Students with learning disabilities, or at risk for learning disabilities, typically present with multiple difficulties in language skill acquisition at the early stages of schooling. These struggles include phonological recognition, vocabulary acquisition and use, and challenges in comprehension and retelling narrative content. Difficulties such as these demand effective and substantial early intervention methods, in order minimize cumulative educational gaps, improve educational achievements, and put them on par with their peers.

Educational e-books have been found to be effective in improving literacy. Research has found that when e-book learning is accompanied by meaningful mediation, educational achievements are improved for both facilitators and students. Peer mediation programs were also found to boost educational achievement. Thus, students who learned to facilitate cooperative learning situations among peers improved both their own learning ability and that of their peers.

The first goal of the current study was to examine how a peer mediation program improved the learning abilities and achievements of students with or at risk for learning disabilities. The program was designed for cooperative learning with use of an educational e-book. In addition, the level of mediation was studied with specific learning measurements for e-book learning as well as general measurements for mediation. Mediation levels were measured in two different learning modes – “dictionary” and “play with the story”.

Eighty students participated in the study. This included forty first grade students with or at risk for learning difficulties, and 40 third grade students who were identified as having learning disabilities. The participants were sampled according to generalized criteria research, tested for compatibility and screened for normal cognitive abilities (TONI-3), but low verbal competencies for their ages (ITPA). Students with motor or vision difficulties and students with diminished developmental mental capacities were not included in this study. The students were randomly divided into two research groups – experimental and control, in which each group comprised equal numbers of students from third and first grades. All participants underwent phonological and vocabulary literacy testing prior to the research.

At the intervention stage, the third graders from the experimental group participated in small group programs for peer mediation with e-books, specifically designed for this study, to enable learning with educational e-books. Third graders in the control group continued with their regular school educational program. In the next stage, third graders in both groups conducted peer mediation for the first graders for four sessions using an educational e-book. Two sessions were in “dictionary” mode, which included learning definitions for new words in the story, and two sessions were in the “play with the story” mode, in which students learn to divide the words into sounds and syllables, through hotspots scattered throughout the text and illustrations. The first session in each mode was recorded on film.

At the end of the group learning, all participants again underwent literacy and story comprehension testing. The filmed interactions were analyzed and quantified according to specifically defined mediation measurements for e-book learning, and general mediation measurements for book reading.

The research findings indicated higher levels of specific mediation measurements in the “play with the story” mode as compared to the “dictionary” mode, with the exception of the “encouragement” marker. In addition, it was found that mediation measurements for focus and expansions specific to the e-book, were significantly higher for the experimental group in the “play with the story” mode. All mediation measurements specific to e-book learning were significantly higher in the experimental group than in the control group in this mode.

General mediation measurements showed no differences relative to the two learning modes, except for emotion which was higher after “play with the story” sessions. There was also no difference between the study groups, except for the focus measurement. However, there were more non-mediation behaviors in the “play with the story” mode than in “dictionary” sessions. These were significantly higher in the control group, as expected.

In examining literacy levels of the participants, the study’s finding indicated that as expected, no difference was found between control and experimental groups. All students’ scores improved in phonology and vocabulary following group learning with the e-book. It was found that facilitators from the experimental group showed better story comprehension than their peers in the control group, but there was no difference among those who did not facilitate.

There were a number of associations between the mediation behaviors among the experimental group facilitators in “dictionary” mode and their achievements in story comprehension. An interesting initial finding indicates that the higher the various measurements for mediation of e-book learning, the higher the mediator’s levels of reading comprehension. Another indicates that non-mediation behaviors by facilitators in the experimental group led to their facilitated peers doing less well on reading comprehension tests. Further, it was found that the higher the general level of mediation skill shown in the control group, the lower the levels of their mediated peers in reading comprehension measurements.

Associations were also found between the mediation behaviors of the facilitators from the experimental group in “dictionary” mode and their achievements in retelling the narrative. The more they encouraged specifically adapting to the e-book, the more achievements they showed in retelling the story. In contrast, mediators from the control group, who worked in anti-mediation ways in “dictionary” mode, showed lower abilities in story retelling.

These research findings contribute to cumulative data about education in several ways. First, the findings demonstrate that peer mediation with an e-book contributes to the literacy achievements of the facilitators and the facilitated in student populations with or at risk for learning disabilities. Second, the findings show the influences of peer mediation programs with an e-book in different learning situations. Third, the associations that appeared in the research indicate the importance of combining the peer mediation program with e-books and the dictionary learning mode, which contributes to the improvement of literacy achievements of the facilitators and facilitated. The limitations of the research and recommendations are detailed in the discussion chapter.

This research is significant as it provides additional data that may contribute to the development of computerized educational intervention models designed for populations with or at risk for learning difficulties, in ways that would improve and promote their literacy.