The Socio-Affective and Academic Impact of Early Entrance to School

Françoys Gagné
Nadia Gagnier

School districts in the United States began offering early entrance options for intellectually precocious children almost a hundred years ago (Daurio, 1979). Yet, early entrance to school never gained general recognition across North America. Indeed, out of all possible accelerative enrichment approaches, only one, the Advanced Placement Program, has grown tremendously since its introduction in 1952 (DiYanni, 2003). The reason for such a limited dissemination resides in the ambivalent—and often clearly negative—attitudes many educators harbor toward any form of academic acceleration. Defenders of accelerative enrichment find these attitudes difficult to explain in view of the positive conclusions of hundreds of empirical evaluations of the academic and socio-affective impact of all accelerative options. Bolland (1989) summarizes the conundrum as follows: “Acceleration is one of the most curious phenomena in the field of education. I can think of no other issue in which there is such a gulf between what research has revealed and what most practitioners believe” (p. 185). Similar statements abound in the gifted education literature.

Rogers (1991) identified nineteen reviews of accelerative enrichment, covering most of the twentieth century, from Witty and Wilkins (1933) to Van Tassel-Baskin (1986). Rogers’ literature review and meta-analysis outranks all previous ones as the most comprehensive and definitive, an overwhelming reason to borrow heavily from it. Before that seminal doctoral dissertation, reviewers had either lumped together many accelerative options or targeted a single one, usually early entrance to school (see Rogers, Appendix A). Not only did Rogers make major efforts to unearth every published study since 1929 (she found 314 of them), but she grouped them by type of acceleration. Twelve categories were thus created: 1) early entrance to school, 2) grade skipping, 3) non-graded classes, 4) curriculum compaction, 5) grade tele-
scoping, 6) concurrent enrollment, 7) subject acceleration, 8) advanced placement, 9) mentorship, 10) credit by examination, 11) early admission to college, and 12) combined options. To examine the academic, social, and psychological impact on accelerants of each individual option, she adopted a special meta-analytic technique called best-evidence synthesis, whereby the quantitative and qualitative analysis targets only those studies on a topic that meet clearly stated a priori criteria of methodological soundness (Slavin, 1986). Rogers concluded her review with the following general statement.

If nothing else, the synthesis compiled here lays to rest two major misconceptions about acceleration. The first misconception has been that “acceleration is acceleration,” that is, all forms of acceleration are basically the same. As this study has shown, each of the 12 forms of acceleration has a very different pattern of outcomes for gifted learners. …The second misconception has been that acceleration may have negative or damaging social and emotional consequences for gifted learners. In fact, this study has shown that there are minimal social and emotional effects for the majority of accelerative options. (pp. 200-201)

Rogers’ specific review of the early entrance literature covered 68 empirical studies, no less than 22% of her total pool of 314. She selected eight of them as best evidence to assess academic impact. From these, she computed an effect size of .49—considered moderate according to Cohen’s (1969) thresholds—in favor of the accelerants. In the case of social and psychological outcomes, four studies were highlighted in each category, yielding very small positive effect sizes of .20 and .16 respectively. She concluded that early entrance to school “...is a reasonably safe decision...
to make. Across a broad base of short-
term and longitudinal studies based pri-
marily on school records, academic
performance was found to be significant-
ly enhanced. Social and psychological
adjustment is neither enhanced nor
threatened by early entrance to school”
(Rogers, 1991, p. 201).

With so much empirical data and
positive results, it is tempting to con-
clude that no further proofs are needed
to support any form of accelerative
enrichment, and that Borland’s paradox
stands once again confirmed. Yet,
Rogers’ first summative comment
strongly qualifies the results from that
whole research area.

One would assume that with so
great a number of studies as the
research base for acceleration
that the academic, socialization,
and psychological outcomes of
at least the most widely prac-
ticed forms would have been
established. Such has not been
the case. For academic out-
comes, the picture is fairly
clear, but for socialization and
psychological adjustment, more
is not known than is known.
(1991, p. 200)

T
he last part of the above com-
ment applies especially well to
early entrance to school. Of the 68
studies identified by Rogers, only 30 (44%)
examined the social and/or psychological
adjustment of early entrants. Within that
group, 17 (57%) did not give enough sta-
tistical information to permit the calcula-
tion of effect sizes. Concerning that
particular subgroup, Rogers notes: “such
studies involved a study of school
records to determine if accelerates com-
pared favorably to the school’s popula-
tion at large. Some researchers might
term this ‘quick and dirty’ research” (p.
173). She goes even further in question-
ing the importance of our knowledge
about the psychological impact of early
entrance to school. Says she: “Hence, for
psychological adjustment outcomes, the
evidence for a trivial but positive effect
relies primarily on one study” (p. 183).
Pennau (1981) conducted that unique
study, another outstanding doctoral dis-
sertation. Rogers does not address in
detail the more common methodological
flaws of early entrance evaluations, but
others have done so.

For instance, Cornell, Callahan,
Bassin, and Ramsay (1991) play the
devil’s advocate by asking themselves to
what extent the available research on
accelerative enrichment can hold up to
critical scrutiny.

Unless this question can be
answered unequivocally in the
affirmative, the case will not be
closed on the supposedly harm-
ful effects of academic acceler-
ation on affective adjustment, and,
thus, the persistent concerns of educators and parents
will not be allayed (p. 75).

After briefly summarizing both the posi-
tive and negative reviews, they formu-
late a qualified support:

Early entrance can be consid-
ered if the applicants are care-
fully screened for social and
emotional maturity as well as
academic aptitude [italics in
original]. Early admission
should probably be restricted to
children who are extremely
advanced relative to their
chronological age in both acad-
emic and socio-emotional
domains. (p. 79)

Unfortunately, their reanalysis does not
separate clearly enough the school-
readiness literature from the more
specific studies on the early entrance to
school of intellectually precocious chil-
dren. This confusion of the two fields
permeates other literature reviews. Yet,
the differences are substantial.

