, 1988; Lafontana & Cillessen, 2002; Kennedy, Spence & Hensley, 1989; Coie & Dodge, 1998;

Maedgen & Carlson, 2000). Ainsi, cela laisse supposer que la littérature scientifique puisse induire une certaine stabilité aux comportements des enfants en bas âge. Il est vrai que certains enfants connaîtront une certaine continuité au niveau de leurs comportements et ne changeront pas tellement, mais toutefois, d'autres changeront et présenteront une évolution comportementale plutôt discontinue. Ce faisant, cette présente étude amène une façon nouvelle et originale de questionner le rôle des comportements sociaux à l'enfance dans le domaine de l'affiliation avec les pairs à la préadolescence. Dans une perspective tenant compte de la continuité et de la discontinuité dans le développement naturel de l'enfant en bas âge, cette étude empirique alimente la recherche dans le domaine de l'affiliation avec les pairs en s'intéressant à la capacité d'autorégulation des enfants, et ce, pendant la première année de scolarisation.

De plus, il a été remarqué que les chercheurs dans le domaine de l'affiliation avec les pairs utilisent abondamment les mesures sociométriques au détriment des mesures non-sociométriques qui présenteraient une moins grande fiabilité. Pourtant, il peut sembler surprenant de constater que l'utilisation de la perception des enseignants comme mesure ait reçu peu d'attention. En effet, ce type de mesure est souvent considéré par les tenants de la sociométrie comme une mesure non fiable, voire même une perte de temps. En effet, il a été démontré que ce type de mesure est comparable sinon supérieure à l'information fournie par les parents lorsque sont évalués les troubles de comportements tels que décrits par le DSM-III (Loeber, Green, Lahey & Stouthamer-Loeber, 1990; Loeber, Green & Lahey, 1991). De plus, il est véhiculé dans les fondements de la méthodologie de recherche qu'il est préférable d'utiliser plus d'une

source de mesure pour améliorer la validité de celle-ci. Dans un souci de découvrir des sources de mesure alternative, cette étude a voulu tester la sensibilité d'une mesure des comportements sociaux des enfants à la maternelle qui est non-sociométrique pour prédire l'affiliation ultérieure avec les pairs. En effet, la perception des enseignants quant à l'habileté générale de l'enfant à s'entendre avec ses pairs et quant aux comportements hyperactifs, agressifs, prosociaux, inattentifs et de détresse émotionnelle a été utilisée dans le but d'établir ce précédent lien prédictif.

Applications concrètes

Cette étude apporte une contribution particulière au niveau du choix de la mesure. En effet, comme la perception des enseignants de maternelle semble être une mesure sensible, les résultats de cette étude supposent donc la possibilité de faire un choix de mesure du moins aussi sensible que les mesures sociométriques. Les résultats obtenus sont ainsi complémentaires à ceux de Carbonneau, Tremblay, Vitaro et Saucier en 2005. En effet, ces chercheurs ont trouvé que la perception des enseignants de 6^{ième} année permet de prédire l'occurrence de psychopathologie chez les garçons à la fin du primaire. Les résultats obtenus dans le cadre de ce mémoire viennent donc appuyer la littérature antérieure et pourraient rendre possible l'inclusion des enseignants de maternelle au processus d'intervention. En effet, cet article porte à croire que les enseignants ont la capacité d'observer et de rapporter les faits significatifs en ce qui concerne les comportements des enfants. Ce faisant, les données recueillies en période d'observation pourront se rapprocher de plus en plus de la réalité étant donné que les enfants courent moins le risque de réagir à la présence d'un observateur, l'observateur étant leur enseignant de tous les jours. Ainsi, les résultats obtenus pourraient s'avérer

moins sensibles à certains biais externes, plus facilement généralisables à la population générale et pourraient ainsi alimenter la recherche et l'intervention.

Depuis les dernières années, beaucoup d'intérêt est accordé à la question de la préparation à l'école et au fait de supporter l'enfant dans l'apprentissage des habiletés nécessaires au succès à l'école et à un développement psychosocial positif (Hemmeter, Ostrosky & Fox, 2006). Ainsi, cet article apporte une contribution particulière aux interventions psychosociales dans leur ensemble. Premièrement, les résultats obtenus dans la présente étude permettent de préalablement cibler les comportements significatifs sur lesquels les efforts devraient être mis en priorité. En effet, l'évolution naturelle des comportements hyperactifs, agressifs et inattentifs ressort significativement dans le lien avec l'affiliation ultérieure avec les pairs à la fin du primaire. Ces trois comportements sociocognitifs semblent être primordiaux dans le but d'assurer un développement psychosocial positif en ce qui concerne l'affiliation ultérieure avec les pairs. Ce faisant, ces résultats concordent avec ce qui est proposé dans la littérature par rapport aux cibles à prioriser au niveau de l'intervention à l'enfance. En effet, les interventions promouvant l'ajustement socio-émotif des enfants devraient miser sur le développement d'habileté à la communication et à la régulation des émotions, d'habileté à la résolution de conflit, à l'établissement de relations positives avec les pairs et les adultes et au développement de l'attention soutenue à une tâche (Hemmeter, Ostrosky & Fox, 2006).

