DEVELOPING AND MANAGING DISTANCE LEARNING PROGRAMS
Assignment 2: Budget for Distance Learning Program

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Background

The goal of the P21 Framework is to prepare students with the necessary skills to compete in today's global economy ("Framework for 21st Century Learning," 2015). P21 skills include: "critical thinking and problem solving, communication, collaboration, and creativity and innovation" ("Framework for 21st Century Learning," 2015). The P21 Framework is the result of collaboration between the workforce educators, and 13 states ("Framework for 21st Century Learning," 2015). The updated Denville Technology Plan includes the following learning outcomes to be attained using the following goals and objectives:

Objective 1: Distance learning will be utilized to meet Common Core Standards and to build 21st Century Skills to prepare learners for college and/or career readiness, as prescribed by P21 Framework of which New Jersey is a participant.

> **Goal 1.1** To offer students opportunities to create, collaborate, communicate and stimulate critical thinking as per the P21 framework for 21st century learning.

Objective 2: Distance learning will be utilized to build autonomy in self-directed learning.

> **Goal 2.1** To increase students' interest-driven learning to participate in activities offered outside the physical classroom structure.

Objective 3: Distance learning will be utilized to introduce and promote digital citizenship in a closed safe environment.

> **Goal 3.1** To promote communities of practice within the confines of the school district.

Goal 3.2 To build a culture of apprenticeship learning in a mixed age

environment.

These outcomes drive the rationale for the budgeting process required to meet Strategic

Plan initiatives.

Budget Proposal

This budget proposal (Appendix A) is being presented to Denville's Strategic

Planning Committee for review prior to budget planning meeting. The Strategic Planning

Committee is comprised of the following stakeholders in technology education for our

district: superintendent, school board member, district administrators including

technology director, one teacher representing each individual school in the district, and a

parent representing the Parent Teacher Association.

According to the strategic plan initiatives, the learning management system

(LMS) for Denville's distance learning program needs to support a blended learning

experience appropriate to a K-8 environment; Edmodo is recommended as the LMS to

provide this service. Opportunities for self-directed autonomous learning, and

collaboration are critical components of the P21 Framework; BrainPop and Google Docs

are recommended to fulfill these requirements of the distance learning program

proposed.

After careful consideration and review the subscription for Discovery Education

should be terminated. The yearly maintenance plan to replace 155 laptops can proceed as

a result of the savings realized in the following budget proposals. It was determined that

training on recommended technology tools would be accomplished during three in-

service days included in the District-approved calendar. Staff members would conduct

the training at a cost of $500.00 per day, per instructor for a total of $1500.00. The

narratives that follow provide the rationale for the aforementioned decisions.

Edmodo

Basic school subscription: free. Premium features subscription: $1.00 per student

account.

Edmodo's strength as the proposed learning management system (LMS) for

Denville lies in the fact that it is an appropriate platform for the blended learning

approach that is the hallmark of the learning outcomes proposed for Denville's K - 8

student population. This LMS offers extremely low per student costs, for premium

features only, and constitutes a "sandbox" situation for teachers, students, parents, and

administrators to build digital literacy skills. The web-based platform eliminates the need

for in-house hosting while promoting the anywhere, anytime learning environment.

Edmodo bridges the gap between buying versus owning content for the District by

providing educational applications (free/for purchase) while allowing teachers to place

instructional content, whether original or resource material in the student's digital

library. Curriculum development tools, specifically a premium feature called Snapshot,

automatically assigns low-stakes micro assessments to students to gather formative

actionable data about students' progress towards Common Core standards (Fenton,

2015). This feature along with the collaborative opportunities offered to students and

affordances of creating small groups for differentiated instruction address the overall

learning objectives detailed in the Strategic Plan for Technology.

Promoting digital citizenship is accomplished in Edmodo through a "class"

organizational structure created by teachers. Despite its Facebook-friendly look designed

to promote easy access, Edmodo connections preclude cyber bullying, an important feature in the early elementary learning environment. Teachers can try their hand at teaching strategies like gamification as well as collaborate on a global basis to build Personal Learning Networks (PLNs) to enhance professional development.

Denville School District's recent conversion to a new wireless network based on Cisco (Meraki cloud-based control system) technology realized an increase in network bandwidth from 100 mbps to 300 mpbs (Technology Committee Minutes, 2013) such that no new network improvements are needed to support Edmodo's web-based LMS. Savings realized will be applied to the hardware replacement initiative of replacing 155 laptops.

