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## **Technology Action Research Plan**

### **SECTION I**

#### **A. INTRODUCTION**

The use of technology in our school system has become an increasing necessity over the past several years. The expectation from principals, district leaders, and state and federal officials is the desire of teachers to be teaching not only Mathematics, Reading and Writing, but also computer literacy. More than ever, employers are seeking out students who have computer and technological literacy.

In my classroom at Hardin Middle School, a second expectation has been set in place. Our Principal has set forth the expectation that students are to be reflecting on their learning as well as reviewing their own learning on a routine basis. The idea behind this is that if students continue to reflect and review, they will gain the higher order thinking skills needed for life beyond the classroom. The skills taught in the classroom can then be transferred throughout their lives. In my classroom, I have been allowing for this reflection and review through the process of exit tickets. I often ask my students higher order thinking questions during this time, and also review the skills taught in past lessons or the current lesson. The exit tickets have been a means in which my students reflect, but also a way in which I can assess their learning. Through this process, I have been able to have a greater reflection on my students learning.

What I have found over the past two years of using this process, is that the exit tickets have been more of an assessment of my lesson delivery, student knowledge and the achievement of higher order thinking skills (HOTS). The students are able to reflect on their learning, but have not had the opportunity to review their reflections at later dates. I usually glance over the information for basic understanding of student progress, and then review the HOTS questions when asked. The paper slips are

often sitting in the return folder for weeks before the students get those papers back. They often then throw them away without the second reflection that is so beneficial to their learning. The theme of this paper is to determine if online technology, such as blogging, would be a more beneficial means for students to reflect and review learning.

## **B. AREA OF FOCUS STATEMENT**

The purpose of this study is to determine the effectiveness of blogging in the classroom in to Mathematics and other subjects in the area of reflection and review. I have used exit tickets for a few years to ensure reflection in my classroom, but have found that students do not continue to return to those reflections to review their skills. I hope that by conducting this action plan, I can find a more effective means to create time for reflection and review. My hope is that I can determine the best means, in which students can reflect, review and re-reflect on their learning.

## **C. RESEARCH QUESTIONS**

1. Would requiring the students to reflect using online blogging increase student engagement in their learning?
2. Will blogging increase student communication and collaboration?
3. Will blogging increase student motivation in the classroom?
4. Will blogging increase student achievement on state assessments and common assessments?

## **D. RELATED LITURATURE**

“Educators are encouraged to integrate technology into their classrooms because today’s student is exposed to all sorts of digital devices in their daily life,” (Sawmiller, 2010, p 44). This idea has been in the forefront of my classroom since the beginning of my teaching five years ago. As I began my education program and as I have continued into my education practice, technology integration has been a necessity. “Classroom blogging is an excellent way to use the internet for more than just research. Blogging capitalizes on student’s interest in the internet,” (Sawmiller, 2010, p. 44). The role that blogging can play in a classroom is unlimited and the idea that it can be a tool for students to reflect, collaborate, organize their ideas, communicate their reasoning, and demonstrate their knowledge.

The Yang and Chang study in 2011 explored the use of blogs for higher education students. Although the blog does not center on my age group of students, their research was still applicable to my research. They researched the use of blogs and how it affected student's attitudes towards peer interaction, learning motivation and academic achievement. They studied two separate groups, one group that blogged using "solitary blogs as a personal digital portfolio for writers" (p. 126) and the second group that blogged using "interactivity to facilitate peer interaction by exposing blogging content and comments to peers". (p. 126). The results of the study determined that there was a significant motivation to learn through the peers blogs. In addition, the study proved that the use of blogs was "associated with positive attitudes toward academic achievement in the course subject" (Yang and Chang, 2011, p. 132).

