The Implementation of Portfolios
To Enhance Critical Thinking Skills for
High School Social Studies Students

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Abstract

Seventeen students from grades nine, ten and twelve were enrolled in a rural Midwest school participated in the study. The purpose of the study was to investigate the implementation of portfolios to determine its impact on critical thinking skills. The research group collected different samples of their work during a nine week time period. After the collection of material, students selected what material they wanted to include in a portfolio then reflected on the rationale behind each selection. There were improvements in critical thinking skills as measured by the teacher/researcher through the use of portfolio rubrics, entry questionnaires and exit questionnaires.
Acknowledgment

I wish to acknowledge all the people who gave me their support, guidance and effort toward the successful completion of this project. Sincere appreciation is expressed to Dr. Thomas Case and Dr. JoAnn Burkhardt, for their guidance and encouragement from the project’s humble beginning to its completion. Special thanks are extended to my husband who not only exhibited extreme patience but also kept our children busy while mommy worked. To my family, your support and understanding has allowed me to accomplish this meaningful educational goal. Finally to my children and students, this serves as a testament of what can be accomplished when one never gives up on a dream, no matter what transpires between the beginning and the end.
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Chapter 1: Introduction

Introduction

As a secondary social studies teacher in a rural Midwestern school district, the researcher chose to address the implementation of portfolios to enhance critical thinking for high school social studies students because her school district had implemented the policy of writing across the curriculum to prepare students for a new state assessment. The administration believed that the policy would improve the students' ability to think critically. The researcher had experienced a change in her critical thinking skills during her graduate coursework at Defiance College through the use of portfolios. The college had required all Education graduate students to keep a portfolio. The portfolio illustrated the mastery of course objectives through student selected work. Each course instructor verified that the material the student selected fulfilled the objectives for the course. The researcher noticed that as she selected the material to include in her portfolio, she was analyzing which project or paper best fulfilled each objective. She also noticed that as time passed during her graduate coursework that she would compare the course's objective sheet to the assigned project or paper to decide which objective the project or paper would fulfill. This analysis and synthesis of every project or paper led to the improvement of her critical thinking skills. The researcher wondered if the use of portfolios could improve high school students' critical thinking skills as it had occurred with her. This question led the researcher to also consider the other benefits of the use of portfolios.
**Statement of the Problem**

The purpose of this project was to determine if the implementation of portfolios with multilevel social studies students in a rural Midwestern classroom would improve their critical thinking skills. The research questions were: (1) How did the professional literature define portfolios; (2) According to the professional literature what were the benefits of portfolios; (3) How did the professional literature define critical thinking; (4) Did the implementation of portfolio assessment improve critical thinking skills among U. S. Studies students from grades nine, ten and twelve in a rural Midwestern school district?

**Justification**

The researcher was interested in determining if the implementation of portfolios with U.S. Studies students in a rural Midwestern classroom would improve the students' critical thinking skills. This project would be of benefit to the researcher as a means of providing documentation of the changes in students’ critical thinking skills. The researcher believed that the implementation of portfolios would benefit other teachers who wanted to increase their students’ critical thinking skills through writing. The researcher alleged that the implementation of portfolios with her U. S. Studies students would increase their critical thinking skills.

**Definition of Terms**

*Critical Thinking*: the completion of logical self – assessments, firm understanding of content evident in portfolio entries, and an increase in depth and breadth of content within written work.
*Improved Writing:* the illustration of proper paragraph and sentence structure; written work contained introduction statement or paragraph, supporting evidence and conclusion.

*Portfolio:* a collection of student work over a set time frame.

*Portfolio Assessment:* a collection of teacher and student agreed upon work that illustrated the learning that occurred.

*Rubrics:* a set of standards in which to assess the portfolio performance.

*Self Concept:* confidence in own ability.

*Student Reflection:* student rationale for the selection of a portfolio entry

*Student/Teacher Conferences:* meetings between the teacher and the student where the student explained the rationale behind the portfolio selections and the self-evaluation.

**Limitations and Appropriate Use of Results**

The project incurred many limitations such as setting, sample size, population, time frame and the researcher's inexperience with the implementation of portfolios. The project was conducted in a rural Midwestern school district that averaged 70 students per graduating class. In addition to the setting, the sample size was limited to seventeen students from grades nine, ten and twelve. Another limitation was the predominantly Caucasian population. The researcher completed this project during the first semester of the school year. Due to all of these factors, the project cannot be generalized to any other population.
Chapter II: Review of the Literature

Introduction

The purpose of this project was to determine if the implementation of portfolios with multilevel social studies students in a rural Midwestern classroom would improve their critical thinking skills. The research questions were: (1) How did the professional literature define portfolios; (2) According to the professional literature what were the benefits of portfolios; (3) How did the professional literature define critical thinking; (4) Did the implementation of portfolio assessment improve critical thinking skills among U. S. Studies students from grades nine, ten and twelve students in a rural Midwestern school district?

Research Question #1: How did the professional literature define portfolios?

To answer research question #1, "How did the professional literature define portfolios?", a review of literature was conducted. According to the professional literature, in addition to the definition, there were a total of four aspects of portfolios. The following aspects of portfolios were discovered: collection, selection, reflection, and evaluation. (Lockledge, 1997; Paulson & Paulson, 1991; and Fenwick & Parsons, 1999)

Portfolio Definition

Paulson, Paulson & Meyer (1991) defined portfolios as a collection of student work that exhibited growth over a specific amount of time. In addition to the illustration of student progress, they indicated that portfolios included the students' reflection on the rationale behind the selections. Fenwick and Parsons (1999) defined a portfolio in a social studies classroom as a binder that held material collected by the
student to illustrate their work over a specific amount of time. Furthermore, they suggested that the material would consist of a variety of work. Several authors acknowledged that a portfolio was made up of four sections: collection, selection, reflection and evaluation (Lockledge, 1997; Paulson, Paulson & Meyer, 1991; and Fenwick & Parsons).

Collection of Tentative Portfolio Material

Ediger (1999) recommended that a portfolio be a deliberate compilation of student work that portrayed the completion of a subject’s criteria. Liu, Zhuo & Yuan (2004) added that portfolios included different types of student work to illustrate all aspects of the student growth. Sparapani (1998) remarked that a variety of work allowed the teacher to have a broad view of the student’s understanding of the content. Fenwick and Parsons (1999) expanded on the variety of student work that should be included in a social studies portfolio. Some of Fenwick and Parsons’ suggestions were: “essays, historical problem solutions, visual illustrations, in class projects, Internet activities, videotapes of class presentations and peer evaluations from class presentations” (p 90). Lockledge (1997) suggested that the inclusion of “graphs and charts, pictures or videotapes of student role play and map exercises were also possible inclusions” (p 65). Incidentally, Liu et al recognized that portfolios should not include only teacher provided worksheets and inventories. Liu et al found that the portfolio material needed to be generated by the student in order to be meaningful.
Selection of Portfolio Material

Lockledge (1997) advised that the material collected by the student needed to be a selective collection of student work, not cumulative. Lockledge (2000 b) also believed that if the portfolio was a selective collection of student work it would become “an extension of the individual learner” (p. 7). Similarly Duffy, Jones and Thomas (1999) noted that selective collection portfolios caused the students to become active participants in the learning process. Paulson, Paulson and Meyer (1991) conveyed that when students’ were involved in the selection process for portfolios, the students learned to value their work and themselves as learners. Liu, Zhuo and Yuan (2004) supported the selective portfolio model because they created student ownership and engendered feelings of “pride, responsibility and dedication” (p 140).

Duffy, Jones and Thomas (1999) recommended that portfolios include a system to guide students to help them to determine what was included in their portfolios. Duffy et al, Benton (2000) and Lockledge (2000 b) identified several different ways to provide guidance to students.

Duffy et al recommended that the teacher make a table of contents page for the students to utilize. Duffy et al believed that the table of contents page would provide students with adequate guidance in the selection of portfolio material. This approach gave students basic guidance in selecting material to be included in the portfolio. Benton (2000) questionnaire model utilized a more specific method; she suggested that teachers create a questionnaire to guide the students. Benton essential questions were: “(1) What example(s) would you consider to be your best work;
your rationale for including that example. (2) What example(s) were you most proud of; State your rationale for including that example and (3) What example(s) did you have the greatest difficulty; why did you have difficulty” (p 46). Benton believed that it was imperative to have the students probe deeper into the reasoning behind their selections. She believed that this would encourage the students to really think about their choices instead of rushing through the process simply to complete the assignment. Benton combined the selection of material with the reflection of the material.