The school-readiness issue concerns
the impact of age differences within
cohorts of children regularly admitted in
the same grade, usually the first grade.
The question is: do the eldest members of a
given cohort, who are almost one
year older than their youngest peers,
benefit from their maturational advan-
tage? The answer is yes, but only mod-
estly; most such studies show a
significant, if low, positive correlation
between within-grade age differences
and both academic and socio-affective
adjustment (Breznitz & Teltsch, 1989;
DiPasquale, Moule, & Flewelling,
1980). Independent of differences in sex,
aptitudes, or predispositions, younger
entrants within a given cohort are slight-
ly more at risk than older ones. That
weak maturational effect disappears
rapidly during the first years of elemen-
tary school. Some educators have used
these results as support for their strong
objections against early entrance pro-
grams (Halliwell, 1966; Hedges, 1977;
Maddux, 1983). They did not consider
that the samples included all the students
and did not control for differences in
academic precocity. On the other hand,

the typical early entrance study com-
pares carefully selected intellectually
gifted students who accelerate with
nonaccelerated same age or same grade
equally bright peers. The cohort phe-
nomenon will be examined separately
within the methodological structure of
the present study.

One of the major methodological
flaws plaguing early entrance studies has been their poor operational-
ization of the concept of socio-affective
adjustment. Although a few dealt with
that problem in an exemplary way (e.g.,
Fund for the Advancement of Education, 1953; 1957; Pennau, 1981), most have
used rather crude measures of adjust-
ment. That measurement problem is not
specific to early entrance studies; it is
regularly mentioned in the psychological
literature (Anastasi & Urbina, 1997;
Busch-Rossnagel & Vance, 1982;
Roedell, Jackson, & Robinson,1980).
Everyone recognizes that the difficulty
lies in large part in the ambiguity sur-
rounding the concept itself. Yet, because
the strongest objections toward accelera-
tive enrichment target socio-affective
adjustment, researchers should have
given very careful attention to that par-
ticular impact. Reviewing the early
entrance literature, Jones and Southern
(1991) underlined the measurement
issue. “Researchers have demonstrated
little regard for (1) the technical quality
of the instruments used, (2) the natures
of the traits being studied, or (3) the the-
etorical significance of the traits that they
have chosen for evaluation” (p. 63). As
we did above, they affirmed: “Part of the
problem in assessing social-emotional
adjustment is that it is a nebulous con-
cept. It is difficult to describe and mea-
sure adequately” (p. 63).

Building on these global judg-
ments, Lallemand (1996) exam-
ined the methodology and measures used
in a sample of 28 evaluation studies of
early entrance to school, most of them
part of Rogers’ pool of 68. The dispari-
ties between the two sets lie essentially
in Lallemand’s decision to exclude (a)
empirical studies that did not include
clearly identified gifted students (they
accounted for 70% [48/68] of Rogers’
pool), and (b) studies assessing only aca-
demic achievement. Lallemand identified
62 distinct measures of socio-affective
adjustment, which she classified into
eight categories. They appear here in
order of decreasing frequency: (1) factual
data (e.g., critical incidents, absenteeism,
grade retention); (2) questionnaires pro-
posed to teachers, principals, or parents; (3) published tests consisting mostly of behavior rating scales completed by teachers; (4) “homemade” rating scales completed by teachers or students (in the case of long-term impacts); (5) undocument ed comments made by monograph writers; (6) sociometric measures, often interspersed with questions about personality and temperament; (7) behavior reports in students’ files written by teachers or principals; (8) classroom observations. Rating each measure on a 5-point scale in terms of its psychometric qualities (precision, reliability, validity), Lallemand found that over half had received values of 1 or 2. In the light of her analysis, it could easily be argued that so much measurement error cancels any potential differences between accelerated and nonaccelerated groups of students, thus creating the “trivial” effect sizes reported by Rogers (1991). Combined with the other criticisms, Lallemand’s study convinced us that there was ample room for additional evidence, especially if more careful attention was given to methodological design.

A second motive, cultural in origin, influenced our decision to address that question. In 1987, after years of public pressure, the Quebec Ministry of Education introduced a province-wide early entrance policy, locally called “derogation” (to the normal admission regulations). Until then, Quebec had held a strict admission date for kindergarten, namely to have reached 5 years of age by September 30th. Thanks to this new type of derogation, the number of early entrants grew rapidly from just a few dozen in 1987 to a yearly average of approximately 1,300 by the mid-1990s (Lallemand, 1996), approximately 8% of the target population. During that period, the total kindergarten cohort province-wide comprised just over 90,000 students, approximately 7,500 per month if we assume an equal spread of birth dates over the 12 months. A vast majority of the candidates for early entrance have October or November birth dates—87% (85/98) in the case of our sample. Indeed, the parents decide to have them assessed because they appear precocious, usually want to enter school, and risk losing a full year because they are missing by just a few days or weeks the September 30th “guillotine.” Since very few parents with children born after December ask for a derogation, the effective population from which the early entrants can be drawn is reduced to not much more than 15,000.

The new policy mandated that a psychologist assess all candidates on three criteria: intellectual precocity, socio-affective maturity, and psychomotor abilities in that order (Gagnier, 1999). The text of the new regulation did not operationalize either of these criteria. But soon, the corporate body of professional psychologists proposed some guidelines (Ordre des Psychologues du Québec, 1993; 1998). Regarding the intellectual giftedness criterion, they set a minimum mental age of 5 years and 9 months, almost equivalent to the mental development of the oldest average children in the host group. It corresponded to an IQ of 117 for children born in October; the required IQ grew as the age decreased. The two other criteria were mainly assessed through the initial interview with the parents, some rating scales, feedback from daycare personnel when available, and direct observations made during the testing situation. The new regulation also required professionals to “prove” that failure to accelerate the child would create a significant risk of maladjustment; but that condition was interpreted very liberally. The IQ threshold and other criteria generated a target population of approximately 12% of the October-November cohort of 15,000, about 2,000 “accelerable” children if we add a small percentage for December births. So, by and large, approximately two thirds of those admissible to the Quebec early entrance program take advantage of that provision.

