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CENTRAL MICHIGAN UNIVERSITY REGIONAL DATA INITIATIVE

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ABSTRACT

Central Michigan University was engaged by the Calhoun Intermediate School District Data Consortium to explore a pre-service training program on how to use data to inform classroom decisions and how to prepare student teachers on the use of Data Director in a blended learning environment.

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INTRODUCTION

Question 1: What are the components of an effective professional development program targeted toward mentor/student teacher pairs that is focused on ways that teachers can use interim and summative assessment results to design, monitor and modify instruction that achieve learning gains for students?

Question 2: How can the professional development program be replicated in multiple settings with consistent learning gains for pre-service student teachers?

Question 3: What pre-service teaching experiences can be provided that would enhance student teacher's ability to design assessments and use data to identify how well students in the classroom learned the material?

Although the number of student teachers who participated in the study was lower than anticipated – 2 vs. 15, the team was able to substitute new teachers to participate in the research study. For the sample the team selected elementary, middle and high school teachers from the new teacher academy – an overall 400 teacher pool.

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They received an introductory presentation and then the opportunity to sign-up. The professional development team met with the applicants and pared the applicant pool down to 13 teams of 2 - 3 individuals (one new teacher/student teacher, one mentor teacher, one principal). Six principals started with the project and four building principles "kick-started" their teams, however only two stayed during the duration of the project. Grades 3 - 12 were represented and the principles - 10 - 22 years experience. As stated above, only two student teachers participated, the rest were new teachers. Initially the team had a pool of six student teacher supervisors, only two mentor teachers for student teachers chose to participate. These participants signed a consent form to get superintendent authorization. Some various technical backgrounds, some had experience using Blackboard, some had DataDirector experience, and none were experienced in all three. There were 25 participants in the Regional Data Initiative. 28% of the participants were from Middle School assignments and 72% of the participants came from High School level assignments. 52% of the participants have taught between 0 and 5 years, 20% of the participants have taught between 6 and 10 years, 16% of the participants have taught between 11 and 15 years, 8% of the participants have taught between 16 and 20 years, and 4% of the participants did not respond. 44% of the participants have attained a Bachelors degree, 48% of

the participants have attained a Masters, 4% of the participants have received a specialist's degree, and 4% of the participants didn't respond. The professional development model was originally designed for K-8, however was adapted for the secondary classroom. The team designed a blended professional development model that involved three key players at the building level – the mentor teacher, mentee and building principal. This professional development was offered face-to-face, supported by online activities hosted in Blackboard and mentor/mentee interaction at the building. As part of this project, each participant was provided with two substitute days ($200), a data scanner ($1,000), SB-CEUs/Graduate Credit opportunities, a copy of the school improvement guide and the training.

Project Design: The Professional Development Model: *Data Inquiry & Access for Mentor, Mentee, Principal Teams using Blended Instruction* is summarized below: This professional development model allowed for "just-in-time" training, application of the training in a learning laboratory setting and local integration of data use at the district level. All three modes of delivery were well received and lessons learned will be discussed after the findings.

RESULTS

There were several methods used to gather the finding presented in this section. Each is detailed under a separate heading. Two key finding came out of this project.

- Components were identified to develop effective professional development in the use of data: the best part of the course was hands on. The blackboard site was good for supplemental instruction and feedback. Online was a great avenue to provide participants and opportunity to watch videos, refer to power points, complete discussion questions, etc. The blended model of instruction was successful.
- How to deliver effective professional development: the blended approach should be used, however the model should include hands-on practice, online work, data conferencing and data access. The team advocates for the use of mentor/mentee teams, that are supported by mentors should support. In the past, instructional leaders the building level were outside observers and now should become more of the "trialog" of mentor/mentee/administrator focusing on how to infuse the use of data to improve student achievement. During this project, only two instructional leaders were active, four jump-started the teams and left...those teacher teams didn't go back and share with other staff during staff meetings. The two who participated had their teams report out and share with building staff - increased replication of the model.

