Having an Impact: Action Research & Universal Design for Learning

Part 1: Why link together Action Research and UDL?

Learning Target

• Understand how action research helps evaluate the impact of Universal Design for Learning on student learning
• Understand how teachers have used action research in their practices
• Identify initial action research questions related to your instructional practice and students

Universal Design for Learning

http://www.cast.org/udl/index.html - About UDL
WHY Action Research?

“Educational Action Research refers to taking a systematic look at some educational practice and recording what was done, why it was done, collecting data, analyzing the data and reflecting on how the results might influence future teaching endeavors.”

“If done carefully and thoughtfully, ... [it] can improve an individual's teaching. If done by multiple teachers at a single school, it has the potential to enhance the overall quality of the school.”


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### What areas of UDL instruction have teachers focused on?

<table>
<thead>
<tr>
<th>What areas of UDL instruction have teachers focused on?</th>
<th>What action research questions did they ask?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Reading</td>
<td>1. To what extent do students improve their reading fluency after reflecting on a video of them reading aloud, practicing and then re-reading aloud?</td>
</tr>
<tr>
<td>2. Behavior</td>
<td>2. Does use of Comic Life help students to process and control their anger?</td>
</tr>
</tbody>
</table>
What areas of UDL instruction have teachers focused on?

3. Math
4. Writing

What action research questions have the teachers asked?

3. To what extent does video feedback of students explaining how they solved Algebra problems increase retention of the content?

4. Does teaching students to independently use Co-writer extend the length of their writing and the use of expressive words?

Think about integrating UDL into your instruction. Brainstorm and jot your initial questions.

What areas of UDL instruction are you focusing on?

What instructional questions are you in evaluating?

Having an Impact: Action Research and Universal Design for Learning
Part 2: What are the steps for developing an Action Research plan?
Learning Targets

- Describe the four stages of the Action Research cycle
- Understand the steps in planning the action research cycle
- Understand how each stage applies to real life educational questions

Plan for Each Stage of the Action Research Process

The PLAN = The Roadmap

**Steps:**
1. What is the action research question?
2. What steps will you take to answer the question?
3. How will you evaluate the results?
1. Craft the question

What do you want to know about raising student achievement using Universal Design for Learning (UDL)?

- Be specific
- Avoid broad questions that are too complex to answer

2. Plan the UDL intervention

Will using the flip camera to tape students reading help to teach them to focus on the task at hand?

* Begin with the end in mind
* Decide if you are focusing on a group of students or a single student
* Determine how you will integrate UDL into effective instruction, overall
* Decide how you will integrate technology given the content and student needs.
Shelley’s Action Research Plan

1) Day 1: Introduce the book. Discuss with the student the Flip Camera, how it works, what it can do, and how you will be using it.

2) Day 2:
- Discuss what the student recalls about the book.
- Remind her that you will be taping her. Afterwards, both of you will look back at the video and discuss:
  - What do your eyes do when you read?
  - What is the job of your pointer finger?
  - Are you reading what you are looking at?
  - Did your eyes stay on the words?

3) Day 4: Let the child know that the next day is the last session of taping and discussion.

4) Day 5: Remind student of the key points and what she has learned. Tape the child reading the whole book. Compare to Day 1.

5) Revisit the strategy in the future, as needed, to sustain the changes.

3. Plan how to evaluate

How will you determine to what extent the children learned using this UDL strategy?

- Determine what data needs to be collected to answer the question
- Decide how will you track what is implemented
- Identify what is the reference point you will use to determine the extent of change
- Determine how you will decide if the plan needs to be modified
3. Plan how to evaluate

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- Determine what data needs to be collected to answer the question
- Decide how will you track what is implemented
- Identify what is the reference point you will use to determine the extent of change
- Determine how you will decide if the plan needs to be modified

Shelley describes how she collected data in the midst of a busy school day

“Outcomes were measured by simple on and off task observations and a tally system”

What did Shelley and her student learn?
4. Reflection: How did Shelley apply what she learned to another area of instruction?

