BEST PRACTICES IN K-12 ONLINE AND HYBRID COURSES

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In the following report, Hanover Research outlines best practice approaches in the development and implementation of high quality online and hybrid courses for K-12 students. This report includes four profiles of exemplary district-level online and hybrid programs and details the elements of the online learning options offered to secondary students.



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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

A rising demand for online learning at the K-12 level has led to a drastic increase in the availability of online courses and programs for secondary students. In fact, the widespread implementation of K-12 online learning programs occurred fairly recently, with most well-established programs only beginning roughly 10 years ago. The International Association for K-12 Online Learning (iNACOL) estimates that the presence of K-12 online learning programs is growing at a rate of 30 percent annually.¹

The literature suggests that currently available K-12 online learning programs are diverse in structure and course quality. As a growing number of school districts and states pursue online learning options for students, it is important to consider the expertise of well-established K-12 programs and post-secondary institutions. This report presents best practice approaches to the development and management of high-quality and rigorous online and hybrid coursework. In addition, it provides four detailed profiles of effective online and hybrid secondary education programs presently available to middle school and high school students. The report comprises the following sections:

- Section I: Overview of Online Learning discusses online learning in K-12 education and identifies challenges faced by school districts in their attempts to provide highquality online coursework.
- Section II: Approaches to Quality Online Learning presents a number of promising practices that are associated with high-quality and rigorous online learning programs.
- Section III: Online/Hybrid Learning Profiles includes detailed profiles of four highquality online and hybrid learning programs.

Below we present key findings from this research.

KEY FINDINGS

School districts encounter a number of barriers in their implementation of online and hybrid courses, with the most commonly cited challenge being online course quality. Generally, districts have the option to develop their own curriculum internally or purchase it from an outside online curriculum provider. Importantly, the literature notes that the quality and rigor of pre-developed curriculum varies substantially across providers.

² Ibid.

¹ Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." iNACOL, April 2009. p. 2. http://www.inacol.org/resource/promising-practices-in-online-learning-management-and-operations-of-online-programs/

- The incorporation of collaborative opportunities is cited as an effective approach for promoting rigor in online courses. Research suggests that collaborative assessments further engage students and teach them valuable problem-solving and critical-thinking skills. A number of successful online and hybrid learning programs profiled in this report use collaborative elements to strengthen the quality and rigor of students' online learning experiences.
- Numerous sources recommend that program leaders establish a course design team comprised of various stakeholders to ensure the development of high-quality and rigorous online coursework. iNACOL suggests that the online course design team should include a project manager, content writers, instructional designers, multimedia developers, and copy editors. Following the initial course design and implementation, courses should also be reviewed and evaluated by teachers and students so that necessary revisions can be made to improve course quality.
- The appearance and layout of a course webpage can have an impact on the overall quality of an online course. Since technology is central to the effectiveness of online courses, the course webpage may determine how well learning is facilitated. In fact, a number of post-secondary institutions provide instructors with guidelines that describe research-based practices in online course design. Experts recommend that important course documents, such as the syllabus and course schedule, be easily accessible on the course website.
- The transition from face-to-face instruction to an online learning environment requires instructors to take on new roles and responsibilities. The literature specifies that the pedagogy for online courses varies substantially from that of traditional classrooms. To promote quality online instruction that encourages student engagement, research recommends that online learning providers establish communication guidelines and provide ongoing professional development for all teachers.

SECTION I: OVERVIEW OF ONLINE LEARNING

This section of the report provides a brief overview of online learning and the characteristics of online courses currently available in K-12 education. In addition, it identifies some common challenges faced by school districts in their provision of high-quality online coursework.

GROWTH AND BENEFITS OF ONLINE LEARNING

The widespread implementation of K-12 online education is still relatively recent, with the most well-established programs developed within only the last five to 10 years.³ Although the incorporation of online learning at the K-12 level is fairly new, the availability and use of online learning opportunities has increased drastically in the past decade. According to the Innosight Institute, approximately 45,000 K-12 students were enrolled in an online course in the year 2000. By 2010, the number of K-12 students participating in some form of online learning exceeded 4 million.⁴ Additional data from the International Association for K-12 Online Learning (iNACOL) indicates that in 2009, more than half of school districts nationwide provided students with online learning opportunities.⁵ In fact, several states have even passed laws that encourage or require schools to provide online learning opportunities to their students.⁶

Interest in online learning at the school, district, and state level continues to increase as more stakeholders begin to recognize the benefits associated with high-quality online and hybrid K-12 programs. A 2012 report by the U.S. Department of Education's Office of Educational Technology identified numerous benefits associated with the provision of online learning opportunities for K-12 students, including the following:⁷

- Broadening access in ways that dramatically reduce the cost of providing access to quality educational resources and experiences, particularly for students in remote locations or other situations where challenges such as low student enrollments make the traditional school model impractical;
- Engaging students in active learning with instructional materials and access to a wealth of resources that can facilitate the adoption of research-based principles and best practices from the learning sciences, an application that might improve student outcomes without substantially increasing costs;

³ Ibid.

⁴ Staker, H. "The Rise of K-12 Blending Learning: Profiles of Emerging Models." Innosight Institute and Charter School Growth Fund, May 2011. p. 1. http://www.christenseninstitute.org/wp-content/uploads/2013/04/The-rise-of-K-12-blended-learning.emerging-models.pdf

⁵ Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. p. 2.

⁶ Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." NPR, February 2015.

http://www.npr.org/sections/ed/2015/02/02/382167062/virtual-schools-bring-real-concerns-about-quality

⁷ Bulleted text taken verbatim from: Bakia, M. et al. "Understanding the Implications of Online Learning for Educational Productivity." Office of Educational Technology, US Department of Education, Jan. 2012. p. vii. http://eric.ed.gov/?id=ED532492

- Individualizing and differentiating instruction based on student performance on diagnostic assessments and preferred pace of learning, thereby improving the efficiency with which students move through a learning progression;
- Personalizing learning by building on student interests, which can result in increased student motivation, time on task, and ultimately better learning outcomes;
- Making better use of teacher and student time by automating routine tasks and enabling teacher time to focus on high-value activities;
- Increasing the rate of student learning by increasing motivation and helping students grasp concepts and demonstrate competency more efficiently;
- Reducing school-based facilities costs by leveraging home and community spaces in addition to traditional school buildings;
- Reducing salary costs by transferring some educational activities to computers, by increasing teacher-student ratios or by otherwise redesigning processes that allow for more effective use of teacher time; and
- Realizing opportunities for economies of scale through reuse of materials and their large-scale distribution.