Survey results – quantitative data: Initially, when participants were asked about their experience with Data for Student Success, 12% reported having Fair/Poor Expertise, 52% reported having Below Average Expertise, 32% reported having Average Expertise, and 4% reported having Above Average Expertise. 20% of participants have had Local Trainings, 44% have had training at ISD/RESD/RESA programs, 12% were Self-Taught, 12% have had other trainings, 12% have had No training, and 8% did not respond to the question. In regard to the "Aspects of D4SS Currently Using," participants reported 12% are using MME Standard Analysis, 20% are using MEAP Proficiency, 8% are using MEAP Comp. Item Analysis, 8% are using MEAP Cohort Proficiency, 16% are using Students near Proficiency, 24% are using CNA Reports, 16% are using PA-25 Reports, 12% are using MEE Student Near Proficiency, 8% are using MI-Access, 8% are using MI-Access Proficiency Inq., 12% are using MI-Access Student near Proficiency, 16% are using MME Proficiency, 12% are using None, and 40% didn't respond. Participants reported that 8% felt their Expertise was Fair/Poor in Data Director, 40% felt their Expertise was Below Average, 24% felt their Expertise was Average,24% felt their Expertise was Above Average and 8% felt their Expertise was Excellent. The "Data Director Trainings" received by participants were 44% Local Training, 28% have received training with an ISD/RESD/RESA program, 20% were Self-Taught, and 8% had received other training. Regarding "Comfort and Skill level of Data Director in creating assessments" the participants reported were 4% felt their Comfort and Skill level was Fair/Poor, 48% felt their Comfort and Skill level was Below Average, 16% felt their Comfort and Skill level was Average, 16% felt their Comfort and Skill level was Above Average, and 16% of the participants felt their Comfort and Skill level was Excellent.

The "Aspects of Data Director currently Used" by the participants are 48% using Inputting Common Assessments, 56% are using Creating Assessment and Exams, 64% are Using Data Scanner with Exams, 24% are using School Improvement, 44% are using Searching Students, 28% are using Create MEAP/MME Reports, 20% are using Create Custom Reports, 36% are using Reviewing Student Data, 4% are using Other, 4% are using None, and 8% of the participants didn't respond. Upon completion of the project, a project evaluation survey was administered. Sixteen participants completed the Project Evaluation Survey. To the question "What is your role?" participants reported 43.8% (7 people) were a Mentee, 50% (8 people) were a Mentor, and 6.3% (1 person) was a Principal. To the question "Was your principal/school leader a part of your team?" 50% (8 people) reported Yes and 50% (8 people) reported No. The participants were asked to "3. Please rank the importance of the following outcomes of the course." For the outcome "To learn about D4SS, DD and other tools" the results the participants reported were 0% felt it was Not Important, 6.3% felt it was Somewhat Important, 31.3% felt it was Very Important, 62.5% felt this outcome was Extremely Important. For the outcome "To collaborate with my partner" the results the participants reported were 0% felt it was Not Important, 0% felt it was Somewhat Important, 43.8% felt it was Very Important, 56.3% felt this outcome was Extremely Important. For the outcome "To have hands-on training in data analysis" the results the participants reported were 0% felt it was Not Important, 0% felt it was Somewhat Important, 31.3% felt it was Very Important, 68.8% felt this outcome was Extremely Important. For the outcome "To get a data scanner for my building" the results the participants reported were 6.3% felt it was Not Important, 6.3% felt it was Somewhat Important, 31.3% felt it was Very Important, 56.3% felt this outcome was Extremely Important. For the outcome "To earn graduate credits or SBCEUs" the results the participants reported were 43.8% felt it was Not Important, 12.5% felt it was Somewhat Important, 18.8% felt it was Very Important, 25.0% felt this outcome was Extremely Important.

For the outcome "To have access to supporting material and resources (e.g. Black Board, trainers, etc.)" the results the participants reported were 0% felt it was Not Important, 31.3% felt it was Somewhat Important, 25.0% felt it was Very Important, 43.8% felt this outcome was Extremely Important. For the outcome "All of the above" the results the participants reported were 0% felt it was Not Important, 0% felt it was Somewhat Important, 85.7% felt it was Very Important, 14.3% felt this outcome was Extremely Important. The skill level of "Data For Student Success" the participants reported post-training were 0% felt they had No Knowledge in this skill, 6.3% felt they had Limited Knowledge, 31.3% felt they had Some Knowledge, 56.3% felt they had Above Average Knowledge, 6.3% felt they were Experts in this skill. Before the project started, participants reported their experience with Data for Student Success, 12% reported having Fair/Poor Expertise, 52% reported having Below Average Expertise, 32% reported having Average Expertise, and 4% reported having Above Average Expertise. The project essentially moved the participants from a limited to average expertise to a majority of having above average and even experts in this skill upon completion of the program.

