

**Article Citation in APA format:**

Kelly, Stacy & Smith, Derrick (2011). The impact of assistive technology on the educational performance of students with visual impairments: a synthesis of the research. *Journal of Visual Impairment & Blindness*, February 2011.

**Research Problem**

Accurately and completely identify all research questions or hypotheses addressed within the chosen article.

What are the research questions or what is the hypothesis being tested?

What is the knowledge base regarding assistive technology and the education of individuals with visual impairments? (page 75)

To what extent has the field determined, through rigorous, scientific-based methods, the effectiveness of assistive technology for individuals with visual impairments? (page 75)

**Literature Review**

Accurately characterize the field of knowledge under study and list three key points from the lit review with citations of the appropriate studies used to make the points.

How would you characterize the general field of knowledge in which this research study is situated; e.g., Research on Teacher Effectiveness, Research on Self-Reflective Learning, Research on Gender Differences in Mathematics Performance, etc.?

Research in the field of assistive educational technology for the visually impaired.

List three key points from the literature review that help the reader develop understanding of what is already known, and determine the purpose of this study in light of other studies. Cite at least one study used by the author to make each of the three points.

Assistive technology has the potential to be the “great equalizer” for individuals with disabilities (Michaels & McDermott, 2003. Page 73).

It is generally accepted that assistive technology has a positive impact on the lives of individuals with visual impairments (Cooper & Nichols, 2007; Kapperman, Sticken, & Heinze, 2002; Strobel, Fossa, Arthanat, & Brace, 2006. Page 74).

Professionals in the field must strive to evaluate its effectiveness in an effort to provide consumers with the information that will allow them to have the highest quality experience possible when using such technology (Page 74-75).

Identify the theoretical framework or frameworks (sometimes called a *theoretical lens*, a *theoretical underpinning*, or some similar language identifying the philosophical background or backgrounds used to approach, understand, and/or analyze the problem) used to guide the researcher(s) who published the article.

The researchers used articles published between January 1965 and August 2009.

The theoretical framework of Warren's (1994) individual differences approach was used.

### **Research Design and Data Analysis**

Describe the design and the methods of data collection and data analysis used within the study conducted.

Describe the research design (experimental, co-relational, descriptive, etc).

#### **Qualitative**

Describe the method(s) of data collection.

A synthesis of research on assistive technology was conducted in the field of visual impairment from January 1965 to August 2009. Articles were located that addressed research on assistive technology that was used for educational interventions with students who are visually impaired. Researchers used online databases such as EBSCO Academic Search Premier, EBSCO Professional Development Collection, ERIC, and PsychInfo—for references to assistive technology, blindness, and visual impairment for students with and without additional disabilities. Key terms *blind, deaf blind, deafblind, deaf-blind, eye disorders, partially sighted, vision disorders, visual disabilities, blindness, visual impairment, visually impaired, partial vision, and large print* were paired with terms *assistive technology, instructional technology, assistive device, communication devices, accessibility, technology, computers, electronic aids, optical aids, notetaker, and low vision aids* (page 75-76). Manual searches were conducted in the *Journal of Visual Impairment & Blindness*. Researchers also used the references lists of located articles to find relevant articles (page 76).

Describe the method(s) of data analysis.

The research needed to (1) address the assistive technology that was used for classroom-based educational interventions, (2) include as participants in the study students with or without additional disabilities aged 3-21 in preschool through 12<sup>th</sup> grade educational programs who were blind or had low vision, and (3) have been published between January 1965 and August 2009 in English-language refereed journals (page 76).

The articles that met the general criteria were further examined. Each study was reviewed for a control or comparison group and an intervention with an experimental research design. Following the theoretical framework of Warren's (1994) individual differences approach, the researchers determined that the comparison group could not include sighted students.

### **Findings**

Briefly and accurately list all of the notable and significant outcomes of the study.

Summarize and describe the outcomes of the research. In this section you do not have to supply large amounts of statistical data from the article.

256 articles were used in the research. More than half of those articles identified assistive technology that was used for classroom-based educational interventions by students who were visually impaired were discussion of theories, beliefs, or practices; product reviews; or product evaluations without research designs or methods. No measure of the effectiveness or impact of the

assistive technology on education performance was presented in any of these articles (page 78).

The extent to which the field has researched the effectiveness of assistive technology used by students who are visually impaired with or without additional disabilities is close to nonexistent. Less than 1% of the articles used provided sufficient data to determine the effectiveness of an intervention with an appropriate control and comparison group (page 79).

### **Limitations -**

Accurately describe the limitations of the study either specifically stated within the article or those inferred by you through the lens of effective research practice.

What are the limitations of this research?

The study was primarily a review of the current body of literature and was to provide information on the current state of understanding (page 81).

The criteria established produced specific limitations. The application of scientific methodology in education is relatively new and may be a limitation in the evaluation of research that was conducted more than 10 years ago (page 81).

The review included only journals that are in English and that focused only on interventions for students aged 3-21 in preschool through the 12<sup>th</sup> grade (page 81).

Can the outcome(s) be generalized or transferred to groups outside of this study?

To what other populations can the results apply or not apply?

Assistive technology in the work place.

### **Validity (do the results correctly answer the question?) and Reliability (ability of research to give consistent findings over time)**

How valid is the research?

The research is valid as there were very specific parameters used in selecting articles for analysis.

How reliable is the research?

This research is reliable and is recommended for further research as newer technologies continue to emerge.

### **Implications for Practice**

Thoroughly describe implications of the study on your personal practice, pedagogical, or instructional choices.

This study can inform teachers and other professionals looking for ways to advance instructional techniques (page 81).

## **Article Quality Ratings**

Directions: Indicate your level of agreement with each of the following statements by circling a number from 5 for strongly agree (SA) to 1 for strongly disagree (SD). If you believe an item is not applicable to this research article, leave it blank. Be prepared to explain your ratings. When responding to criteria A and B, keep in mind that brief titles and abstracts are conventional in published research.

**Directions**

Place one “X” in each row in the column that best describes your judgment of that aspect of the article’s quality. Next, add up the total number of points you assigned the article. If every one of the 14 categories were judged as “strongly disagree”, for example, then the score for the article would be 14. The maximum score is 70, assuming each category is scored as “strongly agree”.

*The scores assigned in this instrument should be consistent with the narrative written in the analysis template, above.*

		Strongly Agree 5	Agree 4	Neutral 3	Disagree 2	Strongly Disagree 1
A.	The title of the article is appropriate.	X				
B.	The abstract provides an effective overview of the research article.	X				
C.	The introduction establishes the importance of the study.	X				
D.	The literature review establishes the context for the study.	X				
E.	The theoretical framework(s) used are clearly explained.			X		
F.	The research purpose, questions, or hypothesis is clearly stated.	X				
G.	The method of sampling is sound.	X				
H.	Relevant demographics (for example, age, gender, and ethnicity) are described.	X				
I.	Measurement procedures are adequate.	X				
J.	All procedures have been described in sufficient detail to permit a replication of the study.	X				
K.	The participants have been adequately protected from potential harm.	X				
L.	The results are clearly described.	X				
M.	The discussion/conclusion is	X				

	appropriate.					
N.	Despite any flaws, the report is worthy of publication.	X				

Total article score: \_\_\_\_68\_\_\_\_