



# Compilation & Analysis of Early Childhood Research Regarding Effect, Fade Out, Academic & Emotional Harm

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The following compilation of early childhood studies paints a very different picture than the rosy portrait of significant and long lasting benefit put forth by proponents, especially of the new unconstitutional program being put forth in the conference proposal for the reauthorization of the Elementary and Secondary Education Act. This list contains studies dating back to 1985 and is divided into four categories with pertinent quotes from different studies being placed into multiple appropriate categories (All emphasis is added.):

**1) No or Small Effect** - There are several studies that tout longer-term success compared to the usual fading out after the preschool year and even statistical significance over control groups of poor children. However, when more closely examined, their benefits are not practically significant, they may be explained by other factors like parent involvement, and these programs are too small, too specialized, and or too expensive to be brought to scale.

**2)** Fade Out – Many studies on this list, including the most recent one from Tennessee, show some improvement in the ephemeral concept of kindergarten readiness, but those benefits are gone by the time the program participant reaches kindergarten to third grade with problematic deterioration in academics and or behavior lasting longer than any perceived benefits.

**3)** Academic Harm – The quotes listed in this section depict evidence that children participating in these programs actually suffer academic deterioration in later grades, compared to their peers not participating in these programs.

**4) Emotional Harm** – The studies in this section show evidence that participation in these programs results in deterioration in the very behaviors that big government preschool proponents seek to impose on our youngest children. The emotional distress suffered by children in these programs is likely a prime reason for the epidemic of psychiatric diagnosis and drugging with extremely dangerous and ineffective psychotropic drugs in these children.

## NO OR SMALL EFFECT:

**Georgia (2015)** – The completion of one only one year of baseline data by the Department of Early Care and Learning (DECAL) called, Bright From the Start<sup>1</sup> caused them to enthusiastically proclaim that participants "progressed at an even greater rate during the time they participated in Georgia's Pre-K Program than would be expected for normal development growth." However, the next sentence clearly raises significant doubt: "*However, without a comparison group, it is not possible to establish a clear causal link between outcomes and program participation."* (Emphasis added)

**Chicago Parent-Child Centers (2011)** - The study abstract<sup>2</sup> claims, "Findings demonstrate support for the enduring effects of sustained school-based early education to the end of the third decade of life." The study results were summarized by the Associated Press as follows:

"To be sure, the challenges facing the children in both groups were still insurmountable for many. As adults, the average annual income for those who went to preschool is less than \$12,000 and almost half of them had been arrested as adults. As dismal as those outcomes [are], the numbers were still better than for the group that didn't attend preschool."

age 1

<sup>&</sup>lt;sup>1</sup> http://decal.ga.gov/

<sup>&</sup>lt;sup>2</sup> http://www.sciencemag.org/content/early/2011/06/08/science.1203618.abstract

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Our analysis<sup>3</sup> reveals statistically significant, but not practically important differences that really need to be examined as to whether they are practically significant and worth the cost and government expansion of preschool programs (The first number is for the preschool CPC kids and the second number is for the comparison group):

Highest grade completed (12.15 vs. 11.88) – This is less than a third of one year difference or less than a semester.

Attendance in a 4-year college (14.7% vs. 11.2%) – This is only a 3.5% difference.

Average annual income in 2007 dollars (\$11,582 vs. \$10,796) – As noted in the AP story above, both groups, were earning less than \$12,000 per year with the preschool group earning only \$786 more.

The study admits, "No differences were detected for degree completion, employment, or a combined measure."

Any arrest (47.9% vs. 54.3%) – Also pointed out in the AP story above, around half of both groups were arrested, though the preschool group was 6% lower.

The study also admits, "No differences were detected for the number of arrests, arrests for violence, or convictions. School-age and extended intervention were unrelated to justice involvement. For public aid and family outcomes, no meaningful differences were found."

