Building School Library Learning Environments

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Education Service Center Region 11
February 3, 2012
Plan for the Day

• Research
• Dimensions of a Learning Environment
• All About You
• Assessment/Evaluation
• Strategies/Interventions
Introduction

• Previous studies show that both strong school library programs and positive learning environments contribute to high student outcomes.

• Therefore, the role that a learning environment plays within the school library is of interest.

• “Learning environment refers to the social, psychological and pedagogical contexts in which learning occurs and which affect student achievement and attitudes” (Fraser, 1998, p.3).
Learning Environment

“Learning environment refers to the social, psychological and pedagogical contexts in which learning occurs and which affect student achievement and attitudes”

**Contexts:**

- **Social**
  - Levels of communication and interaction
- **Psychological**
  - Internal, intellectual
- **Pedagogical**
  - Instructive strategies

**Impact:**

- Student Achievement
- Attitudes
Learning Environment
Learning Theory

• Constructivism
  – learning is a process of constructing knowledge rather than acquiring it
  – takes into consideration the learner’s social, cultural and contextual conditions
  – views learning as an active process of making meanings from experience
  – Learning environments designed based on this theory are student-centered, collaborative, co-operative, experiential, and visually stimulating.
Learning Theory

• Constructivism
  – Teachers in this setting serve as facilitators rather than instructors.
  – Brain-based learning theory founded on constructivism.
    • established on current neuroscience research findings about the physiology/functions of the brain
    • proposes that people learn better in a challenging, safe, comfortable, social and enriched environment
Goal

A holistic approach to create ‘places of learning’ and not just ‘spaces for learning’
Background

• School librarians and science teachers have complementary standards related to affecting student achievement.

• Despite substantial efforts to document the positive relationship between school librarians and student achievement, any correlations between a strong school library program and positive science achievement is, for the most part, unreported.
Background

The Scientific Inquiry Model

School librarians and science teachers have complementary inquiry models.
Background

- Evaluation of innovative classroom environments using *My Class Inventory (MCI)*
  - Developed with a psychological view of learning that focused on students as co-constructors of their own knowledge
  - Uses a **Preferred** and an **Actual** form to assess dimensions of satisfaction, competition, friction, difficulty and cohesion
Research Setting

• School
  – K – 5 setting with a mathematics and pre-engineering integrated curriculum at each grade level
  – School library that functions as a combination library and center for the delivery of a robotics program
Participants

• 176 students in Grades 3–5 were surveyed

Table 1
Student demographics for Science Classes and School Library.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Male</th>
<th>Female</th>
<th>African American</th>
<th>Asian</th>
<th>Hispanic</th>
<th>Native American</th>
<th>Pacific Islander</th>
<th>White</th>
<th>Mixed</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>29</td>
<td>34</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>47</td>
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<td>4</td>
<td>30</td>
<td>28</td>
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<td>44</td>
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<td>5</td>
<td>23</td>
<td>27</td>
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<td>1</td>
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<td>45</td>
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<tr>
<td>Total</td>
<td>82</td>
<td>89</td>
<td>16</td>
<td>2</td>
<td>5</td>
<td>136</td>
<td>10</td>
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</tr>
</tbody>
</table>
# Instruments

Table 2
Examples of the five scales from the MCI used to evaluate the learning environments of the Library and the Science Class

<table>
<thead>
<tr>
<th>MCI Science</th>
<th>Actual</th>
<th>Preferred</th>
<th>MCI Library</th>
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<td><strong>Satisfaction</strong></td>
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<td>In my science class the students would enjoy their schoolwork.</td>
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<td><strong>Friction</strong></td>
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<td>In my science class students would be always fighting with each other.</td>
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<tr>
<td>In my science class the work would be hard to do.</td>
<td>In my class the work is hard to do.</td>
<td>In my library finding different resources (such as books, magazines, CDs) would be hard to do.</td>
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<td>In my science class everybody would be my friend.</td>
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<td>In my library everybody would be my friend.</td>
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t-Test Analyses