In addition to researching the effectiveness of blogging, I was interested in how to effectively use blogs. Zawillinski (2009) researched the use of blogs to promote Higher Order Thinking, HOT. She explains that there can be several uses for blogging and that the internet is the "generation's defining technology for literacy" (p. 651). She explains that proficiency is necessary in education now more than ever. She found that there are four major ways to promote higher order thinking toward literacy and reading comprehension during blogging:

1. Bolster background – building background knowledge around the reading so that students can "critically evaluate, synthesize information, and communicate their ideas by posting what they have found to the blog, inviting others to comment" (p. 656).
2. Prime the pump – Allows students to "think deeply about the background they have built and what they have read in the beginning of the text to share an initial interpretation" (p. 657). They are asked to share things that may be confusing, first impressions a summary or make connections to themselves, other texts or the world.
3. Continue the conversation – In this portion, students should begin to summarize and synthesize understanding across multiple textual units," (p. 657) incorporating what they have already learned.

4. Make multiplicity explicit – During this portion, students are asked to truly share and comment on the classroom blog. “When different ideas are expressed, students are supported in thinking deeply about diverse beliefs and positions” (p. 657).

She explained that HOT blogging allows students to share diverse perspectives and share information via the internet. It also creates a collaborative community and creates a better understanding of the curriculum beyond the distinct academic subject. (Zawilinski, 2009)

Through all my research I have discovered that blogging allows for a classroom full of purposeful learning, a community and encourages collaboration (Davis & McGrail, 2009). In a Mathematical classroom it can allow students to journal and “organize their learning, communicate their reasoning, reflect on their own learning, record their journey and think about and test ideas” (Lynch-Davis & Goodson-Espy, 2011, p. 466). Blogs can establish connections with student, allow for assessment of content, and allow for reflection. Blogs can provide students with opportunities to connect with an audience allowing even the quiet students to have a voice and learn about different communities and cultures. This will increase motivation and engagement knowing that their writing is not only is being read by their teacher, but has the potential to be read by millions, (Boling, Castek, Zawillinski, Barton & Nierlinch, 2008).

## **DESCRIPTION OF THE INTERVENTION OF INNOVATION**

For my action research plan, I plan on utilizing two separate groups of approximately 15 students in each group. I am a special education teacher and have taught 7<sup>th</sup> grade Resource Mathematics for two years. I have the data from common assessments for the last two years. During the last two years, my students reflected on their learning, demonstrated basic knowledge, reviewed items taught, and answered higher order thinking questions, through exit tickets. The previous two years data is going to be considered my control group. Although not everything will be taught exactly the same way, those students will not have been given the opportunity of utilizing a blog for those skills. I will then utilize blogging throughout the school year for the 2012 – 2013 school years. I will then compare their common

assessment data with the hope that because of the opportunity for more feedback, reflection, and learning because of the blogs, their test scores will have shown improvement.

In addition to common assessment scores, I will compare STAR™ Math scores throughout the semester from last year's assessment scores. I will also compare cohort groups MAP test scores to hopefully show improvement in knowledge gained from the use of blogging in the classroom. My last aspect of my research is motivation. I plan to use surveys throughout the semester to determine if the group found utilizing classroom blogs to be motivating for learning and beneficial.

One thing I know will hurt my data is the comparison of students. When comparing students, a person will always have a difficult time showing improvement or lack thereof. This is a common problem when my district looks at MAP assessment scores because they look at grade levels and look for improvement. This is why I am also looking at MAP test scores and hoping to compare the cohort group and hopefully will see improvement.

## **SECTION II**

### **A. OVERVIEW OF DATA COLLECTION STRATEGIES**

I have several plans for collecting data. There are several tools I will be able to use to collect the data necessary for my plan to be carried out. I plan on having surveys from teachers, in the hope that I can also use their information to compare data. I also plan to interview them to gain a greater knowledge of how they utilize blogging if they do so in their classroom. I plan to survey students to determine motivation and collaboration. Lastly, I have several data sources that I can compare student achievement based on my research including:

1. State Test Scores comparing cohort groups
2. STAR Math scores comparing previous years to current year
3. Common Assessment Scores comparing previous years to current year.

