The Analytic Geometry Resource Website

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4/29/2013

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Summer 2012

**Setting/Context**

Villa Rica High School serves students in grades 9-12 and is located in Western Georgia with a high percentage of the students receiving free or reduced lunch. The budget has been cut significantly over the past five years, which has left little funds to go towards resources for classes. To make matters worse the state switched to a new math curriculum and the district decided to not purchase new textbooks for the new courses. The district also recently implemented a new Bring Your Own Technology (BYOT) policy and is encouraging the use of technology in the classroom. The course that will be rolled out this coming school year is the tenth grade course Analytic Geometry. There will be a great need for resources not only for the students but also for other instructors to implement the new curriculum.

**Capstone Problem and Rationale**

The state of Georgia adopted the Common Core Standards along with forty-four other states. With this adoption came a change in the math classes and standards taught at the high school level. Georgia is now going through its second complete math curriculum change in five years. This change comes at a time when many school systems are making difficult decisions about the budget and do not have the funds to purchase new textbooks for a new curriculum. The initial results from the first round of EOCT testing showed that only 41% of students met or exceeded on the exam. As suggested by the Atlanta Journal-Constitution, the low pass rate could be a combination of not being familiar with the new curriculum and lack of resources available for the new course (Washington, 2013). What schools do have access to is the Internet and many free resources available for use within schools. Roblyer and Doering (2013) state that one of the issues facing the use of technology in the classroom by teachers and students is the lack of technology funding. One of the suggestions they make is to seek out cheap or free resources already available for use. Teachers can create new resources for use by their students and other teachers, without having to purchase them. With that rationale in mind, a website will be created that can be used by both students and teachers with resources that relate to each unit and lesson of the new tenth grade course Analytic Geometry.

**Objectives/Deliverables:**

* Create a central website for all of the students in Carroll County to use for help in the Analytic Geometry website
* Create a central website that supports all students in Carroll County who participate in the Analytic Geometry course.
* Provide support to teachers and students as they begin to use the website

**PSC Standards:**

**2. Teaching, Learning, & Assessment** Candidates demonstrate the knowledge, skills, and dispositions to effectively integrate technology into their own teaching practice and to collaboratively plan with and assist other educators in utilizing technology to improve teaching, learning, and assessment.

**2.1 Content Standards & Student Technology Standards**Candidates model and facilitate the design and implementation of technology-enhanced learning experiences aligned with student content standards and student technology standards. (PSC 2.1/ISTE 2a)

**2.2 Research-Based Learner-Centered Strategies**
Candidates model and facilitate the use of research-based, learner-centered strategies addressing the diversity of all students. (PSC 2.2/ISTE 2b)

**2.3 Authentic Learning**
Candidates model and facilitate the use of digital tools and resources to engage students in authentic learning experiences. (PSC 2.3/ISTE 2c)

**2.5 Differentiation**
Candidates model and facilitate the design and implementation of technology-enhanced learning experiences making appropriate use of differentiation, including adjusting content, process, product, and learning environment based upon an analysis of learner characteristics, including readiness levels, interests, and personal goals. (PSC 2.5/ISTE 2e)

**2.6 Instructional Design**
Candidates model and facilitate the effective use of research-based best practices in instructional design when designing and developing digital tools, resources, and technology-enhanced learning experiences.
(PSC 2.6/ISTE 2f)

**2.7 Assessment**

Candidates model and facilitate the effective use of diagnostic, formative, and summative assessments to measure student learning and technology literacy, including the use of digital assessment tools and resources. (PSC 2.7/ISTE 2g)

**2.8 Data Analysis**

Candidates model and facilitate the effective use of digital tools and resources to systematically collect and analyze student achievement data, interpret results, communicate findings, and implement appropriate interventions to improve instructional practice and maximize student learning. (PSC 2.8/ISTE 2h)

**3. Digital Learning Environments**
Candidates demonstrate the knowledge, skills, and dispositions to create, support, and manage effective digital learning environments.

**3.1 Classroom Management & Collaborative Learning**

Candidates model and facilitate effective classroom management and collaborative learning strategies to maximize teacher and student use of digital tools and resources. (PSC 3.1/ISTE 3a)

**3.2 Managing Digital Tools and Resources**

Candidates effectively manage digital tools and resources within the context of student learning experiences. (PSC 3.2/ISTE 3b)

**3.3 Online & Blended Learning**

Candidates develop, model, and facilitate the use of online and blended learning, digital content, and learning networks to support and extend student learning and expand opportunities and choices for professional learning for teachers and administrators.
(PSC 3.3/ISTE 3c)

**3.4 Adaptive and Assistive Technology**

Candidates facilitate the use of adaptive and assistive technologies to support individual student learning needs. (PSC 3.4/ISTE 3d)

**3.5 Basic Troubleshooting**

Candidates troubleshoot basic software and hardware problems common in digital learning environments. (PSC 3.5/ISTE 3e)

**3.6 Selecting and Evaluating Digital Tools & Resources**

Candidates collaborate with teachers and administrators to select and evaluate digital tools and resources for accuracy, suitability, and compatibility with the school technology infrastructure. (PSC 3.6/ISTE 3f)

**3.7 Communication & Collaboration**

Candidates utilize digital communication and collaboration tools to communicate locally and globally with students, parents, peers, and the larger community. (PSC 3.7/ISTE 3g)

**4.  Digital Citizenship & Responsibility**

Candidates demonstrate the knowledge, skills, and dispositions to model and promote digital citizenship and responsibility.