Les résultats sur les changements comportementaux en bas âge de cet article permettent aussi d'appuyer les tenants du dépistage précoce et de la prévention. De fait, il s'avère qu'identifier et traiter en cas par cas fut une méthode sévèrement critiquée par

le passé (Boyle, 1991; Kazdin, 1993; Boyle & Offord, 1988). Ainsi, devant l'incapacité des services de santé de subvenir aux besoins de la population en matière de traitement, les cliniciens, les chercheurs et les professionnels de la santé se sont penchés vers la prévention pour diminuer les cas de traitement (Durlak & Wells, 1997). Ainsi, pour rejoindre le plus grand nombre d'enfants, les programmes de prévention ont gagné les écoles où l'on promeut particulièrement le développement social positif puisque celui-ci est lié aux difficultés d'adaptation psychosociale (Schneider, 1992). Les résultats obtenus dans cette étude appuient les idées sous-jacentes à la prévention hâtive puisque l'augmentation des comportements hyperactifs et agressifs à la maternelle peut mener à l'affiliation à des pairs déviants ou au rejet par les pairs, ainsi qu'à un mauvais ajustement psychosocial. Cette étude suggère ainsi qu'il serait important de développer chez les enfants de maternelle la capacité à l'autorégulation et ce, particulièrement au niveau de l'attention et des comportements hyperactifs et agressifs. Ce faisant, la diminution des comportements hyperactifs et agressifs et l'augmentation de l'attention des enfants de maternelle pourrait permettre de réduire les besoins de traitement.

Forces et limites de l'article et avenues de recherches futures

L'article présenté dans ce mémoire apporte une contribution scientifique importante dans le domaine de l'intervention psychosociale. Cependant, il présente aussi certaines limites.

Premièrement, bien que l'échantillon contienne un nombre considérable de participants, il n'est composé que d'enfants des quartiers les plus défavorisés de Montréal dont les parents ont donné préalablement leur consentement. La généralisation semble ainsi plus difficile étant donné que les enfants dont les parents ont donné le

consentement pourraient être moins à risque de difficulté d'adaptation que leurs compères dont les parents n'ont pas consenti à participer au projet de recherche. Le fait qu'un parent se montre intéressé au projet pourrait permettre de dénoter un niveau de conscience plus élevé des difficultés que pourraient vivre leurs enfants et ce, comparativement aux parents qui ne s'y ont pas intéressés. À l'intérieur même de la population d'enfants des quartiers les plus défavorisés de Montréal, on pourrait retrouver des différences entre les enfants. Ce faisant, la généralisation des résultats est plus difficile et ne s'applique qu'à une population cible d'enfants défavorisés et vivant dans des villes ayant les mêmes caractéristiques que Montréal. De plus, l'échantillon comporte des données manquantes. Malgré qu'il y ait eu un contrôle statistique pour les éventuelles différences entre les données valides et les données manquantes, il est possible que ce phénomène d'attrition apporte un biais aux résultats. Ainsi, la prudence est de mise en ce qui concerne la généralisation des résultats.

Au niveau des variables dépendantes, celles-ci ont été créées à partir de deux ou trois items tirés du SBQ. Ce faisant, il est possible que les trois échelles créées dans le cadre de cette étude comportent des lacunes au niveau de la représentation du concept sous-jacent. Il aurait été pertinent d'inclure des échelles présentant une meilleure fidélité au concept représenté. De plus, deux des trois variables dépendantes ne sont pas distribuées selon la loi de la normalité. En effet, la loi de la normalité est un postulat primordial à respecter en ce qui concerne la régression linéaire multiple. De cette façon, l'étude peut encourir un plus grand risque d'obtenir des résultats biaisés par des erreurs de type alpha.

Néanmoins, l'article présenté dans le cadre de ce mémoire de maîtrise amène un regard innovateur sur la question de l'affiliation avec les pairs. La plus grande force de cette étude est probablement liée au fait qu'elle s'intéresse au changement naturel de l'enfant pendant l'année de la maternelle alors que la littérature antérieure semble avoir omis de considérer l'enfant comme un être humain vivant de l'instabilité à travers son développement. En effet, la littérature a tendance à présenter l'enfant, en regard de l'affiliation avec les pairs, comme un être statique du point de vue des comportements sociaux. Cet article met donc en lumière l'aspect de l'évolution naturelle de l'enfant. Le changement pendant la transition à la maternelle serait ainsi crucial pour l'affiliation ultérieure avec les pairs et l'adaptation psychosociale.

Enfin, cet article peut suggérer quelques avenues pour les recherches futures. Il serait intéressant de tenter une réplification de résultats en ce qui a trait à la sensibilité de la perception des enseignants comme mesure de recherche. À l'aide de l'échantillon utilisé dans cette étude, il a été noté que la perception des enseignants de maternelle est une mesure robuste pour prédire l'affiliation avec les pairs. Toutefois, il serait intéressant de tester la sensibilité de cette mesure à différents niveaux académiques et sur différents champs d'étude. De cette façon, il serait tenté d'augmenter la fidélité et la validité de cette mesure non-sociométrique. Finalement, le présent article pourrait amener les futures recherches à se pencher sur la question de l'efficacité du programme de maternelle au Québec quant au développement psychosocial de l'enfant. Effectivement, cette étude met en lumière que la plupart des enfants vivent une détérioration de certains comportements sociaux à leur entrée dans le système scolaire. Il serait intéressant pour les futures recherches de se pencher sur les modifications à

apporter au système scolaire de façon à prôner chez les enfants un développement socio-émotif sain. Enfin, la prévention devra certainement demeurer un cheval de bataille pour la littérature scientifique de façon à mettre en œuvre des programmes de prévention de plus en plus efficaces.

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