When asked to rate the importance of the each element of this course; "Collaboration time (sub days)" the participants reported 6.3% felt it was Not Important, 25% felt it was Limited Importance, 12.5% felt it was Somewhat Important, 12.5% felt it was Above Average Importance, 43.8% felt this element was Extremely Important. For the "Data Scanner" the results the participants reported were 0% felt it was Not Important, 6.3% felt it was Limited Importance, 12.5% felt it was Somewhat Important, 12.5% felt it was Above Average Importance, 68.8% felt this element was Extremely Important. For "Hands-On/Face to Face Training (4 classes)" the results the participants reported were 0% felt it was Not Important, 0% felt it was Limited Importance, 0% felt it was Somewhat Important, 43.8% felt it was Above Average Importance, 56.3% felt this element was Extremely Important. For "BlackBoard (supporting materials)" the results the participants reported were 0% felt it was Not Important, 18.8% felt it was Limited Importance, 31.3% felt it was Somewhat Important, 37.5% felt it was Above Average Importance, 12.5% felt this element was Extremely Important. For the "BlackBoard (discussion board) the results the participants reported were 0% felt it was Not Important, 31.3% felt it was Limited Importance, 43.8% felt it was Somewhat Important, 18.8% felt it was Above Average Importance, 6.3% felt this element was Extremely Important. "BlackBoard (assignments/practice activities)" resulted in the participants reporting 6.7% felt it was Not Important, 13.3% felt it was Limited Importance, 53.3% felt it was Somewhat Important, 20% felt it was Above Average Importance, 6.7% felt this element was Extremely Important.

When participants were asked "Which of the following did you participate in?" the results were as follows: 87.5% (14 people) participated in "BlackBoard Discussion", 81.3% (13 people) participated in "Discussed test results with teammate", 6.3% (1 person) participated in "Administered online exam", 93.8% (15 people) participated in "Scanned cluster bubble sheets", 68.8% (11 people) participated in "Used substitute days to collaborate", 87.5% (14 people) participated in "Collaborated to change/improve instruction", 62.5% (10 people) "Participated in/led Data conference", 93.8%(15 people) participated in "Generated Classroom reports in DD", 100% (16 people) participated in "Performed data analysis", 100% (16 people) participated in "Performed data analysis", 81.3% (13 people) participated in "Administered Post-test in DD", 81.3% (13 people) participated in "Administered Post-test in DD", and 93.8% (15 people) participated in "Created an Exam in DD". When asked "Would you recommend the "mentor/mentee team" approach to this type of training?" 75% (12 people) of the participants reported Yes they would, 6.3% (1 person) said No they wouldn't, and 18.8% (3 people) were Not Sure if they would recommend it. For the question asking "Were there any unexpected outcomes from this course?" the results were as follows: 50% (8 people) felt "Became a resource to other teachers" was an unexpected outcome, 62.5% (10 people) felt that "Strengthened my relationships with team or partner" was an unexpected outcome, 37.5% (6 people) felt that "Trained other staff members on data warehousing" was an unexpected outcome, 25% (4 people) felt that "Trained other staff members on using the data scanner" was an unexpected outcome, 25% (4 people) felt that "Assisted others in a data conference" was an unexpected outcome, 6.3% (1 person) felt that "Led or supported staff training" was an unexpected outcome, 68.8% (11 people) felt that "Pre and post assessments led to changes in instructional practice" was an unexpected outcome, and 18.8% (3 people) felt something "Other" was an unexpected outcome.