Lockledge (2000 b) devised selection guides to help students decide what type of material to include in portfolios. Some of Lockledge (b) prompts were: “(1) a piece that the student was proud of; (2) a graded document that illustrated growth and (3) a cross curricular piece” (p 32). Lockledge believed these prompts allowed the students the freedom to select from several document instead of feeling the need to find a specific single document that would meet the prompt. In addition to guidance concerning the selection of material, Lockledge (b) also advised that students be given guidance in the decision of what they included. Those prompts were more specific: “(1) material that proved the student mastered a topic; (2) material that demonstrated the student’s ability to accomplish a variety of tasks and (3) material that illustrated the student’s growth” (Lockledge b, p 33). Even these more specific prompts gave the students more freedom over their selection process. The overall goal of Lockledge’s prompts was to have the students use their critical thinking skills when selecting their material for the portfolio, however: Lockledge did not emphasize student rationales for selection as did Benton. Regardless of the method, all three
authors (Duffy et al; Benton; and Lockledge) believed that guidance in the selection process would not only aid the students in the decision process but would also guarantee that the students reflected on the material that they were including in the portfolios.

Several authors also expressed the importance of the inclusion of student determined best work (Benton, 2000; Coleman, Rogers and King, 2002; and Duffy, Jones and Thomas, 1999). Coleman et al defined best work as the material that best illustrated the achievement of a specific portfolio objective. In agreement, Duffy et al affirmed that the students' best work illustrated the effort the student made to meet the stated objective. Two different authors, Benton and Sherrill (2000), conveyed the importance of including students' best work, explaining that it enabled them to see their own strengths and weakness. Lockledge (1997) and Paulson, Paulson & Meyer (1991) concluded that when students were involved in the selection process of the portfolio, the student learned to value their work and themselves as learners.

Reflection of Portfolio Selections

Reflection of portfolio selections allowed the students to analyze their learning and process whether changes were necessary for complete understanding of the topic (Liu, Zhuo & Yuan; 2004 and Kish & Sheehan; 1997). Coleman, Rogers and King (2002) saw a mental connection for the students between the selection of the material and the reflection of the material. Supported by Kish and Sheehan, Coleman et al noted that, during the selection phase, students addressed what they wanted to include in the portfolio whereas, in the reflection phase, student, explained why they chose the specific selections. In fact, Liu et al believed that the reflection
phase was imperative in the construction of portfolios, because without it, the portfolio showed nothing of value beyond students’ ability to keep material during a specific time span. Furthermore, Kish and Sheehan (1997) recognized that the reflection of selected material encouraged students to be active in their learning. Ediger (1999) pointed out that the reflection of material required students to ask questions about what they learned and what would be the best way to illustrate that learning. Moreover, Lockledge (2000a) pointed out that the student’s reflection of the material highlighted the individual’s academic growth. Smythe (2000) believed that the illustration of student growth was not only beneficial to the teacher but also to the student. Smythe observed this process and found that students recognized their growth and their self-esteem improved. Coleman et al (2002) agreed with Smythe when they noted that students’ self-esteem was heightened when they believed in their ability to analyze their own work. Duffy, Jones & Thomas (1999) suggested that this improvement in self-concept encouraged the drive for lifelong learning, a common goal for many school systems across the United States. Another advantage to having students reflect on their portfolio selections was Fenwick and Parsons (1999) acknowledgement that the reflection aspect of portfolios helped students discover information about their learning style, which could serve as motivation for students to finish projects or assignments.

Evaluation of Portfolios

There are many different ways and reasons to evaluate portfolios (Cole & Struyk, 1997; Duffy, Jones & Thomas, 1999; Lockledge, 1997). Two reasons for the evaluation of portfolios will be addressed as well as three different ways to use
rubrics as evaluation of portfolios. Cole and Struyk explored the two reasons behind the need to evaluate portfolios. They identified that evaluations of portfolios were a necessary part of the portfolio process. The second reason for the evaluation of portfolios identified why they felt it was necessary. Cole and Struyk explained that the evaluations illustrated the level of the students' comprehension of the material. If the students comprehended the material, the evaluation would be high; if the students did not comprehend the material the evaluation of the portfolio would be low. The rationale behind this was explained that students would only include material that fulfilled stated objectives thereby indicating their level of comprehension (Cole & Struyk).

Throughout the literature rubrics were the preferred manner of portfolio evaluation (Duffy, Jones & Thomas, 1999; Lockledge, 1997; Fenwick & Parsons, 1999). Duffy et al encouraged more than one evaluation of the portfolio. They explained that the use of peer evaluations would not only evaluate the portfolio but require the peer evaluator to reflect on the portfolio before them, questioning if it did fulfill the requirements. Lockledge advocated the use of three rubric assessments: one for the student portfolio creator, one for the peer assessor and one to use during the student/teacher conference. Lockledge postulated that simple rubrics should be used in the evaluation process instead of having three different evaluators using their own judgment of what would be acceptable. It would also allow the teacher to compare the scores of the different evaluators to insure there were no inconsistencies. Duffy et al affirmed the importance of using multiple assessments: self-assessment, peer assessment and the assessment by the teacher. In fact, Fenwick and Parsons advised
that the teacher assessment occur during teacher/student conferences to aid in the evaluation process. During these conferences, Fenwick and Parsons pointed out that the other students needed to work with a partner to share ideas or improvement strategies for each other's portfolio. Fenwick and Parsons viewed peer assessment as a way to eliminate some classroom management problems that could occur while the teacher's attention was being focused on addressing the portfolio. Fenwick and Parsons defined the assessment of portfolios as an ongoing process with the objective of continuous improvement, not a one time event.

Through the review of literature, the researcher examined the definition of portfolios. The review of literature identified four aspects of portfolio use. The four aspects were: collection, selection, reflection and evaluation (Lockledge, 1997; Paulson, Paulson & Meyer, 1991; and Fenwick and Parsons, 1999). Each of the four aspects were researched and explained in detail. The researcher also provided examples and benefits of each aspect such as improvement of student self concept,

Research Question # 2: What did the professional literature identify as benefits of portfolios?

In order to answer research question # 2, "What did the professional literature identify as benefits of portfolios?", a review of literature was conducted. The following benefits of portfolios were discovered: authentic assessment, engagement of the student, student growth, and critical thinking and reflection. Each of these benefits will be listed and explained in detail throughout this section. (Paulson, Paulson & Meyer, 1991; and Kish & Sheehan, 1997)
Portfolios as an Authentic Assessment

One of the benefits of using portfolios in the classroom is their recognition as an authentic assessment of students’ learning. According to Barnett (as cited in Coleman, Rogers & King, 2002), portfolios are authentic assessments because they are drawn from classroom experiences. Fenwick and Parsons (1999) noted that portfolios connected the content knowledge that the teacher exposed the students to with the students’ skills. Since portfolios reflect students’ ability and achievement, they are a method of authentic assessment. Barnett pointed out that authentic assessment occurred when the material was seen by the student as being realistic and relevant. A way to make material appear to be realistic is through the creation of real-life products. Paulson and Paulson (as cited in Cole and Struyk, 1997) pointed out that portfolios allowed the students to create real-life products which gave the stakeholders evidence of the students’ ability. Frazier and Paulson (1992) observed that, as an authentic assessment, portfolios gave teachers the ability to assess the learning that took place in the classroom. This type of assessment incorporated the students’ knowledge and the evidence that learning took place; not only can teachers observe the learning that occurred but the students can also identify what knowledge was gained and what learning style worked best for them. Finally, Paulson, Paulson and Meyer (1991) concluded that portfolios as authentic assessment linked instruction with assessment. Authentic assessment can be identified as a benefit of portfolios because it allowed teachers and students, through the manufacturing of portfolio entries, to evaluate real-world products that illustrated the students’ knowledge of a content objective.
Portfolios and students' engagement in the learning process

Throughout the literature engagement has been stressed as a benefit of portfolios (Ediger, 2001; Kish & Sheehan, 1997; Kiltz, 2002; Paulson, Paulson & Meyer, 1991). The literature also addressed many different reasons why student engagement was important to education; students became an active participant, students were involved in the decision making process thereby giving them ownership of their learning and students were more likely to improve (Ediger, 2001; Kish & Sheehan, 1997; Kiltz, 2002; Paulson, Paulson & Meyer, 1991). Paulson, Paulson & Meyer (1991) concluded when students were actively involved in portfolios, from the collection stage through the evaluation stage, they were engaged in the learning process. This involvement Ediger recognized as students who were empowered learners and owners of the learning process. The National Education Association (as cited in Kish & Sheehan) also acknowledged that portfolios stressed student ownership; which Mills-Courts and Amiran (as cited in Kish & Sheehan), with Kiltz (2002) in agreement, stated that student ownership and student engagement were connected to an improvement in assignments. Portfolios, Ediger acknowledged, were a way to engage students in their learning which empowered them therefore allowing improvement to occur in their assignments; which he expressed as a benefit of portfolio implementation.

