

# Temporal Processing in Young Children: A Pilot Study

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## INTRODUCTION

Previous studies have examined the ability to process time and its development in adolescents and adults. However, little research has been conducted regarding temporal processing in children. The current study examined temporal processing in children using a visual duration discrimination (DD) task. In addition to completing the DD task, children were given two reading assessments (the KTEA-II and the PPVT-III) to find correlations between temporal processing ability and reading/vocabulary skills.

### Hypothesis

-There will be a positive linear relationship between age and ability to discriminate as well as a positive correlation between pre-reading/vocabulary ability and temporal processing ability.

## METHODS

### Participants:

-Children ages 4-5 year olds gathered from the ECDC at the College of Charleston

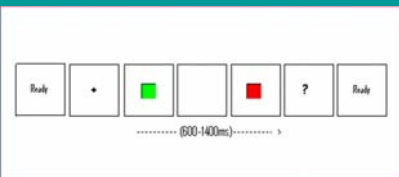
Demographics Table

Age	Ethnicity	Handedness	Gender
5y4m	5 Caucasian	6 Right	3 female
4y9m-5y11m	2 African American	1 Ambi	4 male

### Behavioral Task:

-a behavioral paradigm prepared using EPrime was presented to participants on a laptop screen. -Participants were told to choose which color square stayed on the screen the longest; the red of the green and to press the corresponding color button.

-Squares differed in durations by 200ms, 400 ms, 600 ms, or 800 ms



### Reading and Vocabulary Skills:

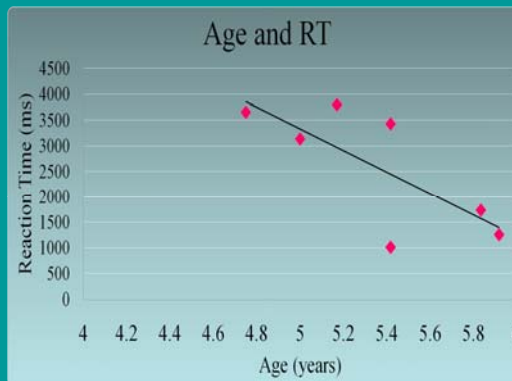
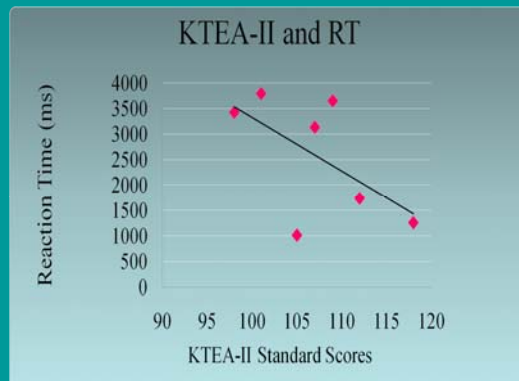
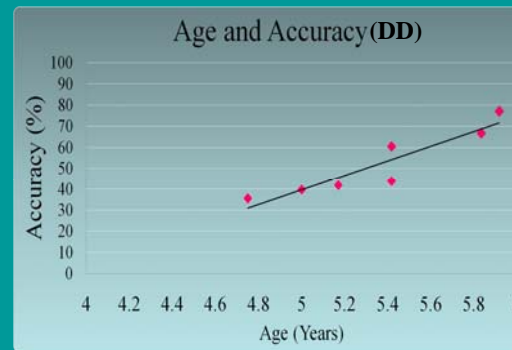
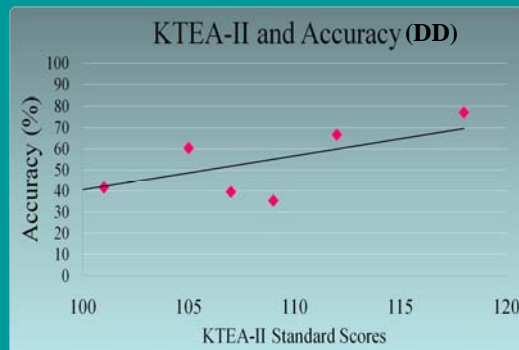
-participants were also given 2 tests to determine their current reading and vocabulary skills

-the Kaufman Test of Educational Achievement 2nd Ed- KTEA-II

-the Peabody Picture Vocabulary Test 3rd Edition- PPVT-III

\*both the computer task and the paper tasks were counterbalanced in their order of administration

## Correlations



## RESULTS

	PPVT-III	KTEA-II	DD Acc.	DD RT
M	108.29	107.14	52.0929	2574.45
SD	30.38	6.72	15.82	1198.7
Range	40-127	98-118	35.4-77.1	1298.3-3654.33

- Results of 2 Tailed Significance test:

-Age & Accuracy :  $r = .926$  ( $p < .01$ )

-Reaction Time & Accuracy:  $r = -.902$  ( $p < .01$ )

-Inverse relationship between age and reaction time

-Positive relationship between KTEA-II performance and accuracy ( $p < .05$ )

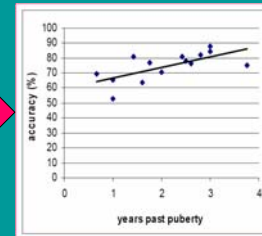
-Inverse relationship between KTEA-II performance and reaction time ( $p < .05$ )

-No correlations were found with the PPVT-III data

## DISCUSSION

The preliminary data found a significant positive correlation between age and duration discrimination (DD) supporting our hypothesis. According to our results a significant negative correlation was also found between reaction time and DD accuracy. Contrary to our hypothesis no correlations were found between vocabulary ability and temporal processing in children. According to our data, as KTEA-II performance increased reaction time of the children decreased. This inverse relationship was also found between age and reaction time. Results suggest that as KTEA-II performance increased, the children's accuracy increased as well.

Previous research with adolescents support our significant positive correlation between DD accuracy and age (Jelsone, 2008).



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