Research Article Critique Form

A. Bibliographic Information

2. Title: The Effects of Early Education on Children's Competence in Elementary School
3. Source: Evaluation Review, 8(5), 143-155

B. Summary of the Research

1. Problem Statement: Do early childhood education programs have important and lasting effects on children’s competencies in elementary school?
2. Background: Children need various competencies in order to do well in elementary school.
3. Hypothesis: The program will decrease the proportion of children who fall below minimal competencies defined as necessary for effective functioning in second grade.
4. Measurement of Variables:
   a. Dependent variable(s): a) mastery skills, b) social skills, c) use of time.
   b. Independent variable(s): Brookline Early Education Program (3 levels of treatment)
   c. Control variable(s): Mother’s education level
5. Research Design: This study uses a quasi-experimental design, with a post-test only comparison group design; there is no random selection of children, nor random assignment to treatment or control group.

<table>
<thead>
<tr>
<th>Group</th>
<th>BEEP</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treatment</td>
<td>X</td>
<td>O₁</td>
</tr>
<tr>
<td>Comparison</td>
<td></td>
<td>O₂</td>
</tr>
</tbody>
</table>

6. Sampling: 169 students who began the BEEP program (104 continued and 65 moved elsewhere but were still tracked); 169 students selected at random from the same second grade classrooms as the BEEP children,
matched for sex.

7. **Instrumentation:** A classroom observation tool (the Executive Skill Profile) was developed to detect mastery, social, and time use skills.

8. **Data Collection/Ethics** Trained observers recorded behavior of each child for six 10-minute periods in Spring of second grade year; observations took place on different days between 3 and 6 weeks apart; both frequency and duration of behaviors were recorded; inter-rater reliability was 90%.

9. **Data Analysis:** t-tests were conducted for tests of statistically significant differences in mastery, social, and time use skills between matched pairs of children (BEEP and non-BEEP); McNemar's matched-pairs test was also used.

10. **Author’s Conclusions:** Children who participated in BEEP showed better mastery and social skills, but no differences in time use skills. The program made a difference at all three levels of treatment for children of mothers with college educations, but only at the most intense level for children of mothers without college educations.

C. **Critique**

1. **Possible Threats to Internal Validity**
   1. **History:** Not controlled, since the comparison children may have not spent their whole lives in the same area as the treatment children.
   2. **Maturation:** Controlled by matching children for grade and sex.
   3. **Testing:** Children were observed over 3-to-6 week periods, which may have influenced their behavior.
   4. **Instrumentation:** Observation tool may have been susceptible to bias on the part of the observers.
   5. **Regression Artifact:** Students were not selected on the basis of extreme scores.
   6. **Selection bias:** Children in the program were volunteers, so results could be due to self-selection; but children were randomly assigned to one of the three treatment levels.
   7. **Experimental Mortality:** Children who left the Brookline area were still included in the treatment group, but should have been analyzed separately.
   8. **Design Contamination:** Children in the comparison group may have learned mastery, social, and/or time use skills from the children in the treatment group by being in the same classroom.
2. Possible Threats to External Validity

1. Unique program features: Program was open to community residents and non-residents alike.

2. Experimental arrangements: Brookline is an affluent community, unlike most others.

3. Other threats: All BEEP children of college-educated mothers who participated at any level did better than comparison children, but only BEEP children of non-college-educated mothers who participated at the most intensive level did better than the comparison children. And no BEEP children of non-college educated mothers did as well as any of the BEEP children of college-educated mothers.

D. Conclusions:

1. Does the article make sense?

2. Is the article useful?

3. Do you have confidence in the findings? Why or why not?

4. What significance do you see from this study for education in general?

5. What significance do you see from this study for education administrators?