Schoology, the only other viable choice for a K-8 blended learning environment, offers a similar menu of creative and collaborative tools at a higher price and uses an interface that may require a longer learning curve due to its lack of similarity to other social media tools. Schoology is reported to have a cleaner interface with Apple products but the extensive use of PCs in the District renders this advantage negligible.

Schoology's Enterprise features are priced accordingly: 1800 students at a per pupil cost of $10.00 each for a subscription total of $18,000.00; consultation and initial setup at $1500.00 per school for a total of $4500.00. Total costs for Schoology implementation are estimated to be $22,500.00 as compared to $1800.00 for Edmodo. This low cost initial investment enables the administration and teaching staff to both build a competency in using an LMS and the expertise in creating a "wish list" if needed, for future LMS.

BrainPOP

School subscription is $2,295, which includes BrainPOP for grades 4-8, BrainPOP Jr, for grades K3, as well as BrainPOP ESL and Spanish ("BrainPOP," 2015). Three-year subscription to BrainPOP is $5,852.25, which is $1950.75 per year. This is a three-year savings of 15%, or $1,032.75 over three years. There are several hundred "standards-aligned animated movies, quizzes, games, high-interest readings, and activities that span science, social studies, English, math, engineering and technology, health, and arts and music" ("BrainPOP," 2015). Each video has closed captioning and the ability to pause and self-pace, which meets UDL. Every teacher and student would receive an account. BrainPOP offers analytics, including views of videos, submitted quiz scores, and student-submitted assignments (e.g., Make-a-Map mind-mapping tool, SnapThought game reflection). All of the hosting is off-site, from BrainPOP. It does not require a long-term commitment.

BrainPOP Educators is the lesson plan community that matches Common Core Standards to the content. Videos can be shared on Google Classroom and Edmodo. For example, the video on photography can be included on a learning pathway about Photoshop. To become a BrainPOP Certified Educator, a teacher would have to attend a training session, which is regularly held for free in the tri-state area (BrainPOP is headquartered in New York City). A district BrainPOP Certified Educator would be fully qualified to train teacher faculty.

BrainPOP uses Flash for much of its platform. Videos can be accessed via dedicated mobile apps for its main portal, as well as its ESL and BrainPOP, Jr. versions. The applications are free to download; however, student submitted quizzes do

not appear in the teacher's dashboard. BrainPOP is in the process of resolving this (personal communication). It is in the process of making its application—including games and concept mapping tools—function on a mobile browser (personal communication). This is a short-term issue; mobile applications often update based on user need on a regular basis.

BrainPOP offers the most robust number of features, including virtual classrooms and mobile functionality. The user interface was clear from the perspective of a teacher and a student. It is available on Apple iOS, including Apple Watch, Android, and Windows Phone. It was the only option that offered webinar training and support, including lesson plans mapped to Common Core Standards. Aside from games and videos, BrainPOP was the only platform with a concept-mapping tool: Make-a-Map. Each mapping activity is Common Core-aligned.

Competing platforms in the market features learning games, many of which do not align the learning goals to game mechanics. Games on FunBrain, NeoK12, and Learning Planet are "arcade-style," Flash-supported interactives. BrainPOP games are from third-party companies, including PBS and MIT's Learning Games Network, and the University of Wisconsin's Games Learning Society Studios. Play in a learning game should be balanced, in which "the learning goals, game mechanics and judgments about learner play and performance are aligned" (Groff, Clarke-Midura, Owen, Rosenheck, Beall, 2015). For example, FunBrain's Math Baseball asks students to solve a math problem to get to first base. Games on NeoK12 and Learning planet are similar in design. BrainPOP's games are research-based and are "balanced." The Lure of the Labyrinth math games requires players to divide food portions to feed monsters, which

matches ratio and proportion in play. Services similar to BrainPOP, which are all

Common Core aligned, are below:

Service	Cost	Features	Mobile Platform Availability
BrainPOP	School subscription is $2,295, which includes BrainPOP, as well as BrainPOP Jr, for grades K3, and BrainPOP ESL and Spanish.	Over 900 videos. Make-a-Map tool. Teacher plans and webinar training. All original animated video content. Platform for research-based learning games. Original content supports higher-order thinking. Teacher dashboard.	Yes. Apps on all platforms (including Apple Watch).
NeoK12	$29.50 for every 30 students. Total cost for all Denville students is approximately $1,800.	2000+ games and interactives, most of which are actually quizzes. 5,000 videos, mostly linked from YouTube. Teacher dashboard.	No mobile application.
FunBrain	Free, ad-supported, which can distract learning.	No teacher dashboard or student log-ins. Only games, no videos or assessments.	No mobile application.
Learning Planet	$39.95 per year for a teacher. There are no personalized student accounts. It is ad-supported, which is a distraction.	No teacher dashboard or student log-ins. Games are arcade-style, not engaging with higher-order strategy. Videos are not matched with quizzes.	No mobile application.