### **B. DATA SOURCES**

- Survey – The teachers will be asked to complete a survey to help determine which teachers utilize blogging in their classrooms at the current time. The survey will look at how they utilize blogs or other forms of technology in their classrooms.
- Interview – For those teachers utilizing blogging in their classrooms, I will interview those teachers to help determine how they are utilizing the blogs in their classroom. The hope would be that I can then compare their data from another teacher in the building not utilizing blogs.
- Survey – The students will be interviewed quarterly to determine the student’s opinion on how blogging affects their motivation and how blogging has impacted their collaborative learning with their peers. I plan to use a likert scale for this survey showing an agreement or disagreement on various statements focusing on those two areas.
- Data – I plan to compare various data already starting in my building.
  - MAP Data – I plan to compare my current student’s MAP data with my previous two years student’s data. Although I know that the students are not the same and therefore data could be different, I am planning on making only one major change in my teaching, which is utilizing a blog in place of exit tickets.
  - STAR Math Data – This program assess a student’s overall knowledge in math. As a student answers questions correctly or incorrectly, the students get an easier or harder question respectively. After 37 questions, the assessment determines a scaled score that is generally a good predictor to proficiency on MAP assessments. We have taken data on our students for the past year. I can now compare my current student’s scores with my previous year’s scores six times throughout the school year.
  - Common Assessment Data – Our school has developed ten common assessments which we assess our students on throughout the school year. My hope is to compare my student’s data comparing to previous years hoping to see improvement.

### **C. DATA ANALYSIS PLANS**

From my surveys, interviews, and raw data, I plan to analyze the data to identify and determine any trends in the data. Based on my surveys from my teachers, I can gain greater knowledge of students' knowledge on blogging and hopefully interview a few of those teachers. I can then add them to my formal data researching a comparison of blogging in comparison to teachers who do not utilize blogging in their classroom. Google Doc™ will analyze the data from both surveys for me, breaking it down so that I can see the trends for each question. I also plan to use Google Docs™ to compare the student's surveys throughout the semester hoping to gain greater understanding if the blog allows for that greater collaboration and motivation. Lastly, I will use Microsoft Excel™ to compare the raw data taken from each of the data sources, MAP scores, STAR Math scores and common assessments, to determine student achievement in the content area.

### **SECTION III**

1. At this time, I do not have a plan to utilize any other people in my action research project. I know of only one other teacher utilizing blogs at this time and she teaches a completely different curriculum from me, and do not have previous data without the utilization of blogs. After my primary survey, I hope to find a few more teachers in my building that utilize blogs. If I do find teachers who utilize blogs, I hope to also compare their data between their age group. I can then compare their common assessment scores and also their MAP scores. I may be able to compare STAR Math or Reading scores if the teachers teach Communication Arts or Math. I also would ask that the teachers have their students take the student survey throughout the year. My hope would be I can then compare various age levels, subject matter and ability level to determine motivation.
2. The only permission I would need would be from my student's parents to allow them to utilize a blogging system. This would need to be done because the students would be publishing work that is visible to anyone online. For this, I would have to be granted permission for the students to publish a blog for my classroom.

### 3. Timeline:

- **Month 1:**
  - Review all previous years data (STAR Math, Common Assessments, and MAP Scores)
  - Survey teachers to determine if other teachers are utilizing blogging in their classroom
  - Interview those teachers who are utilizing blogging (if applicable)
  - Discuss with teachers to determine if they are willing to participate in research (if applicable)
  - Students assessed using STAR Math
- **Month 2-3:**
  - Begin analysis of data (STAR Math)
  - Survey students on collaboration and motivation toward the end of the third month
  - Assess students common assessments
- **Month 4 - 6**
  - Assess students – STAR Math and common assessments
  - Survey students on collaboration and motivation end of month 5
  - Analyze data – STAR Math, common assessment and survey's from students
- **Month 7**
  - Survey students – motivation and collaboration
  - Assess students – Common Assessment and STAR Math
  - Analyze data – STAR Math, common assessment and survey's from students
- **Month's 8 – 10**
  - Assess students – MAP Testing
  - Assess Students – Common Assessment and Common assessment
  - Survey students – motivation and collaboration
- **Month's 11 – 12**