Many educators voiced their objections to the early entrance government initiative, insisting that educational authorities should collect local data about the academic and socio-affective impact of such a controversial initiative. Bringing up the positive results found in the existing scientific literature did little good; Quebec educators, most of them French-speaking, often react with open skepticism when new educational initiatives are buttressed with results from “foreign” studies. A few years after the initial implementation, a province-wide statistical analysis by the Quebec Ministry of Education (Beauchesne, 1991) put to rest any fears about the academic achievement of the early entrants. Most of them performed as well and sometimes better than their older nonaccelerated peers. Concerning the specific subject of socio-affective adjustment, a few small-scale studies (Bradette, 1989; Godbout & Martineau, 1995) made headlines in the educational community because they purportedly identified a significant number of children who were adjusting poorly to the school environment. But these small studies suffered from clear methodological flaws. The politically charged situation reinforced our conviction that a methodologically sound evaluative study of the socio-affective impact of early entrance to school could interest both local and foreign educators.

During the planning phase of this evaluation study, magazines, newspapers, as well as more scholarly publications in Quebec (e.g., Conseil Supérieur de l’Éducation, 1999) began discussing more regularly the growing problem of sex differences with regard to school achievement and dropping out. Statistics were showing that the performance gap was increasing from the lower to the higher levels of the education system, with boys lagging behind and/or leaving school in increasing numbers. For instance, in 1998, the province-wide ratio of girls/boys registered in undergraduate programs exceeded 60:40, and was slowly creeping toward 65%, a ratio of almost two to one. Researchers were pointing out that boys began showing more achievement and behavior problems in the very first years of their schooling (Tremblay, 2000). A brief survey of the international literature revealed the emergence of a similar awareness in the USA (Hoff Sommers, 2000), Britain (Pickering, 1997), and Australia (Bartlett, 2002; Hawkes, 2001), among other countries. For instance, from 41% in 1970, the proportion of women enrolled in U.S. universities had reached 50% by 1980. It now exceeds 55% and, if the trend of the last 20 years continues, women should comprise about 60% of all higher education students by the end of the present decade (National Center for Educational Statistics, 2002). We searched for similar sex differences in the early entrance literature, but found only one discussion of that subject (Fox, 1977); the author affirmed that her survey of a few evaluation studies revealed significantly more girls than boys enrolled in early entrance programs. On the question of differential adjustment, Fox stated:

To the extent that girls are developmentally ahead of boys in the early childhood years, we might expect that early admission to kindergarten or first grade would be even more effective for girls than boys.
Research is needed to determine whether or not this is, in fact, true (p. 123). That comment, as well as the topicality of the question in education circles, justified adding that variable as a causal factor of potential differences in socio-affective adjustment.

The present study was designed to address the following methodological concerns: (1) identify and use the best available measure of socio-affective adjustment in school environments; (2) clearly separate the problem of selected early entrants from that of younger than average students within cohorts of regularly admitted children (the school-readiness issue); (3) minimize teacher bias in the assessment process by camouflaging the study’s major goal. This last concern ensued from a frequent mention in the literature that teachers harbor negative attitudes toward early entrance to school (Braga, 1971; Jackson, Famiglietti, & Robinson, 1981; Southern, Jones, & Fiscus, 1989).

Method

Participants

Data were collected for (a) early entrants in kindergarten and their classmates, and (b) students who had been admitted early in kindergarten and were now in Grade 2, also with their classmates. A total of 36 kindergarten educators and 42 Grade 2 teachers, all of them having at least one early entrant in their class, agreed to participate in the study. In kindergarten, data were collected for 43 early-admitted children hidden among 695 regular students. In Grade 2, 55 early entrants and their 1,028 classmates were assessed. Girls represented about two thirds (67/98) of the early entrants identified. The sample included 5.4% of students with foreign cultural background; that percentage was judged that four basic dimensions, namely conduct disorders, anxiety-withdrawal, immaturity, and socialized aggressiveness, could account for the 60 distinctly labeled behaviors or items mentioned across these publications. Just like Rutter before him, Quay stated that the first two dimensions were by far the most prevalent in the literature. We adopted Quay’s first three dimensions, putting aside the fourth one because the problem it targets rarely manifests itself before early adolescence. To balance these dimensions described as problem behaviors, we created a positive side representing good adjustment. The bipolar dimensions were labeled Conduct, Integration, and Maturity respectively. Academic achievement was added as a fourth bipolar dimension. Table 1 illustrates the four assessment categories proposed to teachers, just as they appeared on the ranking form.

Evaluation task. First, the evaluators gave basic socio-demographic information for each student, namely sex, birth date, and ethnic origin; then, they ranked all their students on each of the four dimensions successively. The ranking was done as follows. First, we asked them to choose the five best-adjusted students on the dimension and rank them from 1 to 5. Second, they chose the five least-adjusted students within their group and ranked them from A to E. Third, they chose among the remaining students three above average (marked +) and three below average (marked -) students. All remaining students were rated average (marked = on the answer form). Ranking was judged to be faster than rating (e.g., on a Likert-type 5-point scale), as well as free from “inflation” (commonly called clemency bias), that tendency to use the high/positive values of a scale excessively. The task could be completed in approximately 45 minutes.

Procedure

The administrators of 18 school districts agreed to participate in the study.