Online and hybrid course options also appeal to schools and districts that may be unable to offer certain classes in a face-to-face format due to lack of student enrollment or the unavailability of qualified teachers. As noted above, a number of districts, specifically in more rural regions, are relying on online education as a means to increase the number and variety of available course offerings.

Approaches to Online Learning

Online education courses can vary substantially depending on the type of courses offered, the grade levels served, and the nature of the students who are enrolled. Online learning programs can be full-time or supplemental, and may be synchronous or asynchronous. The majority of online programs are asynchronous, meaning that students and teachers do not necessarily have to be online at the same time, and coursework is delivered in an online format and can be accessed at any time. Synchronous courses operate in real-time and typically require students to attend virtual classes wherein they have live interaction with their peers and instructor during a specific time period. ¹⁰

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⁸ Christensen, C.M. and M.B. Horn. "How Do We Transform Our Schools?" *Education Next*, 8:3, Summer 2008. http://educationnext.org/how-do-we-transform-our-schools/

⁹ Brown, D. "Rural Districts Bolster Choices with Online Learning." *Learning & Leading with Technology*, 39:6, January 2012. p. 13.

 $http://eric.ed.gov/?q=online+learning\&ff1=dtySince_2006\&ff2=eduElementary+Secondary+Education\&id=EJ9828\\34$

¹⁰ [1] Watson, J.F. "A National Primer on K-12 Online Learning." iNACOL, April 2007. pp. 5-6. http://connectionsacademy.com/Libraries/pdfs/200704_NACOL_OnlineLearningPrimer.sflb.ashx

^{[2] &}quot;Asynchronous E-Learning Vs. Synchronous E-Learning." Mindflash. https://www.mindflash.com/asynchronous-synchronous

There are also a number of contexts in which online learning can be delivered. The literature indicates that the operation of online programs can occur across multiple schools, districts, and states. The geographic reach of a program can impact the quality of online learning, as online courses are typically developed to align with specific state or district-level standards. 11 A report published by the Educational Testing Service specifies that there are five primary types of online learning programs present in K-12 public schools, including: 12

- State virtual schools are state-led online learning programs that are managed by state education agencies and funded via legislative appropriations and supplemental fees. Typically, state virtual schools provide supplementary courses to middle school and high school students.
- Multi-district online schools are often organized as K-12 online charter schools that serve multiple districts. A number of multi-district online schools are associated with educational management organizations (e.g. K12, Connections Academy, and Advanced Academics). The majority of multi-district online schools offer full-time programs and must meet the same accountability measures as traditional district schools.
- Single-district programs are run by a single school district and are designed to serve students within that district, though a number of single-district programs do allow students from outside the district to enroll. Single-district programs may choose to develop the courses themselves or purchase them from a full-time online school or state virtual school. Courses offered through single-district programs are usually supplemental and incorporate hybrid learning opportunities.
- Consortium programs are hybrid learning programs that are run by a group of school districts, a non-profit, or an intermediate education agency. They can operate across multiple districts, states, or internationally.
- Post-secondary programs are online options that are run by a university, college, or other postsecondary organization and provide credit recovery or high school courses for K-12 students. Post-secondary programs can be both full- and part-time, and are generally funded through course fees or program tuition costs (e.g. Stanford Online High School and University of Nebraska Independent Study High School).

It is important to note that there is a broad range of ways in which the aforementioned program types can incorporate online learning into K-12 education. For example, some online education programs deliver instruction entirely online while others may combine certain elements of online learning with traditional face-to-face instruction. According to iNACOL, there is a continuum of hybrid learning that comprises various approaches to instruction. This is depicted in Figure 1.1 on the following page. 13

¹² Bulleted points adapted from: Natale, C.F. "Teaching in the World of Virtual K-12 Learning: Challenges to Ensure Educator Quality." Educational Testing Service, July 2011. pp. 10-11.

https://www.ets.org/s/educator_licensure/ets_online_teaching_policy_final_report.pdf

¹³ Watson, J. "Blended Learning: The Convergence of Online and Face-to-Face Education." iNACOL. pp. 5-6. http://files.eric.ed.gov/fulltext/ED509636.pdf

Fully online curriculum with all learning done online and at a distance and no face-to-face component. Fully online curriculum with options for face-to-face instruction, but not required. Mostly or fully online curriculum with select days required in classroom or computer lab. Mostly or fully online curriculum in computer lab or classroom where students meet every day. Classroom instruction with significant, required online components that extend learning beyond the classroom and beyond the school day. Classroom instruction integrating online resources, but limited or no requirements for students to be online. Traditional face-to-face setting with few or no online resources or communication.

Figure 1.1: Continuum of Online Education Program Types

Source: iNACOL

BARRIERS TO QUALITY ONLINE EDUCATION

Although elements of online learning can present a range of benefits for both students and districts, stakeholders struggle with concerns about the quality of education being provided through online and hybrid courses. According to NPR, "there are big quality divides in the world of e-learning providers." In fact, a reported cited by NPR found that two-thirds of fulltime online schools are rated as academically unacceptable, with graduation rates substantially below the average of all public schools. 14

Meanwhile, research also suggests that school districts that develop their own programs face similar challenges in their provision of quality online learning. A 2009 survey by The Sloan Consortium asked 867 school district administrators nationwide about the challenges they face in their provision of fully online or hybrid learning courses. According to their results, course quality was cited as the primary area of concern among district administrators, with approximately 48 percent of respondents identifying online course quality as a barrier to online learning. 15

¹⁴ Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." Op. cit.