• Why do it?
  – To see if there is any difference in the *averages* of scores
  – Tells us whether or not students’ perceptions are different from preferred to perceived (actual).
t-Test Analyses

• Results
  – 3rd Grade:
    • Prefer more friction in library than in the classroom
    • Prefer more competition and difficulty in the science classroom
t-Test Analyses

• Results
  – 4th Grade:
    • Prefer more friction, competition and difficulty in library than in the science classroom
    • Perceive more satisfaction in the science classroom than in the library
    • Perceive more difficulty in the library than in the science classroom
t-Test Analyses

• Results
  – 5th Grade:
    • Prefer more friction in library than in the science classroom
    • Prefer more difficulty in the science classroom than in the library
    • Perceive more competition in the science classroom than in the library
Pearson $r$ Correlations

• Why do it?
  – Correlations tell us if one thing is related to another; if there is an association between the two
    • We’re looking at the relationship between the student perceptions of the learning environment and state test results
  – Those associations can be positive or negative
  – No correlation will tell causation
  – Potential to demonstrate impact of school library
Pearson $r$ Correlations

• Results
  – 3rd Grade:
    • Actual learning environment library perceptions
      – Satisfaction is negatively correlated with friction, competition, and difficulty; positively correlated with cohesion (matches the preferred)
      – Friction is positively correlated with competition and difficulty and negatively correlated with cohesion and mathematics scores
      – Difficulty is negatively correlated with cohesion, scores in mathematics and scores in reading
    • Actual learning environment science class perceptions
      – Positive correlation between reading and mathematics
      – No other correlations between the science class learning environment and the math and reading scores
Pearson $r$ Correlations

• Results

– 4th Grade:
  • Actual learning environment library perceptions
    – Satisfaction is negatively correlated with friction and difficulty and positively correlated with cohesion and mathematics scores
    – Friction is positively correlated with competition and writing scores and negatively correlated with cohesion and reading scores
    – Reading is positively correlated with both mathematics and writing
  • Actual learning environment science class perceptions
    – Difficulty is negatively correlated with mathematics
    – Positive correlation between reading and writing
Pearson $r$ Correlations

• Results
  – 5th Grade:
    • Actual learning environment library perceptions
      – Difficulty is positively correlated with science
      – Cohesion is positively correlated with mathematics
      – Positive correlation between science and mathematics and science and reading
    • Actual learning environment science class perceptions
      – Negative correlation between satisfaction and friction; and satisfaction and difficulty
      – Negative correlation between satisfaction and mathematics
      – Positive correlation between science and mathematics, reading and mathematics, and reading and science
Conclusions

• The methodology for assessing a science classroom environment can be extended to the school library setting; other subject areas should be considered.

• Knowledge of student perceptions could be used to guide the evolution and improvement of the learning environment.

• Assessment of a school library learning environment could be a key factor in determining the success of new teaching methods and resources.
Intervention Considerations

- Examining the dimensions and various perceptions across three grade levels provides data for reflective consideration at each grade level.
- Establishing common goals and coordinated strategies to enhance the learning environments in both the science classroom and the school library will strengthen the support for science learning initiatives.
- Consideration of the climate scales enables an assessment of a range of interactions and personal experiences. Improving the learning environment and closing the gap between what is preferred and what is actually happening involves personal reflection and could initiate feedback from the students.
Intervention Considerations

• Examine the dimensions and various perceptions to design assistance or behavioral change to meet problem situations.
• Determine when assistance is required and what type of help is needed.
• Assess a range of interactions and personal experiences experienced by students to determine actions to mediate the gap between what is preferred and what is actually happening.
Behavioral Considerations

1. Satisfaction

• Satisfaction is defined as the feeling of accomplishment and enjoyment with the learning environment. Many factors can influence students’ overall satisfaction including: time to pursue personal interests, a welcoming atmosphere.

• Intervention Strategy: School librarian presents a welcoming presence, knowledge of information resources, and willingness to engage with student interests and assignments. Science teacher collaborates with the school librarian to optimize access and use of information resources.
Behavioral Considerations

2. Friction

• Friction includes conflicts between students, among students and between teacher and student(s). An atmosphere of tension and aggressive behaviors can disrupt a positive orientation towards research and learning.