**Head Start (2003)** – "Head Start is not fully achieving its stated purpose of promoting school readiness ... Indeed, these *low-income children continue to perform significantly below their more advantaged peers* in reading and mathematics once they enter school."<sup>4</sup>

**Chicago Parent-Child Centers (2001)** – "It is possible that parental involvement explains more of the variance in outcome among inner-city children than do structured programs. . . . *If policy makers mistakenly accept the conclusion that preschool intervention results in less criminal activity later, they may mistakenly invest in these programs when the money might be better invested in parenting skill programs and other interventions to increase parental involvement.*"<sup>5</sup>

**Abecedarian Project (1999 Review)** - "For these children, a 4.6–point improvement was approximately a 5 percent increase in measured intelligence, *an increase hardly noticeable in the classroom or on the job*....In the Abecedarian Project, children in the preschool program had IQs 4 to 5 points higher than the children in the control group at ages 12 to 15. *Nonetheless, the early enrichment did not result in these children reaching IQ levels comparable to middle-class children in the community, nor did they reach the national average IQ of 100*."<sup>6</sup>

**Head Start (1997)** – "The body of research on current Head Start is insufficient to draw conclusions about the impact of the national program."<sup>7</sup>

## FADE OUT:

**Tennessee (2015)** – "At the end of pre-k, the TN-VPK children had significantly higher achievement scores on all 6 of the subtests, with the largest effects on the two literacy outcomes. The effect size on the composite achievement measure was .32...Children in both groups were followed and reassessed in the spring every year with over 90% of the initial sample located tested on each wave. *By the end of kindergarten, the control children had caught up to the TN-VPK children and there were no longer significant differences between them on any achievement measures. The same result was obtained at the end of first grade using both composite achievement measures.*"<sup>8</sup>

Program on Children's Skills and Behaviors through Third Grade Research Report. Nashville, TN: Vanderbilt University, Peabody Research Institute. Emphasis added. http://peabody.vanderbilt.edu/research/pri/VPKthrough3rd\_final\_withcover.pdf

<sup>&</sup>lt;sup>3</sup> http://edlibertywatch.org/2011/06/preschool-is-not-the-panacea-portrayed-in-study/#more-434

 <sup>&</sup>lt;sup>4</sup> "Strengthening Head Start: What the Evidence Shows" http://www.researchconnections.org/childcare/resources/2693/pdf
<sup>5</sup> Mathew D. Thompson, "Early Childhood Educational Intervention and Long-Term Developmental Outcomes," Letters, The Journal of

American Medical Association, Vol. 286, No. 15,

<sup>&</sup>lt;sup>6</sup> John Bruer, president, James S. McDonnell Neurosciences Institute, The Myth of the First Three Years, The Free Press, New York <sup>7</sup> GAO review of over 600 citations, manuscripts, and studies http://www.gao.gov/assets/230/223877.pdf

<sup>&</sup>lt;sup>8</sup> Lipsey, M. W., Farran, D.C., & Hofer, K. G., (2015). A Randomized Control Trial of the Effects of a Statewide Voluntary Prekindergarten

Head Start (2012) – "Looking across the full study period, from the beginning of Head Start through 3rd grade, the evidence is clear that access to Head Start improved children's preschool outcomes across developmental domains, but had few impacts on children in kindergarten through 3rd grade."<sup>9</sup>

Journal of Education Policy (2011) - "Institutionalized messages surrounding ECE claim that it has the potential to promote children's life-long success, especially among low-income children. I examine the legitimacy of these claims by reviewing empirical evidence that bears on them and find that *most are based on results of a small set of impressive but outdated studies. More recent literature reveals positive, short-term effects of ECE programs on children's development that weaken over time.*<sup>10</sup>

**Head Start (2010)** – "As with the 4-year-old cohort, there was no strong evidence of impacts on children's language, literacy, or math measures at the end of kindergarten or at the end of 1st grade."<sup>11</sup>

University of California at Santa Barbara (2006) "...the achievement impact of preschool appears to diminish during the first four years of school...preschool alone may have limited use as a long-term strategy for improving the achievement gap..."<sup>12</sup>

**National Bureau of Economic Research (2004)** – Using data from the (ELCS), researchers concluded that preschool has a positive impact on reading and mathematics scores in the short term and a negative effect on behavior. While the positive academic impacts mostly fade away by the spring of the first grade, the negative effects persist into the later grades.<sup>13</sup>