¹⁵ Picciano, A.G. and J. Seaman. "K-12 Online Learning: A 2008 Follow-up Survey of U.S. School District Administrators." The Sloan Consortium, January 2009. p. 6. http://files.eric.ed.gov/fulltext/ED530104.pdf

The existing literature identifies a number of important differences between online instruction and face-to-face instruction that may have an impact on the quality and rigor of an online learning program. First, the curriculum in an online course should be different from that of a traditional classroom in order to create a more personalized learning experience. In most online courses, students must engage themselves in the curriculum on their own time without in-person

"Course quality was cited as the primary area of concern among district administrators, with approximately 48 percent of respondents identifying online course quality as a barrier to online learning."

guidance from a teacher. Therefore, the curriculum for an online course, unlike traditional face-to-face curriculum, must consider expectations for student participation, assignments, and pacing in advance. According to experts, the curriculum should be "prepared to support learners with varied reading levels and learning needs and identify supplemental resources for their curriculum." ¹⁶ In addition, although online course management systems may collect student data and performance indicators, the incorporation of individualized assessments and project-based learning opportunities becomes more difficult in a fully online setting. ¹⁷

An additional challenge faced in online learning relates to the differences that exist in social dynamics between instructors, students, and peers in an online setting. In online courses, electronic message boards may become a focal point of instruction, but teachers and students may not have the skills necessary to effectively facilitate meaningful communication. For example, a professor and faculty chair from the University of Phoenix warns that online students may receive a "less academically rigorous education because they are not challenged to be independent thinkers." If the communication and social interaction aspects of an online course are not adequately present, instructors can appear ineffective and students may question the quality of their ideas. ¹⁸

Research indicates that technology can also hamper the quality of an online course. To be effective, teachers must be understand how to use relevant and necessary technology to guide students' learning. A poor understanding of technology may negatively impact an instructor's communication and instruction. Moreover, technical problems can interrupt the progress of an online course, so online instructors must be knowledgeable enough about technology to respond accordingly to any technical problems. ¹⁹ The Southern Regional Education Board confirms the relationship between quality online learning and an understanding of technology, stating that:

¹⁹ Ibid.

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¹⁶ Natale, C.F. "Teaching in the World of Virtual K-12 Learning: Challenges to Ensure Educator Quality." Op. cit., pp. 21-22.

¹⁷ Ibid., p. 22.

¹⁸ [1] Ibid., p. 22.

^[2] Muirhead, B. "Contemporary Online Education Challenges." *Journal of Instructional Technology and Distance Learning*, October 2004. http://itdl.org/journal/oct_04/article05.htm

Research shows that a teacher's skill in face-to-face teaching does not necessarily transfer to an online classroom. In a traditional class, the teacher combines instructional and content knowledge to determine which instructional strategies, activities and assessments to use. Technology is rarely the primary means of communication. In online instruction, the teacher must combine instructional and content knowledge with technology and rely on technology as the means of communication. Online teaching requires an expanded set of technology skills.²⁰

"Guidelines for Professional Development of Online Teachers." Southern Regional Education Board, March 2009. p.
 http://publications.sreb.org/2009/09T01_Guide_profdev_online_teach.pdf

SECTION II: APPROACHES TO QUALITY ONLINE LEARNING

Although there are concerns related to the rigor and quality of online courses, several effective online education programs at the K-12 and post-secondary level have operated long enough to provide insight into what elements are typically associated with high-quality online and hybrid courses. Hanover Research examines the extant literature and identifies a number of promising practices associated with high-quality and rigorous online learning programs that are further detailed in the following subsections.

ELEMENTS OF QUALITY ONLINE COURSES

COURSE DEVELOPMENT

In regards to course development, districts typically have the option to develop their own online courses or purchase pre-developed curriculum from an outside source. Importantly, a number of districts use a combination of both approaches. Results from 2007 iNACOL survey of online schools revealed that 23 percent of online schools licensed all their courses, while another 23 percent developed all their own courses. The remaining online schools used a combination or both options, with 53 percent licensing over half of their available courses from an outside source. According to iNACOL, there are numerous benefits associated with both approaches to online course development. Figure 2.1 outlines the benefits of each option. ²¹

Figure 2.1: Benefits of Online Course Development Options

CURRICULUM OPTIONS	BENEFITS
	Vendor curriculum development teams typically have a greater level of expertise than most school districts. Their development teams include specialized writers, instructional designers, multimedia developers, and technologists.
	 Developers can offer a wide variety of curriculum and courses that may be difficult to generate at the district-level.
Purchase Outside Curriculum	 A district-level program may lack the funding and/or expertise necessary to develop and update high-quality course content.
	 Curriculum and course developers have greater capacity to incorporate more user-testing and user feedback when compared to districts or individual schools.
	 Developers are more equipped to maintain curriculum and course updates as technology changes.

²¹ Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. pp.7-8.

CURRICULUM OPTIONS	BENEFITS
Develop Original Curriculum Internally	 Districts can ensure that their curriculum and courses properly align with state and district standards.
	 District-level curriculum developers can incorporate teachers and their input into the process more than licensed content may allow.
	 The costs of purchasing outside curriculum may greatly exceed the costs of developing it internally.
	 Districts have the opportunity to incorporate specific instructional philosophies if they choose to (e.g. project-based learning).

Source: iNACOL²²

It is important to note that online curricula delivered by outside providers tends to vary in quality and rigor.²³ For example, Temecula Valley Unified School District switched to a more rigorous online curriculum provider in 2008 after their previous online program was critiqued by stakeholders for being too easy.²⁴

For those districts that choose to develop their own courses and curriculum, it is recommended that they develop a specialized team to support the course development process. Historically, teachers were primarily responsible for the design and creation of their own courses, but as the field of online learning becomes more widespread and complex, many school districts now incorporate multiple teachers, content experts, and instructional specialists into the course design process to guarantee the development of a high-quality course. As the technology associated with online courses increases in complexity, there is also a growing need to involve individuals with the technological skills necessary to effectively produce and publish online course content. ²⁵ According to an *Educause Quarterly* article entitled "Implementing Best Practices in Online Learning," the creation of a successful online education program requires teamwork and careful consideration that is centered on student learning. ²⁶ Figure 2.2 on the following page outlines iNACOL's suggested composition of an online course design team at the K-12 level.

²² Table adapted from: Ibid., pp. 7-8.

 $^{^{\}rm 23}$ Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." Op. cit.

^{24 &}quot;Restoring Rigor to Summer School Online Credit Recovery." Apex Learning. p. 2. http://www.apexlearning.com/documents/Success_Story_Temecula.pdf

²⁵ Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. p. 6.