With your question written and plan developed, you are ready to implement.
Learning Targets

• Describe the four stages of the Action Research cycle

• Understand the steps in planning the action research cycle

• Understand how each stage applies to real life educational questions

Having an Impact: Action Research and Universal Design for Learning

Part 3: Model Action Research Plans

Learning Targets

View examples of action research plans that had an impact on student learning

Name key components of a well written action research plan

Correctly evaluate action research plans based on the four key components
Exemplary Action Research Projects

Project #1 On-Line Counting Games
Project #2 Math Problem Solving
Project #3 Word Prediction

Quality Indicators
1. Outcome focus is student achievement
2. Academic skill is measurable
3. Data is taken before & after instruction or criterion reference is used
4. Four stages included
   Plan/Question
   Instructional Action
   Evaluation
   Reflection

Action Research Plan: Project # ______
- Focus is on academic achievement Yes No
- Academic skill is measurable Yes No
- Academic skill measured: 
- Data before & after or criterion referenced Yes No
- Project includes four components: Question, Action, Evaluation, Reflection Yes No
- UDL Principles addressed:
Project #1

Question:
Will practice using motivating online counting games improve number sense?

Benjamin E. Mays
Elementary

Instructional Action:
- Students used online counting games
  - Built in “reward” for correct answers
  - Games
    - Dot-to-dots: Counting
    - Matching: Identifying numbers
    - Counting objects: 1:1 Correspondence

Websites:
- www.abc.net.au/countusin/
- www.resources.kaboose.com/games/math1.html
- www.surfnetkids.com/counting.htm
- www.sowashco.k12.mn.us/ro/pages/studentlinks/map/number/-161.htm

Evaluation:
Students were pre-tested, then post-tested after using online games to measure improvement
- rote count
- identify numbers
- 1:1 correspondence

All student scores improved

<table>
<thead>
<tr>
<th>Scores</th>
<th>Pre-test</th>
<th>Post-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>24</td>
<td>24</td>
</tr>
<tr>
<td>22</td>
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<td>16</td>
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<td>20</td>
</tr>
<tr>
<td>25</td>
<td>25</td>
<td>25</td>
</tr>
</tbody>
</table>
Reflection:

- Students with autism not motivated for school tasks
- Game technology increases engagement and practice
- Learning the basic math skills are essential for them to access higher level math curriculum in the future.

Action Research Plan: Project #1

- Focus is on academic achievement  Yes  No
- Academic skill is measurable  Yes  No
- Academic skill measured:  
- Data before & after or criterion referenced  Yes  No
- Project includes four components: Question, Action, Evaluation, Reflection  Yes  No
- UDL Principles addressed:  

Project #2

Question
Will LD students outperform general ed peers on math smart goals with flip camera practice?

Ann Johnson, LD Teacher
Como Elementary
**Instructional Action:**

For each math unit I will individually video tape my students demonstrating the smart goal for each unit.

Before the unit test, we will watch each video as a means of reviewing and reinforcing the skill.

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**Evaluation**

I will evaluate the success of this project by comparing the number of LD students to the regular ed students who achieved their math smart goals.
Results
Unit 4 Smart Goal: students will be able to solve a division problem with a double digit divisor and a three to four digit dividend.
LD students: 100%
Regular Ed students: 83%

Results
Unit 5 Smart Goal: students will be able to give three equivalent fractions for any given fraction:
LD students: 100%
Regular Ed students: 84%

Results
Unit 6: Smart Goal: students will be able to find a common denominator for fractions with unlike denominators.
LD students: 100%
Regular Ed students: 95%
Students Review their Smart Goal Demonstrations with Ann

Reflection

• All students with LD met grade level goals using video to practice math skills
• More students with LD achieved the smart goal than the regular ed students
• Video feedback was effective in helping students learn math problem solving skills

Action Research Plan: Project # 2

• Focus is on academic achievement Yes No
• Academic skill is measurable Yes No
• Academic skill measured: ____________________________
• Data before & after or criterion referenced Yes No
• Project includes four components: Question, Action, Evaluation, Reflection Yes No
• UDL Principles addressed: ____________________________
Project #3

Question
Will the use of word prediction increase student achievement and motivation to write?

Ames Sheridan
Elementary

Instructional Action
• 2-30 minute sessions of instruction on how to use the word prediction program while writing on a Netbook
• 2-60 minute weekly opportunities to write using the word prediction program for a variety of written assignments for 6 weeks.