**Ohio University (2006)** Also using the ECLS data, Lisa Hickman at Ohio University, compared children in center care with children who were taught at home. "Cross-sectional analysis indicates that children who had been in center care the year prior to kindergarten exhibited advanced math and reading skills over their parental care counterparts but poorer peer-related social skills net of background controls. However, employing longitudinal analysis that controls for fall test scores of kindergartners and first graders shows that the *cognitive effects of center care do not persist and that some social skills actually deteriorate*."<sup>14</sup>

**Minnesota (2001)** – "Research has reported mixed findings regarding the extent to which the benefits of preschool programs have been sustained in the years following program completion. Many studies of model and large-scale programs have reported that early education interventions have positive initial benefits for children, including increased IQ and improved school achievement. *Often, however, the IQ gains of participants erode within a few years—contrary to some of the claims made by early advocates of these programs*."<sup>15</sup>

<sup>&</sup>lt;sup>9</sup> Third Grade Follow-up to the Head Start Impact Study: Final Report http://www.acf.hhs.gov/programs/opre/resource/third-grade-follow-up-to-the-head-start-impact-study-final-report

<sup>&</sup>lt;sup>10</sup> Lowenstein 2011 <u>http://epx.sagepub.com/content/25/1/92.abstract</u> (Emphasis added)

<sup>&</sup>lt;sup>11</sup> Head Start Impact Study Executive Summary, p. 21

http://www.acf.hhs.gov/programs/opre/hs/impact\_study/reports/impact\_study/executive\_summary\_final.pdf <sup>12</sup> Rumberger, et. al, pp. 79-80 <u>http://files.eric.ed.gov/fulltext/ED492888.pdf</u>

<sup>&</sup>lt;sup>13</sup> Katherine A. Magnuson, Christopher J. Ruhm, Jane Waldfogel, "Does Prekindergarten Improve School Preparation and Performance?" http://www.nber.org/papers/w10452.pdf

<sup>&</sup>lt;sup>14</sup> Lisa N. Hickman, "Who Should Care for Our Children? The Effects of Home Versus Center Care on Child Cognition and Social Adjustment," Journal of Family Issues 27:652-684 – emphasis added

http://eric.ed.gov/?q=Who+Should+Care+for+Our+Children%3f+The+Effects+of+Home+Versus+Center+Care+on+Child+Cognition+and+Should+Care+for+Our+Children%3f+The+Effects+of+Home+Versus+Center+Care+on+Child+Cognition+and+Should+Care+for+Our+Children%3f+The+Effects+of+Home+Versus+Center+Care+on+Child+Cognition+and+Should+Care+for+Our+Children%3f+The+Effects+of+Home+Versus+Center+Care+on+Child+Cognition+and+Should+Care+for+Our+Children%3f+The+Effects+of+Home+Versus+Center+Care+on+Child+Cognition+and+Should+Care+for+Our+Child+Cognition+and+Should+Care+for+Our+Children%3f+The+Effects+of+Home+Versus+Center+Care+on+Child+Cognition+and+Should+Care+for+Our+Child+Cognition+and+Should+Care+for+Our+Child+Cognition+and+Should+Care+for+Our+Child+Cognition+and+Should+Care+for+Our+Child+Cognition+and+Should+Care+for+Our+Child+Cognition+And+Care+for+Our+Child+Cognition+And+Care+for+Our+Child+Cognition+And+Care+for+Our+Child+Cognition+And+Care+for+Child+Care+for+Child+Cognition+And+Care+for+Child+Care+for+Child+Care+for+Child+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+Care+for+Child+

ocial+Adjustment%2c%E2%80%9D+Journal+of+Family+Issues+27%3a652-684&id=EJ735047

<sup>&</sup>lt;sup>15</sup> Minnesota Legislative Auditor http://www.auditor.leg.state.mn.us/ped/access/0101all.htm