• Intervention Strategy: School librarian takes prompt and positive action to intervene in aggressive interactions. Science teacher and school librarian collaborate to problem solve aggressive behavior. School librarian and science teacher reflect on personal behaviors that could spark and/or escalate conflicts.
Behavioral Considerations

3. Competitiveness

• Competition is the perception that if one student wins, others lose. Favoritism may be perceived at the individual or class level, or there may be a sense of being rushed through the process of identifying and locating resources.

• Intervention Strategy: School librarian and science teacher spend time with all students and structure class instruction to be inclusive. Science teacher collaborates with school librarian to identify resources and allow process time for inquiry.
Behavioral Considerations

4. Difficulty

- Access to resources and inquiry skills influence the degree to which students perceive that the library or science classroom has a difficult learning environment. If resources are easily accessible for specific needs, and students feel competent to locate and use those resources, then the school library environment may be seen as challenging but not difficult; science content may be perceived as difficult.

- **Intervention Strategy**: School librarian collaborates with the science teacher to identify research projects and appropriate resources, combined with guidance to develop and reinforce reading and inquiry skills.
Behavioral Considerations

5. Cohesiveness

- Cohesion is the perception that students are friendly and can work together. Research projects that require group work are instances where contributing and communicating with peers is encouraged. The degree to which these behaviors are supported in the school library and/or science classroom can elicit a positive or negative response.

- **Intervention Strategy**: School librarian provides time and space for group work and spends time with small groups encouraging positive debate and problem solving. Science teacher provides advance notice of science lessons and collaborates with school librarian to provide coordinated efforts on projects.
Next Steps

• Modified and validated new instruments that examine the *inquiry* aspect of the learning environment

• Beyond applying these instruments to school library settings, the next step is consideration of intervention strategies to affect the positive aspects of the learning environment

• Following intervention, additional assessment of learning environment
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## New Instruments

Examples of the seven scales from the HMLSI used to evaluate the learning environments of the Library

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<th>Actual</th>
<th>Preferred</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reflection</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>New learning would relate to questions I ask about the world.</td>
<td>New learning relates to questions I ask about the world.</td>
<td>New learning would help me ask questions about the world.</td>
<td>New learning helps me ask questions about the world.</td>
</tr>
<tr>
<td>The librarian would be interested in my research questions.</td>
<td>The librarian is interested in my research questions.</td>
<td>The librarian would be interested in my questions.</td>
<td>The librarian is interested in my questions.</td>
</tr>
<tr>
<td><strong>Librarian Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be able to ask the librarian questions about finding and using different kinds of info.</td>
<td>I am able to ask the librarian questions about finding and using different kinds of info.</td>
<td>I would be able to ask the librarian questions about finding and using different kinds of info.</td>
<td>I am able to ask the librarian questions about finding and using different kinds of info.</td>
</tr>
<tr>
<td><strong>Investigation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would carry out investigations in the library to answer questions that puzzle me.</td>
<td>I carry out investigations in the library to answer questions that puzzle me.</td>
<td>I would be able to investigate questions that puzzle me, in the library.</td>
<td>I am able to investigate questions that puzzle me, in the library.</td>
</tr>
<tr>
<td><strong>Task Orientation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would be able to understand how to find information in the library.</td>
<td>I am able to understand how to find information in the library.</td>
<td>I would try to understand how to find answers in the library.</td>
<td>I understand how to find answers in the library.</td>
</tr>
<tr>
<td><strong>Cooperation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students would work with me to achieve class goals in the library.</td>
<td>Students work with me to achieve class goals in the library.</td>
<td>Students would work with me to reach class goals in the library.</td>
<td>Students work with me to reach class goals in the library.</td>
</tr>
<tr>
<td><strong>Equity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I would receive the same encouragement from the librarian as other students do.</td>
<td>I receive the same encouragement from the librarian as other students do.</td>
<td>I would have the same chance to spend time in the library as other students.</td>
<td>I have the same chance to spend time in the library as other students.</td>
</tr>
</tbody>
</table>
Behavioral Considerations

Intervention/Action Strategies for:
– Reflection
– Librarian Support
– Involvement
– Investigation
– Task Orientation
– Cooperation
– Equity

**We influence our learning environment**
Behavioral Considerations

**We influence our learning environment**

Who are we?