Portfolios and Student Growth

Several researchers addressed the connection between portfolios and students growth as a learner (Sparapani, 1998; Frazier & Paulson, 1992; Fenwick & Parsons, 1999). This growth can be categorized into cognitive and Meta cognitive.
According to Sparapani, teachers, students and parents saw improvement and growth in the students' cognitive skills when portfolios were used. When Frazier and Paulson used portfolios with elementary students, they observed improvement in students' writing and their selection rationale. Frazier and Paulson also noted portfolios could provide proof of the students' growth from the first entry to the last. Fenwick and Parsons (1999) pointed out that portfolios were an overall record of student growth and achievement. Coleman, Rogers and King (2002) described the illustration of student growth as a holistic picture of the student as a learner, due to the variety of material included in portfolios.

Kiltz (2002) also acknowledged that portfolios illustrated student growth in various content areas. However, Kiltz focused more on the Meta cognitive growth than the cognitive growth. He pointed out students reacted positively to the illustration of growth; he postulated that the illustration of student growth led to increased self esteem. Kiltz also noted that portfolios allowed students to see their progress, which gave them confidence in their ability to be successful. In agreement, Fenwick and Parsons declared that portfolios were proof of achievement; thereby, boosting student confidence in their ability to learn. For example, Frazier and Paulson observed that over the course of a year of portfolio implementation, student confidence in writing had increased. Whether concerned with cognitive or Meta cognitive growth, the researchers (Sparapani, 1998; Frazier & Paulson, 1992; Fenwick & Parsons, 1999) believed that portfolios were beneficial.
Critical Thinking and Reflection

Another benefit of portfolios mentioned in the review of literature was critical thinking and reflection over what was learned (Coleman, Rogers & King, 2002; Paulson, Paulson & Meyer, 1991; Kish & Sheehan, 1997). Warnick and Inch (as cited in Petress) defined critical thinking as the students being able to look at a problem while keeping in mind all of the components, discover a solution and be able to justify the rationale of their solution.

Coleman, Rogers and King (2002) noted that critical thinking benefited the student by reiterating the information and helping the student improve on future assignments. When students explained the rationale of their selection, they reiterated the information and addressed areas of strength as well as weakness which allowed them to identify areas of improvement (Coleman et al). They also pointed out that students used critical thinking when they determined the selection that fulfilled a portfolio requirement; students had to consider, think critically about, which assignment fulfilled the requirement. In addition, Paulson, Paulson and Meyer (1991) and Fenwick and Parsons (1999) pointed out that critical thinking and reflection allowed the students to learn about their own learning style and preference; this occurred when students addressed when they succeeded in acquiring knowledge and when they fell short of having a full understanding of a topic. As stated earlier, Kish and Sheehan (1997) acknowledged that critical thinking allowed student growth to occur. Finally Coleman, Rogers and King (2002) found that critical thinking reinforced learning and helped student improve not only academically but also emotionally. Coleman et al explained that critical thinking in conjunction with
Portfolios allowed students to not only see their improvements throughout a time period but also acknowledge students capability of improvement which had a positive impact on the students belief in their own ability.

As a result of the review of literature, the researcher examined the benefits of portfolios. Although the literature acknowledged a plethora of benefits, only four were addressed. The four benefits were: authentic assessment, engagement of the student, student growth, and critical thinking and reflection. Each of the four benefits were researched and explained in detail. (Paulson, Paulson & Meyer, 1991; Kish & Sheehan, 1997)

Research Question #3: How did the professional literature define critical thinking?

In order to answer question #3, “How did the professional literature define critical thinking?”, a review of literature was conducted. According to Petress (2004), there were a plethora of definitions of critical thinking. In addition to the definition, the professional literature contained three components of critical thinking. The three components were: formulate a question about the learning, analyze the question, and assess the learning that took place. Each of these components will be listed and explained in detail throughout this section. (Coleman, Rogers & King, 2002, Kish & Sheehan, 1997 and Petress, 2004)

Definition of Critical Thinking

Several authors addressed the definition of critical thinking (Coleman, Rogers & King, 2002; Petress, 2004; Liu, Zhuo & Yuan; 2004). As stated earlier, Warnick and Inch (as cited in Petress) identified critical thinking as the students being able to look at a problem while keeping in mind all of the components, discover a solution
and be able to justify the rationale of their solution. Mum & Kersting (as cited in Coleman et al) defined critical thinking as the ability to create and analyze a question then evaluate the answer. Furthermore, Gibbs and Gambrill (as cited in Coleman et al) explained that critical thinking involved a careful inspection and appraisal of the students' beliefs and actions; in other words, the students needed to understand the reasoning behind their choices and decisions. As previously stated by Liu et al, in portfolios, this justification or reflection was critical in order for the portfolios to be meaningful. As Kish and Sheehan (1997) addressed, critical thinking occurred when students reflected on their work which in turn allowed the teacher and students to monitor and assess the students' learning.

**Step One of Critical Thinking: Formulation of a Question**

The first step of critical thinking that Mum and Kersting (as cited in Coleman, Rogers & King, 2002) identified was the ability to formulate a question about the learning that had taken place. Ediger (1999) explained that students needed to be able to ask questions about their learning process, not just question what they had learned. As previously identified by Coleman et al, this took place during the selection and reflection phase of the portfolio process. Wade (1995) explained that the question that students formulated could be a simple as pondering if a revision or refinement of the material was needed before the product was included in the portfolio. Kish and Sheehan (1997) affirmed that question formulation was necessary to portfolio construction in order to demonstrate that students were learning not simply regurgitating facts.
Step Two of Critical Thinking: Analysis of a Question

The second step of the critical thinking process in portfolio construction, based on the literature, was to analyze the question once it was formed (Kish & Sheehan, 1997; Daly, 1998; Wade, 1995). When students analyzed questions, Herman (as cited in Kish & Sheehan) noted that students were interpreting the information and relating it to a previous concept, another name for this process was analysis. Daly pointed out that, during the analysis stage, the students were interacting with the information they had received. Relative to portfolios, Wade (1995) addressed that during the analysis stage, students investigated the evidence that learning had occurred. This investigation provided students with the evidence that would allow them to analyze the question and rationalize their selection for the portfolio. Kish and Sheehan reported that when students analyzed information, they were deliberating the importance of it and its inclusion in their portfolio.

Step Three of Critical Thinking: Assessment of Learning

The last step of critical thinking based on the literature was the assessment of learning (Coleman, Rogers & King, 2002; Kish & Sheehan, 1997; Daly, 1998). Coleman et al explained that as the students assessed their learning they evaluated and processed the material. During the reflection stage of portfolio construction, Wolf (as cited in Coleman et al) surmised that the students had thought about the information, chose how they were going to illustrate their understanding and were willing to take a risk by justifying their rationale behind their illustration. Kish & Sheehan pointed out that when the student assessed their learning, in actuality, they were illustrating in the portfolios that the learning had actually occurred. Along the
same lines, as previously mentioned, Coleman et al found that the assessment of learning reinforced the learning and aided the student to improve. Daly concluded that critical thinking did not end with a definitive solution but it encouraged a greater understanding of situations.

During the review of literature, the researcher examined the definition of critical thinking. In addition to the definition, the professional literature identified three steps of critical thinking. The three steps were: formulation of a question, analysis of a question and assessment of learning. Each of these steps were listed and explained in detail throughout the section. (Coleman, Rogers & King, 2002, Kish & Sheehan, 1997 and Petress, 2004)

Conclusion

Through the review of the literature, the researcher was able describe the use of portfolios and the four components that were necessary for portfolios to be an effective instructional and assessment tool. The primary benefits of portfolios were identified and discussed. In reviewing these positive facets of portfolios, the researcher identified four key benefits, authentic assessment, engagement of the student, student growth and critical thinking. These benefits focused on improving student performance through writing. One benefit, critical thinking, was examined further. Critical thinking was defined and three components were discussed.