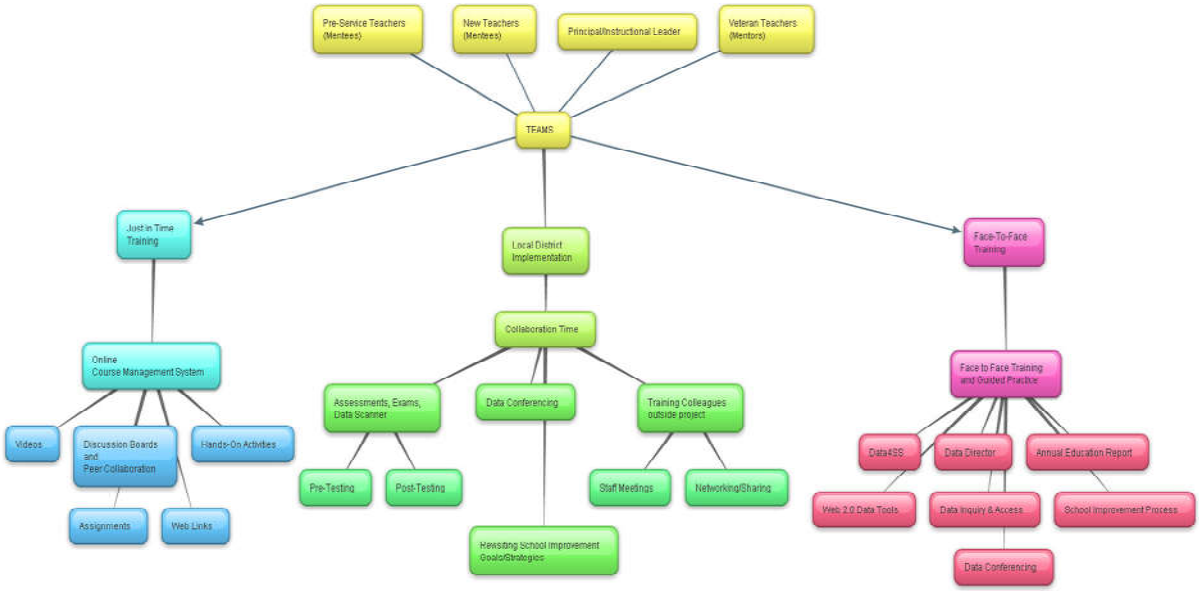
When the participants were asked "What were the benefits of working with your partner or team?" the results found were: 87.5% (14 people) felt "Collaboration time" was a benefit, 37.5% (6 people) felt "Networking" was a benefit, 87.5% (14 people) felt that "Teamwork" was a benefit, 93.8% (15 people) felt "Learning Together" was a benefit, 100% (16 people) felt that "Shared Knowledge" was a benefit, 81.3% (13 people) felt that "Data Analysis" was a benefit, 43.8% (7 people) felt that "Data Conferencing" was a benefit, 50% (8 people) felt that "Creating Common Assessments" was a benefit found with working with a team or partner, 75% (12 people) felt that "Sharing thoughtful Critique" was a benefit, and 0% felt the there was "Other" benefits found.

Blended learning instructional design approach – qualitative and quantitative data: To meet the needs of the teachers, both mentors and mentees, this professional development was conducted with a blended learning instructional design approach. A blended learning approach combines face-to-face classroom methods with computer-mediated activities to form an integrated instructional approach. In the past, digital materials have served in a supplementary role, helping to support face-to-face instruction. In this setting, our participants were able to gain valuable instruction from our facilitators; however, their busy schedules were accommodated through supplemental instruction through Blackboard, an online learning management system.

Face-to-face Instruction (Workshops) Included

- Face-to-face workshops were held once a month during January, February, March and April.
- Meeting times were from 4:30p.m. to 7:30p.m.
- Both mentors and mentees attended the face-to-face instructional workshops.
- Hands-on work was the focus of face-to-face time.
- Topics included: Data 4 Student Success, Data Director, School Improvement, Data Conferencing, MEAP/MME Analysis

Forum	Description	Total Posts	Total Participants
Week 1-4: Overview of Data Inquiry & Access	Reflect upon the new tools you have learned about, your plans for implementation	260	25
Weeks 5-6: Creating an Exam & Analyzing Reports	Reflect upon the use of Exams and Reports within a data warehouse.	166	25
Weeks 7-8: Data Conferencing	After participating in the Data Conferencing Module, answer the discussion questions in this forum.	140	23
Weeks 9-10: Guided Activity – Prioritized GLCE	Consider all of the elements of pre-testing students – what standards, strands, and expectations are you hoping to address? How can you bring higher level thinking into the assessment?	111	21
Weeks 13-14: Post-test Reports, GLCE Performance Analysis	Post test reports can provide useful information for Data Conferencing. Reflect on possible data elements that would be useful for this important conversation.	80	23
Weeks 15 & 16: Application in Action – Using DD for the Post-Test	Using Post-Tests, re-evaluate students learning reports and data analysis.	81	21



- Grade/Building Level Content Expectations Analysis
- GLCE/HSCE and National Standards

Online Instruction through Blackboard Included

- Announcements – quick reminders to participants regarding pertinent information.
- Instructor Info – contact information for the facilitators from Macomb and Calhoun Intermediate School Districts
- Course Materials – supplemental forms and materials
- Assignments – facilitators organized the content into weekly assignments to support monthly face-to-face instructional workshops. This content included instructional tools including: PowerPoint presentations, instructional videos, handouts, notes and application activities and assignments.

