

Research-Based Instructional Strategies that Improve Educational Practices: A systematic Literature Review

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Abstract

No Learner Left Behind was passed because it requires using research based or evidence-based practices in instruction strategies and professional development. If Teaching could become an evidence-based profession, educational researcher practitioners would be made more accountable to educators. This article presents research-based instructional strategies that every educator must know and apply together with suggestions for classroom practices. These instructional strategies emerge from systematic review of the literature of four different sources: Research on the mind that help learners learn compound tasks; Research on classroom instructional processes that are used by most effective educators; Research on instructional ideologies that every educator must know; and Research on how the mind obtains and applies information.

Five Key ideas emerged from this review: (a) The most successful educators ensures that learners proficiently learnt, practiced, and associated knowledge. Many educators went on to hands-on-activities, but always after, not before, the basic material was learned. (b) Many of the skills instructed in classrooms can be taken by providing prompts, exhibiting use of the prompt, and then guiding learners as they develop independence. (c) The most effective educators spent more time in guided practice, more time requesting questions, more time proving for content acquisition, and more time amending mistakes. (d) One distinctive of effective educators is their ability to forestall learners' mistakes and warn them about likely mistakes some of them are likely to make. (e) The best way to become an expert is through thousands of hours to practice. As a matter of fact, the more the rehearsal the learner does, the better the results.

However, Post-graduate training seems to back up raising numbers practitioners regarding educational research knowledge. Educational research practitioners who are using research are likely to be doing so in the context of academic learning. Educator continuous professional development that improves the learning of all learners prepares Educational research practitioners to apply research to decision making.

Keywords

Educational research practitioners; instruction strategies; classroom practices; effective educators; Cognitive Research; research-based

Introduction

To realize this pan-African vision, we have shifted our focus to educational research that goes beyond traditional academics. We are proposing educational research that improves basic education that cut across subject areas and

expanding subject areas to include essential topics for the 21st century. Employing practices that have indication of being effective raises the possibility for their achievement. Due to limited resources, learning about effective practices will help guarantee that those limited resources used wisely by educators.

Research means inquiry or in-depth study using established and rigorous processes to make discoveries through experimentation or investigation, add to the knowledge base, identify or confirm theories, laws, or conclusions, or confirm, clarify, or identify facts. Research ranges along a continuum of collected information to original research.

Research in cognitive science focuses on how human brains acquire and apply information. This type of research further provides suggestions on how educators might overcome the limitation of the working of their memory when learning new content. Research on classroom practices of educators are those educators whose classroom environments are made by high gains on test achievements.

In this case many educators are observed as they teach, type of teaching approaches employed to support learners and instructional materials and activities that also use. By getting information on learner achievement, research practitioners are able to identify the ways educators differ more and less effectively. Meanwhile research on cognitive supports to help learner to learn complex tasks through effective procedures like thinking aloud, providing learners with scaffold and models resulting from research (Rosenshine, 2010). No conflict at all between these three bodies of research but instead they supplement each other.

Rosenshine, 2010 suggests 17 principles of effective classroom instruction that emerge from research discussed in the main article: (a) begin a lesson with a short review of previous learning; (b) present new content in small phases with the learner practice after every phase; (c) limit the amount of content learners receive at one time; (d) give clear and detailed instructions and explanations; (e) ask a number of questions and check for understanding; (f) provide a high level of active practice for all learners; (g) guide learners as they begin to practice; (h) think aloud and model steps; (i) provide models of worked examples; (j) ask learners to explain what they have learned; (k) check the responses of all learners; (l) provide positive and systematic feedback and adequate corrections; (m) engage more time to provide explanations; (n) provide many and various examples to illustrate the given ideas; (o) reteach content when applicable; (p) prepare learners for independent practice; (q) monitor and supervise learners when they start independent practice. We shall explain some of these principles under the six underlined questions which we have endeavored to answer in the systematic review literature paper.

“Researchers need to help principals, teachers and district leaders understand how to use the research to improve their schools. This means they need to think about how to take complicated ideas and make them understandable-to write and present findings in an audience of practitioners who don’t live and breathe regression models and effect sizes (Dell’Angela, 2017).”

However, there are multiple ways of describing research. Most common are qualitative and quantitative, basic and applied, and experimental and non-experimental. Disagreement still exists among researchers themselves about what kind of research is best and what type of research is best in education.

The Bottommost Line

The process of transforming education research findings into educator practice is complex and multilayered. Strong relationships between researchers and practitioners are necessary, as is a professional culture that supports research application (Laitsch, 2018). Institutionalized support for research that uses time commitments, peer support networks, and adequate facilities is important, as is the accessibility of research and research findings. The effectiveness of research on schools greatly depend on the capability of educators to comprehend, review, and directly implement the findings.