**Head Start (1985)** – "In the long run, cognitive and socioemotional test scores of former Head Start students do not remain superior to those of disadvantaged children who did not attend Head Start... Once the children enter school there is little difference between the scores of Head Start and control children.... Findings for the individual cognitive measures–intelligence, readiness and achievement–reflect the same trends as the global measure.... By the end of the second year there are no educationally meaningful differences on any of the measures."<sup>16</sup>

#### ACADEMIC HARM

Tennessee (2015) – "In second grade, however, the groups began to diverge with the TN-VPK children scoring lower than the control children on most of the measures. The differences were significant on both achievement composite measures and on the math subtests".<sup>17</sup>

**Head Start (2010)** – "No statistically significant impacts were found for teacher reports of children's school performance in kindergarten and 1st grade with the exception of a *lower teacher assessment in kindergarten of Head Start children's math ability [3-year-olds].*"<sup>18</sup>

**Oklahoma (2010) – Effrem Comment:** In the 2005-2006 school year, the Oklahoma state preschool program that began in 1980 and became universal in 1988, had 33,296 participants and boasted the highest percentage of children in a government preschool program of any state, according to national surveys. Seventy percent of Oklahoma's fouryear-olds are enrolled in the state preschool program, also according to a national survey. In 1992, Oklahoma's fourth graders scored ahead of the national average in National Assessment of Educational Progress in reading and math. Today average scale scores for Oklahoma fourth graders are behind the national average. Of all the states that took the fourth grade reading test in 1992, Oklahoma is the only one that has seen its scores fall over a 15-year period.<sup>19</sup> The 2010 graphs<sup>20</sup> from the NAEP organization showed that 72 percent of Oklahoma fourth graders, when beneficial effects of preschool would be most apparent, are reading below their grade level proficiency. Oklahoma is rated number one in the nation on preschool access and quality by NIEER. Why would Minnesota want to follow the same road for the same dismal results when there is no money?

**New Jersey (2007)** – In 1996, the state began to provide preschool for four-year-olds in low-income school districts. Following the New Jersey Supreme Court decision 1998 Abbott v. Burke, the state has funded full-time, year round pre-kindergarten programs for all three- and four-year-olds in the state's 31 lowest income school districts. The state funds other public education programs in the Abbott districts as well. Through public schools, private preschools and Head Start centers, the pre-kindergarten program served more than 40,500 children in the 2005-2006 school year. Yet, according to researcher Lisa Snell, "more New Jersey children score below basic (which means they cannot read) on the NAEP [National Assessment of Educational Progress] fourth-grade reading test in 2005 than in 2003 or 1992...*In the case of disadvantaged students who qualify for the free lunch program, 52 percent scored below basic in 1992, 54 percent scored below basic in 2003, and 55 percent scored below basic in 2005 in fourth-grade reading."*<sup>21</sup>

**Georgia (2005)** – "Students enrolled in the [Georgia] Head Start program consistently tested below the national norm and significantly behind their peers. Students enrolled in the Pre-K program exceeded the national norm by the end of kindergarten but fell slightly below it by the end of first grade. Students who either enrolled in a private preschool program or did not attend an all-day four year old program consistently performed at or above the national norm."<sup>22</sup>

<sup>&</sup>lt;sup>16</sup> Ruth McKey et al., "The Impact of Head Start on Children, Families, and Communities, "U.S. Department of Health and Human Services, HHS 85-31193, Executive Summary, p. 1. http://files.eric.ed.gov/fulltext/ED263984.pdf

 <sup>&</sup>lt;sup>17</sup> Lipsey, et. al. Op. Cit. http://peabody.vanderbilt.edu/research/pri/VPKthrough3rd\_final\_withcover.pdf (Emphasis added)
<sup>18</sup> Head Start Impact Study, Final Report, Executive

Summary, http://www.acf.hhs.gov/programs/opre/hs/impact\_study/reports/impact\_study/executive\_summary\_final.pdf pg. 21 <sup>19</sup> See U.S. Department of Education, National Center for Education Statistics, National Assessment of Educational Progress http://nces.ed.gov/nationsreportcard

<sup>&</sup>lt;sup>20</sup> http://nces.ed.gov/nationsreportcard/pdf/stt2009/2010460OK4.pdf

