## Cognitive component

Los procesos cognitivos propuestos por el PASS se encuentran relacionados con las destrezas de lectura. Estudios han demostrado que las destrezas básicas de lectura se encuentran relacionadas con la planificación (Das et al., 2008; Keat & Hj. Ismail, 2011), procesamiento simultáneo (Das et al., 2008; Keat & Hj. Ismail, 2011; Papadopoulos et al., 2004) y procesamiento sucesivo (Das et al., 2008; Joseph et al., 2003; Keat & Hj. Ismail, 2011; Papadopoulos et al., 2004).

## Methodological component

The studies reviewed primarily used pretest-posttest design with multiple experimental groups (), pretest-posttest design with comparison group (), and randomized control trials (RCT) with pretest-posttest. These were studies that compared two or more technology-based interventions. The study design has to be inferred for (19.05%) of the articles discussed because these did not state an explicit study design. In these cases, the study design was inferred from more general descriptions in the methods section. Most studies used random assignment () to allocate participants to each group in the study, yet not many were considered to meet RCT standards by their authors. Studies were balanced with regards to balancing the different study’s groups based on important characteristics (balanced = , not balanced = ), but only a few studies counterbalanced the order of test administration (), which is extremely important to protect the validity of the measurements, or used a probabilistic sampling (). The median number of participants across studies was 31, but it varied greatly across studies (minimum = 2, maximum = 744). Most studies worked with four- to eight- year-old children () from Kindergarten to fourth grade (), whose main language was English.

Intervention implementation details are also described, as these prove valuable information about under which circumstances were the interventions tested. A great number of interventions were tested in the different studies, but GraphoGame, in its different variants, is the most used technology-based intervention (33%). Most studies did not report the number of sessions provided to the participants (), but there was great variability among those that provided the information (i.e., from less than 20 to more than 40 sessions). In some cases, the total amount of time dedicated at working with the interventions was provided. Interventions were administered most commonly four times a week () individually or in groups. There was a general tendency of studies not reporting the size of the groups (), but small groups were preferred (2 – 3 participants; 36.36%). Note that in this review, interventions were considered *group-administered* if more than one participant received the intervention in the same space and time as another participant, even if they worked completely independently. Finally, most interventions were administered in controlled settings (e.g., schools) under supervision ().

## Statistical component

In this section, the statistical components of these studies are explored. A detailed description of the analytical methods used in studies is extremely important as these helps to determine the validity of the findings in any study. Most of the studies reported descriptive analysis results of the main outcomes (). The mean or median (), standard deviation () were frequently reported, but the confidence interval for the means were not reported (). Mean confidence intervals are extremely important for estimating the true mean of the population, but are usually not emphasized in favor of the predominant p-value and point-estimate approach. Other reported descriptive statistics are total score () and accuracy (), this were reported in () and () of the reviewed studies, respectively.

With regards to inferential statistics, ANCOVA () and ANOVA () were the two most popular choices among. Baseline reading skills was the most commonly controlled variable in all studies (). Only one study controlled for variables other than cognitive ability or academic skills (i.e., age, income, mother’s age, mother’s education). Another important detail to note is that most studies did provide specific p-values for the analysis conducted, particularly when statistical significance was not reached. The actual *p-value* is important, contrary to popular believe, as this value should not be interpreted as a binary outcome (i.e., statistically significant or nonsignificant), but as the probability, which is its actual definition. This means that p-values can suggest whether a nonsignificant result is still worth pursuing in further research or if it is really unlikely there is a true relationship. Surprisingly, most studies did provide effect sizes () and the most commonly reported was Cohen’s d (). Effect sizes are an indicator of the magnitude of the relationship (i.e., in this case, the magnitude of the intervention effect) and should be reported independently of statistical significance (cite Durlak). Even though effect sizes were reported, Cohen’s d can and should be standardized to Hedge’s G, which is said to be an unbiased effect size index and a better estimator of the true population effect size (citation). Consistent with the reporting of confidence intervals for the mean, only a few studies reported the confidence interval for the mean difference (i.e., differences between the means; ).

## Study findings component

## Review findings

## Conclusion

# References