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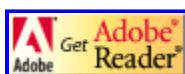
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## Helping Alleviate Statistical Anxiety with Computer Aided Statistical Classes

John W. Stickels and Rhonda R. Dobbs<sup>1</sup>

*Abstract: This study, Helping Alleviate Statistical Anxiety with Computer Aided Statistics Classes, investigated whether undergraduate students' anxiety about statistics changed when statistics is taught using computers compared to the traditional method. Two groups of students were questioned concerning their anxiety about statistics. One group was taught statistics using the traditional "calculator and paper/pencil" method while the other group was taught statistics using computers to perform the required calculations. Frequency distributions and the chi-square test of independence indicated there were significant differences between the two groups. Students in the computer class had significantly less statistical anxiety than students in the traditional class.*

*Keywords: statistics, statistical anxiety, computer, SPSS, teaching methods.*

### I. Introduction.

Most undergraduate students experience moderate to considerable anxiety when faced with their first undergraduate statistics class. This anxiety stems from many sources including the dread of taking another college level math class, discussions with other students about how they have 'suffered', or just plain 'fear of the unknown.' This apprehension about taking statistics is referred to as "Statisticophobia" (Dillon, 1982). In addition, students may fail to see the relevance of statistics for their criminal justice careers. Accordingly, they may delay taking the course until their very last semester, thus allowing anxiety to build unnecessarily. One difficulty, then, of teaching statistics is overcoming "Statisticophobia" so that students can learn statistics while enjoying the class.

One of the primary sources of fear and anxiety about statistics is caused by the very nature of statistics. In a traditional statistics class, students have heard 'horror' stories from other students about using a pencil and a calculator to solve complex statistical formulas. Then, at the start of the semester, students buy a textbook, go back to their dorm room or apartment, open the book, and see formulas that look like this:

$$t = \frac{M1 - M2}{\sqrt{S^2_{m1} + S^2_{m2}}}$$

Consequently, this is going to cause anxiety about taking statistics.

During the 2003 – 2004 academic year, a decision was made to change how introductory statistics was taught at Texas State University | San Marcos. The change was made from teaching statistics the traditional "calculator and paper/pencil" method to teaching statistics through

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<sup>1</sup> Department of Criminology and Criminal Justice, The University of Texas at Arlington, Box 19595, Arlington, Texas 76019-0595, [jstickel@uta.edu](mailto:jstickel@uta.edu) and [rdobbs@uta.edu](mailto:rdobbs@uta.edu).

computer. The primary goal of this change was to make statistics more ‘user friendly’ and, hopefully, re-focus the students from merely performing the required calculations to understanding statistical theory and the appropriate use of statistical processes. The purpose of this study was to investigate whether using computers changed students’ attitudes toward statistics.

## **II. Literature Review.**

Statistics is required for graduation in criminal justice programs at almost all accredited universities with the required statistics course being followed by a course in research methods. Often, the thought of facing statistics with the accompanying fear of failure causes severe consternation to most students in a criminal justice program (Kennedy and McCallister, 2002). Thus, being able to successfully teach statistics so that students can succeed in statistics and research methods has become important in present day criminal justice programs (Bushway, Shawn, and Flower, 2002).

Dillon (1982) noted that a primary source of statistical anxiety is the fear of taking a complicated college level math class. Her attempts in alleviating this anxiety were having her students express their fears by answering questionnaires detailing their feelings about statistics and combining this with a lecture on math anxiety. Dillon reported that this procedure eased the students’ fears to the point where they could master statistical concepts (Dillon, 1982).

Journal writing has also been tested as a method of reducing statistical anxiety. For example, Sgoutas-Emch and Johnson (1998) compared a group of undergraduate students who participated in journal writing to a group that did not in order to determine whether there was a difference in statistical anxiety between the two groups. Sgoutas-Emch and Johnson found that the group that participated in journal writing had improved grades, less anxiety before exams, and lower physiological reactions (Sgoutas-Emch and Johnson, 1998).

One of the authors has experienced statistical anxiety in his college teaching career and has attempted to alleviate it several ways. In his first semester of teaching introductory statistics, the author tried to lessen the student’s anxiety by having a math review session followed by a simple math test, followed by a demonstration about how data and statistics are useful in everyday life using examples from football and basketball. Unfortunately, it did not work and the students appeared to be just as anxious after the lecture as before it.

One newer strategy teachers use to reduce statistical anxiety is by incorporating computer use into statistics classes (Collins, Oberg, and Shera, 1989). Kennedy, McCallister, and Corliss (2001) investigated whether using computers as the focus of instruction in an advanced statistic class, together with an individualized, self-paced, student-centered, activity-based course, positively impacted student attitudes about statistics. The respondents, 15 graduate students in an advanced statistics class and 4 graduate students in a multivariate statistics class were questioned about their attitudes regarding statistics at the beginning and end of the course. The survey results indicated that the students’ attitudes about statistics improved over the course of the semester. Kennedy et al. attributed this improvement to the use of computers in the classroom (Kennedy, McCallister, and Corliss, 2001).

Kennedy, McCallister, and Corliss (2002) used this same methodology when they reexamined whether using computer positively impact attitudes about statistics. In this second study, 43 graduate students in an advanced statistics class were taught using computers as the focus of instruction in an advanced statistic class, together with an individualized, self-paced,

student-centered, activity-based course. As in the previous study, the students were questioned about their attitudes regarding statistics at the beginning and end of the course. The survey results confirmed the findings of the previous study and indicated that students' attitudes about statistics improved over the course of the semester. As in the previous study, Kennedy et al. attributed this improvement to the use of computers in the classroom (Kennedy, McCallister, and Corliss, 2002).

Results indicate that using computers in a statistics class has been generally successful in lowering statistical anxiety. For instance, Ware and Chastain (1989) investigated whether using computers in an undergraduate statistics class significantly impacted the students' attitudes about statistics. In this study, the researchers compared attitudes about statistics from students in a computer aided statistics class to attitudes about statistics from students in a non-computer statistics class. The results indicated a significant difference between the students' attitudes with the students in the computer aided class having significantly more favorable attitude about statistics than students in the class without computers (Ware and Chastain, 1989).

Using computers in the classroom has also been shown to increase statistical knowledge. Lane and Aleski (2002) took advantage of a redesign in undergraduate statistics classes to examine whether using computers and collaborative learning methods influenced student performance. Prior to the redesign, statistics classes were taught in a traditional lecture style format to sections of 240 students by full time faculty. After the changes, the courses were more student-centered than instructor-centered with students having one session each week in one large lecture session (240 students) and two sessions in a computer lab (40-60 students). The faculty member taught all three classes and a graduate student teaching assistant was present in the computer lab. A content knowledge test was administered to the students at the beginning and the end of each semester. The results of this study found that students' overall performance was higher in the redesigned classes than in the traditional course (Lane and Aleski, 2002).

The intent of the current study was to investigate whether there was a difference between students' attitudes toward statistics depending on whether computers were used as a teaching aid in an introductory statistics class. Specifically, it was hypothesized that the student's attitudes about statistics would be more favorable for students taught statistics using a computer than students taught statistics using the traditional method.

### **III. Methods.**

#### *A. Research Design.*

The *ex post facto* research design was selected for this project because it was closest available to the specific teaching situation presented (Cook, 1979). One of the recognized problems associated with this design is attempting to eliminate any selection bias since there is no pre-test to use as a comparison. This potential problem was addressed in the survey instrument when the respondents were asked how strongly they wanted to take statistics and why they took the class. The responses to these questions indicated there was not a significant difference between the attitudes of the two groups of students (non-computer vs. computer class) prior to taking the class (See results section below). The students registered for the computer courses did not report different levels of enthusiasm or motivations for taking the course compared to those in the non-computer course, indicating that selection bias associated with those factors did not exist or, at the most, was minimal.

Another potential problem associated with this research design is attempting to eliminate any bias caused by the instructor and teaching materials (Cook, 1979). The potential problem resulting from instructor bias was addressed by using the same instructor and teaching methods for both computer and non-computer classes. The primary difference between the classes was the addition of *How to Use SPSS* by Brian C. Cronk for the computer-based class (Cronk, 2004). This book was used only to teach the students how to use SPSS. While it is not possible to say that instructor bias was completely eliminated, after all, it is reasonable that the same instructor might perform somewhat differently in different classrooms and with different students. It is believed that any instructor bias that might still exist was of minimal impact on the results of this study.

### *B. Subjects.*

The subjects consisted of students enrolled in an undergraduate criminal justice statistics class at Texas State University | San Marcos for fall 2003, and spring and summer I 2004. A total of 88 students were tested, 40 from the fall 2004 (non-computer) class and 48 from the spring and summer 2004 (computer) classes. Of these respondents, there were 24 male and 16 female students for the non-computer class. There were 22 male and 25 female students in the computer classes.

### *C. Survey Instrument.*

The questions comprising the survey instrument were borrowed from a combination of four sources. The first source for questions was the Scales Test developed by Fennema-Sherman (Fennema and Sherman, 1976). The second source for questions originated from the Students' Attitude Toward Statistics Test developed by Sutarso (Sutarso, 1992a, 1992b). The third source for questions was the School of Education – University of Virginia Course Evaluation form (Braskamp, Brandenburg, and Ory, 1984). Finally, questions were asked that specifically applied to the issues investigated by this project.

The survey instrument was a Likert scale questionnaire that queried the students about general and individual attitudes toward statistics. The general attitudinal questions included questions such as, 'learning statistics is mostly memorizing,' 'statistics is interesting,' 'statistics is mostly about symbols and formulas rather than about ideas,' and 'in statistics, knowing why an answer is correct is important.' The individual questions included: 'my interest in statistics has increased over the semester,' 'overall, this class was useful to me,' and 'I would rate the value of this course to me as \_\_\_\_\_,' to gauge whether there was a bias in the students either for or against enrolling in this class. A copy of the survey instrument is attached as Appendix I.

