

George Mason University
College of Education and Human Development

EDUC 500.698:
Inquiry Based Learning Using Everyday Objects
Fall 2011- Spring 2012

August 8 – 10, 8:00 – 3:30
Wednesday Evenings, 4:30 – 6:30
September 14, October 5, 19, November 9, 30, December 14
January 11, 25, February 15, 29, March 14, 28, April 11, 25

Instructors: John DeMary, Pat Herr

Phone: 571-252-1360
E-mail: patricia.herr@lcps.org
Address: 21000 Education Court
Ashburn, Virginia 20148

1. Course Purpose and Intended Audience

This course is designed to provide teachers at all grade levels with experience developing lessons for their classroom utilizing Inquiry Based Learning and everyday objects. Teachers in grades 3 – 12 from all disciplines will learn how to create an environment in their classrooms that promotes risk taking and expands the learning potential of their students by using the Loudoun Collection and their own personal collections. They will also develop questioning techniques that promote critical thinking skills and student based learning in their classrooms.

2. Course description

Students will participate in a 3 day immersion into Inquiry Based Learning. During this week, they will be exposed to how teachers at different grade levels use this tool in their classrooms to meet their Standards of Learning across the curriculum. They will also make changes to a lesson they already teach during the first two weeks of school. Then, they will develop a lesson using objects to be implemented in their classroom, and assessed by their students. Students will then begin to develop a curricular unit using Inquiry Based Learning that they will use in their classroom using either the Loudoun Collection, or a personal collection they develop. They will also create a continuum based on student centered vs. teacher-centered lessons that will rate their units on a sliding scale. They will present their units to the other students in the class and administrators from Loudoun County Schools.

3. Course Objectives

- Learn how to utilize objects, which will serve as the vehicle for the development of understanding of lesson concepts.

- Develop questioning techniques to provoke inquiry and stimulate critical, higher level thinking
- Learn to create a classroom environment that promotes risk taking and improves critical thinking skills
- Develop and implement a unit of instruction using Object Based Learning
- Develop and utilize a continuum that rates teacher directed vs. student directed lessons
- Become familiar with the objects available for use for curriculum development such as the objects in the Loudoun Collection
- Reflect on the changes that occur in teaching and learning using Inquiry Based Learning and everyday objects through the keeping of a journal
- Create classroom collections of objects which can be used for Inquiry Based Learning

4. Course Readings and other Instructional Materials

Required Readings

A typical assignment might include 2 chapters from the text and/or several related articles. In the true spirit of Inquiry Based Learning, students will also be finding and reading articles that apply to their specific discipline and to Object and Inquiry Based Learning.

Alvarado, Amy and Herr, Patricia, (2003), Inquiry Based Learning Using Everyday Objects. Corwin Press, Inc. Thousand Oaks, California. 250 pgs.

Walsh, Jackie Acree and Sattes, Beth, (2005), Quality Questioning, Research Based Practice to Engage Every Learner. Corwin Press, Inc. Thousand Oaks, California.

167 pgs

Meyer, Maggie, (1998) *Learning and Teaching Through the Naturalist Intelligence*, New Horizon for Learning

Peterman, Fran, (1994), *Hilda Taba Teaching Strategies*, Unpublished manuscript, Ball State University

Supplemental Readings

Frankel, J.R. (1992). Hilda Taba's to Social Studies Education. *Social Education*. 56(3), 172-178

Glasgow, Neal A. and Hicks, Cathy, (2003) What Successful Teachers Do, 91 Research Based Classroom strategies for New and Veteran Teachers. Corwin Press, Inc. Thousand Oaks, California. 200 pgs.

Pallotta, Jerry, (2002) The Skull Alphabet Book, Charlesbridge Publishing, Waterman, Mass. 28 pgs.

Hassard, Jack, (2002), Science As Inquiry, Goodyear Books, Parsippany, New Jersey. 268 pgs.

5. Course Format

In class time will consist of a variety of learning formats to include

- modeling inquiry based teaching and questioning techniques
- lecture
- class discussion

- small group activities
- curriculum development and participant critique and suggestions

6. Course Requirements

Core Expectations

- ATTENDANCE

EXPECTATION: The first three days in August must be attended in order to take the class. This week will give students firsthand experience as a student of inquiry based learning and help them become familiar with the kinds of materials that can be used for collections. After that week, class will meet twice a month for two hours. Understanding how busy the life of a teacher may be and understanding that school commitments will develop sometimes makes attendance at all classes impossible. However, if more than **two** classes are missed, the student must meet with the instructors to make up any time and materials missed and points will be deducted from the final grade.

