Highlights of the Distance Learning Rapid Evidence Review

The COVID-19 pandemic resulted in educators and school administrators needing to understand the variety of available distance learning models and programs. To address this need, the What Works Clearinghouse (WWC) conducted a rapid evidence review\(^1\) to report on what works in distance learning.

The WWC reviewed 36 studies that ranged from kindergarten to postsecondary, and 15 of the studies reviewed met WWC Group Design Standards.

What were the findings?

The review process revealed several significant evidence gaps in this area of research and continued research using rigorous, randomized designs should be a priority.

- **Majority of studies were on K-8 distance programs**
  - 11 of the studies that met WWC standards were on K-8 programs,
  - 3 studies were on postsecondary programs, and 1 study was on a high school program.

- **Some of the studies reviewed met the Every Student Succeeds Act (ESSA) Tier 1 requirements**
  - 3 distance learning programs had studies that met ESSA Tier 1 Requirements.

- **Improvements found in mathematics and English language arts**
  - 2 distance learning programs that had studies meeting ESSA Tier 1 requirements demonstrated positive effects in general mathematics achievement, and 1 demonstrated positive effects in reading comprehension.

---

What does an ESSA Tier 1 Rating mean?

The programs described below had at least one study that

- was a well-designed, well-implemented, experimental design that received the WWC’s highest study rating, Meets WWC Group Design Standards Without Reservations;\(^2\)
- was conducted in multiple education sites and with a large sample of 350 or more students; and
- demonstrated a statistically significant and positive effect of the intervention on at least one relevant outcome.

Which three programs had studies that met ESSA Tier 1?

**Online Algebra I**

<table>
<thead>
<tr>
<th>Program Description</th>
<th>Program Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Online Algebra I curriculum used electronic textbooks with interactive features such as computerized direct instruction and practice problem sets with automated feedback. Students received a variety of multimedia materials, used a discussion board, and communicated with teachers using a messaging feature. Online teachers graded homework, monitored student understanding, promoted student engagement, conducted online discussions, and monitored student performance. Students used the software in schools where an on-site proctor supported students. Implementation data showed that online teachers spent less time working directly with students and that on-site proctors spent more time communicating with students about mathematics than planned.</td>
<td></td>
</tr>
</tbody>
</table>

**Outcome measure** | **Comparison** | **Sample** | **Significant?** | **Improvement Index** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Course taking</td>
<td>Online Algebra I vs. business as usual</td>
<td>440 students</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>General Mathematics Achievement</td>
<td>Online Algebra I vs. business as usual</td>
<td>440 students</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

**Citation**


\(^2\)All studies included in this evidence scan were reviewed previously by the WWC under the WWC Group Design Standards, Version 2.1 or higher.

For more information on distance learning, visit [https://ies.ed.gov/ncee/wwc/DistanceLearningStudy](https://ies.ed.gov/ncee/wwc/DistanceLearningStudy)
Intelligent Tutoring for the Structure Strategy

Program Description

Intelligent Tutoring for the Structure Strategy (ITSS) is a supplemental, online program for students in grades K-8 to develop literacy skills and understand factual texts used in everyday settings. Students learn how to use text structure, key words, and logical structure to better understand and recall information. In particular, ITSS highlights five main text structures that (a) make comparisons; (b) present problems and solutions; (c) link causes and effects; (d) present sequences; and (e) describe things, people, creatures, places, and events.


**Program Features**

<table>
<thead>
<tr>
<th>Program Type</th>
<th>Delivery Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental</td>
<td>Fully Online</td>
</tr>
</tbody>
</table>

**Teacher-Student Interaction**

Automated/Not Teacher-Directed

**Cost**

Some Cost

**Content Coverage:** Narrow

**Participant Grade Level:** 4th, 5th and 7th grades

**Gamification:** No

**Adaptive:** Yes

**Duration:** Students use the program throughout the academic year, for 30-45 minutes per session, one to three times a week.

**Findings**

The following studies Meet WWC Standards Without Reservations and have at least one statistically significant positive finding.

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Comparison</th>
<th>Sample</th>
<th>Significant?</th>
<th>Improvement Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehension</td>
<td>ITSS vs. business as usual</td>
<td>4,196 students</td>
<td>Yes</td>
<td><img src="image" alt="Improvement Index" /></td>
</tr>
</tbody>
</table>

**Citations**


**Additional Citations**

The following studies Meet WWC Group Design Standards With Reservations or did not have at least one statistically significant positive finding.


To learn more about the WWC, visit our website [whatworks.ed.gov](http://whatworks.ed.gov)
## ASSISTments

### Program Description
ASSISTments is a web-based platform for mathematics homework and related teacher training. The web platform is used by students to complete their mathematics homework and provides them with immediate feedback while they solve assigned problem sets. The platform provides teachers with reports on student performance and commonly missed questions. For this study, the ASSISTments software was loaded with all homework problems from all textbooks in use among intervention schools, as well as mathematics extension activities called “skill builders” covering more than 300 topics appropriate for grade 7.

### Program Features
- **Program Type**: Supplemental
- **Delivery Method**: Hybrid
- **Teacher-Student Interaction**: Teacher-Led Synchronous
- **Cost**: Free

### Content Coverage
- **Broad Participant Grade Level**: 7th grade
- **Gamification**: No
- **Adaptive**: Yes

### Duration
- Schools implemented ASSISTments for two academic years. Student cohorts used the program for one academic year each.

### Findings
This study meets WWC Group Design Standards Without Reservations and has at least one statistically significant finding.

<table>
<thead>
<tr>
<th>Outcome measure</th>
<th>Comparison</th>
<th>Sample</th>
<th>Significant?</th>
<th>Improvement Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Mathematics Achievement</td>
<td>ASSISTments vs. business as usual</td>
<td>2,728 students</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>

### Citation

### Limitations
**Impact of COVID-19**: Education stakeholders, in addition to parents, guardians, teachers, or students, participated in these programs and evaluations before the COVID-19 pandemic. The results of the program evaluations may not fully translate to the circumstances of the current situation.

**Exclusion Criteria**: Necessary exclusion criteria for this review required studies to be peer-reviewed, randomized control trials (RCTs) that reported statistically significant positive results and were in the ERIC database. This excluded RCTs without positive results, as well as rigorous quasi-experimental designs.

For more information on distance learning, visit [https://ies.ed.gov/ncee/wwc/DistanceLearningStudy](https://ies.ed.gov/ncee/wwc/DistanceLearningStudy).