### Description of the Three Bipolar Dimensions of Socio-Affective Adjustment, plus the Academic Achievement Dimension

<table>
<thead>
<tr>
<th>POSITIVE POLE</th>
<th>NEGATIVE POLE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conduct</strong></td>
<td></td>
</tr>
<tr>
<td>Good conduct</td>
<td>Bad conduct</td>
</tr>
<tr>
<td>Negotiates when there is a conflict</td>
<td>Hits, attacks</td>
</tr>
<tr>
<td>Tolerant of frustration</td>
<td>Irritable, temper tantrums</td>
</tr>
<tr>
<td>Obedient, respects authority</td>
<td>Disobedient, defies authority</td>
</tr>
<tr>
<td><strong>Social integration</strong></td>
<td></td>
</tr>
<tr>
<td>Socially integrated and secure</td>
<td>Isolated and anxious</td>
</tr>
<tr>
<td>Curious, attracted by novelty</td>
<td>Anxious, fearful</td>
</tr>
<tr>
<td>Calm</td>
<td>Tense</td>
</tr>
<tr>
<td>Sociable, comfortable in the group</td>
<td>Shy, timid</td>
</tr>
<tr>
<td><strong>Maturity toward school tasks</strong></td>
<td></td>
</tr>
<tr>
<td>Mature</td>
<td>Immature</td>
</tr>
<tr>
<td>Good level of attention</td>
<td>Low level of attention</td>
</tr>
<tr>
<td>Good level of concentration</td>
<td>Low level of concentration</td>
</tr>
<tr>
<td>Shows perseverance</td>
<td>Lacks perseverance</td>
</tr>
<tr>
<td><strong>Academic achievement</strong></td>
<td></td>
</tr>
<tr>
<td>Students showing highest academic achievement</td>
<td>Students showing lowest academic achievement</td>
</tr>
</tbody>
</table>

**Table 1.** The original instrument was written in French. The content of this table is an approximate translation for illustrative purposes.
They were asked to create a list of all kindergarten and Grade 2 teachers who had one or more early entrants in their class. They were the only ones who would know about the real purpose of the study. They agreed to conceal that purpose to the school principals and the teachers until the end of the data collection. The study would be presented as a test of a new procedure to assess the relationship between socio-affective adjustment and academic performance. The task was explained in person to each teacher who agreed to participate (81% of the 96 invited teachers). Teachers were given 2 weeks to complete their evaluations and mail them back.

Hypotheses

Based on the reviewed literature on socio-affective adjustment in school for regularly admitted students and early entrants, as well as the methodological design adopted, the following hypotheses were formulated.

H.1 - Because the selection process focuses on learning potential, the early entrants, in spite of their younger age, will achieve at least as well academically as their regularly admitted peers, both in kindergarten and Grade 2.

H.2 - Because of the faster learning pace of intellectually gifted children, the difference in academic achievement between the two groups will increase noticeably from kindergarten to Grade 2.

H.3 - Because the selection process includes a check for potential adjustment problems, the early entrants, in spite of their younger age, will adjust at least as well socio-affectively as the regularly admitted students.

H.4 - The well-documented relationship between chronological age and adjustment, including academic achievement, will be observable among regularly admitted students, but will not affect accelerated students.

H.5 - In line with the literature on sex differences in school adjustment, regularly admitted girls will show better adjustment than their male peers on all four dimensions measured.

H.6 - Because of the selection process, female early entrants will not outperform their male peers on any of the adjustment measures.

Results

Data transformation

The teachers’ rankings of their students were transformed into scores according to two rules: (a) high ranks (closer to 1) would become high scores, and (b) score differences between adjacent ranks would increase as we moved toward both extremes. The second rule ensued from past observation that outliers are more easily differentiated than individuals closer to the mean (Gagné, 1999). Accordingly, the first five ranks were given scores of 29, 25, 22, 20, and 19 respectively; the three above-average choices received a score of 17, the average ones a score of 15, and the three below-average choices a score of 13. Finally, the last five ranks received respective scores of 11, 10, 8, 5, and 1. Due to class size differences, the assessment procedure produced approximately 5 average children (score of 15) in kindergarten and 10 in Grade 2. Three-month age cohorts were created within the large group of regularly admitted students. As previously mentioned, under Quebec Ministry of Education regulations children must have reached their fifth birthday no later than September 30th to enter kindergarten. Consequently, within each grade level, students born between October 1st and December 31st became the oldest cohort, followed by the January to March, April to June, and July to September cohorts. The “real” youngest students, namely the early entrants, comprised a separate cohort.

Correlations among the four adjustment measures were computed separately for the kindergarten and Grade 2 samples (see Table 2). They revealed a strong relationship between Maturity and Academic achievement, whereas the two other constructs held much smaller relationships (< .40); correlations across pairs of constructs were moderate, in the .45 to .60 range. They were judged high enough to merge them within a MANOVA procedure.

Impact of Mode of Entrance, Sex, and Grade Level

Table 3 presents the descriptive statistics for each of the four adjustment dimensions broken down by Mode of Entrance and Sex. It shows the early entrants’ scores to be generally superior to those of regularly admitted children. The means also indicate that teachers judge girls better adjusted than boys; this Sex effect appears stronger than the Entrance effect. A 2 x 2 x 2 MANOVA was conducted to determine the effect of three independent variables—Mode of Entrance (regular vs. accelerated), Sex, and Grade (K vs. 2)—on the four dependent variables combined. The basic assumption of orthogonality was violated. Consequently, SPSS’s sequential method was used to calculate sums of squares, which could adjust for unbalanced cells. According to Box’s M test, the variance estimates were not homogeneous. Therefore, we used Pillai’s criterion, the most robust against variance heterogeneity. As shown in Table 4, no main adjustment differences were found between accelerated and regularly admitted students. Moreover, the MANOVA produced no significant interaction effects between Mode of Entrance and other variables. The only significant

<table>
<thead>
<tr>
<th>Correlations Between the Four Adjustment Measures</th>
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<tbody>
<tr>
<td>Conduct</td>
</tr>
<tr>
<td>Conduct</td>
</tr>
<tr>
<td>Integration</td>
</tr>
<tr>
<td>Maturity</td>
</tr>
<tr>
<td>Acad. Achiev.</td>
</tr>
</tbody>
</table>

Note. The values above the diagonal are from the kindergarten sample, those below from the Grade 2 sample.