After the review of literature, the researcher believed that the implementation of portfolio assessment in a ninth grade social studies class would improve the critical thinking skills of students due to the analysis that occurred during the selection and reflection phase of creating portfolios. As Daly (1998) stated, critical thinking was a
sought after and important educational outcome, the professional literature reviewed presented portfolios as an effective tool to accomplish that goal.
CHAPTER III: METHODS AND PROCEDURES

Introduction

The purpose of this project was to determine if the implementation of portfolios with U. S. Studies students from grades nine, ten and twelve in a rural Midwestern classroom would improve their critical thinking skills. The research questions were: (1) How did the professional literature define portfolios; (2) According to the professional literature what were the benefits of portfolios; (3) How did the professional literature define critical thinking; (4) Did the implementation of portfolios improve critical thinking skills among U. S. Studies students from grades nine, ten and twelve in a rural Midwestern school district?

Participants

Sixteen students from grades nine, ten and twelve participated in the study. They were enrolled in a heterogeneous U. S. Studies class in a small rural Midwest school with an average graduating class of 70 students. Thirteen of the students were male and three were female. Out of the thirteen males, there were nine freshmen, three sophomores, and one senior. Out of the three female, there were two freshmen and one senior.

Treatment/Intervention

The intervention during this project was the implementation of portfolios to enhance the students’ critical thinking skills. The teacher/researcher provided the U. S. Studies students with instruction on the use of portfolios including the benefits and the components. Each student in the U. S. Studies class maintained a portfolio that contained three components: selected work, reflection and assessment. The students’
Portfolios contained self selected work that best illustrated their completion of a course objective, students’ rationale of why the selected work was chosen which was previously defined as students’ reflection guide and the portfolio assessment. The portfolio assessment was comprised of three similar rubrics: one that the student filled out, one that a fellow student filled out and the one that the teacher/researcher filled out. The students participated in student/teacher conferences at the end of the grading period. Before the student/teacher conference, students assessed their selections using the rubric (see Appendix H for complete proof.) provided by the teacher. During the student/teacher conferences, students, who were not conferencing, conducted informal peer assessments following the same rubric that was used during the self assessment. During the student/teacher conference, the teacher/researcher completed a suggestion sheet (see Appendix G for complete proof.) which indicated areas that the students needed to improve before they turned in their portfolios for the final grade. The students were given one week after the student/teacher conference to make any corrections before turning the portfolio in to the teacher/research for the portfolio assessment. The portfolio rubric was used to assess the portfolios and determine the students’ final grade.

Before the portfolio process began, the students were given an entry questionnaire (see Appendix A for complete proof.) that asked them to self-assess their critical thinking skills. The students then kept a portfolio for the U. S. Studies class for a predetermined grading period. At the end of the study, students were given an exit questionnaire (see Appendix E for complete proof.) about the portfolio they had created.
Research question #4 asked: “Did the implementation of portfolios improve critical thinking skills among U. S. Studies students from grades nine, ten and twelve in a rural Midwestern school district?” In order to answer this question, the researcher collected data through the use of an entry questionnaire, student reflections, an exit questionnaire and a portfolio assessment rubric (see Appendices A, F, E and H for complete proofs.). The questionnaires, reflections and rubrics were completed individually by each student and recorded by the researcher. During the implementation of portfolios, students were also given a portfolio topic sheet and a suggestion guide to guide them in the creation of their portfolios (see Appendices D and G for complete proofs).

**Entry Questionnaire**

The researcher created an entry questionnaire that was administered prior to the introduction of portfolios and critical thinking. The entry questionnaire contained six multiple choice questions. The questionnaire had a place for the students to mark if they were male or female and the date. These questions were designed to discover the students’ prior knowledge of critical thinking, reflective writing and portfolios. The entry questionnaire was used to record the students’ prior knowledge of portfolios and critical thinking to determine the students’ prior understanding and experience before the action research project began. Two examples of the questions were:

“How would you define critical thinking?”
a) to analyze information
b) to synthesize information
c) both a and b
d) I really don’t know

“Do you believe that you exhibit critical thinking in your writing?”

a) all of the time
b) some of the time
c) hardly ever
d) never

See Appendix A for complete proof.

*Portfolio Topic Sheet*

The students were given a portfolio topic sheet after the entry questionnaire was completed. The topic sheet informed the students of the ten topics needed to be included in every portfolio. The students were to use this topic sheet as a guide in fulfilling the portfolio assignment. They were also advised to check off each entry as they completed the requirement. Two examples of the topics were:

“A picture of a project presented in class”

“A piece that you believe illustrates your own personal growth from this grading period.”

See Appendix D for complete proof.

*Exit Questionnaire*

The teacher/researcher created an exit questionnaire to determine if students completed the required parts of the portfolio assessment, their reactions to the
implementation of portfolios and its benefits. The required parts of the portfolio assessment and the benefits of portfolios were selected after the review of the literature to determine the necessary parts of a portfolio and their benefits. The questionnaire was administered to the participating students at the end of the grading period. The exit questionnaire was composed of twenty questions, thirteen of the questions asked for a yes or no response and the remaining seven were multiple choice questions with four possible responses. The students completed the exit questionnaire after the portfolios were assessed and returned for the final time. The exit questionnaire was an anonymous questionnaire which used the date and gender to enable the teacher/researcher to accurately classify the results. The teacher/researcher used daily attendance and the break down of the classification of the participating students to determine if all students had completed the exit questionnaire. Two examples of the questions were:

“Did you include a reflection sheet with every portfolio entry?”

a. All the time
b. Some of the time
c. Hardly ever
d. Never

“Did you notice a change in your critical thinking skills since completing your portfolio?”

a. yes
b. no

See Appendix E for complete proof.
Reflection Guide

After a student selected a portfolio entry, the student used a reflection guide to explain in the rationale for the selection. The reflection guide was comprised of four open ended prompts and space for additional comments about the portfolio selection that the students completed and included in their portfolios. These prompts were designed to have the students explain the rationale behind the selection of each portfolio entry. The students were asked to read the prompts and to answer them in detail. The students were instructed to complete the reflection guides either before or during the student/teacher conference in the researchers' classroom. Two examples of the questions on the reflection guide were:

“This piece best illustrates my mastery of....”

“I feel that this piece needed to be included in my portfolio because...”

See Appendix F for complete proof.

Conference Suggestion Guide

During the student/teacher conference, the teacher/researcher identified strengths and weaknesses of the portfolio through a suggestion guide sheet. The suggestion guide contained six questions and one statement. Two examples of the questions were:

“Is all the material selected that is to be included in the portfolio?”

“Do the portfolio reflections contain detail and thoroughly explain the student’s rationale behind their selections?”

See Appendix G for complete proof.
Before the student/teacher conference, the student used a portfolio rubric to verify that the portfolio contained all the requirements. The portfolio rubric was created using a word processor program with the ability to create a table. The table had six rows with the headings of Attractiveness, Portfolio requirements, Mechanics, Content, Organization and Reflection completion and Originality. Each heading had four descriptions, each description referred to the quality of the portfolio.

The first heading was attractiveness of the portfolio. The attractiveness of the portfolio was determined by the following criteria: excellent use of color and graphics to enhance the portfolio was worth four points, good use of color and graphics to enhance the portfolio was worth three points, use of color and graphics occasionally distracted from the portfolio was worth two points and use of color distracted from the portfolio was worth one point.

The second heading was portfolio requirements. Portfolio requirements referred to the ten topics required for the portfolio completion. The criteria for portfolio requirements were also divided into four different levels with points allotted for each level. The first level was all requirements were met and exceeded worth eight points. The second level was all of the requirements were met six points. The third level was one of the requirements was not met worth four points. The fourth level was two or more of the requirements were not met worth two points.

The third heading was mechanics. Mechanics referred to spelling and grammar errors throughout the portfolio reflections. The criteria were divided into four categories/levels. The first category was no spelling or grammar errors worth
four points. The second category was three or fewer spelling or grammar errors worth three points. The third was four spelling or grammar errors worth two points. The fourth category was more than four spelling or grammar errors worth one point.

The fourth heading was content. Content referred to the number of topic areas addressed and analyzed. The criteria were divided into four categories/levels. The first category was all ten topic areas are addressed and analyzed worth twelve points. The second category was only eight out of the ten topics were addressed and analyzed worth nine points. The third category was no fewer than six topics addressed and analyzed worth six points. The fourth category was fewer than six topics were addressed and analyzed. A check list of the ten topics was on the back of the Portfolio Rubric.

The fifth heading was organization. The organization referred to the layout of the portfolio and whether the portfolio had a table of contents and dividers. The criteria were divided into four categories/levels. The first category was that the content was well organized with a table of contents and dividers worth four points. The second category was that the sections were divided but the table of contents was missing worth three points. The third category was that the table of contents was included but the portfolio was not divided into sections worth two points. The fourth category was that there was no clear organization to the portfolio worth one point.

