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ANGEL Adoption Grows Organically in Jefferson County Public Schools

INTRODUCTION

Like every K-12 school district, Jefferson County Public Schools in Louisville, Kentucky is faced with the challenge of meeting (and exceeding) mandated performance standards on a tight budget with a staff that is already stretched to the limit. One way the district is meeting this and its self-imposed challenge of providing every student in the large urban, suburban, and rural district "with both the opportunity and the support he/she needs to benefit from high-quality educational experience" is by maximizing its use of technology with the ANGEL Learning Management System (LMS).

According to Jana Hickey, Jefferson County Public Schools (JCPS) distance learning specialist, we "use ANGEL as a tool to augment, supplement, and improve what we do. With ANGEL, we are changing student learning, promoting professional growth among our faculty, and rethinking the way we do work. When we face challenges, we ask ourselves, 'How can we apply ANGEL technology to accomplish the task?'"

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ABOUT JEFFERSON COUNTY PUBLIC SCHOOLS

Located in Louisville, Kentucky, Jefferson County Public Schools (JCPS) is the 28th largest school district in the United States. The more than 98,000 JCPS students enrolled in kindergarten through grade twelve attend one of 87 elementary schools, 23 middle schools, 20 high schools, or 23 other learning centers. The Jefferson County Public School District provides every student, with both the opportunity and the support he/she needs to benefit from high-quality educational experience founded on a result-oriented teaching-learning process.

JCPS ANGEL INITIATIVES

JCPS initially adopted ANGEL to power its virtual high school JCPSeSchool. The eSchool ANGEL adoption is very successful. eSchool teachers find that ANGEL saves them time, engages students, and, ultimately, improves learning outcomes. Using ANGEL enables eSchool to accomplish more, more successfully using fewer resources.

When the district evaluated the success of their eSchool ANGEL implementation, they determined ANGEL could provide similar benefits in all schools across the district. So, JCPS created JCPS Online to deliver ANGEL district-wide. JCPS Online provides administrators, faculty, staff, and students access to ANGEL. JCPS Online delivers ANGEL in traditional educational settings to:

- supplement education
- communicate
- provide fully electronic and blended professional development
- train staff
- experiment with emerging ideas
- power the district's one-to-one laptop project

ANGEL DEFINED

ANGEL|LMS is a web-based learning management system that provides a complete set of teaching and learning tools. With ANGEL teachers can develop and implement technology-supported curriculum, electronically distribute and publish materials and assignments, create and conduct assessments and surveys, compile and communicate gradebook

information. ANGEL promotes student accountability by providing any place, anytime access to course calendars, assignments, progress reports, and more. This proven, powerful tool allows teachers to efficiently manage instruction, helps students manage their learning, and opens communication channels between and among teachers, students, and parents.

ANGEL'S VERSATILE CAPABILITIES FOSTER ADOPTION

Often likened to an umbrella where all a school's technologies come together, ANGEL does not dictate what or how teachers teach; it helps teachers be more effective. Teachers who use assessments provided by textbook vendors can easily use them with ANGEL. But when the teacher administers those assessments using ANGEL, the assessments are graded automatically and the grades are automatically entered in the ANGEL gradebook.

ANGEL enables learning to take place independent of time and space. With an appropriate username and password, information in ANGEL is accessible from any computer with an internet connection. This accessibility gives students the ability to manage their learning and contributes to the development of independent, lifelong learners who take responsibility for their learning.

ANGEL is a communications center. Faculty and administrators can share with one another. Parents can review their children's work and progress. Students can collaborate on projects in online groups or discuss and peer review one another's work in ANGEL discussion forums. Students who use ANGEL in these

ways learn actively and, consequently, engage in learning.

ANGEL is extremely adaptable and easy-to-use with a wide array of tools that help teachers teach and engage students in learning. Users can start using just one tool, perhaps making assignments available online, but once they experience how easy it is to use ANGEL and the extremely positive benefits and results, ANGEL growth is organic.