### *D. Procedure.*

The undergraduate Statistics for Criminal Justice class at Texas State University | San Marcos is an introductory upper-level statistics class taught to criminal justice majors. Usually, the classes consist of juniors and seniors. According to the 2002-2004 undergraduate catalog, the expectations for this class are:

The theory and application of statistical inferential techniques, and correlation and regression for behavioral science data and its application in Criminal Justice. Emphasis is on the collection, analysis, and interpretation of statistical data in criminal justice settings (Texas State University | San Marcos undergraduate catalog, <http://www.txstate.edu/academicaffairs/ugcat02-04/>).

Both the non-computer and computer classes emphasized descriptive and inferential statistics. The descriptive statistics taught were frequency distributions, measures of central tendency, measures of variability, graphs, and correlation as a descriptive statistic. The inferential statistics presented were correlation, z-test, t-test, analysis of variance, regression analysis, and the chi-square test. In addition, the lectures emphasized the appropriate rules for using each type of descriptive and inferential statistic.

The non-computer class was a 'traditional' statistics class taught in the fall 2003 semester. Students were expected to perform all required mathematical calculations using a calculator, pencil and paper. A computer was not used in the non-computer class except for the regression analysis lectures. In the regression analysis lectures, students were provided examples of this statistic using Microsoft Excel. The survey instrument was administered to 40 students from this class. The computer classes were taught in the spring 2004 and summer I 2004 semesters with the students performing all required calculations using SPSS version 12.0. The survey instrument was administered to 48 students from these classes.

#### **IV. Results.**

As stated, the goal of this study was to determine whether student's attitudes about statistics would be more favorable for students taught statistics using a computer than students taught statistics using the traditional method. Two statistical processes were used to assess this question. The first was a simple frequency distribution and the second was a Chi-Square Test of Independence ( $X^2$ ) using the Crosstabulation function in SPSS with "computer/non-computer" as the independent variable and the various attitudes as the dependent variable. The overall results indicated a significant difference between the computer and non-computer classes with the computer classes being routinely judged more favorably than the non-computer classes.

##### *A. Selection Bias.*

As noted, one of the problems associated with the ex post facto research design is the chance of selection bias. Two survey questions were asked in an attempt to determine the presence of selection bias. These two questions were question 18: "When registering for this class, how strongly did you want to take it?" and question 19: "Which ONE of the following was the most important reason for taking this class?" The results of these questions indicate there was no selection bias and that the two groups were basically equivalent.

*Question 18: When registering for this class, how strongly did you want to take it?* This question was asked in an attempt to determine whether there was any selection bias attributable to the ex post facto research design. The frequency distribution for Question 18 demonstrates that the students were fairly uniform in their lack of enthusiasm for taking statistics.

**Table 1. Crosstabulation of Class by Q18 (enthusiasm for taking statistics).**

		Q18					Total
		Very enthusiastic	Enthusiastic	Indifferent	Unenthusiastic	Not at all interested	
Class	No Comp	0	8	18	7	7	40
	Computer	4	10	21	10	3	48
Total		4	18	39	17	10	88

The Chi-Square statistic for question 1 was  $\chi^2 = 5.904$  ( $p = 0.206$ ). Accordingly, there was not a significant difference between the students' enthusiasm for taking statistics depending on whether the student was taught in the computer or the non-computer classes.

*Question 19: Which ONE of the following was the most important reason for taking this class?* This question was also asked to try to determine whether there was any selection bias attributable to the ex post facto research design. The frequency distribution for Question 19 indicates that the students were fairly uniform in their reasons for taking this statistics class with a large majority taking it because it was required.

**Table 2. Crosstabulation of Class by Q19 (reasons for taking statistics).**

		Q19					Total	
		Required	Optional	Interested	Instructor	Good Grade		No Response
Class	No Comp	30	3	0	4	1	2	40
	Computer	33	1	3	10	0	1	48
Total		63	4	3	14	1	3	88

The Chi-Square statistic for question 1 was  $\chi^2 = 7.392$  ( $p = 0.194$ ). Accordingly, there was not a significant difference between the students' reason for taking statistics depending on whether the student was taught in the computer or the non-computer classes.

The results of questions 18 and 19 support a finding that there was no selection bias present in the respondents. According to the results of question 18, there was a fairly uniform lack of enthusiasm for taking statistics with no significant difference between the two groups. In addition, the reasons for taking the class were, by a large majority, because the class was required. Again, there was no significant difference between the groups. Students registered for the computer course were no more or less enthusiastic about the course nor were they taking the course for different reasons. As a result, the responses to these questions support an inference that there was little or no selection bias associated with this study, at least in relation to the reasons and motivations for taking the course, whether it be computer focused or not.

*B. General Question Results.*

*Question 1: Learning statistics is mostly memorizing* One of the goals of changing from a traditional to a computer based class was to refocus the students' concentration from memorizing statistical formulas to learning statistical theory and understanding the practical uses of statistics. Question number 1, "learning statistics is mostly memorizing," was intended to determine whether this goal was met. The frequency distribution for Question 1 indicates that

more students in the computer classes either ‘disagreed’ or ‘strongly disagreed’ with this question as compared to the non-computer classes:

**Table 3. Crosstabulation of Class by Q1 (statistics is mostly memorizing).**

		Q1					Total
		Strongly Agree	Agree	Disagree	Strongly disagree	Not Applicable	
Class	No Comp	3	28	8	0	1	40
	Computer	7	18	18	5	0	48
Total		10	46	26	5	1	88

The Chi-Square statistic for question number 1 was  $X^2 = 13.00$  ( $p = 0.0111$ ). Accordingly, there was a significant difference between the students’ attitudes about whether statistics is mostly memorizing, depending on whether the student was taught in a computer or the non-computer class. As a result, it can be concluded that the goal of refocusing the students’ concentration from memorizing statistical formulas to learning statistical theory and understanding the practical uses of statistics was met with the changed way of teaching method.

*Question 2: Statistics is interesting.* A desired by-product of changing from a traditional to a computer based class was to make statistics class more interesting to the average criminal justice student. Question number 2, “statistics is interesting,” was asked to determine whether this occurred. The frequency distribution for Question 2 indicated that more students in the computer classes either ‘strongly agreed’ or ‘agreed’ with this question when compared to the non-computer classes:

**Table 4. Crosstabulation of Class by Q2 (statistics is interesting).**

		Q2					Total
		Strongly Agree	Agree	Disagree	Strongly Disagree	NA	
Class	No Comp	1	15	16	6	2	40
	Computer	8	26	10	3	1	48
Total		9	41	26	9	3	88

The Chi-Square statistic for this question was  $X^2 = 10.473$  ( $p = 0.033$ ). Therefore, there was a significant difference between the students’ attitudes about whether statistics is interesting, depending on whether the student was taught in a computer or the non-computer class. As a result, it can be concluded that the desired byproduct making statistics more interesting to the students was achieved as a result of the change in the teaching method.

*Question 5: Statistics is mostly about symbols and formulas rather than about ideas.* One of the goals of both the non-computer and computer classes was to teach the students when, and under what circumstances, each statistical process should be used. Question number 5, “statistics is mostly about symbols and formulas rather than about ideas,” was asked to determine whether there was a difference in opinions about this question based on whether the student was in a computer or a non-computer class. The frequency distribution for Question 5 shows that students had obvious differences of opinions about the use of statistics depending on whether the student was taught with or without a computer.

**Table 5. Crosstabulation of Class by Q5 (statistics is symbols and formulas vs. ideas).**

		Q5				Total
		Strongly Agree	Agree	Disagree	Strongly disagree	
Class	No Comp	9	24	4	3	40
	Computer	4	12	23	9	48
Total		13	36	27	12	88

The Chi-Square statistic for question 5 was  $\chi^2 = 21.746$  ( $p = 0.000$ ). Therefore, there was a significant difference between the students’ opinions about whether statistics is mostly about symbols and formulas rather than about ideas, depending on whether the student was taught in the computer or the non-computer class. Based on this difference, it can be concluded that the goal of teaching the students when and under what circumstances, to use each statistical process was achieved through changing the teaching method.

*Question 6: In statistics, knowing why an answer is correct is important.* A related goal of changing from a traditional to a computer based class was to teach the students to understand the difference between merely solving problems and understanding why the problem was answered in the way in was. Question number 6, “in statistics, knowing why an answer is correct is important,” was asked to determine whether the students had a difference of opinion about this question based on whether the student was in a computer or a non-computer class. The frequency distribution for Question 6 indicates that more students in the computer class either strongly agreed or agreed with this question than the students in the non-computer class.

**Table 6. Crosstabulation of Class by Q6 (important to know why an answer is correct).**

		Q6				Total
		Strongly Agree	Agree	Disagree	Strongly disagree	
Class	No Comp	13	19	7	1	40
	Computer	22	24	0	2	48
Total		35	43	7	3	88

The Chi-Square statistic for question 5 was  $\chi^2 = 9.581$  ( $p = 0.022$ ), indicating a significant difference between the responses for this question based on whether the student was taught in the computer or the non-computer classes. Thus, the goal of teaching students to understand the difference between merely solving problems and understanding why an answer is correct was better achieved in the computer class than the non-computer class.

*C. Individual Questions Results.*

*Question 14: My interest in statistics has increased over the semester.* An ever present objective of teaching statistics is keeping the students interested throughout the semester. One hoped-for consequence of changing from a traditional to a computer based class was that the students would stay more interested in the computer based statistics class than in the traditional class. Question number 14, “my interest in statistics has increased over the semester,” was asked to determine whether the students’ interest in the class increased more throughout the semester in

the computer or non-computer class. The frequency distribution for Question 14 indicates that the students' interest in the computer class increased more throughout the semester than the students in the non-computer class.