The sixth heading was reflection completion and critical thinking. This referred to the students completing the reflection guides and the evidence of critical thinking on those reflection guides. The criteria were divided into four categories/levels. The first category was all reflections were filled out and illustrated
a large amount of critical thinking worth twenty points. The second category was all reflections were filed out but there was a lack of detail on fewer than three reflections worth fifteen points. The third category was seven or more of the reflections were filled out with critical thinking evident worth 10 points. The fourth category was fewer than seven reflections were filled out with critical thinking evident worth five points.

This portfolio rubric also enabled the students to grade their own entries based on the expectations and their performance in fulfilling those expectations. The teacher used a portfolio rubric during the student/teacher conference, the portfolio rubric was marked with the score students would earn if they turned the portfolio in at that moment. The teacher/researcher discussed the student’s self assessment and checked the progress of the portfolio using the rubric.

See Appendix H for complete proof.

Procedures

Entry Questionnaire

Before the implementation of portfolios, the teacher/researcher administered an Entry Questionnaire (see Appendix A for complete proof.). It was developed and implemented by the teacher/researcher to determine the students’ prior knowledge of portfolios and critical thinking. Each student was given a questionnaire. The questionnaire took approximately 10 minutes to complete and was administered during the last fifteen minutes of the first week of class. The teacher/researcher reminded the students that the questionnaire was to be completed individually. Once
the students had completed the questionnaire, they were collected for further analysis by the teacher/researcher.

*Portfolio Topic Sheet*

Prior to the implementation of portfolios, students received a portfolio topic sheet (see Appendix D for complete proof) which was developed by the teacher/researcher to inform the students of the required topics for the portfolio. The teacher/researcher referred to this sheet throughout the grading period and during the teacher/student conference as a reminder of what the students needed to include in their portfolios. The teacher/researcher also referred to the portfolio topic sheet during the final assessment of the portfolios to determine if all of the topics had been addressed by the students in their portfolios.

*Reflection Guide*

The Reflection Guide (see Appendix F for complete proof) was developed by the teacher/researcher to be filled out by the students during the reflection phase of the implementation of portfolios. The teacher/researcher went through each open ended question with the students and explained what each open ended question referred to. For example “This piece best illustrates my mastery of…” was where the students were to acknowledge which topic the selection represented. The students were instructed that they needed a reflection guide for each of their ten portfolio topics/entries. The students were given the reflection guides on a needed basis so paper would not be wasted.
Conference Suggestion Guide

The Conference Suggestion Guide (see Appendix G for complete proof.) was developed and implemented by the teacher/researcher to determine the completion of the students’ portfolios. During the student/teacher conferences, the Conference Suggestion Guide was completed by the teacher/researcher. The teacher/researcher made notations about the progress of each student’s portfolio and made suggestions for the improvement of the portfolio in order for the students to obtain full comprehension of the expectations of the teacher/researcher.

Portfolio Rubric

The Portfolio Rubric (see Appendix H for complete proof.) was developed by the teacher/researcher as the assessment method of the portfolios. The portfolio rubric was used three times during the implementation of portfolios. The first, the students used the portfolio rubric to assess their own portfolio prior to the student/teacher conference. The second time was during the student/teacher conference; the students assessed each others’ portfolios while the teacher/researcher was conferencing with students up at the desk. Finally the portfolio rubric was used by the teacher/researcher during the final assessment when the students had turned the portfolio into the teacher/researcher for a grade at the end of the grading period.

Exit Questionnaire

After the portfolios were completed and submitted for final evaluation, the teacher/researcher administered the Exit Questionnaire (see Appendix E for complete proof.). The questionnaire took approximately ten minutes to complete and was passed out during the last fifteen minutes of the class. Once the students had
completed the questionnaire, the questionnaires were collected for analysis by the teacher/researcher.

**Timeline**

In mid August, the teacher/researcher obtained consent from the principal to conduct the study on the implementation of portfolios (see Appendix B for complete proof). During the first week of school, consent was obtained from the parents of participants under the age of 18 (see Appendix C for complete proof). Although some of the participants were seniors, none of the participants were 18 or older. The entry questionnaires were completed in the end of August and analyzed by mid September (see Appendix A for complete proof). During the beginning of September, the students received instruction on portfolios, critical thinking and how they would be incorporated in the U. S. Studies classroom. Also during September, the students received a copy and explanation of the following documents: the reflection guide (see Appendix F for complete proof), the portfolio topic sheet (see Appendix D for complete proof), and the Portfolio rubric (see Appendix H for complete proof). The portfolios as an authentic assessment tool were implemented. Students were exposed to a variety of activities as listed on the portfolio topic sheet (see Appendix D for complete proof). These activities included the following: timelines, artistic interpretations of a historical event, use of math in assignments, maps, graphic organizers, outlines, tests and projects. During the nine week grading period, they were provided with several opportunities to complete multiple activities, as listed above, with different historical topics. Projects, which covered a topic within a unit, were long term and students were required to only complete two during the
nine week period. At the end of the nine week grading period, students participated in the student/teacher conference. During the conference, students reflected on their progress with the teacher/researcher via the portfolio suggestion guide (see Appendix G for complete proof). While the student/teacher conferences were occurring, the rest of the students were assessing each others portfolios using the portfolio rubric that the teacher/researcher would be using during the final assessment of the portfolios (see Appendix H for complete proof). After conferences had been completed, approximately at the end of November, portfolios were handed in to the teacher/researcher for the final assessment during which the portfolio rubric would be used to assess the portfolios (see Appendix H for complete proof). At the beginning of December students were given the exit questionnaire (see Appendix E for complete proof) to determine if the students perceived advantages to portfolios in areas of student engagement and critical thinking. In mid January, the student responses from the entry questionnaire, the scores from the portfolio rubrics and the exit questionnaire were recorded and compared on a spreadsheet.

Data Analysis

Entry Questionnaire

The Entry Questionnaire contained six multiple-choice questions (see Appendix A for complete proof). Each participant completed the identical questionnaire before the implementation of portfolios. The second question, “Do you believe you exhibit critical thinking in your writing?”, responses were compiled, compared, and graphed.
 Portfolio Rubric

The Portfolio Rubric contained six headings and four levels for each heading (see Appendix H for complete proof.). The portfolio rubric was used by the students when they assessed each others’ portfolios during the student/teacher conference and then the teacher/researcher used the rubric during the final assessment of the portfolio. The last heading “Reflection Completion and Critical Thinking” results were evaluated, compiled, compared and graphed by the teacher/researcher.

Exit Questionnaire

The Exit Questionnaire contained twenty multi-choice questions (see Appendix E for complete proof.). Each participate completed an exit questionnaire after the portfolios were collected and assessed by the teacher/researcher. Two questions (# 15 and 17) were evaluated, compiled, compared and graphed by the teacher/researcher.

Summary

After the implementation of portfolios and following the protocols for this study, the teacher/researcher was able to gather the necessary data to analyze whether the implementation of portfolios with U. S. Studies students from grades nine, ten and twelve class improved critical thinking skills in a rural Midwestern school district. The teacher/researcher was also able to gather information from the results to determine if the implementation of portfolios were beneficial to the students in the U. S. Studies class.
CHAPTER IV: RESULTS

Introduction

The purpose of this project was to determine if the implementation of portfolios with multilevel social studies students in a rural Midwestern school would improve their critical thinking skills. The research questions were: (1) How did the professional literature define portfolios; (2) According to the professional literature what were the benefits of portfolios; (3) How did the professional literature define critical thinking; (4) Did the implementation of portfolios improve critical thinking skills among U. S. Studies students from grades nine, ten and twelve in a rural Midwestern school district?

The study attempted to answer the following research question: “Did the implementation of portfolios improve critical thinking skills among multilevel social studies students?” The students were given an entry questionnaire on their prior knowledge of critical thinking and portfolios, before the implementation of portfolios. The students collected material for possible portfolio inclusion during a nine week period. During the final week of the study, students analyzed the collected material to select 10 specific entries for their portfolio. Once the students selected the 10 entries, students explained via a reflection sheet why they picked each entry for portfolio inclusion. The reflection sheet asked four open ended questions to guide the students in the explanation process. The students’ portfolios were analyzed by the teacher twice. The first time the portfolio was analyzed the teacher and student used a suggestion sheet that contained six opened ended questions to guide the teacher/student conference. The second and final time the teacher analyzed the
students’ portfolio the teacher used a scoring rubric, on the back of the rubric was a topic check sheet. After the nine week grading period had ended, the students were given an exit questionnaire which addressed their experience with the portfolio and the reflection sheets which were the teacher’s evidence that critical thinking had occurred. The data from the entry questionnaire, exit questionnaire, portfolio rubric were recorded in a spreadsheet and converted into tables and charts (see Appendix I for complete proof.).