<sup>&</sup>lt;sup>21</sup> Lisa Snell "Preschool reality check in New Jersey," The Record, Monday, July 30, 2007,

http://www.reason.org/commentaries/snell\_20070809.shtml (Emphasis added)

<sup>&</sup>lt;sup>22</sup> Gary T. Henry, Dana K. Rickman, Bentley D. Ponder, Laura W. Henderson, Andrew Mashburn, Craig S. Gordon, "The Georgia Early Childhood Study 2001-2004 Final Report," Georgia State University, http://aysps.gsu.edu/publications/2005/EarlyChildhoodReport.pdf, p. 59

Despite being rated 3rd in nation in preschool access and quality,<sup>23</sup> Georgia 4<sup>th</sup> grade NAEP reading scores have remained below the national average since the state preschool program has been universal.<sup>24</sup>

#### **EMOTIONAL HARM**

Tennessee (2015) – "First grade teachers rated the TN- VPK children as less well prepared for school, having poorer work skills in the classrooms, and feeling more negative about school."<sup>25</sup>

**Head Start (2014) – Effrem comment:** The study concluded "that there is no indication that either high quality Head Start or low quality Head Start . . . leads to program impacts lasting into third grade."<sup>26</sup> *It also found that less academic teaching for three-year-olds resulted in improved behavior in the near term, supporting the idea that it's not developmentally appropriate*<sup>27</sup> *to begin academic teaching to children that young.* 

Head Start (2012) – "For children in the 4-year-old cohort, there were no observed impacts through the end of kindergarten but favorable impacts reported by parents and unfavorable impacts reported by teachers emerged at the end of 1st and 3rd grades."<sup>28</sup>

MIT and University of California at Berkley (2011) – "Two forthcoming studies<sup>29</sup> in the journal Cognition show the extent to which direct, teacher-initiated learning can limit and dampen children's creativity and curiosity."<sup>30</sup>

**National Institutes of Child Health and Human Development (NICHD – 2007) –** A 2007 study funded by the NICHD tracked 1,364 children who had participated in early childhood education. *Preschool participants were more likely to score higher on factors of aggression and disobedience as reported by their teachers*. This finding was true even for children who attended high quality center-based care. The more time a child spent in center-based care the more likely he or she was to be described by sixth grade teachers as one who 'gets in many fights,' is 'disobedient at school,' and 'argues a lot.'<sup>31</sup>

**University of Quebec (2006)** – "Several measures we looked at suggest that children were worse off in the years following the introduction of the universal childcare program. We studied a wide range of measures of child well-being from anxiety and hyperactivity to social and motor skills. For almost every measure, we find that the increased use of childcare was associated with a decrease in their well-being relative to other children. For example, reported fighting and aggressive behavior increased substantially.<sup>32</sup>

**National Institutes of Child Health & Human Development (2002) –** This study followed a group of more than 1,300 children in 10 different states through their first seven years of life and *found that children who spend more hours per week in non-parental childcare have more behavior problems, including aggressive, defiant and disobedient behavior in kindergarten.*<sup>33</sup>

<sup>&</sup>lt;sup>23</sup> http://nieer.org/yearbook/pdf/yearbook\_executive\_summary.pdf#page=2

 <sup>&</sup>lt;sup>24</sup> http://nces.ed.gov/nationsreportcard/states/chartsview.aspx?jur=OK&sbj=RED&gr=4&sample=R3&yr=2009&st=MN&acc=false
<sup>25</sup> Lipsey, et. al. Op. Cit. http://peabody.vanderbilt.edu/research/pri/VPKthrough3rd\_final\_withcover.pdf

<sup>&</sup>lt;sup>26</sup> The Role of Program Quality in Determining Head Start's Impact on Child Development: Third Grade Follow-Up to the Head Start Impact Study http://www.acf.hhs.gov/programs/opre/resource/the-role-of-program-quality-in-determining-head-starts-impact-on-childdevelopment-third-grade-follow-up-to-the-head-start

<sup>&</sup>lt;sup>27</sup> http://www.thedailybeast.com/blogs-and-stories/2011-04-05/academic-benefits-to-play-during-early-childhood-education-/

<sup>&</sup>lt;sup>28</sup> Third Grade Follow-up to the Head Start Impact Study: Final Report http://www.acf.hhs.gov/programs/opre/resource/third-grade-follow-up-to-the-head-start-impact-study-final-report Emphasis added.