**Table 7. Crosstabulation of Class by Q14 (interest increased over the semester).**

		Q14(Interest Increased)					Total
		Strongly Agree	Agree	Disagree	Strongly Disagree	NA	
Class	No Comp	0	18	17	2	3	40
	Computer	7	25	15	0	1	48
Total		7	43	32	2	4	88

The Chi-Square statistic for question 1 was  $X^2 = 10.625$  ( $p = 0.031$ ), indicating a significant difference between the responses for this question based on whether the student was taught in the computer or the non-computer classes. Based on this difference, it can be concluded that the objective of keeping students interested in class was achieved better in the computer than the non-computer class.

*Question 16: Overall, this class was useful to me.* A related goal of keeping the students interested throughout the semester is to teach students that statistics will be useful in the future. With the change to a computer based method of teaching, it was theorized that teaching students how to perform the required calculations on the computer would illustrate the usefulness of statistics since the student would not have to visualize performing calculations with a computer every time a statistic was needed. Question number 16, “overall, this class was useful to me,” was asked to determine whether the computer based statistics class made statistics more useful than the non-computer class. The frequency distribution for Question 16 indicates that the majority of students in the computer class thought statistics were useful when compared to the non-computer class.

**Table 8. Crosstabulation of Class by Q16 (class was useful).**

		Q16					Total
		Strongly Agree	Agree	Disagree	Strongly Disagree	NA	
Class	No Comp	2	27	10	1	0	40
	Computer	12	32	2	1	1	48
Total		14	59	12	2	1	88

The Chi-Square statistic for question 16 was  $X^2 = 13.282$  ( $p = 0.010$ ), indicating a significant difference between the responses for this question based on whether the student was taught in the computer or the non-computer classes. Therefore, it can be concluded that the objective of teaching students that statistics will be useful in the future was achieved better in the computer than the non-computer class.

*Question 25: I would rate the value of this course to me as \_\_\_\_.* Every college class is expensive and students expect to receive something of value from taking a class. Thus, a related goal of teaching students that statistics something useful is to providing the student some value with each class. Question number 25, “I would rate the value of this course to me as,” was asked

to determine whether, in the student’s opinion, about the value of the class was different for the computer and the non computer classes. The computer based statistics class made statistics more useful than the non-computer class. The frequency distribution for Question 25 indicates that more students judged the computer course as excellent and good than did the non-computer class.

**Table 9. Crosstabulation of Class by Q25 (value of the course).**

		Q25				Total
		Excellent	Good	Satisfactory	Poor	
Class	No Comp	8	20	11	1	40
	Computer	22	21	5	0	48
Total		30	41	16	1	88

The Chi-Square statistic for question 25 was  $\chi^2 = 9.156$  ( $p = 0.027$ ), demonstrating a significant difference between the responses for this question based on whether the student was taught in the computer or the non-computer classes. As a result, it can be concluded that students in the class taught with the computer judged the class significantly more valuable than the students in the non-computer class.

**V. Discussion and Conclusion.**

The primary goal of changing the way statistics was taught at Texas State University | San Marcos was to make statistics more ‘user friendly’ and re-focus the students from merely performing the required calculations to understanding statistical theory and the appropriate use of statistical processes. A by-product of this change was to alleviate statistical anxiety by removing the complex mathematical calculations from the class. This study indicates that the goal of alleviating statistical anxiety was met through the change to a computer based class.

The responses to the general attitudinal questions, ‘learning statistics is mostly memorizing,’ ‘statistics is interesting,’ ‘statistics is mostly about symbols and formulas rather than about ideas,’ and ‘in statistics, knowing why an answer is correct is important’ demonstrate a significant difference between the computer and non-computer classes. The differences in opinion highlighted by these questions are important because these questions inquire into one of the primary causes of statistical anxiety – the trepidation resulting from the necessity of performing complex mathematical calculations. These questions illustrate that when the necessity of performing complex mathematical calculations by hand is removed, statistical anxiety decreases.

The responses to the general attitudinal questions are also important because they lend support to the conclusion that using the computer makes statistics more ‘user friendly’ and re-focuses the students from merely performing the required calculations to understanding statistical theory and the appropriate use of statistical processes. As seen, more students understood that statistics is about more than crunching numbers. According to the responses, it appears that the students in the computer classes recognized that statistical processes and theory are as important as being able to perform the required calculations.

The responses to the individual attitudinal questions, 'my interest in statistics has increased over the semester,' 'overall, this class was useful to me,' and 'I would rate the value of this course to me as \_\_\_\_\_,' demonstrate a significant difference between the computer and non-computer classes with regard to individual attitudes about statistics. The differences in opinion highlighted by these questions are important because these questions inquire into how using computers for statistics impacted the individual student. These questions illustrate that removing the requirement to perform the complicated calculations by hand makes the class 'worth more' to the individual student. This increased value to the individual student is important because the more that a student receives from a class, the less the anxiety.

This paper reported the results of a survey that inquired whether statistical anxiety was less in classes that used a computer than in classes that did not use a computer. This study found significant differences between the levels of anxiety for computer when compared to non-computer classes. In addition, the findings in this study support the conclusion that students understand that statistical processes and theory are as important as being able to perform the required calculations. In summary, the results support earlier research that found that using computers in teaching statistics helps alleviate statistical anxiety and can improve students' attitudes towards statistics.

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**Appendix 1. Statistics Course Questionnaire.**

1. Learning statistics is mostly memorizing.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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2. Statistics is interesting.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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3. Guessing is “OK” to use in solving statistical problems.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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4. There are rules to follow in solving statistical problems.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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5. Statistics is mostly about symbols and formulas rather than about ideas.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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6. In statistics, knowing why an answer is correct is important.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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7. Statistics are useful in everyday life.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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8. I would like to have a job that includes statistics.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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9. The instructor made class presentations clear.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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10. Statistics class is fun.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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11. The level of difficulty in this class was suitable for my background and ability.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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12. The amount of work required for this class was about right.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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13. I spent a great deal of effort in this class.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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14. My interest in statistics has increased over the semester.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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15. I learned a great deal in this course.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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16. Overall, this class was useful to me.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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17. Are you an:

- A. Undergraduate
- B. Graduate student
- C. Other

18. When registering for this class, how strongly did you want to take it?

- A. Very enthusiastic about it
- B. Enthusiastic
- C. Indifferent
- D. Unenthusiastic
- E. Not at all interested in taking this class

19. Which ONE of the following was the most important reason for taking this class?

- A. The course is required
- B. The course was optional, but recommended
- C. The subject was of interest to me
- D. The instructor's excellent reputation
- E. I thought I could make a good grade

20. What grade did you expect to make?

- A. An 'A'
- B. A 'B'
- C. A 'C'
- D. A 'D'
- E. An 'F'

21. How many credits are you carrying?

- A. more than 16
- B. 13 to 16
- C. 9 to 12
- D. 5 to 8
- E. 0 to 4

22. I would recommend this class to a friend.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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23. My opinion about statistics has changed over the course of this semester.

Strongly Agree	Agree	Disagree	Strongly Disagree	Not Applicable
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24. The work required for this course in relation to other courses was:

Much lighter	Lighter	About the same	Heavier	Much heavier
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25. I would rate the value of this course to me as:

Excellent	Good	Satisfactory	Fair	Poor
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# Developing Responsible Learners: The Power of Intentional Mental Processing

Janice A. Wiersema and Barbara L. Licklider<sup>1</sup>

*Abstract: Most college students do not habitually do the deep thinking that will allow them to take their learning beyond the acquisition of knowledge. This paper examines the findings from a phenomenological study of eight students involved in an interdisciplinary community focused on developing responsible, life-long learners. Students identified both the myriad ways the learning opportunities had been structured to engage them in thinking and the impacts of the resultant deep reflection on their learning. Implications are that educators must do more asking than telling until students learn to ask and answer the challenging questions on their own.*

*Keywords: reflection, intentional mental processing, deep thinking.*

## I. Introduction.

Learning from experience is powerful for most individuals, but rarely will they “extract all the potential meaning that is implicit or move beyond their current meanings without being challenged” (Caine and Caine, 1997). One key to helping students use their experiences to engage in deeper learning is active processing, which, according to Caine and Caine (1994), is:

...the consolidation and internalization of information, by the learner, in a way that is personally meaningful and conceptually coherent. It is the path to understanding, rather than simply to memory...The pervasive objective is to focus on the process of our learning and extract and articulate what has been explored and what it means. In effect, the learner asks in as many ways as possible “What did I do?”, “Why did I do it?”, and “What did I learn?” (p. 156-157)

(Note: Because of common misconceptions associated with the phrase “active learning,” we are using “intentional mental processing” in place of Caine and Caine’s phrase: “active processing.”) The more questions the individual asks and answers, the deeper the learning is likely to be as a result of the experience. As Perkins points out in the article “Learning as Biological Brain Change” (Leamson, 2000), “Learning is a consequence of *thinking*—it’s less the doing than the thinking, the reflecting on that doing that counts” (p. 37).

In their book *Connecting Leadership to the Brain*, Dickman and Stanford-Blair (2002) refer to a similar kind of thinking within a discussion about reflective intelligence.

If information patterns are the currency of intelligence, reflection is the compounding of returns on the original investments in their construction. That is, reflection is the ultimate stringing together of patterns of information through serious consideration—a conscious

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<sup>1</sup> Department of Information Assurance Center, Iowa State University, 2413 Coover, Ames, IA 50011-3060, [janw@iastate.edu](mailto:janw@iastate.edu) and Department of Educational Leadership and Policy Studies, [blicklid@iastate.edu](mailto:blicklid@iastate.edu).

bending back—of constructed knowledge to proactively explore further configurations, implications, and applications thereof. In effect, the reflective qualities of your brain engage in examination of how that which is mentally constructed might best be invested—exploited might be a better word—to the advantage of survival interests. (p. 95)

While a full discussion of the reflective nature of intelligence is beyond the scope of this paper, the basic notion of engaging students in meaningful reflection fits with the active processing suggested by Caine and Caine (1994). It further supports rephrasing that notion as intentional mental processing. In addition to the questions of “What did I do?,” “Why did I do it?,” and “What did I learn?,” Dickman and Standford-Blair probably would add “How did I do it?” and “What if... ?” Indeed, from our own research we would add “What was/am I thinking?” and “Why was/am I thinking that?” The challenge for educators is to help students learn to ask and answer these kinds of questions consistently for themselves for most experiences—to engage in intentional mental processing as a habit of mind. This study examined the experiences of students in a program that was designed specifically to get students to take responsibility for their own learning by developing intentional mental processing as a habit of mind.