- READINGS:

EXPECTATION: University graduate courses expect a minimum commitment of two hours of out of class engagement for each hour in class for master's level classes.

- JOURNAL:

EXPECTATION: Participants will maintain a journal in which they respond thoughtfully and analytically to weekly readings, class discussions, and classroom experiences. Reflecting on one's own learning and creating an individual teaching theory are critical processes, which enables one to become a teacher who discovers ways to use inquiry based learning in their classroom. The journal should be a reflection of how participants respond to the readings, the classroom experience and the process of incorporating more inquiry based learning into the classroom. It should also reflect the questions and problems that develop as these methods of teaching are tried out in the classroom, and how the class responds to the lessons that are developed. The following questions are intended to start the analytical and reflective process. They will also be used to evaluate the level of reflection in class journals.

1. How is this method different than your current method of teaching?
2. How do you think your students would respond to this method?
3. What questions does this method raise for you?
4. What impact does this article/chapter have on your teaching?
5. Where on the teaching continuum does this lesson lay?
6. How has this method of teaching impacted your students?

Journal responses will be graded on the level of analysis and reflection on individual practices. They should be typewritten and at least one page in length. They may be emailed to the instructors, or handed in at the beginning of class.

- Move a lesson over to be a little more inquiry based: Students will take a lesson that they already teach the first two weeks of school. They will use the inquiry continuum to judge

where on the continuum the current lesson would be placed. They will choose one area of the lesson to move towards a more student centered lesson. They will teach that lesson in the first two weeks of school, and take a survey to find out how the students respond to the lesson.

- Lesson Plan: Develop a single lesson that incorporates Inquiry Based Learning.
EXPECTATION: Engaging in new teaching practices that research shows is effective for student learning, questioning current teaching practices, considering alternatives, and viewing teaching as a problem solving process is a part of good teaching practice. The goal of Inquiry Based Learning is to have students take ownership of their learning, and adopting it as one of the tools a teacher uses to increase student learning and improve teaching practice in one's own classroom.
In order to incorporate Inquiry Based Learning into everyday teaching practice, this type of teaching and questioning needs to be developed and practiced. Developing a lesson plan based on everyday objects, or based on the collections found in the Loudoun Collection is a place to start developing a unit, and also to begin their own collections for use in their classrooms.
- Unit Plan: Develop a unit plan that incorporates Inquiry Based Learning.
EXPECTATION: Engaging in new teaching practices that research shows is effective for student learning, questioning current teaching practices, considering alternatives, and viewing teaching as a problem solving process is a part of good teaching practice. The goal of Inquiry Based Learning is to have students take ownership of their learning, and adopting it as one of the tools a teacher uses to increase student learning and improve teaching practice in one's own classroom.
In order to incorporate Inquiry Based Learning into everyday teaching practice, this type of teaching and questioning needs to be developed and practiced. Developing a unit plan based on everyday objects, or based on the collections found in the Loudoun Collection is a place to start developing not only lessons for their students but also begin collections of their own to keep in individual classrooms.
The unit that is developed will not only be used by the teacher who develops it but will also be available for other teachers and will be posted in Clarity when and where it is appropriate. The unit will be guided by the following principles:
 1. Include a rationale that explains why this unit was chosen over any other unit that is taught and why they chose to teach this unit using Inquiry Based Learning.
 2. Use either objects from the Loudoun Collection, or a collection begun for the sake of the unit that is easily collected by another teacher.
 3. Include a minimum of 5 lessons, 3 of which (minimum) need to be inquiry based.
 4. Uses teacher based vs. student based continuum developed by the class to create a unit that is as student based as possible.
 5. Teach one part of one lesson to the class for feedback and to place it on the inquiry continuum.

6. Include an oral presentation that reflects the changes the unit has gone through, explains how using Inquiry Based Learning has changed the way this unit is being taught, and be prepared to answer questions about the unit.

Attendance	The first 3 days in August must be attended in order to take the class. After that, 5 points deducted from final grade for each missed class unless prior arrangements have been made with the instructor	
Completion of journal entries	Journal entries will be completed after each day in August, and once a month thereafter.	15 points
Article review and sharing	A review of one article a month (September to March) that includes inquiry based learning and is relevant to the subject	15 points
Readings	Complete all reading prior to class and participate in all discussions and activities.	10 points
Move a lesson over on the inquiry continuum	Teachers will take a lesson they already teach, and move it to be a little more inquiry based, and teach it that way during the first two weeks of school. They will reflect on the outcomes of that lesson.	10 points
Lesson Plan	Teachers will develop a lesson that is inquiry based	15 points
Unit Plan	Teachers will develop a unit of instruction that includes a minimum of 5 lessons, 3 of which need to be inquiry based	35 points

7. Formula for Grading

A = 95 – 100

B = 90 – 94

C = 85 – 89

D = 80 – 84

F = did not meet course requirements

Course incompletes are given only for emergency, non-academic circumstances where the time delay could not reasonably be anticipated (i.e. accident, hospitalization).