<table>
<thead>
<tr>
<th>Mean Scores (SD) According to Entrance and Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>Mode of Entrance</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Sex</td>
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<td></td>
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Note. The scores range from 29 (1st rank) to 1 (last rank), with 15 as the average score (see text).
effect on the combined dependent variables targeted the adjustment of boys and girls \([F(4, 1808) = 7.81, p < .001]\), a difference favoring girls. However, this effect explains only 1.7% of the total variance. No other main or interaction effects were significant. A discriminant function analysis (Tabachnick & Fidell, 1989) was conducted to determine which measures best distinguished boys from girls; the results showed that Conduct, with a standardized discriminant coefficient of .83, was by far the most significant variable, followed by Maturity with a coefficient of only .32. Moreover, a separate ANOVA revealed that sex accounted for no less than 8.7% of the total variance of Conduct rankings; the proportion was approximately the same for accelerants and regularly admitted students.

### Impact of Maturation: Cohort Comparisons

To verify the existence of a relationship between chronological age (in months) and the four adjustment measures, Pearson correlation coefficients were computed separately for the kindergarten and Grade 2 samples; we only used data from regularly admitted, nonretained students. As expected, these coefficients were all statistically significant and positive (see Table 5); but significance was achieved through large samples, the variance explained remaining below 5% in most cases. The Table 5 data suggest that this maturation effect might be already decreasing by Grade 2, although only the difference between the two academic achievement correlation coefficients was statistically significant \((z = 2.09; df = 1.617, p < .05)\).

How do early entrants fare when compared with students in the various cohorts? Table 6 presents descriptive statistics for these five groups on each of the four dependent variables; Figure 1 highlights the results for the Grade 2 sample. The large standard deviations indicate large within-cohort score differences; that observation applies as well to the early entrants. Focusing on the four regular cohorts, the adjustment scores on three measures—Integration, Maturity, Academic Achievement—decrease more or less regularly from the oldest to the youngest cohort; that phenomenon is present in both the K and Grade 2 samples. In the case of the K sample, the early entrants’ adjustment means fit right between those of the second (Jan/March) and third (April/June) cohorts. In the Grade 2 sample, these same four adjustment means exceed even those of the oldest cohort. To assess the statistical significance of some of the above observations, two MANOVAs (K and Grade 2) were conducted with chronological age (five groups) as the independent variable and the four adjustment measures as dependent variables. Because of design restrictions, it was not possible to include grade level as a second independent variable. A priori comparisons were introduced in the design so that the early entrants would be compared with each of the four regular cohorts. The results show that age has a significant impact on adjustment, both in kindergarten \((F(4, 721) = 4.66, p < .001)\), and in Grade 2 \((F(4, 980) = 3.53, p < .001)\). The a priori tests confirm that the early entrants are judged significantly better adjusted than the youngest cohort (July/Sept), except for the Conduct dimension in kindergarten. The level of adjustment of the early entrants did not statistically differ from that of the three other cohorts, except for Academic achievement in Grade 2, where the early entrants’ mean was significantly higher than that of all four cohorts of regularly admitted peers.

### Profile Analysis

The large standard deviations observed in Table 6 point to a significant number of early entrants with low adjustment scores. The examination of individual differences had not been planned at the outset, but a look at some individual results indicated that such an analysis would introduce a distinct and, hopefully, useful perspective to the group comparison approach. To assess the prevalence of students with perceived adjustment problems, it was necessary to establish a threshold profile below which a student’s adjustment would be considered problematic. We created that threshold as follows. First, the four adjustment rankings of each early entrant were recorded using the following algorithm: five points for any above average ranking (scores of 17 to 31), three points for an average ranking (score of 15), and zero points for any below average ranking (scores of 13 or lower). These four new codes gave rise to a series of 4-digit profiles representing various degrees of adjustment. All possible profiles appear in Table 7; they do not take into consideration the specific dimension having received a particular ranking. For instance, the ‘5500’ profile means the student was ranked above average on any two dimensions and below average on

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### Results of a MANOVA with Entrance, Sex, and Grade Level as Independent Variables, and the Four Adaptation Measures as Dependent Variable

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>F</th>
<th>partial Eta2 (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between subjects</td>
<td>4</td>
<td>1.84</td>
<td>0.4</td>
</tr>
<tr>
<td>Entrance (E)</td>
<td>4</td>
<td>7.81***</td>
<td>1.7</td>
</tr>
<tr>
<td>Sex (S)</td>
<td>4</td>
<td>1.21</td>
<td>0.2</td>
</tr>
<tr>
<td>Grade (G)</td>
<td>4</td>
<td>0.65</td>
<td>0.1</td>
</tr>
<tr>
<td>S x E</td>
<td>4</td>
<td>1.55</td>
<td>0.3</td>
</tr>
<tr>
<td>G x E</td>
<td>4</td>
<td>0.61</td>
<td>0.1</td>
</tr>
<tr>
<td>G x S</td>
<td>4</td>
<td>0.61</td>
<td>0.1</td>
</tr>
</tbody>
</table>

\*** p < .001.  Note. N = 1,819

### Correlations Between Age and the Four Dependent Variables by Grade Level

<table>
<thead>
<tr>
<th>Grade</th>
<th>Conduct</th>
<th>Integration</th>
<th>Maturity</th>
<th>Acad. Achiev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 886</td>
<td>.09*</td>
<td>.20**</td>
<td>.26**</td>
<td>.26**</td>
</tr>
<tr>
<td>Grade 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>n = 933</td>
<td>.08*</td>
<td>.13**</td>
<td>.20**</td>
<td>.16**</td>
</tr>
</tbody>
</table>

* p < .05   ** p < .01

Table 4

Table 5
the values 0, 3, and 5 were chosen to give slightly more importance (negatively) to low adjustment than to high adjustment. By adding the four digits of a profile, a new adjustment scale was created, ranging from a minimum of zero to a maximum of 20; the three values chosen produced a different scale score for each profile. Using that scale and the profiles, two new thresholds were identified (see third column in Table 7): (a) a passage from clearly positive adjustment (+) to some degree of doubt (?), and (b) a passage from doubtful to clear maladjustment (?). 3

Table 7 shows the distribution of the early entrants of both sexes, irrespective of grade level, between the three categories thus created. Almost two thirds of the 98 early entrants (63%) were judged to have adjusted very well (+) or relatively well (?) to their school environment. However, if the doubtful cases are put aside, the adjustment rate drops just below 50%. Concerning the sex effect, this alternative coding approach shows an overrepresentation of girls in the ‘good’ category, and an overrepresentation of boys in the ‘bad’ category. Indeed, girls obtained a significantly higher average profile score than boys (13.51 vs. 10.26; t(96) = 2.46, p < .01, Cohen’s effect size d = .54).