**Jung Typology Test**

http://www.humanmetrics.com/cgi-win/JTypes2.asp
Break

Pisco Sours in Peru
Move From
Learning Environment
Learning Environment
Challenging Learning Environment
Who Are We?

Who are we?

Jung Typology Test

http://www.humanmetrics.com/cgi-win/JTypes2.asp

My Type is **INFJ**

- Introverted
- Intuitive
- Feeling
- Judging

INFJs are generally well-suited to the inspirational professions such as teaching (especially in higher education)
Who Are We?
The 4 Temperaments

Guardian
(ESTJ) Supervisor
(ISTJ) Inspector
(ESFJ) Provider
(ISFJ) Protector

Artisan
(ESTP) Promoter
(ISTP) Crafter
(ESFP) Performer
(ISFP) Composer

Idealist
(ENFJ) Teacher
(INFJ) Counselor
(ENFP) Champion
(INFP) Healer

Rational
(ENTJ) Fieldmarshal
(INTJ) Mastermind
(ENTP) Inventor
(INTP) Architect
Who Are We?
ENFJ Teacher

• around two percent of the population
• natural talent for leading students toward learning,
capable of calling forth each learner's potentials
• able to dream up fascinating learning activities for their students to engage in
• ability to fire the imagination
• greatest strength lies in their belief in their students
• communicate clearly that each student has untold potential
AASL Standards for the 21\textsuperscript{st} Century Learner

**Skills**
- Technology
- Constructivism

**Dispositions**
- Attitudes
- Ethical Behaviors

**Responsibilities**
- Inquiry learning
- Higher-order thinking
- Critical thinking

**Self-assessment**
- Reflection
- Personal growth
Relationship to Learning Environment

• We know ourselves
• We know our challenge

• What do we know about our students’ perceptions?
Lunch Break
Assessment

Use of evaluation/assessment instruments

• to determine how individuals and groups of individuals react to their environment;

• to investigate what factors can affect their reaction to the environment; and

• to explore associations between the environment and student outcomes.
Assessment

Two dimensions:

- **Preferred**  
  - Administer first

- **Actual**  
  - Administer at least 1 month later

Gap Analysis

- **Numerical**
- **Statistical**  
  - T-Test analysis  
  - Correlation analysis

Relationship to standardized tests
Strategies

1. Decide what type of environment you are striving for – create that vision mentally and carry it with you
Strategies
Strategies

Designing a Constructivist Learning Environment
Strategies

2. What behaviors are necessary from yourself?

• Credibility
  – Reliable source
  – Character

• Visibility
  – Available
  – Willing
Strategies

3. What behaviors are necessary from students?
Behavioral Considerations

1. Reflection

• Reflection is defined as the process where people think carefully and deeply, connecting new learning to old in order to create more complex and interrelated knowledge. It involves looking for commonalities, differences, and interrelationships. It promotes higher-order thinking skills: analysis, synthesis, evaluation and creativity.

• Intervention Strategy:
Behavioral Considerations

1. Reflection

• Reflection is defined as the process where people think carefully and deeply, connecting new learning to old in order to create more complex and interrelated knowledge. It involves looking for commonalities, differences, and interrelationships. It promotes higher-order thinking skills: analysis, synthesis, evaluation and creativity.

• Intervention Strategy: School librarian asks students (individually or as a group) to consider their prior learning and experiences, inviting them to think about what they already know, what do they need to know, where can they find information and have they accomplished their goals.
Behavioral Considerations

2. Librarian Support

• Librarian Support is defined as the level of interest displayed in an effort to engage and support students. Many factors can influence students’ overall sense of librarian support including: availability to discuss research or personal interests, willingness to explore ideas.