Class Sessions List

August	8, 9, 10	Inquiry Immersion
September	14	Share classroom lessons and responses by students, discuss assessment
October	5, 19	The role of questioning in an inquiry lesson. Development of questions for lessons Introduction of Loudoun Collection
November	9, 30	Develop a lesson plan using a collection and effective questioning that evokes higher levels of thinking, while meeting Virginia SOLs

December	14	Define unit plan and begin planning for the unit
January	11, 25	Using teacher prompts to promote student thinking and enhance student learning Begin lesson presentations
February	15, 29	Lesson presentations
March	14, 28	Lesson presentations
April	11,25	Lesson, unit presentations

If the school system is closed for the day or evening activities are canceled, this class will not meet. Any class sessions that are canceled will be rescheduled at the discretion of the instructors. Notification of changes will be made verbally during the next class session. It is understood that if a class is canceled, the syllabus will be changed to reflect the class missed. Students will be notified verbally of those changes.

Session 1

August 8

Session Focus: What is Inquiry?

- Introduction of participants and course syllabus
- Complete George Mason University enrollment and domicile forms and review the GMU Honor Code, drop regulations, etc.
- What is Inquiry? warm up activity
- Inquiry Tubes activity -Pat
- Animal Bites activity - Jenny
- Tools Activity - Pat
- “The Different Kinds of Inquiry” Article
- Discuss expectation to change a lesson to make it more inquiry based usually taught the first two weeks of school, and implement it in their classrooms before September 22.
- **Journal Entry** – Reflect on your day today. What did you “discover” today? A significant challenge in encouraging teachers to incorporate inquiry into their practice is ...What two questions do you have that you would like answered by the end of the week? (Due at the end of class)
- **Homework:** Read the introduction and chapter 1 of Alvarado, Herr and be ready to discuss it.

Session 2

August 9

Session Focus: What does Inquiry Look Like in the Classroom?

- Warm up activity – Window Panes
- Journal reflection sharing – Model questioning during discussion and discuss reading assignment
- Fish activity - Pat
- Field Trip Film with discussion
- Insect activity – John DeMary
- Alka Seltzer rockets activity - Pat
- Discuss the role questioning played in each lesson. Compare the activities, and the role the students played in each activity, and the role of the teacher in each activity.
- Hand out continuum and discuss expectations for first lesson in September
- **Journal Entry** – What did you learn about Inquiry today? What inquiry lessons have you conducted with students? What lessons that I already do could I change a little to make it more inquiry based? What questions do I still have about Inquiry? (Due at the end of class)
- **Homework:** Read chapter 2 and 3, Alvarado, Herr. Have an idea of a lesson you would like to develop for the first 2 weeks of school.
- **Bead homework**

Session 3

August 10

Session Focus: Is this Inquiry?

- Journal reflection sharing – model questioning during discussions and discuss reading assignment
- Art Postcard Activity – Eric
- Hominid Activity- John
- Shark tooth activity - Pat
- Define Inquiry
- Apple Activity
- Meet in groups to discuss ideas for lessons
- Hand out lesson plan format, then email a copy to each participant
- **Homework:** Implement the lesson you have been planning for the first two weeks of school and be ready to share the experience. Bring student work, pictures or other artifacts from the lesson. Have students complete an assessment for the teacher on the lesson. Turn in a reflection of the impact the change made on the lesson next session to your group leader. Include a copy of the continuum, marking where the lesson was before, and where you moved it on the continuum
- **Journal:** Reflect on your last 3 days. What have you learned about inquiry? What questions do you still have?
- **Homework:** Read chapters 4 and 5 in Alvarado, Herr. Bring a rubric that you like to use to class next session.