## **II. Background for the Study.**

Recently, we had the opportunity to combine our knowledge of human learning and the principles of learning organizations in a program for students at a land-grant university in the Midwest. As part of the National Science Foundation (NSF) Scholarship for Service (SFS) program, students are awarded full scholarships in exchange for two years of federal government work following graduation. The NSF SFS program is an interdisciplinary effort involving students and faculty in computer engineering, computer science, mathematics, political science, management information systems, and education. Fellowship recipients participate in a two-year leadership development program in addition to the requirements of their majors. The program is designed with an emphasis on: (a) learning about learning, (b) learning about self, (c) purposefully developing community, (d) deliberately practicing and refining skills to support and encourage the growth of self and others, (e) practicing metacognition, and (f) engaging in intentional mental processing. The knowledge, skills, and dispositions desired as outcomes of this program are certainly outside the experiences and comfort zones of these students’ previous educational encounters. By the end of the first year, it was clear students not only were taking responsibility for their own learning, but they also were developing into a productive community of learners. We needed to find out what contributed to these developments.

## **III. Methodology.**

### *A. Methods.*

The desire to understand, from the words of the participants, key factors that contributed to their learning and development made this an ideal phenomenological research study (Colaizzi, 1978; Moustakas, 1994). We experienced the phenomenon of learning in community with the participants and witnessed their growth and development into avid learners and worthy team members. Therefore, we engaged in the phenomenological epoch process (Moustakas) to

identify our own beliefs, biases, and assumptions and set them aside to focus on the lived experiences of the participants.

### *B. Data Collection and Analysis.*

Although the eight participants in the study were in the fourth semester of the NSF SFS program, the research was designed to focus on the learning experiences during the first two semesters. Consistent with the goal of phenomenological research to collect rich, meaningful information that accurately depict the participants' interpretations of the phenomenon (Merriam, 2002), data sources included a focus group interview comprised of all eight participants, individual interviews, journals, and written self-assessments. All interviews were audio taped and transcribed verbatim. Data were analyzed and interpreted following the steps suggested by Colaizzi (1978): read all data, extract significant statements, formulate meanings, organize into clusters of themes, integrate into an exhaustive description, and formulate the exhaustive description in as unequivocal a statement of identification of the phenomenon's fundamental structure as possible. Data were validated by returning the findings to the participants and asking for feedback. Also known as member checking (Merriam, 2002), this step provided no new data.

## **IV. Findings.**

As referenced earlier, the last stage in the analysis of the data is to organize the themes into an exhaustive description of the phenomenon and formulate the exhaustive description in as unequivocal a statement of identification of its fundamental structure as possible (Colaizzi, 1978). In general, the themes that emerged were: self-identified growth and development, continuous reflection, metacognition, high expectations for addressing challenging tasks, interdependence, accountability, and supportive environment. Therefore, the fundamental structure of the phenomenon of learning in community, as perceived by these eight participants, is a self-recognized transformative development resulting from engaging learners in intentional mental processing before, during, and after challenging them with, and holding them accountable for, addressing complex, meaningful tasks in an interdependent and supportive environment over time. This complex statement gives rise to a multitude of possibilities of exploration with implications for educators and students. This paper explores the impacts of intentional mental processing in this transformative experience.

While it is not surprising that students would identify intentional mental processing as being key to their learning, what was surprising was the number of different ways they identified that we had structured the learning experiences so they had to think. We understand, as identified by Leamson (2000), that learning is a very private matter and happens only in the mind of the individual. This means external agents cannot actually cause learning, but can only influence the likelihood of it. Therefore, faculty do have a responsibility to guide and direct the thinking and actions of students, but it is the individual learner who "must think deeply and repeatedly about something" (p. 37) and in multiple ways before learning occurs. Although we are purposeful with every learning opportunity planned for students, revelations from the participants identified just how much our own habits of mind related to thinking causing learning guide almost all of our actions and behaviors related to students and their learning. In this paper we uncover, through the words of the participants, the kinds of expectations and experiences that contributed to the development of intentional mental processing as a habit of mind. In addition, we provide

insights that can be used by other faculty who seek to have their students become independent, intentional learners. We do this by first explaining overall expectations that made a difference for engaging students in thinking. Next, we describe specific experiences and identify the components of those related to intentional mental processing, thereby, providing insights for those in charge of developing intentional learners.

#### *A. Expectations.*

We view the leadership program as developmental in nature. According to Douglas Robertson (2001), development is a process of adding something, such as thoughts, feelings, or behaviors, to what was there already and, as that something is integrated, having the whole that it is joining, such as a perspective or frame of reference, be transformed. Students enter the NSF SFS program with different sets of thoughts, feelings, and behaviors based on unique experiences. We do not expect that they will all progress in the same way or at the same rate. We do, however, expect all students to take responsibility for their own growth and development—that they do their own thinking and own their choices of actions. We understand this as becoming intentional learners. Every learning opportunity is planned with that outcome in mind, and students are reminded continually that the assignments are for them, not the professor. The words of the participants reveal differences in our expectation and the kinds of expectations they were accustomed to meeting in order to get a desired grade:

In the vast majority of my other classes, I show up for class, jot down a few notes, do the homework, and take the tests. I am not forced to share thoughts of my own or involve myself with others. Indeed, most college classes allow students to work in isolation which is a grievous error. Leadership class is dramatically different. I am required to voice my own values and perform teamwork. I am not allowed to just sit back and listen. I must synthesize my own thoughts and express them.

When we were given the assignment I dreaded it. I knew it was going to be hard and that it was not something I could just do and get over with.

Without a doubt, meaningful learning is hard work, and we do expect students to fully engage in the hard work required for deeper learning. Our overall expectation that students take responsibility for their own growth and development is more fully clarified via the specific expectations of changing habits, thinking, coming to know self, and engaging in metacognition.

*Changing habits.* Most students (and many faculty) are deeply entrenched in the paradigm of learning where students come to class expecting to be told exactly what to do and how to think, check assignments off a list, take tests that measure how much information has been stored in (short-term?) memory, and then dump the information before moving on to the next class. The good grades received from such practices don't always translate into abilities to solve ill-defined, real-world problems students will face the rest of their lives (Huba and Freed, 2000). Faculty have a responsibility to help students break through that paradigm and to learn to do the thinking required to become intentional learners, but breaking old habits of being told exactly what to do and then checking things off a list to meet requirements for earning a grade does not come easily:

I have been having quite a bit of trouble with the interview assignment. I sort of wish there were clearly defined guidelines on what we are supposed to learn, because I'm used to that. This is sort of stepping outside my comfort zone, having to decide what I want to learn and all.

I feel much more comfortable now in these settings than I did in the past, and the reason is because I have had numerous opportunities to practice them. I think an important distinction is that I was not forced to do so once or twice because of assignments, after which I could breathe a sigh of relief and never worry about doing so again. Knowing that it would be more or less a weekly requirement to share my personal feelings with a larger group, I realized that it was not something I just had to get through, it was something I had to become better at.

To be sure, breaking old habits is not easy and it does take time. The time invested, however, reaps rewards as students begin to realize that learning is, in fact, a developmental process:

Over time, I'll think of things that I couldn't today, or later we'll learn stuff that I can apply that I didn't know to think about today. I think that is one thing about our class that is really important, and pivotal to our continual growth and learning. By assigning us to go back and look at things we've done or somewhat completed, reflect upon them and then apply new things to them we are learning more and getting more out of topics and materials. We don't just read a chapter and then never go back, we are required to apply those things learned to new assignments later on. It's a great way to commit those ideas, principles and facts to memory...

Those words written in a journal entry during the last week of September reveal that Kim was beginning to internalize two important concepts about deep learning—it is never finished (developmental) and thinking is critical.

*Thinking.* As referenced earlier, it is not the doing that causes the learning. It is the thinking about the doing that causes learning (Leamnsen, 2000). The challenge, then, for faculty is to help students develop a habit of thinking about all learning opportunities. The words of the participants reveal their understandings that we do expect them to engage in thinking before, during, and after class:

Coupled with the knowledge I have gained about how I am best able to prepare for such things [interactions during class] (journaling, jotting notes, some kind of critical thinking beforehand), I now feel much more at ease sharing things in this particular group.

...if we have an idea we've been talking about all class, I might reflect on it at a certain angle and that's another reason I like the go-rounds. Hearing what other people, I always like those go-rounds that say 'what are you going to think about more as a result of this class, this particular session', and just hearing what other people got out of it. Sometimes it's completely different than what I did, and it gives me something else to think about that I wouldn't have started thinking about otherwise.

Ever since Wednesday, I've been thinking about the group activity we did with the poker chips, surviving the cave...

As students do begin to change their old habits and being thinking before, during, and after classes, as they begin to develop reflection as a habit of mind, our next challenge is to get them to engage in deeper reflection—to move them toward intentional mental processing.