Denville has approximately 1,800 students ("National Center for Education

Statistics," 2015). Total cost difference between BrainPOP and NeoK12 is $495. Only

BrainPOP includes mind-mapping software. Webspiration and MindMeister—both

dedicated mind-mapping applications—are $6 per user. Because BrainPOP offers

integrated videos, quizzes, mind-maps, games, lesson plans and training, without ads and with mobile support, it is recommended. Also, BrainPOP can be used with ESL and ELL students.

BrainPOP's robust toolset meets or exceeds the P21 Framework of "critical thinking and problem solving, communication, collaboration, and creativity and innovation" ("Framework for 21st Century Learning," 2015). Students must critically think and problem solve in the quizzes, games, and concept-mapping activities. Work can be completed collaboratively, which then is communicated electronically to the teacher. Creativity and innovation are supported, as well, in the game platform. BrainPOP's proprietary Sortify sorting game and Time Zone X timeline application include a toolset for students to create their own activities. Others can play student-created educational games in the district, thus supporting a community of practice with mixed-age learners.

BrainPOP videos are student-driven, too. Each activity includes suggestions of related videos and games. The content includes topics of student interest, including video games, dinosaurs, and music (e.g., The Beatles). Also a student may watch a video for another class, even if not assigned to by the teacher. The animated videos include humor, which appeals to children by adding in an element of fun.

Discovery Education

The cost of a subscription to Discovery Education is $2,600 per year per school for K-8. Currently, Denville Public School District have three K-8 schools. The cost for the district to have Discovery Education annually is $7,800. Discovery Education provides teachers with a blog, a subscription to Discovery Education Network (DEN)

where teachers can collaborate and share ideas, Streaming Plus Digital Media, and K-8 teacher lesson plans and resources. Through the use of Discovery Education, teachers have the ability to create informal assessments and provide feedback with the use of the Builder Tools upon logging into the site.

The Discovery United Streaming Tool provides students with a multimedia resource designed and driven by state standards, to support the curriculum. Students have the ability to engage and interact with different types of text, different types of print and digital media. Students have the ability to go on virtual field trips through this software. Students use Discovery Education to view videos while teachers create lessons through the use of this software.

After careful consideration and much research, it is recommended that the district cancels the subscription to Discovery Education, which will save the district $7,800.00 annually. The money allotted to the subscription can then be used to replace hardware already implemented into the district. The reasoning for the canceling of the subscription to Discovery Education is the fact that are other resources on the internet that are free that can provide educators with the same information that Discovery Education offers and more.

Discovery Education gives outdated informational videos and has no formal assessment of the understanding of video content presented. This type of informational videos can come in the form of YouTube videos, which would be at no cost to the district. Discovery Education is not a LMS and does not have the database to store the data that is needed to be a LMS at this point.   Discovery offers no mobile application for their service. They also have no way to gather relevant data to help students and identify

what is needed for individualized success. Other online services can be provided at no

cost to the district for the teacher to provide an enriched online learning environment to

enhance their instruction through distance learning. Coupled with BrianPOP, the

following services are suggested as a replacement to Discovery Education:

Service	Cost	Features
YouTube	Free	Provides video to enhance instruction that is current and up-to-date.
Twitter	Free	A useful teacher tool for networking and share ideas for collaboration that can replace DEN.
Pinterest	Free	A site designed for the sharing of best practice and lesson plans on specific subjects. This can replace the lesson plan feature on Discovery Education for teachers.
Blogster	Free	A site design for creating blogs and following bloggers through an RSS feed.
Google Apps	Free	Create informal assessment tools with the use of Google Forms.

Google Docs, Sheets, Slides and Hangouts

Subscription to Google Applications is free with a Google Mail Account.

Google Docs, Sheets and Slides allow its users to create documents online as well

as collaborate with other people in real time. These productivity apps allow all

documents to be stored on the online Google Drive. There is no cost to the users to use

this product, all is needed is to create an email account through Google and access to all

the products will be done through their Gmail account.