Data Results

Entry Questionnaire

The Entry Questionnaire was administered before the implementation of portfolios (see Appendix A for complete proof.). This was used to determine the students’ perception of their use of critical thinking. The students were asked, “Do you believe that you exhibit critical thinking in your writing?”

a) All the time

b) Some of the time

c) Hardly ever

d) Never

The results were: three students (18%) responded that they exhibited critical thinking all of the time in their writing; ten students (59%) responded that they exhibited critical thinking some of the time; two students (12%) responded that they hardly ever exhibited critical thinking; two students (12%) responded that they never exhibited critical thinking.
Portfolio Rubric

The Portfolio Rubric contained six headings and was used by the teacher/researcher to assess the portfolios after they were turned in for the final assessment (see Appendix H for complete proof). The sixth heading analyzed the use of critical thinking in the entries reflection guides. This information was: three students (18%) demonstrated critical thinking all of the time; eleven students (65%) demonstrated critical thinking some of the time; three students (18%) hardly ever demonstrated critical thinking; none of the students (0%) failed to demonstrate critical thinking in their portfolios.

The students' entry questionnaires and portfolios were compared and the data was recorded in a spreadsheet. Figure 1 depicts this comparison.

Students' Perception of Critical Thinking Skills Based on Entry Questionnaire and Portfolio Assessment

The figure below summarized the students' results. It should be noted that since the entry questionnaire was anonymous there is no indication that the three students (18%) that stated that they exhibited critical thinking in their writing were the same three students (18%) that actually exhibited critical thinking in their portfolio. The following table summarized the differences between the entry questionnaire and the teacher's assessment of the students' portfolios.
The data displayed in Figure 1 indicated that students exhibited critical thinking more than they believed they could prior to the implementation of portfolios.

**Exit Questionnaire**

The Exit Questionnaire was administered after the implementation of portfolios (see Appendix E for complete proof.). The exit questionnaire was used to determine if the students noticed a change in their critical thinking after portfolios were implemented. Two questions were analyzed to determine if any change occurred.

The first question analyzed was:

“Did you notice a change in your critical think skills since completing your portfolio?”
The results of the first question revealed that twelve students (71%) responded that yes they did notice a change; five students (29%) responded that no they did not notice a change.

The second question analyzed was:

“Did the use of portfolios as an assessment tool improve your critical thinking skills in Mrs. Johnson’s U.S. Studies class?”

The results of the second question revealed that fourteen students (82%) believed that the improvement in their critical thinking skills was due to the use of the portfolio; three students (18%) did not believe that the portfolio improved their critical thinking skills.

Change in Critical Thinking Skills Based on Exit Questionnaire Response

The first question analyzed revealed that twelve students (71%) noticed a change in their critical thinking skills since the implementation of portfolios; five students (29%) did not notice a change in their critical thinking skills. The following graph summarized the results of students’ perception of a change in their critical
The data displayed in Figure 2 indicated that twelve students (71%) noticed a change in their critical thinking and five students (29%) did not notice a change in their critical thinking skills after the implementation of portfolios.

Comparison of Student Perception to Cause of Critical Thinking Improvements

The second question analyzed revealed that fourteen students (82%) believed that the improvement in their critical thinking skills was due to the use of the portfolio; three students (18%) did not believe that the portfolio improved their critical thinking skills. The following graph summarized the results of students' perception of change in their critical thinking skills due to the implementation of portfolios.
Figure 3. A comparison of students' perception to the cause of improvements in their critical thinking skills and its relation to the implementation of portfolios.

The data recorded in Figure 3 indicated that fourteen students (82%) contributed the change in their critical thinking skills to the implementation of portfolios and three did not believe that the implementation of portfolios changed their critical thinking skills.

Summary

Individual responses to the entry questionnaires and portfolios were tallied and this analysis showed that three students (18%) believed they illustrated critical thinking all of the time and three students (18%) demonstrated critical thinking all of the time in the portfolio. Ten students (59%) responded that they exhibited critical thinking some of the time and eleven students (65%) believed that they demonstrated critical thinking some of the time. Two students (12%) responded that they hardly ever exhibited critical thinking and three students (18%) demonstrated that they
hardly ever exhibited critical thinking. Two students (12%) responded that they never exhibited critical thinking and none of the students (0%) believed that they could not exhibit critical thinking.

The students were asked if they noticed a change in their critical thinking and if the implementation of the portfolio improved their critical thinking skills. Twelve students (71%) noticed a change in their critical thinking skills and fourteen students (82%) believed that the portfolio improved their critical thinking skills. Four students (29%) did not notice a change in their critical thinking and three students (18%) did not believe that the implementation of portfolios improved their critical thinking skills.
CHAPTER V: DISCUSSION

Introduction

The purpose of this project was to determine if the implementation of portfolios with multi-grade level U.S. Studies students in a rural Midwestern classroom would improve their critical thinking skills. The research questions were: (1) How did the professional literature define portfolios; (2) According to the professional literature what were the benefits of portfolios; (3) How did the professional literature define critical thinking; (4) Did the implementation of portfolios improve critical thinking skills among multi-grade level U.S. Studies students in a rural Midwestern school district?

The teacher/researcher wanted to investigate the implementation of portfolios in a multi-grade level U.S. Studies class to see if critical thinking skills would improve for the participants.

Meaning of Findings

The results of the research indicated that the majority of the participants improved their critical thinking skills with the implementation of portfolios. Before the implementation of portfolios, the seventeen participants answered an entry questionnaire. One the questionnaire, three students (18%) indicated that they exhibited critical thinking all the time. After the rubric for the portfolios were scored, three students (18%) illustrated critical thinking throughout the portfolio rubric. This indicated a zero percent change in the students that stated that they exhibited critical thinking all of the time. On the questionnaire, ten students (59%) indicated they exhibited critical thinking some of the time. After the rubric for the portfolios were
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scored, eleven students (65%) illustrated critical thinking some of the time. This indicated a 6% change, or one of the students, that stated that they exhibited critical thinking some of the time. On the entry questionnaire, two students (12%) indicated they hardly ever exhibited critical thinking. After the rubric for the portfolios were scored, three students (18%) hardly ever illustrated critical thinking. This indicated a 6% change, one of the students, which stated that they hardly ever exhibited critical thinking. On the entry questionnaire, two students (12%) indicated they never exhibit critical thinking. After the rubric for the portfolios were scored, none of the students never exhibited any critical thinking. This indicated a 12% change; two of the students that indicated that they never exhibited critical thinking actually did in their portfolios. After the implementation of portfolios, the students were given an exit questionnaire. On the exit questionnaire, twelve students (71%) indicated a change in their critical thinking skills; five students (29%) failed to notice a change in their critical thinking skills. On the exit questionnaire when directly asked if portfolios improved their critical thinking skills, fourteen students (82%) acknowledged improvement was due to the implementation of portfolios. The research indicated that the implementation of portfolios does improve critical thinking skills for multi-grade level students.

Summary

Seventeen multi-grade level U.S. Studies students enrolled in a homogeneous class in a Midwest school participated in the research. The purpose of this project was to determine if the implementation of portfolios improved critical thinking skills among multi-grade level U. S. Studies students. Portfolios were implemented as
students engaged in the three different phases of portfolios; material collection, material selection and the reflection of each selection. In September 2005, the students were administered an entry questionnaire to record their perception of their current level of critical thinking. When the portfolio was implemented, the students collected a variety of examples of class work during a nine week period. At the end of the nine week period, students selected ten samples of what they considered their best efforts toward the completion of a course objective. Finally the students used a reflection guide to analyze and synthesize the rationale behind their selection. After students had completed their portfolio, students participated in a teacher/student conference. During the teacher/student conference, students were given guidance and suggestions from the teacher on areas that needed to be addressed in order for the portfolio to meet all of the requirements. These suggestions were recorded and given to students. The other students in the class were evaluating their peers’ portfolios and providing suggestions using the scoring rubric that the teacher would be using when the portfolios were turned in for the final evaluation. The suggestion phase of the portfolios lasted five class periods before the portfolios were collected and turned into the teacher.