The goal of intentional mental processing must always be for deeper thinking and ultimately deeper learning. It is not just the final stage in a lesson or a time of reflection following an experience (Caine and Caine, 1997). It includes thinking critically, asking and answering probing questions, exploring alternative perspectives, solving real-world problems, and searching for big ideas and broad applications of new concepts. Intentional mental processing leads to deeper understanding, relevant insights, and mastery of the discipline. The following excerpts from students' journals reveal that they were beginning to do the type of thinking required for intentional learners:

I recognize the worth and impact this project had on me and that is the start to further growth and understanding. I learned that there is so much out there to be learned and I understand that in the grand scheme of things there is so much I do not yet understand. Expressing beliefs and values is more challenging than just thinking them. It takes more time and effort. You are discussing/reflecting on an event in the past and must then make future decisions based upon your new decisions (or affirmed beliefs). You can't be stagnant, you have to try and learn from the past and all the thinking that you did afterwards. The potential for growth and gaining a better understanding of yourself is huge; you just need to make sure you take advantage of that.

As Marti's words suggest, intentional mental processing leads to insights not only about experiences, but also about self.

*Coming to know self.* Once students become accustomed to a deeper kind of reflection, we try to "help them take advantage" of this opportunity to learn more about themselves by moving them deeper into intentional mental processing—investment of resources in personal analysis, critical thinking, and application of new knowledge to daily living. The next step is introspection, a detailed mental self-examination of feelings, thoughts, and motives:

Fortunately, reflecting regularly has put me better in touch with how I am feeling. I realize I have an innate inclination to withdraw. Ergo, I should be able to fight the urge and keep making forward progress.

I did not have a great sense of what my own values were in the early stages of my leadership training. I rarely ever stopped to reflect upon my learning experiences. I just moved on from one experience to the next without a second thought. As a result, my personal growth was very slow if not nonexistent.

As students come to understand more about themselves, they seem to like the control they have over their own growth and development. They become more willing to manage their learning and to own their choices and behaviors—to become the intentional learners they need to be:

My writings allowed me to get a handle on why I think and feel the way that I do. Plus, journals were an outlet for me to scrutinize my strengths, my weaknesses, my success, and my failures. Once I had that information, I could begin to work on bettering myself.

Eventually they begin to think more about their own thinking:

Interestingly enough... I have discovered something about myself. I have always thought of myself as a traditionalist in many ways. I never pictured myself as one of those new age thinkers... Not that I find anything wrong with the new way of thinking about things, but it is really not the way I thought I thought about things.

According to Huitt (1997), metacognition, thinking about one's own thinking, is an essential skill for learning how to learn. That supports our notion that intentional learners *must* practice metacognition as a habit of mind.

*Engaging in metacognition.* Apparently, students recognized our expectation that they practice metacognition:

Actually this, if I recall correctly, is a big objective of the whole leadership class idea. Most people (myself included) don't really think enough about their thinking. This can, and does, result in people doing a lot of things for reasons they're not really sure of themselves... I really think I have a much better understanding of why it is important to think about your thinking than I did before.

Metacognition means more than just thinking about our own thinking. It requires the wisdom to know one's ignorance and how one's patterns of thought and action inform as well as prejudice understanding (Wiggins and McTighe, 1998). These words of a student from a self-assessment provide evidence of this kind of thinking:

I think this process [metacognition] represented a gradual growth in my awareness of my unawareness. What I mean is that I think I began to realize that I didn't think enough about my thinking about the world around me... Near the end of the semester, I no longer seemed to be thinking as much about what we were doing as about what I was thinking. Not to say that I didn't have thoughts about what we were doing, but often I'd stop and think about where that thought was coming from.

Indeed, the analysis of the data confirmed our observations that by the end of the first semester students were beginning to question their old paradigms of learning and to embrace a different understanding of what it means to learn. They were well on their way to taking responsibility for their own growth and development. Going back to the data revealed numerous specific experiences that contributed to this phenomenon:

We have used reflection in a number of ways. The most prominent way is our journal, but we have done other reflection in class, such as jotting down thoughts after an activity or coming up with praise and suggestions for the second year students' security sessions. Throughout all of these activities, I have realized how much my understanding of the topic at hand improves after I have completed some reflection. Often the reflection brings up new questions or ideas that I had not originally considered, and these lead to the possibility of even deeper understanding.

As stated earlier, similar statements from the participants revealed just how much our own habits of mind related to thinking causing learning had influenced almost all of our actions and behaviors related to students and their learning. All our expectations did, in fact, require thinking. Our ultimate goal was for that thinking to evolve into intentional mental processing as a habit of mind. All learning opportunities were planned with that end in mind. The analysis of our data, in the words of the participants, revealed the following kinds of experiences that seemed to have the greatest impact on moving the students toward our goal: go 'rounds, team activities, dialogues, application of skills, self-assessments, and journals.

### *B. Experiences*

For each kind of experience, first, we provide a brief explanation of the learning opportunity. Next, we offer illustrations, from the voices of the participants, to give insight about the impact for helping students develop intentional mental processing as a habit of mind. And, finally, we offer suggestions for post-secondary educators in charge of student learning.

*Go 'rounds.* To encourage both thinking and contributions early, we start and end every meeting with a go 'round. This is one of our favorite interaction strategies. The facilitator poses a question or a notion to elicit a response, and after individual think time, each person is expected to speak. A volunteer is selected to start the go 'round and to determine the direction around the circle following the first response. If an individual is not ready to speak when it is his/her turn, that person may pass until everyone else has spoken. Discussion is discouraged during the actual go 'round to provide all individuals the opportunity to reveal their thinking publicly without fear of being ridiculed or judged.

During the focus group interview participants were reflecting on those first classes and the early go 'rounds. One participant recalled how difficult it was to meet the expectation of speaking, "When you required us to talk, I was scared to say anything. I would always pass; well, not always, but a lot of the times." Another one recognized how much his willingness to speak up in other groups had changed. When questioned about the reason, he replied, "Having go 'rounds every week, you know, always having to say something once or twice every class." Kelly valued those go 'rounds that gave him the opportunity to hear what others were thinking because it often gave him more to consider:

...if we have an idea we've been talking about all class, I might reflect on it at a certain angle and that's another reason I like the go-rounds. Hearing what other people [are thinking], I always like those go-rounds that say 'what are you going to think about more as a result of this class, this particular session', and just hearing what other people got out of it. Sometimes it's completely different than what I did, and it gives me something else to think about that I wouldn't have started thinking about otherwise.

As students practiced the thinking required to express thoughts openly, they learned to think more deeply, to challenge the notions they were studying:

I have since become convinced that I am better off to form my own leadership philosophy rather than wholly adopt someone else's. That realization has caused me to think more critically about what I am learning. For example, in the last opening go-round

I questioned whether a person actually moves through stages of tolerance towards enlightenment as Exploring Leadership suggests. Seemingly, intolerance is a learned behavior. In the beginning of the semester, I did not think nearly so critically. I accepted what I read and heard at face value.

Helping students move from being afraid to voice their opinions to the group to being willing to critically challenge concepts they have studied takes time. Be patient. Set ground rules for go 'rounds and hold everyone to them. Ground rules we have found most useful include:

- Each person has the opportunity to talk without any responding.
- Honor each person's thinking.
- An individual has the right to pass. If one chooses to pass, go back to that person after the go 'round has completed the circle.
- No interruptions.
- No sidebar conversations.

Students will watch the facilitator closely; therefore, it is important to model expected behaviors. It is especially difficult, as the facilitator, not to respond to contributions, thereby breaking the first ground rule. Instead of commenting as each person finishes, address them by name and thank them. This honors the response and indicates that the go 'round is moving on. Only when necessary or helpful, ask probing questions for clarification or to redirect.

The question or the notion posed to elicit a response will determine the type of thinking for the student. It is important here to be purposeful. During the first go 'rounds our purpose is simply to get students to speak. It is important to keep the contributions as non-threatening as possible—so everyone will have a response and no one else can suggest it is wrong. Our first one is usually, “Tell us your name, where you are from, and something you are pretty good at doing.” This allows everyone in the group to start gathering information about their peers and it allows us to guide the next activity toward what they know about learning—“How did you learn or get good at what you shared?” From this point on, all the go 'rounds should serve a purpose and engage students in the type of thinking you desire of them.

*Team activities.* For years the study of learning was dominated by a psychological view that focused only on the individual and his/her thinking alone (Brandt, 1992), but current cognitive scientists consider learning to be largely a social process (Caine and Caine, 2001). Undeniably, much learning occurs through social interaction. This notion of learning through social interaction means more than just having students practice and recite terminology together (Caine and Caine, 2001; Leinhardt as highlighted in Brandt, 1992; Wiggins and McTighe, 1998). It means providing them the opportunity to make their implicit knowledge explicit—giving them the chance to explain their thinking to each other, listen to each other, and help each other explain. The words of the participants confirm the notion that it is not the activity itself (the doing) that causes the learning as much as it is the reflection (thinking) following the activity that causes the learning:

At the beginning of the semester I was pretty skeptical of the idea of doing icebreaker games for leadership training. I had never had an experience where I left an icebreaker game feeling like I had gained anything (maybe with the exception of the names of the people in the group) from the experience. For the first time in my life, I feel like I have learned from this type of small group activity... Each of these activities was designed to

teach the members something about leadership, and each of these points has stayed with me. I believe this is true because I reflected on the activities.

After reflecting on the exercise, I have learned a bit more about myself as it pertains to my contributions in a group setting.

As team activities became more complex, students realized the value of discussion for promoting deeper thinking:

I also need to work in a group to be at my best. Of course, group work needs to come after I have had some alone time so that I feel adequately prepared. Once I am prepared, though being in a group allows me to bounce ideas off of others. In a group setting, my train of thought gets revised. I incorporate other people's thinking into my own thought process and a synergy takes place. I get a much broader and clearer picture when I am put in a team.

Eventually they came to appreciate the importance of interaction not only during the activity, but also as they discussed interactions during the activity and set goals for the future. Kim's words reveal movement from simple reflection toward intentional mental processing with a focus on analysis:

For sure the way the three hour class periods are spent, because they're spent interactively talking most of the time, performing activities that are fun and then after you're done with the activity, talking about everything that happened in the activity, that was something that I never would have done before and that was probably the most valuable key as a group, was definitely the most valuable thing that we did. Just having to talk about everything, analyze what other people did, analyze what you did...