Session 4

September 14 – Journal due - reflection of changes you made to the lesson you taught the first two weeks of school

Session Focus: Getting started with Inquiry Based Learning in the Classroom

- Meet in small groups. Share lesson plans that were implemented and discuss the movement of the lesson on the continuum. Discuss what went well, and what needs to be worked on. Discuss student feedback and assessment forms filled out by the students. Collect reflections on the lesson changes.
- Discuss journal entries (Whole group)
- Discuss assessment, including formative and summative assessments. Discuss the use of rubrics in the classroom. Develop a rubric to be used for the final project.
- **Journal:** What are some of the challenges you are facing as you attempt to make your current lessons a little more inquiry based? What did you learn from your beginning of the year experience? How can we further support you as you begin to develop your unit?
- Start thinking about a unit and Virginia SOLs that could be met by teaching the unit using Inquiry Based Learning.
- **Homework:** Read Chapter 1, Quality Questioning. **Teachers in the class should ask their classes why teachers ask questions. Answers should be recorded and ready to**

be shared with the class. Journal response should be to how their students responded to the questions.

Session 5

October 5 – Journal due – how did your students answer the question – Why do teachers ask questions? Were you surprised at their reactions? How did you respond to the students? How will this change the kinds of questions you ask students and how do you hope students will respond to future questioning?

Session Focus: The role of questioning in Inquiry Based Learning

Journal

- Discuss the answers received from students about questioning and draw some conclusions from them
- Look at the chart on pg. 8 of Quality Questioning and discuss the conclusions drawn from the author. Discuss how questioning can be an effective part of a lesson plan and how questions are developed that lead the learner in the direction the teacher would like to go.
- Return lesson plans from previous session, and ask teachers to think of a least two questions that could be added to the lesson plan that would lead the students to answers raised, either by the teacher or the students.
- In small groups, share unit ideas
- Collect journals
- **Homework:** Read chapter 2 in Quality Questioning. Bring standards for your subject or grade level with you to the next class.
- **Bring an article in that you have read and are be ready to share with your group.** The article should be about inquiry in your related subject or grade level. You should write a short review of the article and why you chose it.

Session 6

October 19 – Article Review Due, bring Standards of Learning for your grade and subject level

Session Focus: Develop a lesson plan using the Loudoun Collection or a personal collection

- Discuss Chapter 2, Quality Questioning.
- Introduce the Loudoun Collection
- Discuss how to begin or expand on a personal collection
- Meet in small groups. Discuss articles brought into class.
- Have students think about what could be used to develop a lesson, either by using the Loudoun Collection or a personal collection. Begin the lesson by identifying SOLs they would teach using the collection, and the questions that could be asked to start the lesson.
- **Homework:** Work on lesson plan using a collection, along with questions that would begin the lesson, or be used during the lesson.
- **Journal entry due next class**

Session 7

November 9 Journal Due, lesson outline due for lesson using a collection

Session Focus: Develop a lesson plan using a collection and effective questioning that evokes higher levels of thinking, while meeting Virginia SOLs

- In small groups, share lesson plan ideas using a collection and questioning strategies that have been planned. Discuss why the lesson would be an effective way to teach the SOL.
- Discuss articles
- Discuss the idea of including a **rationale** with the lesson and define rationale. Identify the difference between rationale and objective.
- **Homework:** Using the lesson plan format agreed upon, write up the lesson based on a collection. Include a rationale. ***Completed lesson plan due next class.***
- **Bring an article in that you have read and are be ready to share with your group.** The article should be about inquiry in your related subject or grade level. You should write a short review of the article and why you chose it.

Session 8

November 30 Article review due, lesson plan due

Session Focus: Define unit plan and begin planning for the unit

- In small groups, share lesson plans and rationales and turn in lesson plans for collections
- In small groups, discuss unit ideas, now that some lessons have been tried using Inquiry Based Learning
- Give expectations for unit plan – what should be included, how many lessons, etc. Take a look at the rubric created in September and edit if necessary.
- **Homework:** Read chapter 3 in Quality Questioning. Topic for unit plan due next class.
- **Journal entry due next class**

Session 9 Journal Due, Topic for Unit Plan due

December 14

Session Focus: Engaging all students in an inquiry lesson

- Discuss strategies for engaging all students in an inquiry lesson discussed in chapter 3. Use pg. 73 to lead the discussion. Discuss why teachers are reluctant to let students lead learning through questioning, and how inquiry does just that.
- Share unit topic ideas in small groups.
- Homework: Work on rationale for unit lesson plan, and objectives that will be met through the plan. ***Rational for unit due next class.*** Read chapter 4, Quality Questioning.
- Assign dates for teaching one lesson from the unit plans to the class.
- **Bring an article in that you have read and are be ready to share with your group.** The article should be about inquiry in your related subject or grade level. You should write a short review of the article and why you chose it.