After the nine week portfolio implementation, students were given an exit questionnaire that recorded the time and effort that students put into the portfolio process. The exit questionnaire also addressed the experience of the students in regard to literature addressed benefits. Finally students were asked if they perceived an increase in their critical thinking skills due to the portfolio.
The entry questionnaire questions concerning critical thinking were analyzed and compared to the portfolio rubric. Using the difference in the entry questionnaire and the portfolio reflection completion and critical thinking selection on the portfolio rubric, the data was to show whether or not there was an increase or decrease in the students’ perception of their critical thinking skills. An increase in the portfolio reflection completion and critical thinking selection on the portfolio rubric score would indicate an increase in the students’ critical thinking skills and a decrease would likewise indicate a decrease in the students’ critical thinking skills.

The research data collected from the entry questionnaire, portfolio rubrics and the exit questionnaires indicated that the students did improve their critical thinking skills. This may indicate that the implementation of portfolios did improve critical thinking skills in multi-grade level U. S. Studies students.

Recommendations

Through her observations, the teacher/researcher compiled recommendations for the replication of this study and for future studies extending portfolios implementation into other concerns of the classroom.

Recommendations for the replication of this study of the implementation of portfolios and its impact on critical thinking include: a consistent permanent storage area in the classroom for student work, ample student practice assessing sample portfolio entries in order to familiarize themselves with the process and the duration of the implementation of portfolios.

The first recommendation for the replication of this project is that students keep their collection in a separate folder in the classroom. One perceived problem of
the reflection guide was that the students indicated that the work they picked was the only example they had of the objective even though the researcher had a check list of how many times each objective was completed and every objective contained at least three dates indicating when each objective was completed. A better way of having students maintain their collection would be to have the material stored in a permanent location within the classroom instead of having the students maintain a binder that they took with them. This may eliminate or reduce the chance of students losing or putting class material into the recycling bin after it was graded and returned to the students.

Another procedural recommendation for replicating this project would be to have the students grade their own portfolio before having the teacher grade it. This may allow the teacher to not only give suggestions but to clarify the expectation of the rubric. The students could also reflect on areas that they notice need improvement which might improve their critical thinking skills.

The researcher also suggested that portfolios be used throughout the year then analyzed. This may allow for a change in student growth and critical thinking skills by the end of the school year. Little change in student growth and critical thinking was seen during the nine week time frame. An extended time may also give students time to see the change in their own work instead of trying to reflect over all the selections in a week.

A recommended topic for future research may be the evidence of the benefits of portfolios. Although it was asked in the exit questionnaire, the benefits of portfolios (student empowerment, student self concept, students growth) was not
specifically studied or analyzed in the entry questionnaire. The students that participated in this study did answer positively to the questions relating to the benefits of portfolios. It would have been interesting to see if their answers would have been the same or different before the portfolios were implemented. This would be beneficial for future research especially if there are classroom concerns such as student self-concept or student involvement in the classroom.

Conclusion

Portfolios with the reflection guide exposed students to questions that made them think about what occurred in the classroom during the nine week research period. The implementation of portfolios was designed to help the students interrupt themselves as a learner and understand why the material studied was important. Portfolio implementation with the use of reflection guides also required the students to analyze and synthesize the information when they selected material for portfolio inclusion. These steps exposed students to the process of critical thinking, as indicated in the research literature. The data from the portfolio assessment suggested that the implementation of portfolios did increase critical thinking in high school social studies students.
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Appendix A

Gender: ______ M _________ F  Date: __________

**Entry Questionnaire**

*Instructions: Answer each question completely using only the responses provided for you.*

1. How would you define critical thinking?
   (a) To analyze information
   (b) To synthesize information
   (c) Both a and b
   (d) I really don’t know

2. Do you believe that you exhibit critical thinking in your writing?
   (a) All the time
   (b) Some of the time
   (c) Hardly ever
   (d) Never

3. Did anyone ever teach you how to think critically in your writing?
   (a) Yes
   (b) No

4. Have you ever done any reflective writing for a class?
   (a) Yes
   (b) No

5. Have you ever kept a portfolio for a class in the past?
   (a) Yes
   (b) No

6. If yes for question #5, did the portfolio contain specifically selected material by you or just a collection of all the work you had done in that class?
   (a) Specifically selected material
   (b) Collection of everything ever done
Dear Mr. Dye,

I am currently enrolled in the Master’s of Education program at Defiance College. I am currently working on my final project. The purpose of this project is to determine if the use of portfolios with ninth grade social studies students will improve critical thinking skills.

Over the summer, I completed Chapter 1, the introduction of the project, and Chapter 2, the review of literature. I am presently working on Chapter 3, the development of the instruments and/or protocols that will be used during the implementation of the portfolios. The implementation of portfolios will consist of a nine week period and all parents will be contacted to obtain permission for their son or daughter to participate in the study.

Upon the completion of this study, I will write Chapters 4 and 5. These chapters will discuss the results of the study and provide a general discussion from the researcher. It is my goal to have the final copy of this project completed by March of 2006 and to graduate with my Master’s Degree in May of 2006.

Sincerely,

Paula A. Johnson
Appendix C

August 22, 2005

Dear Parents,

I am currently enrolled in the Master’s Program at Defiance College and over the summer I started on my Master’s Project. I spent the last several months conducting research on portfolios and critical thinking. After reviewing the benefits of portfolios and its relationship to improving critical thinking, I decided to analyze the impact portfolios have on critical thinking.

The reason you are receiving this letter is because your child will have me during his/her US Studies class. I wanted to write and let you know that I will be using this class to conduct the portfolio assessment. This group of students will, therefore, be helping me with this study. Please reassure your child, as I will also do, that this is nothing to panic over. Although they will be receiving a grade on all assignments, they will not be including all assignments in their portfolio. Rather the student will be instructed that they should only include the assignment that they feel best illustrates their mastery of a previously stated objective. The students will also be allowed and encouraged to correct or improve, if applicable, past assignments so they may be included in the portfolio. Because of this I will need everyone to put his or her best effort forward each day.

Each chapter the students will be exposed to different activities to help guide them to the mastery level. The students will have at least two similar assignments during the course of the nine week time period. I will be administering an entry questionnaire during week one and an exit questionnaire during week nine, to verify improvements made by each student.

I am looking forward to working with your child. If you have any questions or suggestions on how I can best help your child, please include them on the following questionnaire. I also welcome you to call, email or send a note if any concerns or suggestions come up at a later date. I would like to mention a couple of things that would be extremely helpful to both your child and me for the duration of this study. The first is attendance. Attendance is very important because we will continually be building on the prior days work and creating new possible portfolio experiences. The second is completion of daily homework. Due to the nature of the study and the course, your child will have daily homework. This will again give them many possible portfolio experiences. Please remind them that the final portfolio will be a showcase of their best work. In order for it to be a true showcase, they need to have as many opportunities as possible to reach their best work. The third request I have is for you to ask your child questions about the class. Please ask your child about what is going on in class and what experiences they are having. Have him/her tell you about the topic that we are discussing in US Studies or what real – world skill they have learned. I hope they are excited to share this with you.
I would like to thank you in advance for your help and support as we work to increase your child's critical thinking skills by implementing portfolios in US Studies. I think we'll have a lot of fun as we put the implementation of portfolios to the test. Please return the last page of this letter with your signature giving me your permission to use your child's portfolio for my study.

Sincerely,

Mrs. Johnson

Parents' signature ___________________________________________
Date __________________________
Appendix D

**Portfolio Topic Sheet**

1. ____ A piece of your own writing that illustrates your understanding of a concept
2. ____ A document that shows proficiency, such as a graded assignment or test
3. ____ An artist interpretation of a specific time period or an artifact of a specific time period
4. ____ A single culture or multicultural timeline
5. ____ A piece that uses numbers or mathematical skills to illustrate a historical event
6. ____ A map that is related to a specific time period or event studied
7. ____ A picture of a project presented in class
8. ____ A graphic organizer that illustrates understanding of a historical topic
9. ____ An outline that illustrates the comprehension of the subject and how to do an outline
10. ____ A piece that you believe illustrates your own personal growth from this grading period

Things to keep in mind when building your portfolio

1. Include items that illustrate you as an active learner
2. Include items that illustrate your ability to do several tasks
3. Include items that illustrate your growth through the course
4. Include items that show how you have improved or taken the opportunity to improve
5. Include items that shows you understand various topics studied this nine weeks
6. Make sure the portfolio illustrates your strengths and tells the story of your growth during the course of the grading period

Something to remember:

**YOU WILL NEED TO DO A REFLECTION SHEET FOR EACH ENTRY!**
Exit Questionnaire

Please circle the response for the following questions.