Putting students into teams and telling them to work together does not mean that they know how to interact or that they will do so even if they do know how (Johnson, Johnson, and Smith, 1991). We have found three critical components for increasing the chances that having students work in teams will promote learning: 1) students must have a reason to interact, 2) they need to learn skills that will allow them to interact effectively, and 3) they must process the interaction. Therefore, it is important to be purposeful in planning interaction, to deliberately teach specific interactive skills, and to develop specific questions to guide processing.

As with go 'rounds, we like to start simple and plan for success. Our favorite strategy is the turn to your partner (TTYTP), which we have adapted from the work of Johnson et al. (1991). The purpose of a TTYTP is to engage the brain of the learner. General steps for using this strategy include:

- Purposefully plan a question to cause the type of thinking desired.
- Allow time for students to formulate responses individually.
- Ask students to share their responses with their partner and listen to the response of their partner.
- Encourage students to reach toward a deeper understanding through discussion.
- Hold students accountable for their discussions by calling on them at random.

An appropriate interactive skill for students to practice as they engage in the TTYTP is active listening. Since we expect students to practice effective interactive skills, we do take time

to teach the skills—to help them understand our meanings and the steps involved for each skill. We also expect students to practice using the skills during class interactions and outside of class.

As students become comfortable working with a partner, we increase the number of individuals on the teams and the complexity of the activities. Regardless of the size of the team or the purpose of the interaction, it is critical to be always mindful that it is the thinking that causes the learning. Students must engage in thinking about the team activity and must learn how to engage in discussion about the interaction. Faculty must continue asking the questions that will cause the students to engage in the kind of thinking and discussion desired until the students learn to ask and answer their own questions. This does take time, but the time invested reaps rewards as students learn to engage in deeper discussions with less structure.

*Meaningful discussion.* According to Bandura (1977), environments that support and promote interpersonal interaction are more likely to result in greater reflection. The social interaction may increase motivation, prolong on-task engagement, produce more information, and stimulate additional ideas—all contributing to deeper thinking about the experience. Our challenge is to facilitate a discussion following the social interaction that encourages students to reveal their thinking to others. During the focus group interview participants revealed that they had come to value such discussions:

One thing that I would like to see not change is just how much group discussion there is on everything, whether it be the readings or creative writings or the go-rounds. I like the amount we just talk together.

I kind of enjoyed the current events, talking about things, especially if you have something like an election going on, I think to hit that and really discuss what really is going on, takes yourself out of the classroom aspect and more into the world aspect, and anytime you do that I think it's effective...

Not only did participants seem to value the discussion, they also came to understand that experiencing “interesting, intellectual discussions” may lead to an increase in confidence, resulting in a willingness to take more risks:

I feel like I've developed more confidence through the course of the program. It is the first real opportunity I've had, or at least taken advantage of, to be involved in interesting, intellectual discussions... Doing some of these activities from week to week has built up a confidence in me such that I know I am capable of doing these things, even if I do not always feel up to it. Getting past the fear of putting myself out in front of everyone, and of being responsible for other people's learning, has been a big hurdle for me to overcome. I feel that in the future I will be more willing to take risks in these areas...

As students embraced the notion “of being responsible for other people's learning,” our jobs became easier. Students learned to challenge one another to think more deeply:

In addition to their good advice, my classmates completed their job of making me reflect deeper. I believe Adam asked me why I was bothered. After all, someone else acting out has no bearing on me. I had to think hard about that one, but I think I have an answer.

On top of improving my own thinking, I have helped my classmates think more deeply. In talking about my own struggles as a leader earnestly, I gave my classmates problems to which they could relate. They were then able to think about my dilemmas and determine what they might do in my situation. By causing my cohorts to think more deeply, I received excellent advice from them. I have come a long way from the first few Leadership sessions in respect to challenging other peoples' thinking. I only posited my own ideas rather than eliciting higher thinking from others in the beginning.

Without a doubt, students were beginning to move toward the kind of interactions Senge (1990) believes important for leaders in education, business, and industry who seek ways to turn their institutions into learning organizations, "where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together" (p. 3).

Helping student learn how to engage in such meaningful discussions takes time. As with the go 'round and team activities, start simple and plan for success. Structure opportunities where students will experience a supportive environment as they risk making their thinking public. Engage them in discussions about reading assignments where they have had time to prepare responses prior to class. Ask the type of question that will elicit the type of thinking desired. Challenge their thinking by asking them to support their claims. Continue asking questions until they learn to challenge themselves and others. The key, then, to helping students move toward intentional mental processing by engaging in meaningful discussion is the same as learning any skill—having the opportunity to use the skill.

*Application of skills.* A major aim for undergraduate education is for students to use all they learn in their post-secondary education to solve the problems they will face in the future. This transfer of learning—using concepts in a situation different from where they were learned—is one of the most powerful principles of learning (Sousa, 2001). However, it is critical to understand that while the brain does many things automatically, transfer is not one of them (National Research Council, 2000). Using learning in a situation different from that in which it was learned requires intentional mental action on the part of the learner. Faculty must help students learn how to do the kind of thinking required for transfer of learning.

As students worked to change their old paradigms of learning, they seemed to understand the impact of deliberate practice of new skills on their own growth and development:

One of the most important aspects of all the development I have experienced is that I was given the opportunity to practice different skills many times. Rather than just reading or talking about a conflict resolution skill, or how to improve group interactions, we actually had quite a few chances where we either explicitly focused on practicing, a skill, such as some of the in-class activities, or we were given other tasks to do, like security education sessions, service learning projects, and while working on those tasks we were able to put the things we learned about into effect.

A practice strategy we like to use to promote transfer of learning is our adaptation of role-playing. We refer to it as "working a role." We ask students to work a role as honestly and sincerely as possible to help all of us learn as much as we can. Students come to know the value of such practice:

I can see the value in role-playing certain controversial situations in order to learn more about myself. I hadn't previously realized that fairness was such a strong value to how I view things.

To encourage students to practice new skills outside of class, we set the expectation that they will practice, and we hold them accountable for doing so. Asking students to commit to their own growth and development during a final go 'round is a simple way to set the expectation, "Tell us one thing you will do during this next week to enhance your own learning." The opening go 'round during the following week can be used for accountability, "Tell us what you did and how it went." A typical response might be:

I sometimes have trouble remembering things, especially where school is concerned, so after last week's class I was ready to try activating my semantic memory lane and really focusing on remembering more things I learned in class. Surprisingly, it seemed to work fairly well.

Another favorite strategy we use to encourage students to transfer their learning is a "practices inventory." Learners record insights about learning, identify habits or behaviors that are congruent with the insight, identify habits or behaviors that are incongruent with the insight, and develop plans to use the insight to enhance their own growth and development:

I did an okay job on the practices inventory. I filled in as much as was required of me, but I did not go any further beyond that. I did spend a lot of time thinking and writing about the insights that I had. Consequently, I filled the practices inventory up with a brutally honest look at my behaviors. The amount of thinking I did behind the writing was probably the most beneficial to me.

Michael's last statement reveals the key—"The amount of thinking I did behind the writing was probably the most beneficial to me." Critical for helping students learn to use skills in new situations—to transfer their learning—is to engage them in intentional mental processing. Faculty owe it to students to help them learn to ask and answer the following questions:

- How is this similar to something I already know? How is it different?
- How have I used this kind of information in the past?
- In what other situations might this be useful?
- What implications are there for me as a professional?
- How might this knowledge or skill impact my professional development?
- What impact does knowing this have on my future?

As students learn to transfer their skills into real-world situations, they begin to think of themselves as professionals—to identify strengths and to set goals for improvement:

Admittedly, I have spent time in introspection and outlining goals for myself but have a tendency only to see what's in front of me. I do, however, see the value of looking at how far one has come. Positive reflection on past successes gives one a sense of confidence, making future goals seem less intimidating and more surmountable.

This willingness to engage in self-examination sets the stage for students to learn to critically assess their own growth and development.

*Self-assessments.* An emphasis on self-assessment is consistent with our goal for students to take responsibility for their own growth and development. Not only do students need to learn to do the thinking that will empower them to manage their own learning, they need the ability to critically assess themselves as professionals when they enter the work force. Therefore, we require students to formally assess their own learning and progress at the end of each semester. An excerpt taken from one student's self-assessment written at the end of the year reveal the ability to think critically about self growth and development:

The final major area of development worth noting is my journaling. After reading through last semester's journal entries and comparing them to this semester's, I noticed quite a difference. The first is my topic of writing—last semester it seemed pretty sporadic, and now the focus has improved quite a bit, as noted in my analysis. I also do not recall ever writing about current leadership issues in last semester's journal, and I have learned it can be useful to keep up to date with both good and bad leadership examples, and be able to recognize the differences between them through journaling and critical thinking. Other improvements include thinking through decisions and rationalizing their outcomes, and increasing my depth of reflection overall.

Once again, the words of the participants reveal the key to self-assessment—intentional mental processing. Students need to engage in deliberate thought about what they are learning and how they are learning it (National Capital Language Resource Center, 2004). This kind of reflection allows them to step back from the learning process and think about their own learning strategies and their own progress—an important step in becoming independent learners. Self-assessment at the end of each semester is a critical strategy for moving students in this direction.

When completing the semester self-assessment, students typically find that their journals provide solid evidence of their development as learners:

One of the best places to look for evidence of learning and growth is my reflection journal. At the beginning of the semester, many of my entries did not contain much depth. I would simply write down an idea and not think fully about all the possible viewpoints. However, as time progressed and I reviewed the rubrics, I slowly began to use a more in-depth process in my decision-making and justification of ideas.

“We know the power of self-reflection to deepen learning for adults... One of the strongest motivators is the opportunity to look back and see progress” (Chappuis, p. 42, 2005). Chappuis' words support our findings that being required to record thoughts regularly in a journal is one of the most powerful experiences for helping students develop intentional mental processing as a habit of mind.

