

Online Adaptive Math Programs

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Abstract

Online adaptive math programs: characteristics of effective programs, overall effectiveness, relationship to problem solving, effective implementation methodologies, professional development involved in effective implementation, alignment with Common Core State Standards in Mathematics

Introduction

Overview: Online adaptive math programs are becoming increasingly popular in K-12 settings. Theoretically these programs allow students to work at their own pace to master specific math skills before they proceed to more advanced skills. In addition, some programs have the ability to adapt to the learner based on ability level as well as personal interests. As more schools implement 1:1 initiatives and more software developers create sophisticated programs, I believe online adaptive math programs will continue to gain popularity.

Problem(s): As more emphasis is placed on problem solving and being able to explain and justify answers, do online programs support those directions in math? Are there specific characteristics of online math programs that make them effective? Are teachers adequately prepared to implement online math programs effectively?

Research Questions

Are online math programs effective?

What are the characteristics of an effective online math program?

Do teachers know how to implement online math programs effectively?

Do online math programs allow students to develop problem solving skills?

Do online math programs enable/allow students to explain and justify their answers?

Definitions

Online adaptive math program

Adaptive math program

Intelligent tutoring system

Blended learning

Synchronous learning

Asynchronous learning

Mastery learning

Self-paced learning

What are some of the current educational practices math education?

Direct instruction

Online learning

Problem-based learning

What is the current state of online adaptive math programs in math education?

Blended learning

Synchronous learning

Asynchronous learning

Conclusion

What is the rationale for using online adaptive math programs?

Differentiated instruction

Mastery learning

Data-driven assessment

Anytime, anywhere learning

Self-paced learning

Conclusion

What are the benefits/barriers related to online adaptive math programs?

Benefits

Allows teachers to meet the needs of all students

Improves procedural fluency

Requires students to master skills before progressing

Enables students to work at their own pace

Keeps students in their zone of proximal development by adapting to their ability level

Conclusion

Barriers

Access to technology for all students

Students may not have opportunities to develop problem solving skills

Students may not have opportunities to explain and justify their answers

Teachers may not be trained on how to properly utilize the programs

Analyzing all of the data can be time consuming

Conclusion

Implications

Overall Conclusion

References

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