²⁶ Abel, R. "Implementing Best Practices in Online Learning." *Educause Quarterly*, November 2005, p. 76. http://net.educause.edu/ir/library/pdf/eqm05312.pdf

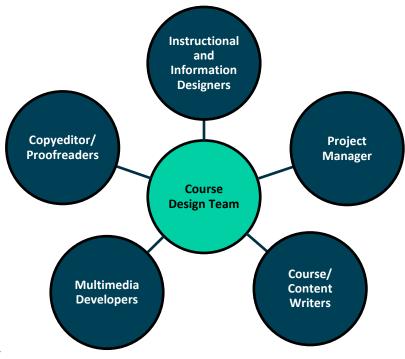


Figure 2.2: Recommended Members of an Online Course Design Team

Source: iNACOL²⁷

After a course is first developed, the literature specifies the importance of continuing evaluation to facilitate any necessary course improvements. In order to evaluate the efficacy of an online course, districts should gather feedback about the course from both teachers and students. The type and scope of revisions are contingent on the results of the evaluation, but can be conducted continuously or be implemented on a set schedule, depending on the preferences of the district. To garner feedback about online program quality, TRIO Wolf Creek Distance Learning Charter School surveys students and teachers at the end of each course to inquire about any additional courses that should be developed and to ask about any improvements that can be made to already-existing online coursework.²⁸

COURSE WEBSITE

The appearance and layout of a course website or course page in a learning management system (LMS) can have a large impact on the overall quality of the course, as it can determine how well student learning is facilitated. At the postsecondary level, many organizations publish guidelines for instructors that detail research-based practices in online course website design. The design of a course website should be simple yet professional, and should avoid "gimmicky images and unusual color schemes." Furthermore, the course website should provide students with easy access to all relevant course materials, such as

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²⁷ Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. p. 6.

²⁸ Ibid., p. 8.

the course schedule and syllabus. To ensure the development of high-quality online course websites, California State University- Chico developed a rubric for online instruction, and recommends that developers of online course websites adhere to the organization and design standards outlined in Figure 2.3.

Figure 2.3: Recommended Standards for Online Course Website Design

AREAS RELATED TO ONLINE ORGANIZATION AND DESIGN	Relevant Standards
	Syllabus is easily located
	 Links to other parts of the course or external sources are accurate and up-to-date
	■ Instructional materials required are easily located
	Course content is organized in a logical format
Course navigability and organization	■ Topics are clearly identified and subtopics are related to topics
Organization	Sequential topics are annotated with dates
	 Course schedule is available in a printer-friendly format for student convenience
	 Organization and sequencing of the course content is logical and clear
	Resources are separated into "required" and "optional" categories
	Includes the following elements:
	Course objectives
	Course completion requirements
	Expectations of students' participation, honesty, etc.
Syllabus	Timeline for student participation is clear
	Faculty member(s) introductory information
	Expectations of availability of and turnaround time for contact with instructor
	Course schedule is summarized in one place
Aesthetic design	■ Typeface is easy to read
	 Sufficient contrast between text and background makes information easy to read
	 Appropriate images supporting course content add visual interest
	 Design keeps course pages to a comfortable length with white space
	Layout of course is visually and functionally consistent
	Navigability is clear, simple, and user friendly
Consistency in course	Spelling and grammar are consistent and accurate
	■ Written material is concise
	 Language of written material is friendly and supportive
	Clear directions are given for each task or assignment
	Sentences and paragraphs are brief

AREAS RELATED TO ONLINE ORGANIZATION AND DESIGN	Relevant Standards
Universal accessibility	 Universal accessibility concerns are addressed throughout the course, including transcripts of any non-text objects Images are optimized for speedy display and include alternative text Alternative formats of materials provided, when possible (e.g., optional print packet of extensive reading materials, CD of audio clips used in course, etc.) Use of color adds interest but does not disadvantage those with color blindness

Source: California State University, Chico²⁹

ONLINE INSTRUCTION

The transition from face-to-face instruction to instruction in an online learning format requires instructors to take on new roles and responsibilities that vary from those of a traditional classroom setting. To facilitate a quality online course, teachers must adapt their pedagogy to make it appropriately engaging for distance learners. According to the research, the presence of meaningful communication and effective instruction is central to students' engagement in an online course. To accomplish this, iNACOL recommends that online learning programs establish pre-determined course policies that specify minimum communication requirements for instructors and students. In fact, iNACOL presents a number of model communication guidelines currently in use by various K-12 online learning programs:

- Student email is answered within 24 hours
- The teacher initiates phone calls to each student at least monthly
- A weekly progress check is recorded for each student
- Student discussions are actively facilitated
- Parent calls are held monthly
- Weekly or monthly face-to-face meetings are held with a mentor or supervisor

In addition to the establishment of effective communication practices, online instructors often face challenges in modifying their pedagogy to meet the unique needs of an online learning environment. Importantly, iNACOL indicates that the existing research on effective online instruction at the K-12 level is not extensive; therefore, Hanover Research examined the literature related to best practices for online instruction at the post-secondary level. A report published by Penn State's World Campus identifies a number of recommended online teaching principles and characteristics, as described in Figure 2.4.

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²⁹ Table adapted from: "Instruction Design Tips for Online Learning." California State University, Chico, 2002. pp. 3-4. http://www.csuchico.edu/tlp/resources/rubric/instructionalDesignTips.pdf

³⁰ Keengwe, J. and T.T. Kidd. "Towards Best Practices in Online Learning and Teaching in Higher Education." *MERLOT Journal of Online Learning and Teaching*, June 2010. p. 533. http://jolt.merlot.org/vol6no2/keengwe_0610.pdf

³¹ Bulleted points taken verbatim from: Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. p. 12.