*Journals.* Faculty typically ask students to do mental processing in different ways, such as responding to teacher-directed questions, discussing with team members following activities, or sharing their thinking during large group discussions, but it has more meaning for students if they actually record their thinking on paper:

Journal writing connects students with their emotional selves and core values. Through writing, students become aware of the relevance of their belief systems. Through writing, they begin a healthy habit of reflecting on moral values as they consider problems and issues that come up in their studies and in their daily lives. I have found that students *want* to discuss topics that touch on important moral questions. (Wanket, 2005, p. 74)

This is the purpose of the reflection journal as students take responsibility for their own learning and development within the community of learners. Students often engage in deeper thinking while recording thoughts in their journals. In addition to framing and guiding their thinking throughout the course, the journals provide evidence of growth and development along the journey.

For many students in the NSF SFS program keeping a journal was a new experience. It was necessary for us to persist longer than they resisted before they would realize the benefits of doing the thinking and investing the time required to record their thoughts:

When I first heard we were going to be doing a journal I was apprehensive and a little disconcerted. I have never done any journaling before, and I was a little reluctant to do it fearing I wouldn't be able to put my thoughts to paper. However, as it turned out, it is a great learning tool for me, more so than I would have thought initially. I figured at first that it would be something I'd slog through and do as well as I could, but I didn't really expect great returns on the time I invested.

In the case of the leadership journal, at first I did it simply because it was a requirement of being in the class. Over time it developed into a valuable tool for me, but the problem is that I wouldn't have done it in the first place if I wasn't "forced" to.

Eventually, students were able to identify specific examples of how writing in their journals contributed to their growth and development as intentional learners:

Additionally, the encouragement of reflecting on different things happening inside and outside of class helped me to solidify my thinking more, and think more critically about the things that happened. I think the hardest part of reflection is making yourself do it, but making it an integral part of the leadership development courses has helped motivate me to put my thoughts on paper.

...by forcing myself to sit down and come up with nearly a page or more of writing about a semi-focused topic, I definitely develop that idea more than I would with only mental thoughts; I think it is easier to push oneself to find more insight in this manner.

Now that I have spent a semester keeping a regular journal about various issues relating to our coursework... I have developed a great appreciation for the value of putting thoughts down on paper and giving more critical consideration to them. There were many journal entries that I started writing with one idea in mind, and by the time I finished I had come to a completely new, unexpected realization.

Students will bring a myriad of experiences with keeping journals and a variety of attitudes. Some students will welcome the challenge, but others likely will resist. Most important

in overcoming the resistance is setting the expectation that students will keep a journal and holding them accountable for doing so.

Once students understand that they will be held accountable for recording their thoughts in journals they will likely need direction to develop skills leading toward intentional mental processing. Two simple suggestions offered by Wanket (2005), a high school English teacher, are applicable for learners of all ages: date every entry, and write without ceasing. The journals will become logs of their thinking. Students will learn to read through their journals and track their own growth. There will be times that dates of an entry are important to them. In addition, early on, students likely will need to force themselves to make entries. Specific dates will be reminders of minimum expectations set either by self or by instructor. "Write without ceasing" helps remove the burden of perfect writing. Some students are likely to be inhibited by their perceived skills as writers. Encouraging them to go wherever their minds wander usually will lead to more original insights and creative thinking.

Once the students get used to the idea of recording their thoughts in journals, they will be more receptive to additional guidance. Our experience has been that one of the most important notions to help students internalize is the idea that they are keeping the journal for themselves – not for us. Students have become so accustomed to having instructors tell them how they did and how to improve that they often hesitate to think for themselves. It is not until the student truly embraces that idea of ownership that he/she is ready to explore and expand her/his own thinking. At this point, providing prompts to inspire deeper thinking is important:

- How can I use this?
- Why did I react that way?
- How is this similar to something else I understand? How is it different?
- What other applications might there be? What are the implications thereof?
- What does this mean for me as a professional?

## **V. Conclusion.**

Indeed, the students recognized that they were developing intentional mental processing as habit of mind:

Everything we do from our journaling to class participation to our interview projects has involved diligent reflection. And because of this I have been able to weigh and consider all of my actions, thoughts, beliefs and the information gathered from outside sources to enhance my learning and growing experience...

This understanding about the importance of reflection is something I can use in almost any situation in the future, especially in difficult times, to explore my thoughts and understandings further.

Faculty have the responsibility to help their students develop abilities to solve ill-defined, real-world problems they will face the rest of their lives. This requires the ability to learn continuously and to think critically. Moving students from simple reflection to intentional mental processing (identified above as diligent reflection by one of the participants) as a habit of mind will better equip them to have a positive impact on the world.

In doing our own intentional mental processing about what these participants had to say, we realized the key to helping students become responsible learners is in doing whatever it takes

to get them to think. In reflecting about “whatever it takes,” we concluded the foundation of every strategy we employ is asking questions and expecting students to develop answers. Even if faculty feel ill-equipped to engage students in some of the learning experiences we have described, they can work on purposefully planning and asking the questions to promote deeper thinking in students. Key questions might include: What do you think about...? Why do you think that? How is this similar to...? How is this different...? What did you do? Why did you do it? What do you conclude about...? What is your evidence? Why does it matter? How does this connect to...? What have you learned about...? What is your evidence that you have learned it? What are the implications of...? What difference will this make in the/your future? Eventually, students will learn to ask and answer challenging questions on their own, and their emerging intentional mental processing as a habit of mind will support their development as responsible learners.

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## **Restructuring Student and Teacher Roles: Dealing with Struggle**

**Diana Cárdenas and Susan Loudermilk Garza<sup>1</sup>**

*Abstract: To be actively involved in their own writing requires that students make decisions. In order to build a new approach for our Technical/Professional Writing classes, we assessed our individual teaching practices and past experiences, studied current scholarship on teaching writing, and conducted research on technical writing in our local community. Using this information we developed a teaching model that involves students in discovering/establishing the class content, creating time frames/project plans, selecting tools to complete projects, contributing to evaluation criteria, and working with the local community. The success of this approach requires students to reconstruct their roles and their attitudes toward the dynamics within the classroom. It also requires the teacher to rethink his/her role in the classroom, sense of authority, and perceptions of how knowledge is created. These changes, however, are not achieved without challenges and struggle. While our programmatic approach has proven successful, we found the need to help students view struggle as a normal part of the decision making processes that writers experience.*

*Keywords: program development, student decision making, struggle, teacher roles, student roles.*

### **I. Introduction.**

In this article we discuss our experiences with the scholarship of teaching and learning as we have begun to rethink/recreate our students' roles and have begun to observe the changed dynamics in the classroom and beyond. While change has been beneficial for students, it has also challenged them, with some students demonstrating resistance. We discovered that these changes often bump up against the practical realities of students' prior experiences, expectations, comfort zones, and personal objectives; we had to find ways to help students with what may feel like a sense of struggle, when in fact what they are experiencing is the process of decision making that writers inevitably go through. While our discussion here focuses specifically on our technical/professional writing classes, we find this approach that we have developed applies to all of our experiences in the classroom.

Our goal in developing this approach was to change students' perceptions of themselves as recipients of information to active shapers of the teaching and learning that occur. This approach restructures student roles, as students help to establish the class content, create time frames/project plans, select tools to complete projects, and contribute to evaluation criteria. We structure our classrooms as democratic places. All students of diverse backgrounds, interests, and abilities have a chance to succeed as they become central in the process of molding and forming the activities and results of classroom learning. In "A New Paradigm for Undergraduate

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<sup>1</sup>Department of English, Texas A & M University-Corpus Christi, Corpus Christi, TX 78412, [Diana.cardenas@tamucc.edu](mailto:Diana.cardenas@tamucc.edu) and [Susan.Garza@tamucc.edu](mailto:Susan.Garza@tamucc.edu).

Education," Robert B. Barr and John Tagg discuss the need to shift the focus of education from an instruction paradigm to a learning paradigm. With this shift the purpose of education is "not to transfer knowledge but to create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems" (3).

## II. Building a New Approach.

In order to build a new approach for our technical/professional writing classes, we evaluated our individual teaching practices and past experiences, studied scholarship on teaching writing, and we conducted research on technical writing in our local community.

In the process of building this approach, we examined our introductory service course, Principles of Professional and Report Writing. This was a collaborative process, with both of us examining our past practices, thinking through our approach based on generic/established knowledge models—characterized by an emphasis on form/end product—and identifying theoretical or pedagogical foundations for these practices.

As we discussed our classroom interactions, we realized that we were moving away from the instruction paradigm often found in some technical communication classrooms. In our discussions of how to effect a paradigm shift, we took note of what Richard Fulkerson stresses in his article entitled "Composition Theory in the Eighties." Published in 1990, it continues to have significance for reflective teachers who are examining the pedagogies they enact in class while endeavoring to expand their definition of teaching and learning. He states that every theory should encompass four components: (1) axiological, (2) procedural, (3) pedagogical, and (4) epistemological. The first component, axiological, refers to values and value judgments. This component helps teachers define what they "want students to achieve" (411). The second component, procedural, refers to how writers "should go about creating texts" (411). This involves the "means by which writers can reach the ends specified by the axiology" (411). In regard to the pedagogical component, teachers seek to find ways to help students achieve writing that is valuable. Finally, the epistemological component refers to the "assumptions about what counts for knowledge" (411).

We used Fulkerson's model as the foundation for our shift. First, we decided that we want students to write texts that effectively engage a particular audience that is affected by the writing. Second, we want our students to search for the content of texts within community settings that are important to them and then collaborate with others to effect creation/development and revision for the texts they produce. Third, we create our curricular designs to assure that students determine what valuable writing is for them. Fourth, we stress that knowledge includes having students experiment, encounter challenges and setbacks, and re-think and evaluate their approach to learning in order to make choices that effect solutions. These four components have to align with each of the others in order to construct an effective model for the classroom. If we say we value students being active agents in the learning process, but then make all of the choices for students—such as prescribing the purpose, audience, and the kind of document they should create—our theory is not aligned with our practice.