GETTING STARTED WITH ANGEL

Debbie Schweitzer is the leader of the JCPS Farnsley Middle School in-school technology team. Schweitzer, a true believer in technology's ability to positively affect teaching and learning, is comfortable with computers. For her, taking advantage of technology is a natural extension of who she is and what she does. But as a person on the "front line," Schweitzer also knows that her comfort with technology is often the exception. It's this knowledge that makes her a true ANGEL advocate.

"K-12 educators' are at the max and often view implementing a new technology as one more task added to an already nearly impossible list," Schweitzer says. "We don't force using ANGEL on them, but when a teacher tells us something he or she wants to accomplish, and we find a fit with ANGEL, we happily watch their ANGEL use snowball. ANGEL is easy-to-use and has something for everybody," Schweitzer continues, "as teachers use ANGEL they continue to stumble on new tools and find new ways to use ANGEL."

A few of the ANGEL benefits Schweitzer identifies include:

- Easy to use and the learning curve is shallow
- Saves time
- Helps make data-driven decisions
- Extends learning beyond the classroom
- Grows to fit students' and teachers' needs
- Easily enables individualized instruction, remediation, and enrichment
- Can be used with other software
- Makes the computer a valuable part of instruction

A FIRST EXPERIENCE WITH ANGEL

Hawk Hart's first experiences with ANGEL provide a good example of how once a teacher uses ANGEL that first experience generally leads to more extensive use.

A middle school science teacher, Hart first used ANGEL to create a personal web page to "provide a professional yet personal" introduction of herself to her students and their parents at the beginning of the school year. Hart, who had never created a web page before, easily created her page using ANGEL's HTML editor and uploaded it to ANGEL. Hart reports that during an early semester school open house when she told parents that she was using ANGEL, and they could see her course calendar and their children's homework assignments online from their computers at home, in the office, or the library, "the parents applauded."

Encouraged by this very positive reinforcement and good first experience with ANGEL, Hart began using ANGEL more. And, according to Hart, “the learning curve dropped quickly.” Now, in addition to accessing their homework assignments and handouts online, Hart’s students can hand in their papers directly from any computer with an internet connection to an electronic drop box. “Dogs no longer eat homework in my class,” Hart jokes, and “ANGEL grades for me,” Hart says. Grading is an ANGEL benefit Hart and her colleagues mention repeatedly. “I don’t carry home stacks of papers anymore,” Hart says. “Everything I can access in ANGEL at school, I can access at home.”

As Hart continues to become more comfortable using ANGEL, she includes more elements in her courses. She uses ANGEL for architectural dig and environmental science units. And “saves lots of time and questions” by providing a link to the science fair website from her class page in ANGEL. Hart contends the “five to ten minutes a day” she spends keeping ANGEL up-to-date is far outweighed by the time ANGEL saves and the communication lines ANGEL opens with parents.

ANGEL IN MATH

Diane Redman is a middle school math resource teacher who is just getting started using ANGEL, but already she sees instructional and time saving advantages. At the beginning of the semester, Redman quickly realized the math skill levels in her classes varied widely. Using ANGEL, Redman was able to test 300 students in one day. ANGEL graded the tests, and the very next day Redman grouped students within classes to better enable skill-

appropriate instruction. Because grouping was data driven, Redman could easily provide the reasons students were placed in particular groups.

Redman also recognizes how continued use of ANGEL will benefit her students as the semester progresses. “ANGEL allows success to be measured overtime,” Redman says. “Math classes are only successful when we can regularly test students. Ordinarily this is too time consuming, but ANGEL makes regular assessment possible.” Assessments taken in ANGEL can be timed, graded automatically, and if the teacher chooses, grades can be automatically entered in the ANGEL gradebook. ANGEL’s calculated questions wizard also makes it easy to analyze results and target skills. The wizard automatically generates a report showing which and how many times each question was missed. This eliminates labor intensive and time consuming hand tallying of results and makes targeting skills timelier and easier to accomplish.