Figure 2.4: Principles of Effective Online Instruction

Figure 2.4: Principles of Effective Online Instruction	
TEACHING PRINCIPLE	DESCRIPTION OF EFFECTIVE ONLINE INSTRUCTION
Actively engage in online instruction	Although the majority of the curriculum or course material is designed and available to students at the start of the course, online instructors should still take an active role in the distance education.
	 An instructor's role as a guide, facilitator, and teacher is arguably more important in an online course due to the lack of any face-to-face interactions.
	Online courses provide teachers with the opportunity to focus more on student interactions during the duration of the course because the course content is already generated.
	 Instructors should pay attention to students' course program, communicate course expectations, and manage students' learning experience.
Practice proactive course management strategies	 Examples of proactive course management studies include: monitoring assignment submissions, communicating with students, reminding students of missing or upcoming deadlines, and making course adjustments where and when necessary.
	■ The level of course management should be adapted based on the instructor, the size of the class, the students, and the demands of the course. It is often challenging for instructors to find the appropriate level of course management that works within their online classroom and works for their own time management.
	Instructors should set clear and defined expectations for students and communicate them effectively so that the roles and responsibilities of the instructor and the students are clearly defined.
Establish patterns of course activities	The establishment of patterns and routines during an online course can help instructors and students develop a sense of time management to balance the expectations of the online course with their non-course, life activities.
	 A course schedule helps instructors contain the course activities into an appropriate duration and workload.
	 A pattern of activities and timed expectations may assist students in their ability to keep pace with the class requirements.
	It is beneficial for an instructor to establish work timeframes wherein course-related activities take place so that the students become familiar with the defined work patterns and expect that the instructor's responses will be confined to a predetermined timeframe.
Prepare for potential course interruptions	 Communicate any unexpected changes to students in order to reduce the level of stress and anxiety associated with changes to the pre-established course pattern.
	It is recommended that instructors inform students of any changes to the course schedule via: email, a posting on an announcement page, a phone message. Any interruptions that are scheduled in advance can be noted in detail on the syllabus so that students can prepare accordingly.
	 For any longer-term interruptions to the course, instructors can work with a teaching assistant or colleague to manage the course during their absence.

TEACHING PRINCIPLE	DESCRIPTION OF EFFECTIVE ONLINE INSTRUCTION
Respond to student inquiries in a timely manner	Instructors should strive to provide feedback to student inquiries within one business day. If an instructor is unable to respond in full, they should send a shorter response explaining when a more detailed response will be sent.
	It is important to note that a students' ability to complete their work may be dependent on a response from the instructor; therefore instructors should establish and maintain a reasonable response timeframe for their course.
	The research related to online students satisfaction levels cite instructor connectedness as the most rewarding or frustrating aspect of an online course experience.
	Instructors are expected to monitor student inquiries regularly and adjust course operation or content if a similar inquiry is received on multiple occasions. It may allude to the need for a refinement in instructions or content, or point to a need for additional clarification.
	■ Instructors should develop a plan for how assignments will be graded and returned to students in a timely manner. An expectation of a two-day turnaround for assignments and quizzes ensures that students receive the necessary feedback to assist their course progress within a reasonable time period.
Establish a timely process	Instructors should inform students about when grades are posted or expected to be posted, particularly if there is a delay in the timeline.
for returning assignment grades	There are often times when an instructor may not be able to offer a quick turnaround for an assignment and in those cases; it is advised that instructors communicate with students about when they can expect the feedback to limit the negative effects on the class.
	 Graded assessments are valuable because they can act as a form of effective feedback for students to help them take corrective measures, if necessary.
Use the Learning Management System (LMS) for communication	It is recommended that instructors and students communicate through the online course learning system, as it is often complicated for students and instructors to maintain communication through multiple contact emails.
	The use of the LMS as a primary communication tool can help students and instructors review the chain of communication more easily and maintain relevant communications in one location.
	Through the course management system, student and instructor data is stored in an institutionally managed system, which ensures confidentiality and security.
Ensure course quality	The quality assurance process is important in the design, development, and delivery on an online course because it will contribute to students' learning and satisfaction.
	 Instructors should review and test the course across all relevant domains to ensure quality in course content, instructional design, and system performance.
	Instructors can gather input from users and their colleagues and use that feedback to further improve the design and delivery of the course.
	Proactive quality assurance processes will reduce the amount of time instructors have to spend during the course to address system problems, instructional confusions, or potential user frustration.

Source: Magna Publications 32

³² Tabled adapted from: Ragan, L.C. "10 Principles of Effective Online Teaching: Best Practices in Distance Education." Magna Publications, Inc.

TRAINING FOR ONLINE INSTRUCTORS

The pedagogical skills of an online instructor may have a large impact on students' experience in an online course. Teachers who transition from a traditional classroom environment to teaching an online course must make a number of changes to their pedagogy and overall instruction. For instance, online instructors rely heavily on technology for instruction and communication purposes.³³ Therefore, schools and districts should aim to provide institutional support to facilitate teachers' ability to use effective online instructional practices.³⁴

iNACOL specifies that professional development for online instructors should begin at orientation and continue throughout the duration of a teacher's online teaching career. The existence of an orientation or training program is important because it acts as a uniform starting point for all online instructors and can establish any relevant expectations for course management. Continuing professional development is equally important, particularly because the technology and recommended pedagogy associated with online learning at the K-12 level is consistently changing. The professional development for online instructors should help teachers develop skills in the areas of: online instruction, course management, technology, and socialization. For example, iNACOL suggests the following as prospective topics for continued online teacher professional development: The professional development is a should be professional development.

- Helping teachers understand how to motivate individual learners.
- Enhancing student interaction and understanding without visual cues.
- Tailoring instruction to particular learning styles.
- Developing Web 2.0 and 21st century skills.
- Modifying interactive lessons to meet individual student needs, including the needs of disabled students.
- Developing heightened communication skills to enhance email correspondence and discussion board postings, and to recognize the tone of writing and the nuances of word usage.
- Improving the time management skills critical for online teachers.

Online and hybrid teachers should be trained by top-performing teachers who have substantial experience in online education. The incorporation of a master-level teacher ensures expertise, but also offers a sense of credibility among more novice online

https://www.mnsu.edu/cetl/teachingwithtechnology/tech_resources_pdf/Ten%20Principles%20of%20Effective% 20Online%20Teaching.pdf

³³ Keengwe, J. and T.T. Kidd. "Towards Best Practices in Online Learning and Teaching in Higher Education." Op. cit., p. 538.

 $^{^{\}rm 34}$ Abel, R. "Implementing Best Practices in Online Learning." Op. cit. p. 1.

³⁵ Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. p. 11.

³⁶ Keengwe, J. and T.T. Kidd. "Towards Best Practices in Online Learning and Teaching in Higher Education." Op. cit., p.

³⁷ Bulleted points taken verbatim from: Watson, J. and B. Gemin. "Promising Practices in Online Learning: Management and Operations of Online Programs." Op. cit. p. 11.

instructors. According to the literature, a number of effective online programs promote collaboration and professional development through mentoring initiatives, wherein experienced online teachers serve as role models for less-experienced instructors.³⁸

PROMOTING RIGOR IN ONLINE EDUCATION

In addition to elements of quality online education, the literature recognizes numerous approaches that can effectively enhance the rigor of an online course. A 2001 study by Charles Graham and Christopher Essex examined what elements constitute academic rigor in online courses at the postsecondary level. The analysis examined interview data gathered from faculty members to determine what methods instructors use to ensure online courses are appropriately challenging for students. ³⁹ Figure 2.5 includes the specific instructional strategies cited by online instructors and highlighted in the analysis.