Discussion

The two distinct analyses, quantitative and semi-qualitative, described above convey different messages about the impact of early entrance to school. These two perspectives will be addressed separately below, along with a series of methodological caveats. Then we will examine the role of the two other variables introduced in this research design, namely sex and age within-cohort.

Impact of Early Entrance

Quantitative approach. The three hypotheses formulated with respect to the impact of early entrance were in large part verified within the framework of the quantitative data analyses. The lack of a statistically significant main Mode of Entrance effect in the first MANOVA indicates comparable adjustment levels for both early entrants and regularly admitted students on all four indices of socio-affective and academic adjustment; that result directly supports our first and third hypotheses. Moreover, because of the different learning pace between the two groups, it was hypothesized (H.2) that the two groups would differ academically even more in Grade 2. Although the MANOVA did not show a statistically significant Mode by Grade interaction, the cohort comparisons confirmed that tendency. The kindergarten students performed about as well on average as the regularly admitted students in the middle cohorts; in Grade 2, the early entrants outperformed even those in the October-December cohort. Because this interaction effect manifested itself on only one of the four dependent variables, it could not be picked up by the MANOVA.

These positive group results acquire even more significance when viewed in the light of two major attenuating factors. First, the threshold used in Quebec to admit students to

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**Mean Scores (SD) on the Four Adjustment Measures for the Early Entrants and the Four Age Cohorts by Grade Level (K & 2)**

<table>
<thead>
<tr>
<th>Dependent variables</th>
<th>Age cohorts for regularly admitted students</th>
<th>Early entrants</th>
</tr>
</thead>
</table>
|                     | Oct/Dec *n (k) = 144 n (2) = 214*          | Early entrants *n (k) = 43 n (2) = 55*
| Integration K       |                                             |               |
|                     | Jan/March *n (k) = 185 n (2) = 239*       |               |
|                     | April/June *n (k) = 192 n (2) = 226*     |               |
|                     | July/Sept *n (k) = 165 n (2) = 254*      |               |
| Conduct K           |                                             |               |
| 2                   | 14.94 (6.30)                               | 14.84 (6.10)  |
|                     | 15.40 (6.13)                               | 16.76 (4.51)  |
| Integration K       |                                             |               |
| 2                   | 16.47 (6.25)                               | 16.09 (5.90)  |
|                     | 15.93 (5.68)                               | 16.58 (5.92)  |
| Maturity K          |                                             |               |
| 2                   | 16.44 (5.68)                               | 15.65 (5.93)  |
|                     | 16.28 (5.80)                               | 16.62 (5.57)  |
| Academic K          |                                             |               |
| Achievement        |                                             |               |
| 2                   | 16.65 (6.06)                               | 15.88 (5.78)  |
|                     | 16.10 (5.65)                               | 17.69** (4.97) |

* Mean significantly higher than that of the younger (July/Sept) age cohort.
** Mean significantly higher than that of the four other age cohorts.

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**Means of the Four Adjustment Scores by Age Cohort for the Grade 2 Sample**

![Figure 1](image-url)

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Table 6

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early entrance is more generous than in most other school districts mentioned in the scientific literature. The minimum IQ of 117, just above +1 SD, creates a target population of almost 15% among children born during the last three months of the year. Second, because only a fraction of the admissible 4-year-olds take advantage of the early entrance program, the regularly admitted cohort includes its fair share of bright and precocious students. Both factors act in tandem to reduce the discrepancy between the two groups. Still, our quantitative data globally replicate the positive results found in the past scientific literature (Rogers, 1991); as a group, early entrants show no evidence of being more at risk for adjustment difficulties than their regularly admitted peers.

*Semi-qualitative approach.* The large standard deviations observed in all tables alerted us to the presence of important individual differences in perceived socio-affective and academic adjustment, both among regularly admitted students and early entrants. A closer examination of the rankings revealed that the teachers had given below average rankings on two or more dimensions to almost 30% of the early entrants (27/98); adding to them students with a 3330 profile brought the total to 37%. No one will deny that a “failure” rate of 37% justifies serious concerns, especially in view of the avowed goals of early entrance programs. This type of accelerated enrichment has been promoted as a way to preempt potential adjustment risks when young intellectually precocious children are denied a learning environment that allows them to progress at their faster learning pace. If many “beneficiaries” encounter significant adjustment difficulties, the “enriching” measure is clearly not achieving its goal. But, before going any further, does the study’s design justify taking the above percentage at face value? Are there any mitigating factors that could make us reinterpret the profiles in a more positive light?

**Methodological issues.** The first methodological issue concerns the success of the “camouflage” operation embedded in the research design. Our study was specifically designed to avoid any reference to early entrance, except when the teacher wrote down the student’s birth date on the answer sheet. Our efforts to hide the study’s goal targeted mostly teachers who held strong negative beliefs toward early entrance. For instance, if a teacher had already pinpointed her early entrants because she held definite opinions against that enrichment initiative, there was a clear risk that the label would come to mind as she completed the answer sheet. In kindergarten, temporal proximity increased that risk; the chances were good that the label would have largely disappeared by Grade 2. If a large group of Quebec teachers did in fact hold strong negative attitudes toward early entrance, an unsuccessful camouflage would increase the tendency to give negative rankings to accelerated students. Consequently, the negative stereotype would make early entrants appear less adjusted socio-affectively than they really are. Unfortunately, there is no way to tell if the efforts at camouflage were successful and, if so, to what extent.