ANGEL IN LANGUAGE ARTS

Carrey Robinson’s ANGEL experience began and evolved similarly to many others. At first, she used ANGEL to communicate. She put a field trip folder in ANGEL and included a generic permission slip that students could download at home. When she put photographs from the field trip in the folder, “students began to take notice and spent time viewing the photos.” So Robinson decided to further extend the value of the field trip by adding links to the places her class visited on the trip. Robinson reports the time spent on these tasks “was minimal, but the impact was BIG.”

Now Robinson is hooked on ANGEL. The classes she has developed in ANGEL take advantage of many ANGEL capabilities including quizzes, drop boxes, teams, and discussion forums. Robinson is especially pleased with the impact ANGEL discussion forums have had on her class writing projects. Students in Robinson's classes upload drafts of their projects to ANGEL discussion forums and conference on the projects in the forums. She also has advanced classes comment on projects in other classes via the ANGEL email system. Robinson reports using these instructional methods "greatly reduced the in-class time spent reviewing projects, made the entire writing process smooth, and caused students to become very invested in their writing."

Robinson believes so strongly that using ANGEL positively impacts learning that she does not plan to let her upcoming maternity leave affect her classes. She is going to "make sure learning continues" by using ANGEL to keep in touch with her students and their substitute teacher while she is gone.

ANGEL IN ARTS, HUMANITIES, AND MUSIC

Jeff Hamilton, a high school arts and humanities teacher who "first used ANGEL as just a resource place," also began incorporating more ANGEL components into his classes when he experienced positive results. Hamilton now calls his online ANGEL classroom "an extension of the regular classroom." He credits the ability ANGEL gives students to access class materials independent of space and time as the reason his "students come to class prepared now" giving him the ability to cover additional material during actual class time.

According to Hamilton there's "something about having lessons online that makes learning fun." Hamilton also reports that "students learn from one another when they participate in ANGEL discussion forums." And, Hamilton proves learning is taking place when he reports that "students' scores on vocabulary quizzes online in ANGEL average 90 percent." This is huge improvement over students' 40 to 50 percent average before the quizzes were taken in ANGEL.

Fellow high school arts and humanities teacher, Julie Nicholson, is an experienced ANGEL user. Nicholson's ANGEL usage varies from the simple, posting resources such as class notes, materials, and documents so they are available for students to retrieve as needed wherever, whenever, to the more sophisticated, using drop boxes for writing assignments, threaded discussion forums, and "very effective" use of email for personal conferencing. Like her colleagues, Nicholson jokes that submitting assignments to ANGEL drop boxes eliminates "excuses of the past such as my printer wasn't working or was out of ink." It also helps Nicholson to stay organized, because "all the assignments are in one place."

Nicholson has also found ANGEL helpful in handling art and music files. She posts "photo files of many of the great artworks students will study in her humanities class" in ANGEL and also posts the PowerPoint presentations she uses in classes so students can review and learn wherever they happen to be. When Nicholson taught choral music, she posted "MIDI files of the students' choral parts on ANGEL, so the students could practice their music on any computer." The district's music teachers

are currently in the process of uploading

these types of files into an ANGEL content repository so they can all access the files as they prepare for an All-County Choral Festival and All-State Auditions.

ANGEL IN K-5 CLASSES

The benefits ANGEL provides can be realized as early as elementary school. Judy Reeves began her career as a technology resource teacher in a JCPS elementary school computer lab and was continually impressed with what her students could accomplish in ANGEL given the opportunity. For kindergarten, first, and second graders, Reeves' lessons used a generic login so students did not have to remember individual usernames and passwords, but once they got started in ANGEL, Reeves' students moved through lessons at their own paces. ANGEL allowed Reeves to easily differentiate instruction based on competence without the students realizing they were moving at different paces.