Figure 2.5: Approaches to Promote Academic Rigor within Online Courses

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CATEGORY	INSTRUCTIONAL APPROACH
Expectations	Make expectations clear
	■ Make expectations high
	Make grade criteria explicit
	■ Increased demands because of the absence of feedback from face-to-face contact
Selection of Readings	Provide high quality readings and texts
	■ Provide materials a step above students' level
	Provide a variety of materials
Critical Thinking	■ Require and support students' efforts to examine multiple issues from multiple
	perspectives
	Require students to cite the readings
	Require student reflections
Modeling	■ Model good scholarship
	■ Model rigorous thinking
Support	Provide appropriate scaffolding for learners
	Expend additional effort to get feedback from students
Discourse	Ask questions that encourage thinking about relationships and not memorization
	Structure online discussions carefully
Assignments	Create challenging assignments
	Create assignments that require high cognitive processes
	 Design authentic and realistic projects and problems for the students
L	I .

Source: Charles Graham and Christopher Essex 40

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³⁸ Ihid nn 12-13

³⁹ Graham, C. and C. Essex. "Defining and Ensuring Academic Rigor in Online and On-Campus Courses: Instructor Perspectives." National Convention of the Association for Educational Communications and Technology, November 2001. http://files.eric.ed.gov/fulltext/ED470163.pdf

 $^{^{40}}$ Table adapted from: Ibid., pp. 334-335.

In regards to online curriculum, one article from the journal *For Each to Excel* specifies that there are certain characteristics associated with rigorous online course curriculum. First, the author highlights the importance of student engagement in online learning and suggests that engagement can be best achieved through project-based learning and collaborative opportunities. Quality online courses "should balance group assessments and individual assessments," as the incorporation of collaboration requirements teaches students valuable problem solving skills. Notably, the author specifies that simply sharing ideas on a discussion board is only the first step in meaningful collaboration. ⁴¹

For example, the instruction at Stanford Online High School, an independent rigorous and selective online program, revolves around bi-weekly live discussion seminars that use technology to enhance the environment of a traditional classroom. Within the live discussion seminars, students are expected to actively participate in live debates with their instructor and peers. According to Stanford Online High School, this instructional strategy engages students in advanced conversations while compelling them to think critically and actively about their positions and the positions of their online peers. ⁴²

Also noted is the importance of formative assessments in online courses. The integration of assessments that require students to solve a complex problem or complete a project is typically more engaging because they involve the construction of knowledge, and allows teachers to better understand student progress and learning.⁴³

HYBRID LEARNING

A 2012 report from the Michael and Susan Dell Foundation examined the implementation of various hybrid learning models across multiple schools and districts. The findings established a number of "lessons learned from implementation" while drawing from the experiences of participating schools, and include: ⁴⁴

- Create a process for innovation and continuous improvement: All schools developed a blended learning model but created a process for continued improvement, meaning that they allowed for changes in their pre-established model. Successful schools "emphasize that blended learning is less about implementing a static model than it is about using a model as a starting point for ongoing iterations and improvement."
- Understand the challenges of integrating online and offline learning: Many schools found disconnects between standards-based curriculum and the content of available

⁴¹ Miller, A.K. "Three 'Look-Fors' for Rigorous Online Courses." For Each to Excel, February 2012.

http://www.ascd.org/ascd-express/vol7/709-miller.aspx

⁴² [1] "Our Classrooms." Stanford University Online High School. https://ohs.stanford.edu/virtual_classroom.html [2] "Course Catalog 2014-2015." Stanford Online High School, June 2014. https://ohs.stanford.edu/OHS Course Catalog.pdf

⁴³ Miller, A.K. "Three 'Look-Fors' for Rigorous Online Courses." Op. cit.

Bulleted points adapted from: Bernatek, B., et al. "Blended Learning in Practice: Introduction to Case Studies from Leading Schools." Michael and Susan Dell Foundation. pp. 9-11. https://gosa.georgia.gov/sites/gosa.georgia.gov/files/Blended_Learning_in_Practice.pdf

online programs. Therefore, it is important to understand the ways in which online programs can be effectively integrated into learning while also realizing their shortcomings in order to find "their optimal place within instruction."

- Prepare for complex logistics of student movement: The majority of schools focused on refining the logistics of student movement in an attempt to maximize the number of instructional minutes provided to students.
- Budget additional time and resources for technology: In many instances, the infrastructure and resources needed to support online and blended learning exceeded what was originally anticipated. Therefore, it is recommended that districts allocate appropriate time and resources to the development of blended learning options.
- Anticipate the persistence of traditional school challenges: It is important to note that the schools that provided blended learning opportunities continued to focus on other areas related to student achievement that blended learning could not address.

The literature also specifies that schools that provide hybrid learning opportunities often articulated challenges related to the quality of available online education programming. According to the Michael and Susan Dell Foundation, "even the strongest online programs today are relatively new and have not yet realized their potential for delivering an effective, engaging learning experience."

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⁴⁵ Ibid., p. 11.

SECTION III: ONLINE/HYBRID LEARNING PROFILES

This section of the report includes profiles for both fully online programs and programs that provide blended learning options to students in K-12 schools and districts nationwide. The profiles provide a brief overview of the online learning program and describe the course elements and instructor expectations associated with each program.

FULLY ONLINE COURSES

FLORIDA VIRTUAL SCHOOL, FLORIDA

Florida Virtual School (FLVS) is an online school district available for middle school and high school students worldwide. FLVS was highlighted by NPR as an exemplar online school with consistently positive student outcomes. 46 FLVS students have the option to enroll in the program part-time, full-time, or as a homeschool student. Students who attend a traditional public school can enroll in up to three courses per year, while full-time, homeschool, and private school students can take up to six classes at a time. FLVS offers more than 140 courses and is free to Florida students. Students who are enrolled in the full-time program operate on a schedule similar to that of a traditional school year, and FLVS provides diplomas for graduating seniors.47

All online courses offered through FLVS are led by certified instructors and approved by the Southern Association of Colleges and Schools (SACS). In fact, FLVS has received various awards at the state, national, and international level, and students enrolled in FLVS perform as well or better on end-of-course tests and AP exams when compared to other Florida students.48

ONLINE COURSE ELEMENTS

The courses available through FLVS are entirely online. FLVS offers core, elective, career and technical education (CTE), and advanced placement (AP) courses to high school students. Middle school students have the option to enroll in core or elective courses. 49 Each course typically takes 18 weeks to complete, but the number of assignments and material covered varies across courses. Importantly, every course includes a specialized pace chart that is designed to inform parents and students of an appropriate course pace. 50 The curriculum available through FLVS was developed in partnership with Connections Academy by a development team comprised of educational experts. The curriculum aligns to Florida state

 $^{^{46}}$ Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." Op. cit.