- Analyze and Interpret all data

4. The timeline for my development of recommendations will be one year. This is because although much of my data is collected throughout the academic school year, I will require the summer months to begin comparing the data from the MAP assessment.
5. My overall strategy would be to begin informing the staff in my building about my findings. Because I am the technology instructor, I can begin instructing teachers on how they can utilize blogging in their classroom and provide trainings and mentoring for the teachers. I can then provide follow-up opportunities for further support and they begin to implement blogging into their classroom. My principal is already very supportive of the use of blogging as well as integration of technology in our building, so I am not concerned about resistance from administration.
6. I plan to continue to support the teachers in my building through follow-up opportunities to ask questions or gain support through the process. I will continue to gather information from the teacher's through their common assessment data and MAP scores to hopefully continue to see growth from the students. I also hope to encourage the teachers to administer the student survey's to continue to track student motivation and collaboration. After this I would like to consider evaluating higher order thinking skills that could be integrated into blogging in the classroom.

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### Appendix A: Literature Matrix

| Author (s)   | Year | Variables to consider in the study |               |                      |               |            |
|--|------|------------------------------------|---------------|----------------------|---------------|------------|
|  |      | Reflection                         | Use or Impact | Cooperative Learning | Effectiveness | Engagement |
| Alison Sawmiller   | 2010 | X                                  | X             | X                    | X             | X          |
| Yueh-Min Huang<br>Yu-Lin Jeng<br>Tien-Chi Huang                                    | 2009 |                                    | X             | X                    | X             |            |
| Lynn Luehmann<br>Jeremiah Frank  | 2009 | X                                  | X             |                      | X             | X          |
| Erica Boling<br>Jill Castek<br>Lisa Zawilinski<br>Karen Barton<br>Theresa Nierlich | 2008 |                                    | X             | X                    |               | X          |
| Robyn MacBride<br>April Lynn Luehmann  | 2008 | X                                  | X             | X                    | X             | X          |
| Lisa Zawilinski  | 2009 | X                                  | X             | X                    | X             |            |
| C. Yang<br>Y. -S Chang   | 2011 |                                    | X             | X                    | X             | X          |
| Anne P. Davis<br>Ewa McGrail   | 2009 | X                                  | X             | X                    |               | X          |
| Marie E. Flatley   | 2005 |                                    |               | X                    |               |            |
| Meredith L. Greer<br>Benjamin Reed   | 2008 |                                    | X             |                      |               | X          |
| Kathleen Lynch-Davis<br>Tracy Goodson-Epsy   | 2011 | X                                  | X             | X                    |               | X          |
| Eleni Oikonomidou  | 2009 | X                                  |               |                      |               |            |
| Anders D. Olofsson<br>J. Ola Lindberg<br>Trond Eiliv Hauge                         | 2011 | X                                  | X             | X                    | X             |            |

### Appendix B – Data Collection Matrix

| Research Questions  | Data Source       |                                   |                      |   |
|---|-------------------|-----------------------------------|----------------------|---|
|   | 1                 | 2                                 | 3                    | 4 |
| 1. Would requiring the students to reflect using online blogging increase student engagement in their learning? | Student Survey    | Teacher survey<br>(If applicable) |                      |   |
| 2. Will blogging increase student communication and collaboration?  | Student survey    | Teacher survey<br>(If applicable) |                      |   |
| 3. Will blogging increase student motivation in the classroom?  | Student Survey    | Teacher survey<br>(If applicable) |                      |   |
| 4. Will blogging increase student achievement on state assessments and common assessments?                      | MAP<br>Assessment | STAR Math<br>Assessment           | Common<br>Assessment |   |