<sup>&</sup>lt;sup>29</sup> http://www.slate.com/id/2288402/

<sup>&</sup>lt;sup>30</sup> Tang, The Daily Beast http://www.thedailybeast.com/blogs-and-stories/2011-04-05/academic-benefits-to-play-during-early-childhoodeducation-/

<sup>&</sup>lt;sup>31</sup> http://www.nih.gov/news-events/news-releases/early-child-care-linked-increases-vocabulary-some-problem-behaviors-fifth-sixthgrades

<sup>&</sup>lt;sup>32</sup> Michael Baker, Jonathan Gruber, and Kevin Milligan, What Can We Learn from Quebec's Universal Childcare Program?, C.D. Howe

Institutehttp://www.cdhowe.org/pdf/ebrief\_25\_english.pdf

<sup>&</sup>lt;sup>33</sup> https://www.nichd.nih.gov/publications/pubs/documents/seccyd\_06.pdf

University of California at Berkley and Stanford University (2005) – "Attendance in preschool centers, even for short periods of time each week, hinders the rate at which young children develop social skills and display the motivation to engage classroom tasks, as reported by their kindergarten teachers...Our findings are consistent with the negative effect of non-parental care on the single dimension of social development first detected by the NICHD research team [in 2002]."<sup>34</sup>

**National Bureau of Economic Research (2004) –** "Using data from the (ELCS),<sup>35</sup> researchers concluded that preschool has a positive impact on reading and mathematics scores in the short term and a *negative effect on behavior. While the positive academic impacts mostly fade away by the spring of the first grade, the negative effects persist into the later grades.*"

**Ohio University (2004)** - Also using the ECLS data, Lisa Hickman at Ohio University, compared children in center care with children who were taught at home: *"However, employing longitudinal analysis that controls for fall test scores of kindergartners and first graders shows that the cognitive effects of center care do not persist and that some social skills actually deteriorate.*<sup>36</sup>

**Head Start (1991)** - Other researchers have found negative impacts on social-emotional development among Head Start participants. *In this case, participants had lower mean scores in communication, daily living skills, and social skills domains, and the total adaptive behavior score.*<sup>37</sup>

Abecedarian (1985) – A 1985 study found negative behavior impacts among participants of the Abecedarian *Project, a program held up as a model intervention*. Haskins investigated this aspect of the Abecedarian Project. He found treatment children were "more aggressive than children in the control group" in elementary school.<sup>38</sup>

<sup>&</sup>lt;sup>34</sup> Fuller, et. al. 11/05 http://web.stanford.edu/~sloeb/papers/How Much Too Much.pdf Emphasis added.

<sup>&</sup>lt;sup>35</sup> Katherine A. Magnuson, Christopher J. Ruhm, Jane Waldfogel (2004) "Does Prekindergarten Improve School Preparation and Performance?" http://www.nber.org/papers/w10452

<sup>&</sup>lt;sup>36</sup> Emphasis added. Lisa N. Hickman, "Who Should Care for Our Children? The Effects of Home Versus Center Care on Child Cognition and Social Adjustment," Journal of Family Issues 27 (May 2006: 652-684) http://jfi.sagepub.com/content/27/5/652.abstract

<sup>&</sup>lt;sup>37</sup> Yvonne B. Reedy, "A Comparison of Long Range Effects of Participation in Project Head Start and Impact of Three Differing Delivery Models," Pennsylvania State University (State College, Pennsylvania) http://bit.ly/26fU3RH

<sup>&</sup>lt;sup>38</sup> Ron Haskins, "Public School Aggression among Children with Varying Day-Care Experiences," <u>Child Development</u>,

http://www.jstor.org/stable/1129759?seq=1#page\_scan\_tab\_contents Vol., 56, No. 3, June 1985, p. 695.)