Educator researcher may act as a significant implementer to research use by educators, while the use of research and data to evaluate school performance and improvement creates additional barriers to implementation (Laitsch, 2004). Transforming research into practice may seem difficult when it is offered in a commanding and rigid manner. No seeming link exist between modest dissemination of research findings and alteration in practice, though governing variations reinforced by satisfactory funding are accountable to result in modification (Hemsley-Brown, & Sharp, 2003). This systematic review is applicable to individual educators who are interested in transforming education research to improve their instructional practices.

The research questions we are trying to answer include:

1. What are some of the benefits and barriers to using research in education?
2. How do educators use research findings to improve their instructional practices?
3. Which structures of research encourage educators to use relevant findings and what is happening in their classrooms?
4. What ways can the skills instructed in classrooms can be taken?
5. When do educators become experts in their instructional practices?
6. What are some ways that researcher educators can collaborate to improve education?

What are some of the benefits and barriers to using research in education?

Benefits

Research plays a much more prominent role in education practices than it did years ago. Education reformers are increasingly looking to researchers to provide them with these evidence-based solutions (Dell'Angela, 2017). Self-confidence e.g. in taking risks and efficacy willingness & ability to make changes to practice knowledge & understanding of subject & pedagogy repertoire and skills in matching to pupils' needs willingness to continue professional learning. Pupils are re-motivated in responses to subjects & curricula performance e.g. test results and specific skills questioning skills, thinking & responses to stimuli organisation e.g. collaboration, choosing strategies

Barriers

The barriers for researchers are that they need to be asking those policy-relevant questions, and they need to be able to provide support and findings on an ongoing basis, not at the end of a long study (Dell'Angela, 2017). Other barriers will be providing evidence that is nuanced, that anticipates implementation issues based on school culture and organizational barriers. Many educators claim to have research fears. They actually do not believe they have the expertise to review research. Educators also give reports of not having easy access to research or time to read or relate research to their practice (Killion, 2007). If teachers enjoy reading and analyzing research, they report having difficulty keeping up with the volume of research in education.

Time for induction in new strategies & elapsed time for interpreting for context diverse foci educators wriggled to involve in or with others' research if exploring too many different things. Inadequate facilitation and/or external support such as inadequate support or even lack of expertise in content delivery; process which uses poor research instruments, weak organisation like time management (Hemsley-Brown, & Sharp, 2004).

How do educators use research findings to improve their instructional practices?

Learners require cognitive support to help them to learn to solve challenges. Providing learners with models and worked examples will help them to learn to solve challenges faster. Educators who think aloud and model as they demonstrate how to solve the problem provide good examples of cognitive help (Kirschner, Sweller & Clerk, 2006).

It is not adequate to present learners with new content because the material will be forgotten unless there is sufficient practice. Effective educators spend more time guiding learners' practice new content, more time asking questions, more time checking for understanding, more time in correcting mistakes, and more time having learners work out the challenges with the educator's guidance (Fisher & Frey, 2007).

More educators spend time frequently checking to see if all the learners were learning new content. Checking for learner understanding at each point can help learners learn the content with limited mistakes. The understanding is checked through asking questions, asking learners to summarize the presentation to the point of procedures and also asking the learners whether they agree or disagree with other class responses.

The purpose for checking student understanding is by: alerting the educator when parts of the content need to be retaught; and answering the questions may cause the learner to elaborate on the material they have learners and augment connections to other learning in the long term memory.

Which structures of research encourage educators to use relevant findings and what is happening in their classrooms?

Teachers only consider an article or find it credible when it matches their personal experience. The researcher found that some teachers believed research should exclusively identify strategies and techniques that could have a direct impact on their teaching, and these teachers judged the study's merits on the basis of whether the findings can be translated into procedures that work in classrooms (Killion, 2007). Other teachers believed that research could have an indirect impact on their teaching and had the potential to expand their understanding of teaching.

Beginning the lesson with a short review of the previous lesson daily strengthens previous learning and can lead to fluent remembering of learnt content. This is vital component of classroom instruction. The connections among learnt content is being strengthened by review of the lesson. It helps learners to recall words, concepts and procedures effortlessly and automatically when learners want to use this content solve problems or to understand new content (King, 1994). To develop this practice requires several hours of practice and daily review is one component of this practice. The most effective teachers ensure that learners efficiently acquired, rehearsed, and connected knowledge. Many educators like hands on activities which is always done after the basic content is learnt rather than before.