Fourth and fifth grade students in Reeves' classes worked in ANGEL creating brochures with two windows open. Fellow teacher Jeremy Renner reports his fifth grade students "navigate, take quizzes, and read and send mail in ANGEL." Renner especially likes the ability to link to external objects such as paintings from ANGEL. This capability keeps students "contained" in the safety of ANGEL. Like his cohorts who teach middle and high school classes, Renner praises ANGEL threaded discussions which he uses as an alternative to journaling. According to Renner, "When discussions are held in ANGEL, even the quiet kids participate."

Ken Downs teaches music to K-5 students and has created a course in ANGEL for his

fourth and fifth grade classes which he is expanding to become a web-based learning area. The learning area combines textbook content with supplementary content and links to websites where students can "expand their learning if they chose." Even at this level, ANGEL provides students opportunities to take learning beyond the classroom, take ownership of their learning, and helps create lifelong learners.

ANGEL AND NO CHILD LEFT BEHIND

Through individual experience teachers in JCPS have found putting "released" standards tests in ANGEL and letting students practice the tests helps students learn how to take the test, makes them more comfortable, and helps them relax when they take the actual test.

A new JCPS Online program is using ANGEL to predict student standards testing success and intervene before standards tests are administered.

The program, piloted on all high school juniors in the district, first uses ANGEL content repositories to make pretests composed of "released" standards tests questions available across the district. ANGEL assessment capabilities enable the pretests to be administered to all high school juniors in the district. Pretest results, analyzed by ANGEL, enable the district to identify student weaknesses in understanding or misconceptions. Tutorials, developed to reinforce content in areas where students exhibited weaknesses, are made available to students in ANGEL. Importantly, this

program does not take away from regular

class time. Students who will benefit from tutorials can complete them during resource periods or other non-class times and after completing the tutorials are better prepared to take standards tests.

Another way using ANGEL impacts standards testing is on mandated computer application skills assessments. Regular computer use improves students' computer skills. In addition JCPS Online uses ANGEL to provide a computer skills program district-wide. The program was originally on computer discs and school personnel described using it as "a real problem." When one school made the program totally electronic by putting it online in ANGEL, the application worked so successfully JCPS Online now uses ANGEL content repositories to make the computer skills program accessible to every school in the district.

ANGEL PUTS ALL STUDENTS ON EQUAL FOOTING

In addition to the recurring themes that ANGEL saves teachers' time, extends learning beyond traditional boundaries, and enables students' to take ownership of their learning, teachers often report that ANGEL "puts all students on equal footing." Janet Black who teaches middle school technology classes says, "Any child can succeed in ANGEL. Kids who can't read, kids who have a disability, they are all so excited about ANGEL." Black is happy to relate the story of one student's joy at being able to log into ANGEL "just like her classmates."

Black attributes students' positive response to ANGEL to many factors:

- The visual environment engages. (The ANGEL interface is also designed to be "friendly" to screen reader applications used by the visually impaired.)
- Students don't feel inferior in the virtual environment.
- Feedback is real-time.
- Students can move at individual rates. No one knows who's behind or ahead.
- Learning is paced appropriately for individual students.

Julie Nicholson echoes Black's enthusiasm at ANGEL's ability to reach every student. Nicholson reports that she first used ANGEL as a tool to reach at-risk students. "In the early years of incorporating ANGEL into my classroom, I used the quiz feature for the students to complete required Open Response Questions. In the past when students' answered the questions on paper, many students were rebellious and didn't submit responses or what was submitted was of poor quality. When I moved the Open Response Questions to ANGEL," Nicholson continues, "the students were less reluctant to complete the questions, and the responses were of better quality."

Nicholson also reports a significant decrease in the class failure rate after she began using ANGEL with her at-risk students. "Before using ANGEL, I had a 15 percent failure rate in one of my classes, mostly due to high absenteeism," Nicholson reports. "But when I began using ANGEL and students could access class materials from any computer, the failure rate dropped significantly to five percent."