**4.1 Digital Equity**

Candidates model and promote strategies for achieving equitable access to digital tools and resources and technology-related best practices for all students and teachers. (PSC 4.1/ISTE 5a)

**4.2 Safe, Healthy, Legal & Ethical Use**

Candidates model and facilitate the safe, healthy, legal, and ethical uses of digital information and technologies. (PSC 4.2/ISTE 5b)

**4.3 Diversity, Cultural Understanding & Global Awareness**

Candidates model and facilitate the use of digital tools and resources to support diverse student needs, enhance cultural understanding, and increase global awareness. (PSC 4.3/ISTE 5c)

**5. Professional Learning & Program Evaluation**
Candidates demonstrate the knowledge, skills, and dispositions to conduct needs assessments, develop technology-based professional learning programs, and design and implement regular and rigorous program evaluations to assess effectiveness and impact on student learning.

**5.1 Needs Assessment**

Candidates conduct needs assessments to determine school-wide, faculty, grade-level, and subject area strengths and weaknesses to inform the content and delivery of technology-based professional learning programs. (PSC 5.1/ISTE 4a) **5.2 Professional Learning**

Candidates develop and implement technology-based professional learning that aligns to state and national professional learning standards, integrates technology to support face-to-face and online components, models principles of adult learning, and promotes best practices in teaching, learning, and assessment. (PSC 5.2/ISTE 4b)

**5.3 Program Evaluation**

Candidates design and implement program evaluations to determine the overall effectiveness of professional learning on deepening teacher content knowledge, improving teacher pedagogical skills and/or increasing student learning. (PSC 5.3/ISTE 4c)

**6. Candidate Professional Growth & Development**

Candidates demonstrate the knowledge, skills, and dispositions to engage in continuous learning, reflect on professional practice, and engage in appropriate field experiences.

**6.1 Continuous Learning**

Candidates demonstrate continual growth in knowledge and skills of current and emerging technologies and apply them to improve personal productivity and professional practice. (PSC 6.1/ISTE 6a, 6b)

**6.2 Reflection**

Candidates regularly evaluate and reflect on their professional practice and dispositions to improve and strengthen their ability to effectively model and facilitate technology-enhanced learning experiences.
(PSC 6.2/ISTE 6c)

**6.3 Field Experiences**

Candidates engage in appropriate field experiences to synthesize and apply the content and professional knowledge, skills, and dispositions identified in these standards. (PSC 6.3)

Project Description

This capstone project will begin at the start of the next school year, 2013. A website will be created that can be used by students, parents, and other teachers to obtain resources and help for the new CCGPS course Analytic Geometry. The course consists of seven units and each unit will have several topics associated with it. There will be a separate page for each aspect of the units and the pages will be updated as the lessons are taught in the class. The website will serve as a one-stop location for students to access materials from the units in the course and will be most beneficial when the students are beginning to review for the End of Course Test (EOCT).

Timeline

|  |  |  |
| --- | --- | --- |
| **Date Range** | **Description** | **Deliverable** |
| August 2013 –September 2013 [15 hours] | Unit 1 will be completed along with all of the topics and subpages for the unit  | * Completed Unit 1 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |
| October 2013[15 hours] | Unit 2 will be completed along with all of the topics and subpages for the unit | * Completed Unit 2 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |
| November 2013-December 2013[15 hours] | Unit 3 will be completed along with all of the topics and subpages for the unit | * Completed Unit 3 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |
| December 2013-January 2014[15 hours] | Unit 4 will be completed along with all of the topics and subpages for the unit | * Completed Unit 4 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |
| January 2014-February 2014[15 hours] | Unit 5 will completed along with all of the topics and subpages for the unit | * Completed Unit 5 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |
| February 2014-March 2014[15 hours] | Unit 6 will be completed along with all of the topics and subpages for the unit | * Completed Unit 6 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |
| March 2014- April 2014[15 hours]  | Unit 7 will be completed along with all of the topics and subpages for the unit | * Completed Unit 7 part of Website
* At least one video for each topic
* At least one practice test for each topic
 |

Resources:

* Computer
* Internet
* Weebly Account
* Jing software
* USA Testprep
* SlideShare
* Microsoft Office
* YouTube Account

**Evaluation Plan**

Narrative

As the website is being created, surveys and focus groups will be used to evaluate the needs and effectiveness of the project. After the initial start of the website at the beginning of the school year, a survey will be given to potential users to determine what is wanted on the webpage (Appendix A). Based on the results of the survey, the website will be crafted to meet the needs of the students and teachers.

At approximately halfway through the school year, a focus group will be conducted about the website (Appendix B). The focus group results will be used to adjust the layout of the website, the content of the website, and the possibility of adding new aspects as determined from suggestions.

Finally, students and teachers will complete an end of course survey to determine the effectiveness of the website (Appendix C). This will be completed at the end of the school year and changes will be made for use in the next school year.

**References:**

Roblyer, M., & Doering, A. H. (2013). *Integrating Educational Technology into Teaching.* Upper Saddle River, NJ: Pearson.

Washington, W. (2013, February 11). Georgia students struggle on test tied to common core math course. *Atlanta Journal-Constitution.* Retrieved from http://www.ajc.com

Appendix A

Survey #1: Analytic Geometry Website Survey



Appendix B

Focus Group Questions: Analytic Geometry Website Questions

1) What do you think about the layout of the website?

2) What is your opinion of the content on the website?

3) What is your favorite aspect of the website? Explain your reasoning.

4) What is your least favorite aspect of the website? Explain your reasoning.

5) What is needed to improve the website?

Appendix C

Survey #2: Analytic Geometry Website Survey