The Google Docs products will be used to provide directions through rubrics, to

model written assignments, to edit assignments, and for learners to work collaboratively

on projects and assignments. Documents already created in Microsoft Office can be

formatted to a Google document to allow for online collaboration with others. By

utilizing Google Docs products, learners can view comments made by teachers, allow

other members to edit the document and collaborate online asynchronous while chatting

right from the document. Other features of Google Docs products are the ability to view the document's revision history and revert to previous versions, translate document to different languages, email documents as attachments to others and download the document to any computer's desktop as a Word, OpenOffice, RTF, PDF, HTML or zip file. Google Docs operates similar to Microsoft Office, therefore, any user familiar with Microsoft Office will be able to easily navigate and utilize all of Google Docs products.

An advantage for using Google Docs products is that teachers and students do not need to have word processing software installed on their computers or tablets or mobile device. Also, documents, spreadsheets, and presentations can be accessed from any computer or mobile device anywhere in the world. Finally, this is a free service and some of the products may be accessible without Internet connection.

Disadvantages to using Google Docs products are:

- Private or shared data is stored on the Google servers.

- A person must be sign-up with a Google account in order to use the products.

- May not be always supported by all browsers.

- There is a learning curve for new users on how to navigate the location of where the functions are located and the use basic features.

Google Docs is aligned with the revised Denville's Technology Plan goals and objectives 1.1, 2.1, 3.1 and 3.2.

Summary and Conclusion

The learning management system (LMS) for Denville's distance learning program needs to support a blended learning experience appropriate to a K-8 environment; Edmodo is recommended as the LMS to provide this service. Also BrainPop and Google Docs are

recommended to fulfill other requirements of the distance-learning program that is being

proposed. After careful consideration and review the subscription for Discovery

Education should be eliminated from the budget. Other online services can be provided,

at no cost to the district, for the teacher to provide an enriched online learning

environment to replace the services that Discovery Education provides. The yearly

maintenance plan to replace 155 laptops can proceed as a result of the savings realized in

the following budget proposals (see Appendix A). Certified staff members would

conduct the training at a cost of $500.00 per day per instructor for a total of

$1500.00. Three-year subscription to BrainPOP saves the district 15%, or $1,032.75.

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Appendix A
Budget Spreadsheet

15	**Personnel Costs Subtotal**		$ -	$ -	$ -	$ -
16						
17	**Project Tools and Equipment**	(155 Laptops Yearly Equipment Maint.)	$ 30,845.00	$ 30,845.00	$ 30,845.00	$ 30,845.00
18	**Project Facilities**		$ -	$ -	$ -	$ -
19	**External Services**					
20	Consulting		$ -	$ -	$ -	$ -
21	Other		$ -	$ -	$ -	$ -
22	**External Services Subtotal**		$ 30,845.00	$ 30,845.00	$ 30,845.00	$ 30,845.00
23						
24	**Professional Development and Training**		$ 1,500.00	$ 1,500.00	$ 1,500.00	$ 1,500.00
25	**Software**					
26	Application License	(BrainPop)	$ 2,295.00	$ 1,950.75	$ 1,950.75	$ 1,950.75
27	Database License		$ -	$ -	$ -	$ -
28	Operating SystemLicense		$ -	$ -	$ -	$ -
29	Monitoring and Management Tool	(Premium Features Edmodo)	$ 1,800.00	$ 1,800.00	$ 1,800.00	$ 1,800.00
30	Other Software		$ -	$ -	$ -	$ -
31	**Software Subtotal**		$ 5,595.00	$ 5,250.75	$ 5,250.75	$ 5,250.75
33	**Hardware**	(Off-Site Server no Hardware Required)				
34	Application Platform Acquisitions		$ -	$ -	$ -	$ -
35	Database Platform Acquisitions		$ -	$ -	$ -	$ -
36	Monitoring and Management Tool Platform Acquisitions		$ -	$ -	$ -	$ -
37	Peripheral Hardware Acquisitions		$ -	$ -	$ -	$ -
38	Facilities Required to House and Secure Environment		$ -	$ -	$ -	$ -
39	Personnel involved in platform acquisition and construction		$ -	$ -	$ -	$ -
40	External Services		$ -	$ -	$ -	$ -
41	Training for new or changed tools		$ -	$ -	$ -	$ -
42	Netowork and Communications for Application Platform		$ -	$ -	$ -	$ -
43	**Hardware Subtotal**		$ -	$ -	$ -	$ -
44						
45	**Total**		$ 68,785.00	$ 68,440.75	$ 68,440.75	$ 68,440.75