Evaluation
We compared pre-intervention writing samples in the fall to spring writing samples
Baseline Data:
  Total words written: 3 min sample
  Total correct word sequences
Post Test:
  Total words written: 3 min sample
  Total correct word sequences
Results: Student Pre Post Writing Data

<table>
<thead>
<tr>
<th>Student</th>
<th>Pre Total Words</th>
<th>Post Total Words</th>
<th>Pre Correct Word Sequences</th>
<th>Post Correct Word Sequences</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>54</td>
<td>72</td>
<td>25</td>
<td>61</td>
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<td>2</td>
<td>6</td>
<td>21</td>
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<tr>
<td>9</td>
<td>50</td>
<td>147</td>
<td>51</td>
<td>87</td>
</tr>
</tbody>
</table>

Results

- Most (8/11) increased total words by 16+ words
- All increased correct word sequences by 13+ words
- Average total words increased by 9 words

Reflection

- Motivation to engage in writing increased
- Looked forward to writing on netbooks & web. No work refusal occurred.
- Completed longer & more accurate writing assignments
- Word prediction support kept students engaged in writing so to achieve grade level writing skills.
Action Research Plan: Project # 3

• Focus is on academic achievement  Yes  No
• Academic skill is measurable  Yes  No
• Academic skill measured: _____________
• Data before & after or criterion referenced  Yes  No
• Project includes four components: Question, Action, Evaluation, Reflection  Yes  No
• UDL Principles addressed: _____________

Learning Targets

View examples of action research plans that had an impact on student learning

Correctly evaluate action research plans based on the four quality indicators

Having an Impact: Action Research and Universal Design for Learning

Part 4: How do I use Action Research Planning in my work?
Learning Target

Write your own Action Research Plan to measure the effects of an instructional plan to have an impact on student achievement using UDL principles.

Action Research Plan Guidelines

1. Outcome focus is student achievement
2. Academic skill is measurable
3. Data is taken before & after instruction or Criterion reference is used
4. Four stages included
   - Plan/Question
   - Instructional Action
   - Evaluation
   - Reflection

Plan

What do you want to know about raising student achievement with Universal Design for Learning?

Write one focused question about raising student achievement with UDL teaching methods and technology that is measurable.
Plan Questions

<table>
<thead>
<tr>
<th>Good Examples</th>
<th>Weak Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Will students increase their story retelling skills with the use of video feedback and an LCD projector?</td>
<td></td>
</tr>
<tr>
<td>B. Will students understand textbook chapters better when utilizing digital images and movie clips?</td>
<td></td>
</tr>
<tr>
<td>A. Will students be more engaged when technology is used?</td>
<td></td>
</tr>
<tr>
<td>B. Will students reading scores increase with the use of Comic Life, Inspiration and video feedback?</td>
<td></td>
</tr>
<tr>
<td>C. Will students decrease negative behavior when utilizing technology?</td>
<td></td>
</tr>
</tbody>
</table>

What instructional action will you take to answer your question?

*Write your instructional plan of action including your use of UDL strategies and technology*

Instructional Action

<table>
<thead>
<tr>
<th>Good Examples</th>
<th>Weak Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Develop a story retell rubric with students. Teach beginning, middle and end story components with video practice and self evaluation for two weeks.</td>
<td></td>
</tr>
<tr>
<td>B. Pre-teach unit vocabulary with Word Chaining, Flickr images and sound to represent new vocabulary for three units of study.</td>
<td></td>
</tr>
<tr>
<td>A. Teach students how to use Comic Life in Writer's Workshop.</td>
<td></td>
</tr>
<tr>
<td>B. Use video with students to build self confidence in public speaking and interview skills.</td>
<td></td>
</tr>
</tbody>
</table>
List how you will measure your outcome.

Write a sentence telling how you will measure the results of your instruction including pre and post units of measure.

Evaluation Methods

<table>
<thead>
<tr>
<th>Good Examples</th>
<th>Weak examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Measure students before and after 3 week instruction based on the rubric, presence of beginning, middle, end and # of complete sentences.</td>
<td>A. Measure students ability to retell stories after practice with video.</td>
</tr>
<tr>
<td>B. Measure writing samples in a 5 minute period without word prediction software and after 3 week intervention with the software. Count total words and sentences.</td>
<td>B. Measure students ability to write with word prediction software.</td>
</tr>
</tbody>
</table>

How will you understand the significance of your work?

Write a sentence about how you will review your data and determine the effectiveness of your plan.
Sample Reflection Methods

Compare student writing samples with progress on previous units to determine if word prediction software was helpful for student writing. If more than 90% of students increase words/sentences by 30%, this will be a successful tool for writing.

Discuss results in my PLC and compare student progress with other teaching methods. If more than 80% of students achieve mastery, it will be successful.

Learning Target

Write your own Action Research Plan to measure the effects of an instructional plan to have an impact on student achievement using UDL principles.