1. Did you complete the portfolio for U. S. Studies?
   a. Yes
   b. No

2. Did you work on your portfolio outside of class?
   a. Yes
   b. No

3. How much time outside of class did you spend working to complete the portfolio?
   a. 0 hours
   b. 1 or less hours
   c. 1-2 hours
   d. More than 2 hours

4. Did you carefully select the portfolio entries?
   a. All the time
   b. Some of the time
   c. Hardly ever
   d. Never

5. Did you include a reflection sheet with every portfolio entry?
   a. All of the time
   b. Some of the time
   c. Hardly ever
   d. Never

6. Did you work on your reflection sheets outside of class?
   a. Yes
   b. No

7. How much time did you spend working outside of class on the reflection sheets for the portfolio entries?
   a. 0 hours
   b. 1 or less hours
   c. 1-2 hours
   d. More than 2 hours

8. Did you change or improve your portfolio after your first conference with Mrs. Johnson?
   a. Yes
   b. No
9. Did you change or improve your portfolio after your peer conferences?
   a. Yes
   b. No

10. Did the peer conferences help improve your portfolio?
    a. Yes
    b. No

11. Did you experience improvement in your writing style?
    a. Yes
    b. No

12. Did you experience an increase in your self esteem?
    a. Yes
    b. No

13. Did you notice your participation in class increase due to the use of portfolios?
    a. Yes
    b. No

14. Did you feel a greater sense of control over your grade in US Studies due to the use of portfolios compared to other classes you are enrolled in this year that do not use portfolios?
    a. Yes
    b. No

15. Did you notice a change in your critical thinking skills since completing your portfolio?
    a. Yes
    b. No

16. Do you feel that the portfolio was an accurate assessment of you as a learner and student?
    a. Yes
    b. No
    c. Maybe
    d. Don’t know

17. Did the use of portfolios as an assessment tool improve your critical thinking skills in Mrs. Johnson’s U.S. Studies class?
    a. Yes
    b. No

18. Should Mrs. Johnson use portfolio assessments with future students?
    a. Yes
    b. No

19. If you answered yes to question 18, why should portfolio assessments be used?
    a. It helped me to get to know myself as a student learner
    b. It was a good learning experience
    c. At least it wasn’t a test
d. I had to do it so other students should have to as well

20. If you answered no to question 18, why shouldn't portfolio assessments be used?
   a. It was a waste of time
   b. It was too complicated
   c. I didn't learn anything from the experience
   d. I would have rather had a test
Appendix F

Name ____________________

**Portfolio Entry Reflection or Rationale**

Directions: Complete each statement as it relates to your portfolio entry. A rationale sheet needs to be filled out completely with every portfolio entry.

This piece best illustrates my mastery of …

I feel that this piece needed to be included in my portfolio because …

I am most proud of …

This piece helped me realize that …

Other comments
Conference Suggestion Guide

1. Is all material collected for **possible** portfolio inclusion present?

2. Is all material selected for portfolio inclusion?

3. Are all portfolio reflections complete? If not, how many are completed?

4. Do the portfolio reflections contain detail and thoroughly explain student rationale behind selections?

5. Is the portfolio binder organized with table of contents and dividers for each entry?

6. Are there any questions that need to be answered or areas of the portfolio that need clarification?

7. Specific suggestions for portfolio improvement
### Portfolio Rubric

<table>
<thead>
<tr>
<th>Attractiveness</th>
<th>Excellent use of color and graphics to enhance portfolio (4 points)</th>
<th>Good use of color and graphics to enhance portfolio (3 points)</th>
<th>Use of color and graphics occasionally distract from portfolio (2 points)</th>
<th>Use of color and graphics often distract from portfolio (1 point)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Portfolio Requirements</strong></td>
<td>All requirements are met and exceeded (8 points)</td>
<td>All of the requirements are met (6 points)</td>
<td>One of the requirements was not met (4 points)</td>
<td>Two or more of the requirements was not met (2 points)</td>
</tr>
<tr>
<td>Mechanics</td>
<td>No spelling or grammar errors (4 points)</td>
<td>Three or fewer spelling or grammar errors (3 points)</td>
<td>Four spelling or grammar errors (2 points)</td>
<td>More than four spelling or grammar errors (1 point)</td>
</tr>
<tr>
<td>Content</td>
<td>All ten topic areas are addressed and analyzed (12 points)</td>
<td>Only eight out of the ten topics are addressed and analyzed (9 points)</td>
<td>No fewer than six topics addressed and analyzed (6 points)</td>
<td>Fewer than six topics were addressed and analyzed (3 points)</td>
</tr>
<tr>
<td>Organization</td>
<td>Content is well organized using a table of contents and dividers (4 points)</td>
<td>Sections were divided but table of contents was missing (3 points)</td>
<td>Table of contents was included but the portfolio was not divided into sections (2 points)</td>
<td>There was no clear organization to portfolio (1 point)</td>
</tr>
<tr>
<td><strong>Reflection Completion and Critical Thinking</strong></td>
<td>All reflections were filled out and illustrated a large amount of critical thinking (20 points)</td>
<td>All reflections were filled out but there was a lack of detail on fewer than three reflections (15 points)</td>
<td>Seven or more of the reflections were filled out with critical thinking evident (10 points)</td>
<td>Fewer than seven reflections were filled out with critical thinking evident (5 points)</td>
</tr>
</tbody>
</table>
Portfolio Rubric (continued)

_____ Topics
____ Homework or notes that illustrate understanding of a topic
____ Graded document that illustrates proficiency
____ Drawing or first hand account that illustrates understanding
____ Timeline that illustrates the ability to make and read
____ Use of mathematics in social studies
____ Ability to read and answer questions from a map
____ Picture of a project completed in social studies
____ Ability to compose a graphic organizer
____ Ability to take notes from oral instruction
____ A piece that illustrates growth
Appendix I
Table 11: CRITICAL THINKING ILLUSTRATED IN PORTFOLIO

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>NUMBER OF STUDENTS</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of the time</td>
<td>3</td>
<td>18%</td>
</tr>
<tr>
<td>Some of the time</td>
<td>11</td>
<td>65%</td>
</tr>
<tr>
<td>Hardly ever</td>
<td>3</td>
<td>18%</td>
</tr>
<tr>
<td>Never</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 12: ENTRY QUESTIONNAIRE: ILLUSTRATES CRITICAL THINKING

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>NUMBER OF STUDENTS</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of the time</td>
<td>3</td>
<td>18%</td>
</tr>
<tr>
<td>Some of the time</td>
<td>10</td>
<td>59%</td>
</tr>
<tr>
<td>Hardly ever</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>Never</td>
<td>2</td>
<td>12%</td>
</tr>
<tr>
<td>Total</td>
<td>17</td>
<td>100%</td>
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</tbody>
</table>

Table 13: EXIT QUESTIONNAIRE: STUDENT NOTICED CHANGE IN CRITICAL THINKING

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>NUMBER OF STUDENTS</th>
<th>PERCENT</th>
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<tbody>
<tr>
<td>Yes</td>
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</tr>
<tr>
<td>Total</td>
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<td>100%</td>
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Table 14: EXIT QUESTIONNAIRE: STUDENT ACKNOWLEDGED IMPROVEMENT DUE TO PORTFOLIO

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<th>RESPONSE</th>
<th>NUMBER OF STUDENTS</th>
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<td>Yes</td>
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<td>3</td>
<td>18%</td>
</tr>
<tr>
<td>Total</td>
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<td>100%</td>
</tr>
</tbody>
</table>

Table 15: COMPARISON FIGURE 1

<table>
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<tr>
<th>RESPONSE</th>
<th>ENTRY</th>
<th>PORTFOLIO</th>
<th>PERCENT OF CHANGE</th>
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</thead>
<tbody>
<tr>
<td>All of the time</td>
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<td>18%</td>
<td>0%</td>
</tr>
<tr>
<td>Some of the time</td>
<td>59%</td>
<td>65%</td>
<td>6%</td>
</tr>
<tr>
<td>Hardly ever</td>
<td>12%</td>
<td>18%</td>
<td>6%</td>
</tr>
<tr>
<td>Never</td>
<td>12%</td>
<td>0%</td>
<td>12%</td>
</tr>
</tbody>
</table>

Table 16: COMPARISON FIGURE 2

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>PERCENT</th>
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<tbody>
<tr>
<td>Yes</td>
<td>71%</td>
</tr>
<tr>
<td>No</td>
<td>29%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>
Table 17: COMPARISON

<table>
<thead>
<tr>
<th>RESPONSE</th>
<th>CHANGE DUE TO PORTFOLIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>82%</td>
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<tr>
<td>NO</td>
<td>18%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
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