Educators consider doing the following activities during their daily classroom review of lessons: (a) review content where mistakes have been made; (b) correct home wok; (c) review content that needs repeated learning such as newly learnt skills must be practiced well beyond the initial point of mastery leading to automatic learning; (d) ask learners questions on concepts and skills practiced as part of home work; and (e) ask learners to give their ideas where they had difficulties or made mistakes (Madison, 2005). The most effective educators spent more time in guided practice, more time requesting questions, more time proving for content acquisition, and more time amending mistakes.

What ways can the skills instructed in classrooms can be taken?

The place where we process information is very small. It is therefore important to present new material in small logical phases with the learner practice after each phase (Fisher & Frey, 2007). The educator should present small amounts of new content at any time and should assist learners as they practice this content.

When the educator presents too much material at once, it may confuse learners because their working memory will be unable to process it (Tobias & Duffy, 2009). You can proceed to the next phase if the learner has mastered the first phase. This will help guide learner practice in an appropriate way of dealing with challenges of limited memory working.

As an effective educator, you are required to ask many questions and check the feedback of all learners. These questions help leaners to practice new content and connect to new content prior to their learning. The learners always require practicing new content. The questions and learner discussion are major in providing necessary practice. The most successful teachers in the 21st century spend more of the class time teaching, demonstrating and asking and answering questions (Fisher & Frey, 2007).

In reality, questions allow the educator to predict how well the content has been learnt and whether there is need for additional classroom instruction. The educator usually asks learners to explain the process they used to answer the question and also to explain how the response is being got. Many of the skills instructed in classrooms can be taken by providing prompts, exhibiting use of the prompt, and then guiding learners as they develop independence. One distinctive of effective educators is their ability to forestall learners' mistakes and warn them about likely mistakes some of them are likely to make.

When do educators become experts in their instructional practices?

Imaginative educators have found ways to involve learners in answering questions such as having all learners: (a) write the respond on a piece of paper and then hold it; (b) tell the response to the neighbor; (c) raise their hands when they agree with the response that someone else has given; and (d) summarize the main idea in one or two sentence, writing the summary on a piece of paper and sharing with a neighbor or repeating the process with a neighbor. The best way to become an expert is through thousands of hours to practice (Killion, 2007). As a matter of fact, the more the rehearsal the learner does, the better the results.

What are some ways that researcher educators can collaborate to improve education?

Authors of opinion pieces suggest that research can have an impact on practice as long as teachers are involved in the identification of problems and are provided with the context in which they can learn the strategies for improvement (Hemsley-Brown, & Sharp, 2004). Authors recommend that: research findings should be more accessible; the reward structures should be re-framed such as academics should be rewarded for dissemination to practitioners; alternative publishing venues should be developed to target users; and academic jargon should be reduced.

To use research, educators will want to understand research and learn how to read, analyze, and apply it to their work. They can facilitate review of research by teams of their colleagues including school improvement teams, study teams, or department or grade-level teams. They can organize reviews in some of these ways: (a) Each team member reads and summarizes one article for the team and makes a brief presentation to the team on the article; (b) Team members read the same article reporting on research related to their content area, students, or discipline and discuss the implications for their practice; (c) Team members read research abstracts and determine which articles merit more in-depth reading; (d) Team members read a variety of different research studies on one topic that the team is interested in studying in depth (Rosenshine, 2010).

When educators use research to make informed decisions about their work, they will exhibit responsibility with their limited resources, and increase the efficiency and effectiveness of their work. Education involves helping new educators develop strong, readily accessible background knowledge which aids rehearsals and trial of other knowledge. This will facilitate good deal of instructional support when educators ensure that their learners effectively acquire, practice and connect background knowledge (Kirschner, Sweller & Clark, 2006). The educator's support is provided by guiding learner practice, supporting learners when they make mistakes. Many of such educators went through experiential hands.

Research impact on teaching and learning

The actions by decision-makers and practitioners are insufficiently informed by research, and dissemination is viewed as problematic (Burckhard, 2013). However, very little attention has been paid to the quality of education, or to progress in student performance. While improvements in education can be assessed by quantitative aspects, such as access to education, enrolment and completion rates, or gender parity, such metrics don't assess education quality or, even more importantly, the improvement of student performance.

Conclusion

The education system of any country has an urgent need for qualified workers to generate development and growth. This means that our entire education system has to become more practically orientated. "We need to transfer research into practice. Research which only lives between its two covers on a bookshelf is of no value," (Serwaniko, 2014). Education involves helping new educators to develop strong, readily accessible background knowledge. Its important background knowledge is readily accessible, and this occurs when knowledge is well rehearsed and tied to other knowledge.

The most effective educators ensure that their students efficiency acquires, rehearse, and connect background knowledge by providing a good deal of instructional support. They provide support by teaching new content in manageable amounts, modeling, and guiding student practice, helping learners when the make mistakes and providing for sufficient practice and review.

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