Second, we chose a ranking procedure because of its simplicity, clarity, and user friendliness. At the same time, we were aware that such a normative approach automatically creates as many below average rankings as there are above average ones. Because our procedure forced teachers to place eight students in the “below average” area (the five lowest ranks and the next three), that group automatically represents about 25% of an average Grade 2 classroom, and 40% of an average kindergarten classroom. Such percentages exceed by far the number of students who really experience adjustment problems in the average classrooms sampled in this study. In other words, our decision to give a “zero” code to any ranking below average leans heavily toward a conservative approach to the assessment of adjustment. In support of that interpretation, a few participating teachers felt the need to explain in the margin of their answer sheet that their below average rankings did not mean that these students were in need of any therapeutic services. They pointed out they were just following the directions asking them to identify the least adjusted students in their class.

Third, the above discussion has implicitly assumed a causal relationship between early entrance and adjustment. Yet, the correlational nature of the present study—and most past ones—does not allow an automatic causal linkage between the two phenomena. The etiology of socio-affective or academic problems is much more complex. For instance, some children could have developed similar behavioral difficulties even if they had not been early entrants. It is even possible in a few cases that the imperfect adjustment observed would have been worse if the child had not been accelerated. As a matter of fact, it is worth noting that among the four adjustment dimensions assessed, only Conduct was almost totally uncorrelated with age (see Table 5). It suggests a reduced developmental influence compared to the other dimensions, at least within the short time span of one year covered by our sample of kindergartners and second graders.

**Summary.** The above methodological comments, especially the second one, indicate that the estimate of 37% of adjustment problems among
early entrants most probably exaggerates the reality. How does it compare to the existing literature? Focusing on the Quebec literature, the studies that looked at the phenomenon with a more clinical approach (e.g., Bradette, 1989) advance percentages between 15% and 20%. This is about half as much as our own estimate. With regard to the U.S. literature, no clear answer is possible since researchers in most past studies limited themselves to group comparisons, thus bypassing the whole phenomenon of individual differences in degree of adjustment. We would submit that when the two groups were judged equivalent in terms of their socio-emotional adjustment it meant that there were roughly as many cases of maladjustment among the early entrants as among the regularly admitted students.

Why did we decide to lean toward a more conservative and cautious measurement approach? First, we believe that an educational initiative designed to “enrich” the school lives of precocious students should be very careful to minimize the failure rate. Early entrance to school is clearly not a life or death decision. Whatever some proponents will argue, the potential risks of postponing school admission are rarely major; they can be easily overcome through later educational decisions (e.g., early entrance to first grade, later grade skipping). Second, we believe it important to highlight a darker aspect of early entrance that too few past studies have examined. There is a need to show both sides of the coin, and thus temper the glowing judgments too often given of accelerative enrichment, like the Borland initiative designed to “enrich” the school environment. These opponents will refuse to acknowledge that no educational intervention has a 100% success rate! Consequently, school administrators should be careful to minimize the incidence of wrong decisions, even at the risk of refusing early entrance to good, but slightly doubtful candidates. In other words, here is a situation where Type II errors—creating false negatives or judging wrongly that there is nothing to worry about—need to be avoided because of their political impact on the survival of such services. Educators who wish to minimize the risks of unsuccessful accelerations should take advantage of a well-structured planning tool, the Iowa Acceleration Scale (Assouline, Colangelo, Lupkowski-Shoplik, Lipscomb, & Forstaid, 2003).

Gender and Cohort Effects

Besides studying the impact of early entrance on school adjustment, two other potential explanatory variables were examined as part of the present study: (a) sex differences, and (b) developmental/age differences within same-grade cohorts of students.

Sex differences. In the first MANOVA, sex emerged as the only significant main effect. It is not, by any standards, a very powerful effect, since it accounts for less than 2% of all individual differences observed on the four adjustment dimensions combined. But, effect sizes vary between the four dimensions: boys are especially disadvantaged in the rankings given by the teachers on the Conduct dimension, namely the expression of aggression, impulsiveness, and disobedience. This result should surprise no educator who has observed student behavior in elementary classrooms. As mentioned in the literature review, similar observations appear regularly in scientific publications. The fact that this MANOVA is a main effect means that the phenomenon applies regardless of mode of entrance. Indeed, the profile analysis confirms a very significant difference between accelerated boys and girls with regard to profile “positiveness;” the effect size (d) of 0.54 means that the sex variable accounts for 7% of the total variance of profile scores. These results support our fifth hypothesis, namely that regularly admitted boys do not adjust as well as their female counterparts, but they do not support the sixth one, namely that this sex discrepancy would not apply to early entrants. Contrary to expectations based on a careful selection process, the sex difference in adjustment applies as strongly to early entrants. Strangely, the gifted education literature, including the only book dedicated to accelerative enrichment (Southern & Jones, 1991), has never mentioned such a phenomenon.

What seems important to underline is that boys, who account for about half of the 4-year-old population, remain underrepresented among early entrants—our sample includes twice as many girls as boys. That ratio duplicates Fox’s (1977) own survey of published statistics. How can we interpret that difference? It could mean either that the assessing psychologists are more hesitant to recommend boys than girls because they observe behaviors they associate with eventual adjustment problems, or that the parents themselves are more hesitant to send their sons for assessment because they perceive them less mature, thus more susceptible to adaptive difficulties. Unfortunately, we could not access relevant statistics on the sex differences of candidates seen by psychologists nor on those positively recommended. Beyond that potential selection bias, the most worrying question remains: why are these fewer boys still perceived by their teachers as less well adjusted than their female peers? Are there “real” differences or could they ensue, at least in part, from stereotypical gender biases disadvantaging boys? That question remains hotly debated, as well as beyond the framework of this article. One thing is clear: our results parallel a growing worldwide concern about the problems of boys in the school environment, not only in terms of academic achievement, but also with regard to behavior problems, delinquency, and dropping out. We hope that future studies will address both the size of the problem and its etiology.