• **Intervention Strategy:**
Behavioral Considerations

2. Librarian Support

- Librarian Support is defined as the level of interest displayed in an effort to engage and support students. Many factors can influence students’ overall sense of librarian support including: availability to discuss research or personal interests, willingness to explore ideas.

- Intervention Strategy: School librarian moves about the library and actively interacts and engages students in discussions, offering assistance, encouraging new ideas, and stimulating creativity.
Behavioral Considerations

3. Involvement

- Involvement is defined as the feeling of accomplishment, belonging, and enjoyment with the learning environment. Many factors can influence students’ overall sense of involvement including: time to pursue personal interests, student interaction and engagement with group assignments.

- Intervention Strategy:
3. Involvement

- Involvement is defined as the feeling of accomplishment, belonging, and enjoyment with the learning environment. Many factors can influence students’ overall sense of involvement including: time to pursue personal interests, student interaction and engagement with group assignments.

- **Intervention Strategy**: School librarian creates an environment where students are encouraged to interact, groups can work together on assignments, and the librarian is willing to engage with student interests and assignments.
Behavioral Considerations

4. Investigation

• Investigation is defined as the understanding and interest in information seeking. Many factors can influence students’ information seeking behavior, including: knowledge of how to use the library, interest in new knowledge, research skills.

• Intervention Strategy:
Behavioral Considerations

4. Investigation

• Investigation is defined as the interest in information seeking and the understanding of how to conduct research. Many factors can influence students’ information seeking behavior, including: knowledge of how to use the library, interest in new knowledge, research skills.

• Intervention Strategy: School librarian understands the concept of guided inquiry and works with students to reduce anxiety, increase research skills and encourage student interest in developing new knowledge. School librarian demonstrated knowledge of information resources and technologies.
Behavioral Considerations

5. Task Orientation

• Task orientation is defined as the understanding of what needs to be accomplished and how to go about completing a task. Many factors can influence students’ overall task orientation including: understanding of the assignment, motivation to complete tasks.

• Intervention Strategy:
Behavioral Considerations

5. Task Orientation

- Task orientation is defined as the understanding of what needs to be accomplished and how to go about completing a task. Many factors can influence students’ overall task orientation including: understanding of the assignment, motivation to complete tasks.

- Intervention Strategy: School librarian works with the classroom teacher to clarify assignments and encourage task completion. Creative ways to make task completion fun are highly recommended!
Behavioral Considerations

6. Cooperation

- Cooperation is defined as the perception that students are friendly and willing to work together. Many factors can influence students’ overall sense of cooperation including: the degree to which they feel a sense of belonging, perceive that students are unfriendly to each other, or experience unwanted competitiveness.

- Intervention Strategy:
Behavioral Considerations

6. Cooperation

• Cooperation is defined as the perception that students are friendly and willing to work together. Many factors can influence students’ overall sense of cooperation including: the degree to which they feel a sense of belonging, perceive that students are unfriendly to each other, or experience unwanted competitiveness.

• **Intervention Strategy:** School librarian takes prompt and positive action to intervene in aggressive interaction; encourages group work; offers facilitative support for disputes.
Behavioral Considerations

7. Equity

- Equity is defined as the opportunity for all students to experience and demonstrate enjoyment, learning and progress. Many factors can influence students’ overall sense of equity including: impartial and fair treatment, and equal encouragement for all students.

- Intervention Strategy:
Behavioral Considerations

7. Equity

- Equity is defined as the opportunity for all students to experience and demonstrate enjoyment, learning and progress. Many factors can influence students’ overall sense of equity including: impartial and fair treatment, and equal encouragement for all students.

- Intervention Strategy: School librarian makes every effort to engage all students, including those who are reluctant participants; spends time with all students and structures class instruction to be inclusive.
Strategies

• Enact the interventions/actions
• Allow time for response to the interventions to be realized
• Re-assess to evaluate the impact
• Consider statistical analysis in association with standardized test results
• Share results
Enjoy!
Active Learning Environment
Contact Information

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