SHARING CONTENT IN ANGEL

The ANGEL content repositories that enable the sharing of music files, standards testing materials, and computer programs district-wide also allow JCPS faculty to share class content. Through JCPS Online the district puts core content online in ANGEL. Teachers in the district can submit, access, and share course content in JCPS Online. Using a repository feature, content submitted for inclusion in content area “libraries” is locked from public view until it has been validated for quality by content experts and checked to verify alignment with State and district standards.

Departmental user groups in ANGEL allow teachers in individual buildings and across the district to share and discuss virtually. Amy Thornton a JCPS computer lab teacher and technology coordinator shares stories of the success of “a group of fifth grade teachers planning integrated social studies curriculum online,” and “kindergarten through third grade teachers planning the curriculum for their cultures around the world curriculum online.” The teachers place great value on their ability to share and discuss online in lieu of attending after school meetings.

ANGEL, STAFF TRAINING, AND PROFESSIONAL DEVELOPMENT

JCPS Online also uses ANGEL groups to provide staff training and electronic professional development district-wide. The groups provide a single point of communication for all levels of staff. In one case, district operational and organizational manuals are stored in ANGEL content repositories. Different

individuals, new employees or bus drivers for example, are enrolled in groups that have access to job-specific materials. In another case, the group comprises district administrators and others in leadership roles. This group uses ANGEL threaded discussion and polling capabilities before meetings. They find participants talk more freely online and that taking time to review issues in this manner saves time, because participants enter face-to-face meetings with results for discussion. Cohort groups of JCPS principals are also developing professional development programs in ANGEL. Virtual discussion prior to face-to-face meetings encourages reflection and revision.

JCPS Online also offers “blended” and truly online electronic professional development in ANGEL. Blended training combines face-to-face meetings with independent online work. The completely online program offers a variety of professional development program options such as skills development using Microsoft Word and ANGEL or understanding accountability data. Participants in the online program are assigned an online mentor who acts as a resource as participants move through the program.

PARENTS AND THE COMMUNITY SUPPORT JCPS ONLINE AND ANGEL

JCPS Online and ANGEL have strong community backing. Parents and teachers alike appreciate that the ANGEL Learner Profile gives students’ the ability to check their grades and see how they are performing relative to their classmates at any time. This capability combined with anytime, anywhere access to class announcements, homework assignments,

handouts, and other materials teachers choose to make available through ANGEL helps students' manage their learning. Parents respond very positively to the opportunities this access gives them to be involved in their children's educations.

Community support of JCPS Online's efforts to impact student learning with ANGEL is evidenced by the community's high level of involvement in the program. The Louisville library system, local religious communities, and economic development centers all partner with JCPS Online making computers available and providing safe places for students to use them, thereby ensuring student access to ANGEL.

ANGEL'S IMPACT ON TEACHING AND LEARNING

As discussed throughout this paper, the positive educational outcomes teachers have experienced using ANGEL impact the way the way they teach and in turn profoundly impact students' engagement, active participation, and ownership of their learning. Susan O'Daniel a member of the JCPS research department bases her analysis of ANGEL on results.

In the area of curriculum, O'Daniel identifies two specific areas where ANGEL capabilities significantly enable improvement in teaching and learning. "Immediate feedback made possible by ANGEL allows immediate assessment of teaching success," O'Daniel writes. "Discovering surprise or unexpected responses, impact indicators, and/or outcomes leads directly to modification, addition, or deletion of curriculum." In addition, O'Daniel identifies building curriculum in JCPS Online via ANGEL as a means to enable "continuous inspection, alignment with the core curriculum, and

the tracking of progress toward the goal of completing the curriculum at the desired level of mastery."

Regarding impact on learning, O'Daniel reports that "ANGEL can be very beneficial for the differentiation of teaching strategies needed for different subject areas as well as for the differentiation of instruction for students' different learning styles. Differentiation of instruction using ANGEL is very exciting," O'Daniel continues. "With ANGEL teachers can address a wide variety of learning styles at the exact same moment in time instead of in stages or as supplemental instruction."