Developmental effect. The developmental effect manifested itself through (a) correlations of the adjustment scores with age, and (b) the comparison of cohort scores among the regularly admitted students in both kindergarten and Grade 2. Whatever the dimension, the youngest (July-Sept.) regularly admitted students fared worse, sometimes far worse, than those in the three older cohorts. That result directly supports the first part of our fourth hypothesis and that maturational handicap remained present even among second graders. Within a time span of just one year, enough developmental changes occur to influence substantially the students’ school achievement, their maturity toward school tasks and classroom behavior, as well as their ability to interact appropriately with their classroom peers. Based on Table 5 correlations, the impact of age on adjustment accounts for 4% to 6% of the variance of adjustment rankings,
which is at the upper limit of what specialists call small effects (Cohen, 1969). Its strength more or less equals that of the sex variable. As mentioned earlier, one dimension, Conduct, appears to resist that maturational process. The youngest cohort still lags behind, but there is no clear linear downward trend among the three older cohorts (see Table 6). What remains, in our view, the highlight of that specific analysis is the size of the adjustment difference between the youngest “normal” cohort (July/Sept) and the even younger early entrants. The upward trend so clear in Figure 1 both confirms the second part of the fourth hypothesis and contradicts positions defended by Halliwell (1966), Hedges (1977), and Maddux (1983). It shows how well the selection process succeeds, on average, in countering the downward trend among regularly admitted students. It shows also that the psychologists doing the assessments do take into account more than just the child’s intellectual precocity; socio-affective maturity is also considered, even with the limited means at their disposal.

**Conclusion**

The present study lends itself to two major conclusions. First, different analysis methods can lead to partly divergent observations. Here, group comparisons revealed that early entrants did not differ much from their regularly admitted peers, a result fully concordant with almost every past study on the subject (Rogers, 1991). On the other hand, a more qualitative examination of the ranking profiles identified a significant percentage of early entrants with perceived adjustment problems. One unexpected benefit from our two-pronged approach is that it could explain some to the observed opposition between the globally positive scientific literature on the one hand, and, on the other, the persistently strong resistance to accelerative measures among educators. Scholars who celebrate the virtues of early entrance focus mainly on the published group comparisons, whereas educators, and especially those who object to accelerative programs, react strongly to the minority of early entrants (estimated at anywhere between 10% and 20%) who struggle to adjust to the kindergarten environment. For these educators, any failure questions the whole process; they are ready to throw out the baby with the bathwater. On the other hand, proponents and researchers who occupy the non-negligible failure rate among early entrants could be accused of sowing by omission in their efforts to promote the undeniable virtues of a practice designed to enrich the daily school life of intellectually gifted students.

Our second conclusion concerns the appropriate priority to establish among the various sources of maladjustment in school. As our results show clearly, early entrants are definitely not the students most at risk for adjustment problems. Two categories of new entrants share about equally high risks: (a) boys, and (b) the youngest among regularly admitted students. In fact, a third category, not directly examined in the present study, should be added, and given absolute priority, namely children with below average intellectual abilities. Hundreds of studies have demonstrated the close relationship between intellectual aptitude tests (or school preparedness tests) and early school achievement (Sattler, 1988). Because these three risk factors are not correlated, they add up. In other words, the new kindergarteners most at risk for adjustment problems are younger than average, intellectually slow boys. That is where our efforts should focus before anything else.

**REFERENCES**


Spring, 2004, Roeper Review/137
Roever Review invites papers for upcoming special issues.

Conceptual foundations for the field of gifted education

Contributions should accomplish the following.

1. Challenge and/or extend current thinking in the field.
2. Explore and clarify one or more of the following dimensions of the conceptual foundations for the field:
   - Theories of giftedness, talent, or creativity.
   - Philosophical foundations or other tacit thought frameworks that shape our conceptions of giftedness, talent, or creativity.
   - Big-picture trends, issues, and future directions in the field.
   - Historical perspectives that show how conceptual foundations from the past have influenced current thinking for better or worse.
   - Interdisciplinary perspectives with relevance to the field.

Don Ambrose (ambrose@rider.edu) will serve as guest editor.

The deadline for submissions is April 30th, 2004.

Notes
1. Scholars in the field of gifted education commonly distinguish enrichment and acceleration (Schiever & Maker, 2003), sometimes almost opposing them as the two poles of a continuum (Fox & Washington, 1985; Keating, 1979; Maker, 1986). We believe that the goal of any special provision for academically talented students is to enrich their curriculum by whatever means. By virtue of their condensation (or compaction) of the curriculum in a given unit of time, all accelerative provisions are automatically enriching. Massé and Gagné (1983) labeled it “enrichment in density” (p. 409). Consequently, we believe that the expression “accelerative enrichment” best describes the nature and goal of such measures.
2. Unknown to us, a graduate student in another Quebec university conducted during the same period a study on the same subject (Deschamps, 1999). She used a different methodology with a smaller kindergarten sample composed of 25 early entrants, 28 older (Oct-Dec) regularly admitted students and 26 young (July-Sept) students. She assessed three dimensions: (a) socio-affective abilities, (b) academic performance, and (c) fine motor control. Out of seven socio-affective measures, the early entrants obtained lower scores than the older controls on only one. Academically, no group differences were observed. In terms of fine motor control, the older group slightly outperformed the two other younger groups. Her tables did show large within-group individual differences on all dependent variables, but Deschamps did not examine them. By and large, her conclusions parallel the present ones.
3. No profiles were created for the very large sample of regularly admitted students; they were not judged relevant to the analysis. But, because of generally similar means and standard deviations (see Table 3), the percentiles in the three major categories (+ / ? / -) would probably be very similar, maybe with a slightly downward trend.