The ability to predict subsequent recall for recently learned items has been extensively studied in adults. These predictions, or judgments of learning (JOLs), are not very accurate when made immediately after learning. However, Nelson and Dunlosky (1991) found that the accuracy of JOLs increases significantly in adults when the predictions are made after a brief delay following learning.

Very little research has investigated the JOLs made by young children. Recently, Schneider, Visé, Lockl, and Nelson (2000) showed that kindergartners, second and fourth graders demonstrate the delayed JOL effect found in adults. However, they found no developmental effects; the JOLs made by kindergartners were not significantly different from those made by fourth graders (2000). Hall, Wesp, and Dunlosky (1995) studied JOLs made by preschoolers. They found that preschoolers also show the delayed JOL effect. However, this study did not evaluate developmental trends.

The present study had two goals. First, we hope to determine if preschoolers' JOL accuracy improves as they get older. Do memory-monitoring abilities, crucial to accurate JOLs, develop over the ages of three to five? Second, this study examined the timing of the JOL. We compared the accuracy of JOLs made immediately after study and before a 2 day retention interval with those made following the 2 day retention interval, immediately before recall.

### Method

- 42 children, ranging in age from 41.5 to 69.5 months, participated.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Youngest</td>
<td>44.7</td>
<td>5.51</td>
</tr>
<tr>
<td>Middle</td>
<td>57.1</td>
<td>2.87</td>
</tr>
<tr>
<td>Oldest</td>
<td>64.4</td>
<td>2.57</td>
</tr>
</tbody>
</table>

Note: N = 14 for each age group.

- Each child participated in two sessions.

### Procedure

#### Learning Phase

Participants matched each of eight colored cardboard houses with figurines.

**Judgments of Learning (JOLs)**

Children predicted if they would “remember” or “forget” which figure “lived” in each house for either two days (JOL 1) or a few minutes later (JOL 2). JOLs were made for individual houses, and each was made after a delay in which they interacted with at least four others figure-house pairs.
Recall

Children were asked to recall who lived in each house.

Results and Conclusions

Figure 1. Mean Number of Remember Predictions and Mean Actual Recall by Session

- Youngest (M = 44.7 mo)
- Middle (M = 57.1 mo)
- Oldest (M = 64.4 mo)
Figure 2. Mean Number of Hits and False Positives by Session

![Bar chart showing the mean number of hits and false positives for different age groups across two sessions.](chart1)

- **Hits Session 1**
  - Youngest (M = 44.7 mo): ~5 items
  - Middle (M = 57.1 mo): ~6.5 items
  - Oldest (M = 64.4 mo): ~7 items

- **Hits Session 2**
  - Youngest (M = 44.7 mo): ~7 items
  - Middle (M = 57.1 mo): ~8 items
  - Oldest (M = 64.4 mo): ~9 items

- **False Positives Session 1**
  - Youngest (M = 44.7 mo): ~3 items
  - Middle (M = 57.1 mo): ~4 items
  - Oldest (M = 64.4 mo): ~5 items

- **False Positives Session 2**
  - Youngest (M = 44.7 mo): ~4 items
  - Middle (M = 57.1 mo): ~4 items
  - Oldest (M = 64.4 mo): ~5 items

Figure 3. Mean Goodman-Kruskal Gamma Correlations by Session

![Bar chart showing the mean Goodman-Kruskal Gamma Correlation for different age groups across two sessions.](chart2)

- **Mean Gamma Correlation**
  - Youngest (M = 44.7 mo): ~0.9
  - Middle (M = 57.1 mo): ~0.9
  - Oldest (M = 64.4 mo): ~0.8

- **Session 1**
  - Youngest (M = 44.7 mo): n = 8
  - Middle (M = 57.1 mo): n = 9
  - Oldest (M = 64.4 mo): n = 9

- **Session 2**
  - Youngest (M = 44.7 mo): n = 8
  - Middle (M = 57.1 mo): n = 9
  - Oldest (M = 64.4 mo): n = 11
Two patterns are demonstrated in the results:

Conclusion 1

While all preschoolers show overconfidence in their ability to predict future recall, the older children generally made more accurate predictions.

This conclusion was supported by:

♦ Statistically significant decrease in number of false positives, \( p < .05 \).
♦ Marginally significant (\( p = .056 \)) increase in the number of hits.
♦ Trend toward gamma correlations increasing, especially in the first session.

Conclusion 2

Children’s monitoring performance improved in the second session relative to the first.

This conclusion was supported by:

♦ Decrease in number of “remember” predictions.
♦ Increase in number of hits
♦ Decrease in number of false positives

All of the above findings are statistically significant, \( p < .05 \).

♦ Mean gammas tend to increase. (However, we were not able to determine the statistical significance of this result due to a large number of indeterminate gammas.)

The first set of JOLs was made with a shorter interval between acquisition and judgments and a longer interval between judgments and recall, while the second set of JOLs were made with the opposite pattern. Thus, the second set of JOLs was made after major changes in memory performance had taken place. The reduced JOL accuracy of the first set of judgments may be due to wishful thinking or a lack of appreciation for the degree of forgetting likely to occur over 2 days. The findings are consistent with the view that memory monitoring performance improves when wishful thinking is less likely to occur (Schneider, et al. 2000).

References