The "Assignment" weeks were broken up as follows

- Week 1 – 4: Data Inquiry Bootcamp
- Week 5 – 6: Creating an Exam & Analyzing a Report
- Week 7 – 8: Data Conferencing
- Week 9 – 10: Guided Application
- Week 11 – 12: Data Inquiry & Application
- Week 13 – 14: Data Inquiry & Application
- Week 15 – 16: Application in Action

Discussion Questions - There were 935 posting to seven discussion threads – over 80 pages of text. This demonstrates this type of activity was a very important tool used during the semester length course.

Reflective Paper - Qualitative Data: Three participants who participated in the project opted to earn graduate credit for the course through Central Michigan University (CMU). One of the additional responsibilities to earn credit was to provide a reflective paper discussing aspects of the use of technology and data to inform decisions in the classroom. Commentary from the papers is listed below. Participant names were purposefully omitted to provide anonymity for the teachers.

One teacher provided the following lessons learned: *"As an educator I recognize that in the immediate future, I must create an even more prominent role for student achievement data in my professional practice. In the upcoming school year, I will utilize my resources, skills, and collaborative time to develop and implement a structured use of student achievement data. With my instructional teams, I intend to improve our student achievement, our classroom instruction, and our school culture through this lens. In the past seven years I have learned not only to be a more responsive educator, but also to be a more responsive community member. With hard work and collegiality, our staff will again be at the forefront of using data to impact student achievement and to enact change."*

Another comment regarding the impact of technology and data use: *"By using technology in the classroom, student learning will improve. By using data to monitor their learning,*

teachers will improve their instruction to focus on areas of weakness. In order to successfully use technology to chart and promote student growth, teachers need to understand the purpose of collecting data, learn methods that reveal weakness and strengths of student achievement, and overcome the fears of integrating technology within the classroom."

The impact of technology and data: *"Considering the changes of people and technology, it is not surprising to hear that education has changed too. Student learning is no longer about lecture and note taking, but rather interaction and monitoring progress. By using data to monitor their learning, teachers will improve their instruction to focus on areas of weakness. In order to successfully use technology to chart and promote student growth, teachers need to understand the purpose of collecting data, learn methods that reveal weakness and strengths of student achievement, and overcome the fears of integrating technology within the classroom."*

An apt summary of this training program: "*While using new methods of technology and data mining can be an intimidating and overwhelming process, teachers will accept it if they understand the purpose, methods, problems and solutions of using data to monitor student progress. If teachers truly want students to learn effectively, data mining systems such as Data Director and Data for Student Success are two programs that can help speed that process along to focus on more efficient classroom instruction. To become 21st century educators, teachers must utilize all aspects of technology."*

Unsolicited Teacher E-mail Reflection on Training - Qualitative Data

The participant's name was purposefully omitted to provide anonymity. *I have seen immense growth in my understanding of collecting data. By learning about the difference between formative and summative assessment, I have made it a point to encourage student growth within all of my classes. Not only am I collecting more data to prove that my students are improving, but I am holding my students accountable for their own growth. I am doing this by using progress charts and giving my students several formative assessments after each section before I give the summative at the end of the chapter. When I analyze the data collected, I aim the data to focus on areas of weakness (in my specific case, figurative language). I have specific goals within my classroom, while before my goals were vague and did not help my students improve to their full potential. I will continue to monitor and collect data on their progress and performance to help my students succeed in the classroom.*

I was able to dig and analyze data then discuss teaching strategies with my mentor whereas before this study I couldn't. Due to this course I may be called upon to help other in our program learn to create tests with GLCE's, use the scanner then find and analyze their data. I would suggest that everyone take this course if they are not comfortable with Data director. There is work, but it is well worth it.