Session 10

January 11 Article review due, unit rationale due

Session Focus: Using teacher prompts to promote student thinking and enhance student learning

- Discuss chapter 4, “Using teacher prompts to promote student thinking”.
- Discuss what kind of teacher prompts could be incorporated into the lesson plan, and decide where they will work into the lesson plan format.
- Share rationales for unit plans. Look at and discuss unit plans. Make suggestions and possible additions.

- **Homework:** Work on outline of unit. What will need to be included? How many lessons will it incorporate? How long will the unit take? ***Unit outline due next class.*** Read chapter 5.
- **Journal entry due next class**

Session 11

January 25 Journal due, Unit outline due

Presenters: _____

Session Focus: The purpose of teacher feedback and bringing closure or extending thinking and talking

- Discuss chapter 5, using charts on pgs. 96, 98, and 99. Discuss methods discussed in the chapter to extend student thinking.
- Look at continuum passed out at the beginning of the year
- Keeping the continuum and the rubric in mind, begin presenting unit plans
- Each class participant will fill out two cards with comments, one, what was good about the lesson, and another, what could you change, add, etc. to the lesson.
- All observers will use the continuum to make suggestions and evaluate where on the continuum the lesson lays. Revisions will be made based on comments.
- Presenter will reflect on how this lesson is different than how it was taught in the past.
- **Homework:** Read chapter 6. Are there places in your unit plan where students could be the ones to generate questions? Revise plans to include if feasible.

Session 12

February 15

Presenters: _____

Session Focus: What we need to do to teach students about the art of formulating questions and using effective questioning strategies.

- Discuss chapter 6.
- Look at continuum passed out at the beginning of the year
- Keeping the continuum and the rubric in mind, begin presenting unit plans
- Each class participant will fill out two cards with comments, one, what was good about the lesson, and another, what could you change, add, etc. to the lesson.
- All observers will use the continuum to make suggestions and evaluate where on the continuum the lesson lays. Revisions will be made based on comments.
- Presenter will reflect on how this lesson is different than how it was taught in the past.
- **Homework:** Work on unit plans
- **Journal entry due next class**

Session 13

February 29 Journal due

Session Focus: Presentation of unit plans

Unit plan presenters: _____

- Look at continuum passed out at the beginning of the year
- Keeping the continuum and the rubric in mind, begin presenting unit plans
- Each class participant will fill out two cards with comments, one, what was good about the lesson, and another, what could you change, add, etc. to the lesson.
- All observers will use the continuum to make suggestions and evaluate where on the continuum the lesson lays. Revisions will be made based on comments.
- Presenter will reflect on how this lesson is different than how it was taught in the past.
- **Homework:** Work on final copy of unit plans.

Session 14

March 14

Session Focus: Presentation of unit plans

Unit plan presenters: _____

- Look at continuum passed out at the beginning of the year
- Keeping the continuum in mind, begin presenting unit plans
- All observers will use the continuum to make suggestions and evaluate where on the continuum the lesson lays. Revisions will be made based on comments.
- Presenter will reflect on how this lesson is different than how it was taught in the past.
- **Homework:** Work on final copy of unit plans.

Session 15

March 28 Journal due

Session Focus: Presentation of unit plans

Unit plan presenters: _____

- Look at continuum passed out at the beginning of the year
- Keeping the continuum and rubric in mind, begin presenting unit plans
- All observers will use the continuum to make suggestions and evaluate where on the continuum the lesson lays. Revisions will be made based on comments.
- Presenter will reflect on how this lesson is different than how it was taught in the past.
- **Homework:** Work on final copy of unit plans.

Session 16

April 11

Session Focus: Presentation of unit plans

Unit plan presenters: _____

- Look at continuum passed out at the beginning of the year
- Keeping the continuum and rubric in mind, begin presenting unit plans
- All observers will use the continuum to make suggestions and evaluate where on the continuum the lesson lays. Revisions will be made based on comments.
- Presenter will reflect on how this lesson is different than how it was taught in the past.
- **Homework:** Work on final copy of unit plans.
- **Digital unit plan due *before* next class.** Hard copy of unit due next class.

Session 17

April 25 – A digital and a hard copy of unit plan due

Session Focus: Final presentations of projects and reception

- *Short presentation by each class participant which includes:
- *Presentation board with title of unit, summary of unit plan, pictures of student work and or students working on lessons
- *Hard copies of unit plans to share
- *Short (2 – 3 minute) summary of unit plan, and how it developed or changed over the last year while taking the class