WHAT'S NEXT FOR JCPS ONLINE WITH ANGEL

It is important to add to this analysis of JCPS Online uses of ANGEL that every student in the Jefferson County Public Schools does not have a computer, far from it. The district uses ANGEL in an environment where the majority of the computers are in labs, and classrooms generally have at most three computers. Teachers often model lessons on one computer or use their computers as presentation tools and the classroom computers as one learning station in a guided workspace.

The fact that ANGEL adoption is widespread across the district even in these circumstances is especially compelling. Teachers are obviously experiencing professional as well as learning outcome benefits or they would not embrace and continue to expand their ANGEL use. And, ANGEL use at JCPS continues to grow, and the applications become more creative and diverse.

Upcoming projects include a water watch program that uses ANGEL to track data, sharing student-made movies and presentations via ANGEL, a student run electronic magazine, and many more. According to teacher Jeremy Renner, "The possibilities are endless."

ANGEL INCREASES TECHNOLOGY'S VALUE

Jefferson County Public Schools created JCPS Online to deliver the teaching and learning benefits ANGEL provides district-wide. Has their ANGEL adoption been successful? The answer to that question is a resounding, "Yes." According to Jana Hickey, JCPS distance learning specialist, ANGEL use "is humming along. Teachers are using ANGEL for very diverse purposes. They are transforming original models to meet real life needs and developing totally new utilizations for ANGEL." Hickey also reports that district administrators are now "including ANGEL in district decisions, because teachers want to use it."

As the stories of individual ANGEL adoptions presented here illustrate, there is no, one specific ANGEL capability that captivates teachers. The ways ANGEL impacts teaching and learning vary as much as the teachers who use it.

Technology team leader Debbie Schweitzer aptly calls ANGEL, "a toolbox for teachers where teachers can pick and choose the tools that best fit their needs." In view of the many and varied benefits ANGEL provides, an additional way to describe ANGEL is by likening ANGEL to an umbrella where ANGEL brings together a wide set of technology tools, some intrinsic to ANGEL, others outside, and ultimately increases the value of all.

TECHNICAL FEATURES

CURRICULUM DEVELOPMENT

- Import existing and publisher-created lessons
- Easily create and publish new lessons directly to the web
- Share lessons within school, across a district

COMMUNICATION AND COLLABORATION

- Class plan, calendar, announcements, home-work assignments and more online and accessible, with appropriate login information, from any computer with an internet connection any-time
- Course email simplifies communication among and between school, teachers, students, and parents
- Discussion forums, journals, groups, and blogs engage students, enrich learning

ASSESSMENT

- Automatic grading
- Use all question types
- Automatic student feedback if you choose
- Student and parent access to results promotes accountability and learner independence

USER-DRIVEN DESIGN

- Easy-to-use design makes even beginning users quickly comfortable
- Navigation keeps learners from wandering off
- Power mode for advanced users
- Flexible architecture adapts to school-specific needs
- A accessible to meet the needs of diverse learners

TECHNICAL CONFIGURATION

- School or ANGEL Learning hosted
- Microsoft Windows 2000 or 2003 Server
- Microsoft SQL Server

ADVANCED TECHNOLOGIES

- Open architecture
- SCORM compliant
- Integrates with enterprise systems

ABOUT ANGEL LEARNING

ANGEL Learning develops and markets the ANGEL Learning Management System (LMS). ANGEL|LMS is the enterprise learning management system that combines an open, flexible architecture with a complete set of easy-to-use features. This proven, powerful system allows instructors to efficiently manage instruction, communicate quickly, easily, and effectively, and develop the sophisticated learning experiences today's demanding educational climate requires.

ANGEL Learning evolved from research and teaching experience at Indiana University Purdue University Indianapolis. Today, though ANGEL Learning has grown from a campus-based organization to a profitable firm with global reach, the company stays loyal to its academic roots.

ANGEL customers include two of the largest universities in the United States, Penn State University and Michigan State University, large community college systems, small and large public and private postsecondary institutions, K-12 school systems, and businesses across the country. Visit the ANGEL Learning website at www.angellearning.com.