### Appendix C: Data Analysis Matrix

| Data Collection Technique   | Data Analysis Strategy  |   |  |
|---|---|---|--|
|   | 1   | 2   | 3  |
| 1. Survey Teachers on use of blogs or other technology in the classroom | Use Google Docs™ to analyze data and determine if teachers could be interviewed   |   |  |
| 2. Interview possible teachers on their use of blogs                    | Determine how the teacher utilize blogging in the classroom   | Request the use of the teacher's data as they utilize blogging in their classroom                               | Analyze how the teacher's data compares to other teachers data of the same subject and grade level |
| 3. Survey Students on motivation, collaboration and engagement.         | Use Google Docs™ to analyze data and determine if the use of blogging has increase student engagement, motivation and collaboration.    | Determine the percent of students that agree and disagree with the statements.                                  | Compare my data with other teachers if possible  |
| 4. Analyze Common Assessment Data                                       | Compare each of the ten formative assessments through the school year comparing student achievement from previous years to current year | Compare common assessment data from possible teachers to their subject and grade level peers on the assessment. |  |
| 5. Analyze STAR Math assessment data                                    | Compare the progress and scaled scores of current students to previous years data   | Determine if the change of blogging has improved STAR Math scores   |  |
| 6. Analyze MAP assessment data  | Compare cohort group scores based on the MAP Math assessment comparing scaled scores from previous years to the student's current year. |   |  |

## Appendix D: Instrument

This questionnaire is part of an action research project to determine effectiveness of blogging in the classroom. It will also look at the different means in which an individual utilizes blogging in the classroom. Please take the time to answer the questions. The results will be used for implementing a plan of blogging in the classroom at Hardin Middle School. All answers will be confidential.

1. Do you incorporate technology into your classroom? If no, skip to question 5.
  - a. Yes
  - b. No
  
2. How often do you use technology in your classroom daily?
  - a. 25 – 49%
  - b. 50 – 74%
  - c. 75 – 99%
  - d. 100%Other information, please specify \_\_\_\_\_.
  
3. How often do your students interact with technology?
  - a. Daily
  - b. Ever 2 – 3 days
  - c. Once a week
  - d. Once a monthOther information, please specify \_\_\_\_\_.
  
4. If you selected daily on question 3, what percentage of your class period is spent with your students interacting with technology?
  - a. Not applicable
  - b. 25 – 49%
  - c. 50 – 74%
  - d. 75 – 99%
  - e. 100%
  
5. Have you ever used blogging in your classroom? If no, skip to question 7
  - a. Yes
  - b. No

6. How do you utilize blogging in your classroom?
  - a. Cooperative Learning
  - b. Reflection Activity
  - c. Review of activity
  - d. Reading responses
  - e. Writing strategies
  - f. Other, please specify: \_\_\_\_\_
  
7. What barriers to you find that restrict you from utilizing technology, such as blogging, in your classroom? (Select all that apply)
  - a. Time – to plan
  - b. Availability of technology
  - c. Students resistance
  - d. Knowledge of the technology
  - e. Unsure of how to incorporate it
  - f. Other, please specify \_\_\_\_\_
  
8. What would you need in order to incorporate blogs into your classroom? (Select all that apply)
  - a. Professional Development training
  - b. Training for the students
  - c. Accessibility to technology (computers and the internet) more frequently
  - d. Other, please specify \_\_\_\_\_
  
9. How would you use a blog in your classroom? (select all that apply)
  - a. Daily reflection of the lesson
  - b. Reflection of specific skills
  - c. Higher order thinking questions
  - d. Collaboration between students
  - e. Cooperative learning between students
  - f. Review of materials
  - g. Daily Drill/practice
  - h. Extension activity
  - i. Writing practice
  - j. Literary review
  - k. Other, please specify \_\_\_\_\_ -