⁴⁷ "How does FLVS work?" Florida Virtual School. http://www.flvs.net/Students/Pages/how-it-works.aspx

⁴⁸ [1] "Which Option is Right for Me?" Florida Virtual School. http://www.flvs.net/Students/Pages/which-option.aspx [2] Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." Op. cit.

49 "Course Listings." Florida Virtual School. http://www.flvs.net/Students/pages/find-course.aspx#highschool

⁵⁰ Florida Virtual School Student Progression Plan." Florida Virtual School, December 2014. pp. 23-24. http://www.flvs.net/areas/aboutus/Documents/2014-2015-Student-Progression-Plan.pdf

standards, and educational experts conduct ongoing evaluations of the curriculum to ensure that the online courses offered through FLVS provide the most effective student outcomes.⁵¹

Within each course, there are discussion-based assessments, collaboration assessments, and a mandatory final exam. Discussion-based assessments require students to have a verbal discussion with the instructor as a means of "ensuring comprehension and integrity." Collaboration assessments are not required but are encouraged, as they allow students to work collaboratively with their peers, which promotes real-world skills. Although the online courses offered through FLVS allow students to work on a flexible schedule, collaborative assignments require students to do group work in real time. ⁵² In addition to ongoing assessments, final exams are mandatory for students to receive course credit because they guarantee that a student has mastered the relevant educational standards. ⁵³

STUDENT SUPPORT

At the beginning of each course, students and parents are required to complete a welcome call with the instructor of every course for which a student is enrolled. In addition, online course instructors are expected to contact students and parents at least once each month to give an update about students' course progress and grades. FLVS teachers are required to be available to students via phone and text from 8 a.m. to 8 p.m. on week days and are also expected to be available for a few hours on the weekends. Moreover, instructors must provide assignment feedback within 48 hours of submission and respond to student and parent inquiries within 24 hours of receipt. 55

COMMONWEALTH CONNECTIONS ACADEMY, PENNSYLVANIA

The Commonwealth Connections Academy (CCA) is a public K-12 online school that operates throughout the state of Pennsylvania. CCA was one of 10 schools highlighted by iNACOL as an online education program that represents an outstanding use of blended and online learning. The CCA online program is available for students to enroll full-time and is carried out via a contract with Connections Academy, LLC. CCA is free for students and offers a variety of courses at every grade level, including core courses, electives, gifted and talented classes, honors, AP, and CTE coursework. The courses offered through CCA are carried out primarily online with limited face-to-face instruction, and the available curriculum exceeds all national and state standards. The course of th

⁵¹ "Florida Virtual School Full-Time Curriculum." Connections Academy.

http://www.connections a cade my.com/florida-virtual-school/curriculum/home.aspx

⁵² Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." Op. cit.

⁵³ Florida Virtual School Student Progression Plan." Florida Virtual School. Op. cit., pp. 23-24.

⁵⁴ Kamenetz, A. "Virtual Schools Bring Real Concerns About Quality." Op. cit.

⁵⁵ Florida Virtual School Student Progression Plan." Florida Virtual School. Op. cit., p. 23.

⁵⁶ Watson, J. "Blended Learning: The Convergence of Online and Face-to-Face Education." Op. cit. pp. 4-8.

⁵⁷ [1] "Our School." Commonwealth Connections Academy.

http://bluetoad.com/publication/?m=1702&l=1#{"issue_id":248759,"page":24}

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http://www.connectionsacademy.com/pennsylvania-cyber-school/curriculum/career-technical-education

ONLINE COURSE ELEMENTS

The curriculum used by CCA is provided by Pearson and developed by expert curriculum design teams. The design teams work with videographers, graphic designers, and computer programmers to help present the curriculum and lessons in an engaging way through the learning management system. The online curriculum offered through Commonwealth Connections Academy was developed over the course of 12 years to ensure it aligns with all relevant standards, and has received several curriculum awards from various technology-focused education organizations. ⁵⁸

Once enrolled in CCA, middle school and high school students work with specific subjectarea teachers for each course, but their learning is supposed to be guided by their learning coach. Learning coaches are typically parents or guardians who are in the same physical location as the student. Middle school and high school students are given a prescribed schedule that requires a minimum of 30 hours of work per week. CCA courses include teacher-led virtual instruction that can be accessed at any time along with associated assignments. Throughout the duration of their courses, students complete assignments, tests, and portfolio assignments. In conjunction with the asynchronous components, the courses also incorporate live online classroom discussions that allow students to ask questions, answer questions, and participate in collaborative conversations with their peers and teachers.⁵⁹

STUDENT SUPPORT

Students meet with their teachers regularly in a virtual setting through the live discussion sessions, and teachers are expected to continually monitor students' progress. CCA provides students with the opportunity to attend in-person activities, including field trips and extracurricular club meetings. To provide additional support to students, particularly those who may be struggling, CCA established drop-in centers where online students can meet with their teachers in person to receive more individualized in-person attention.

⁵⁸ "Program Guide." Connections Academy, 2015. p. 8.

http://bluetoad.com/publication/?m=1702&l=1#{"issue_id":248759,"page":10}

⁵⁹ [1] Ibid.

^{[2] &}quot;Our School." Commonwealth Connections Academy. Op. cit.

⁶⁰ "Our School." Commonwealth Connections Academy. Op. cit.

⁶¹ Watson, J. "Blended Learning: The Convergence of Online and Face-to-Face Education." Op. cit. pp. 8-9.