Before this year, I only used data director to access the MEAP data for IEP's. This is my first year being a general education teacher and I finally realize the advantage of using data to help guide my teaching. I have gained much insight into analyzing data to help the students learn better. I have begun pretesting everything and putting the scores into data director so that I can see the growth the students do. I find it very exciting to scan the documents and then review the reports. Sometimes I feel great about it and sometimes I am alarmed and frustrated. The good news is, either way, I am growing as a teacher!

Follow-up Comments- Qualitative Data

As you prepared for your classroom this fall what "ah-ha" moments did you have from participating in the RDI project?

- I will continue to use data to guide instruction. I will also conference with my students and my mentor.
- I need to use my data more as a tool for feedback and monitoring student needs.

What tools/strategies were you able to apply in your classroom for the fall?

- See above.
- I plan on using my data to help re- teach and re-model some of my previous lessons.

Did the "hybrid" model work for you - e.g. some online/some face-to-face time?

- Yes, I think that method was the best.
- Yes, the hybrid model did work. It was good to have class and be able to directly ask questions and to work through any issues right then and there with the instructors. I did like the online portion because we could then work at our own pace and explore the databases more.

What other feedback would you provide to the leaders of this RDI project? What would you share to your colleagues?

- Using the data dig sheets is helpful in observing trends in the data, otherwise it just sits on the corner of my desk.
- The RDI project is great to use especially if your school is new to data warehouses. I had already had some experiences with these warehouses but not to the extent of this project.

Lessons Learned: There were several lessons learned addressing common questions. The first being "how do we meet those outcomes/objectives/standards for the kids who don't get it?" This was accomplished by giving the teachers a concrete example of how to apply the data in their classroom. The teachers need to be the ones asking "What is the data telling me my kids know and where are the gaps?"

We as instructional leaders need to focus on professional resources missed in college in professional preparation. Students coming out of teacher preparation institutions never look at pre-assessment leading to evidence of growth in student learning. It is very important for pre-service teacher preparation to provide instruction on the use of data/data mining and then how to use data to impact student learning. The student teachers realized more go into data-driven

instruction and are not being taught at 4 year teacher preparation programs at all. New teachers were very quick in understanding the data, and were able to assist mentor teachers in technology skills. Mentor teachers developed teamwork and a comfort level with the data. Overall, the new teachers had a better feel for data, and their mentors had new appreciation for technology. There still exists a need for understanding formative and summative assessments and how a culture change/shift needs to occur. Questions abound around the data dig. What does the data tell you about the kids? What are the questions that data gives you...what do we need to know more about? Compare the item analysis to what do we need to do to focus based on what we know? Ultimately, here is my data – what do I do to change my instruction to improve student achievement.

A pre-service/new teacher model should be replicated using this program and could be used across the state. A recommendation from the team is to try this model with not only two teachers, but integrate the program with an entire department and perhaps look at cross-curricular projects. New teachers were at an introductory level on data use, but now they are able to apply the knowledge in the classroom. The blended model worked well. The first step was "hands-on" then application to the classroom, however it was discovered the team asked too many discussion questions. There should be one question asked per week. Another element that worked well was the fact the project provided for two paid substitute days. Participants used these effectively as collaboration time and reported back that those days were awesome and were a key part of the project.

Conclusion

As stated previously, although the number of student teachers from CMU was significantly less than anticipated, the team was able to use new teachers and impact their knowledge of how to use Data for Student Success to impact learning in their classroom. The results of the study demonstrate how a "blended" model of professional development can be utilized to provide effective teacher in-service activities. Using the Blackboard course site allowed instructors to guide students throughout the semester and the participants didn't need to travel to a specific location.

We believe by following a similar model, each of our research questions below can be addressed. Data will be shared with student teaching coordinators at CMU as well to explore how a similar course could be used for pre-service teachers in the future. Participating teachers had various technical backgrounds, some had experience using Blackboard, some had Data Director experience, none were experienced in all three. This model proved successful with all kinds of skills and ability levels. Positive feedback was received from participants on the instructional videos linked in blackboard. Participants could review at their own pace – just-in-time training. Overall the program was a success, however it would be interesting to explore the model with other groups, for example new vs. student teachers. Instructional leaders need to be involved. The "trickle down" effect is effective using the team approach, however how can we convert a total building and provide a snowball effect?

In summary, educators need to take proactive approach in use of data – instead of collect it and never use it; need to collect it, then use it! Provide training and then Support, support, support...

Data will help teachers focus their instruction, versus detract from it.

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