HYBRID OPTIONS

SPOKANE PUBLIC SCHOOLS, WASHINGTON

Spokane Public Schools offers a district-developed online education option that is featured as a successful blended learning program by the Clayton Christensen Institute for Disruptive Innovation. Spokane Public Schools (SPS) implemented an online learning program for students in 2005, and introduced hybrid learning opportunities across multiple district programs in an effort to improve student graduation rates. SPS offers several distinct blending learning programs:⁶²

- Individual Credit Advancement Now (ICAN) program is a blended course-recovery program for middle and high school students. It uses online courses that the district developed to help middle school students gain skills necessary for promotion to the next grade level and high school students meet on-time graduation goals.
- On Track Academy is an alternative school using a blended, personalized approach to keep students in school and help them earn a high school diploma. Students typically enter On Track Academy when they are behind on credit accumulation.

The district's hybrid learning programs incorporate elements of the successful online education program, Spokane Virtual Learning (SVL). Courses offered through SVL are led by an instructor and are created to align with relevant state and district standards. Although students can technically enroll in SVL full-time, SPS encourages students to only take a portion of their courses online. ⁶³

Since implementing hybrid and online learning options for students, SPS has seen a substantial increase in district graduation rates, which rose from 60 percent in 2007 to 83 percent in 2014. Moreover, a 2008-2009 legislative review of online education programs indicated that "SVL has some of the highest student completion and pass rates in Washington State."

ONLINE COURSE ELEMENTS

The online curriculum available through SVL is developed by top instructors in the Spokane region and mimics what is offered in traditional SPS classrooms. The courses are delivered in a fully online format that incorporates digital presentations, online videos, audio materials, and other virtual tools. ⁶⁵ The assignments are similar to those of a traditional course, and students are typically assessed via class participation, homework, group collaboration assignments, and tests. Most courses last approximately 36 weeks, but students are able to

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⁶² Bulleted points taken verbatim from: "Proof Points: Blended Learning Success in School Districts: Spokane Public Schools." Evergreen Education Group, 2015. p. 1. http://www.christenseninstitute.org/wp-content/uploads/2015/04/Spokane-Public-Schools.pdf

^{63 [1]} Ibid.

^{[2] &}quot;Spokane Virtual Learning." Spokane Public Schools. http://www.spokaneschools.org/page/17415
⁶⁴ Ihid.

⁶⁵ [1] Ibid.

^{[2] &}quot;Frequently Asked Questions." Spokane Virtual Learning. http://www2.spokaneschools.org/OnlineLearning/student_faq.php#courses

accelerate through the course if they wish. According to the SPS website, the online courses offered through SVL are as rigorous if not more rigorous than traditional district classes. ⁶⁶

The ICAN program allows middle school and high school students to take online courses through SVL to recover credit. Through the ICAN program, students have the opportunity to demonstrate mastery of certain standards and complete coursework that fills any gaps in knowledge. The ICAN program provides both face-to-face and online support. ⁶⁷

The On Track Academy was designed for academically at-risk students to assist those who are behind on necessary credits. The On Track Academy provides students with a flexible morning and afternoon schedule based on need. Within the On Track Academy, there are multiple sub-academies designed to help students meet their personalized learning goals, including:

- STEM Academy focuses on math and science
- PATH Academy is for students who wish to pursue CTE
- FLEX Academy is for students who cannot attend traditional school regularly and relies most heavily on the SVL coursework.⁶⁸

STUDENT SUPPORT

All of the instructors who teach online courses through SVL are certified in Washington State and "highly qualified" in their particular subject area. Instructors and students communicate through phone conversations, online chats, discussion boards, and other online messaging systems. Washington State Law requires that teachers and students communicate on a weekly basis through email, phone, or assignment feedback. If a student does not maintain contact with their teacher nor make regular progress throughout the duration of the course, they can be dropped from their SVL coursework. ⁶⁹

OMAHA PUBLIC SCHOOLS, NEBRASKA

The eLearning program provided by Omaha Public Schools (OPS) is featured as a successful hybrid model by iNACOL. OPS originally developed the online education program to assist students with credit recovery, but expanded it to incorporate all secondary students. Currently, there are over 17,000 students enrolled in OPS' eLearning Program. Some students are enrolled full-time, while others use it to supplement traditional classroom instruction. Students who are enrolled in online courses meet with an instructor at a physical location in the district and are transitioned to an increasing amount of online work

⁶⁶ "Frequently Asked Questions." Spokane Virtual Learning. Op. cit.

⁶⁷ "Proof Points: Blended Learning Success in School Districts: Spokane Public Schools." Evergreen Education Group.

⁶⁸ Ibid.

 $^{^{\}rm 69}$ "SVL Program Guide 2010-2011." Spokane Virtual Learning. p. 2.

http://www2.spokaneschools.org/onlinelearning/documents/SVL Program Guide.pdf

⁷⁰ Watson, J. "Blended Learning: The Convergence of Online and Face-to-Face Education." Op. cit. p. 13.

⁷¹ "Omaha Public Schools Elearning." LEAD Commission. http://www.leadcommission.org/profile/omaha-public-schools-elearning

at the discretion of the course instructor. Instructors determine the extent of students' online learning based on their online study skills and academic motivation. ⁷²

ONLINE COURSE ELEMENTS

The online courses are developed by the OPS eLearning Program through a "tandem development process," wherein online content is "assembled in a learning object format as well as full courses." This provides instructors with flexibility and easy access to online content in the classroom. To establish an effective internal process for the development of quality online courses, the OPS eLearning Program partnered with the Monterey Institute for Technology and Education (MITE). Furthermore, the district prioritizes networking among educator communities with a focus on finding best practices in technology infrastructure and course content development.⁷³

INSTRUCTOR EXPECTATIONS

Teachers who have hybrid learning students are responsible for monitoring their progress to determine how much face-to-face instruction is appropriate for each student. ⁷⁴ To assist all teachers with their incorporation of technology in the classroom, OPS provides eLearning training opportunities in the following areas: ⁷⁵

- 1:1 and Mobile Device Implementation
- Using iPads with Staff
- Flipped Learning
- Blended Learning
- Virtual Learning
- ANGEL Learning Management System
- Using Technology With Classroom Strategies That Work

⁷² Watson, J. "Blended Learning: The Convergence of Online and Face-to-Face Education." Op. cit. p. 13.

⁷³ Ibid.

⁷⁴ Ibid., p. 12.

Pulleted points taken verbatim from: "Curriculum Instruction and Assessment." Omaha Public Schools. http://district.ops.org/DEPARTMENTS/CurriculumInstructionandAssessment/tabid/132/ID/874/eLearning-Training-Opportunities.aspx

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