To continue building on this base, we looked to technical communication theorists and researchers. In *Information in Action* M. Jimmie Killingsworth and Jacqueline Palmer discuss the writing effort in terms of the writer's context of production and the context of use. The essential idea Killingsworth and Palmer make is twofold: (1) the technical writer is influenced by the

context in which he/she produces documents—an extensive context involving a writer's understanding of purpose and goals, his/her prior knowledge and technological experiences, and existing resources and (2) the context of use—the audience or consumer of the document, his/her expectations, needs, previous background and knowledge, and how the document will be used. Based on these ideas about contexts, we decided to individualize assignments based on what a student brings to a setting and what he/she encounters in a specific learning situation. This approach, we thought, would better engage the students with the contextual issues that writers, especially technical writers, need to address.

Robert Johnson, in his text *User-centered Technology: A Rhetorical Theory for Computers and Other Mundane Artifacts*, also discusses the importance of context and audience. He focuses on the use of technology and makes the end user the center of the development process, the context for each technological system that a developer builds. We adapted Johnson's model to our efforts and used his "User-Centered Model," which is constructed with interlocking circles wherein the user inhabits the central circle. In our view of pedagogy, we see the student as the end user of the development process and thus place the student at the center of the learning process, a learning process that can be visualized as a series of interlocking circles wherein the student inhabits the central circle. Within the outer circles are a student's prior knowledge/experience, university requirements, theories and principles within a major, future career goals, community connections, and knowledge of tools.

This theoretical base had implications for our pedagogy. We found significance in the three teaching principles outlined by John C. Bean in *Engaging Ideas: The Professor's Guide to Integrating Writing, Critical Thinking, and Active Learning in the Classroom*. First, our pedagogy should create cognitive dissonance. A teacher would "decenter" tasks to move a student to approach an effort from a different stance or role (33). Second, our pedagogy should present knowledge as dialogic rather than informational. A student will be engaged in making meaning through interaction, argument, and persuasion. Third, our pedagogy should create opportunities for active problem solving that involve dialogue and writing. Therefore, in developing the model for our program, we noted that students would begin their efforts within specific contexts in our South Texas community.

The kind of emphasis we desired is evident in the ideas promoted by Gail Hawisher and Cynthia Selfe. They see the need for models "that offer strategies for acting productively in the face of social change" as many students "see little connection between traditional literacy and the world problems [we all] face" (3). In order to create these connections, we encourage students to situate themselves in a community setting—non-profit agencies, small businesses, health clinics—identify a need, and use the skills they are learning in class to address that need.

Because the course focuses on technical and professional writing, we sought to determine what technical communicators need to be able to do in the workplace. As many of our students will remain in the local area, we wanted to gain concrete knowledge of what technical communicators need to be effective in the community. We studied the results of a survey sent to a representative sample of organizations in the area, a document asking employers in refineries, medical and educational facilities, and other agencies about the writing done in these settings. Forty-seven entities responded to the survey, which included some of the following questions:

- What types of jobs do you have in your company/organization that require technical/professional writing skills?
- What types of documents are produced in your company/organization?

- Which skills/experiences would be beneficial for students to have to prepare them for jobs in your company/organization?

The information gathered from the survey responses revealed that many positions in our area require technical writing expertise, including grant writer, fraud security investigator, computer website technician, documentation specialist, and project manager. The types of documents reported include numerous types of reports, proposals and grants, technical manuals, and Internet writing. The specific skills/experiences employers identified that would help students prepare for jobs within their organizations include planning, collaborating, designing documents, interviewing, researching, using multi-media and making oral and visual presentations. Through the survey, we discovered the contextual needs of our community, and we used that information as we developed the program.

All of the information we gathered—from evaluating our own teaching models, from reading scholarship on teaching writing, and from gathering information about the local community—led us to understand that the particular context and need drive the rules and tools used to create documents and how these are distributed and consumed. Thus, we worked to align our pedagogy with our axiological and epistemological beliefs by anchoring our approach in the community, in the changing workplace, the workplace of electronic communication and project management where employees are expected to take a problem and solve it. And since solving problems requires making many decisions, we built that aspect into every part of the program. Specific skills include attention to inquiry, critical thinking, information gathering, problem solving, collective and individual decision making, and reflection on complex issues. We agree with Cynthia Selfe that our job as teachers of technical communication is to help students become “...critically informed technology scholars rather than simply expert technology users” (“Lest We Think the Revolution is a Revolution” 322).

### **III. Implementing the New Approach.**

In this section we describe how we have implemented the approach in one of our Technical/Professional Writing courses, Principles of Professional and Report Writing, and illustrate how the activities of the course reflect the new emphasis on context specific learning, building community connections and active decision making on the part of the students. In the course outline, we provide the large framework for key assignments and leave the specific goals and content of each project and the decisions for how to develop each project to the students. The three assignments, completed as portfolio projects, include Writing on the Job: Understanding Workplace Literacy, Applying for a Job, Graduate School, Internship, or Scholarship: Identifying and Implementing Strategies, and Identifying and Addressing a Community Need: Generating Options. Assignments 1 and 2 prepare students for the third assignment.

#### *A. Portfolio One: Writing on the Job: Understanding Workplace Literacy.*

In the first assignment we ask students to go to the kind of workplace where they want to see themselves after graduation, identify and interview a person who can inform them of his/her duties and responsibilities, examine the kinds of documents that the interviewee creates to effectively accomplish his/her responsibilities, and learn about the clients--real individuals and lives affected by these documents. Students also request copies of documents written by the interviewee. (Sometimes the nature of the documents prohibits this sharing. In these instances,

students find models of the types of documents used in this context.) After studying these documents, the students produce a sample model document based on the documents they collected. This document should relate to the particular professional context. The student who interviews an investigator in a state child protective agency and examines the documents written during and after an investigation establishes the context for the writing and the specific content; he/she focuses on one specific writing process, molded by specific purposes and conventions. Students turn in portfolios that include a memo describing the contents of their portfolio and the process of developing the portfolio assignment and a memo discussing the interview they conducted. For some students the context for this interview becomes the site for the third portfolio assignment.

*B. Portfolio Two--Applying for a Job, Graduate School, an Internship, or a Scholarship: Identifying and Implementing Strategies.*

Although this assignment may look like the typical resume and cover letter endeavor, we have many decisions built into this portfolio as well. Since our students are at different places in their endeavors, they identify what their current needs are and implement the strategies to fulfill those needs. For example, some students are interested in developing a new resume that reflects their enhanced awareness of documents and their users. Those graduating at the end of the semester identify actual jobs, study mission statements of organizations, and develop a resume and cover letter to actually send to an employer. The students applying for graduate school focus on the application process, gather letters of recommendation, and write philosophy statements. And we always have a handful of students who are barely sophomores and do not know much about the type of job they want to get, so they conduct a job review, and, building on the information they gathered in portfolio one, they conduct additional interviews and gather information through our Career Center and numerous other resources. Their portfolios again include an introductory memo describing the contents of their portfolio and the process of developing the portfolio assignment and the documents they produced and related information. In the first portfolio, all of the students follow similar processes; in this portfolio we begin to move students in many different directions related to their needs as learners.

*C. Portfolio Three-- Identifying and Addressing a Community Need: Generating Options.*

In the third portfolio, we extend the connection to the community even more, and present more decisions for students to make. We ask students to go into the community and identify a problem/need that requires solving. We have many community partners who offer projects that students can choose from. We have these posted on our website. Many of our students build on their own community connections and identify agencies and/or individuals to work with. As soon as the student identifies a group or organization, the first step is to study its mission and goals and the clients it serves. The students continue to gather information and formulate options for solving/meeting the need(s) they have identified. The final portfolio again includes an introductory memo describing the contents of their portfolio and the process of developing the portfolio assignment and the documents they produced and related information. The writing that students produce for this portfolio assignment take many forms, including for example, grant proposals, computer databases, web sites, brochures, manuals, reports, and many more. The products are not always newly created documents. Often students analyze existing documents

and revise and redevelop the documents. Students meet regularly with the teacher, with a community partner, and other students. They provide regular updates on their progress. The students are involved with every aspect of the decisions making process, and while this engagement can be difficult at times, the students find that they are very proud of the work they produce.

#### **IV. Opportunities for Student Decision Making.**

These assignments are structured to enable students to actively build and guide their learning experiences. Students do this by discovering/shaping the class content, establishing time frames/project plans, selecting the tools needed to complete the project, and establishing the criteria for evaluation.

##### *A. Students Discovering/Shaping the Class Content.*

As is evident from the descriptions of the three main assignments for the course, students make many decisions regarding how they will participate in the course. Instead of saying to the students, "These are the principles of tech writing; this is how you write technical documents; these are the documents you need to write," students discover what is involved in the writing process by making the decisions about the writing, including what types of documents they will produce. We do not distribute handouts that tell the students these are the "Principles of Report Writing," these are the "Principles of Applying for a Job," these are the principles of "Writing a Proposal." Instead, the students gather the information about the work they need to do and that guides the process for the type of writing they are engaged in. The students develop their own understanding of what they need to write within a particular context, what type of document will satisfy the needs of the situation, why the document is needed (which is very different from doing it just because the teacher assigned it), the audience they are addressing, what type of information they need to include, what constitutes effective writing within a particular context, what specific formats and conventions direct the writing, what tools they need to complete the job, and how to evaluate their work as it develops.

##### *B. Students Establishing Time Frames/Project Plans.*

To complete the first assignment on workplace literacy, students make individual contacts through university teachers, friends, employers, or family, and they search web sites on the Internet to secure background information, mission statements, and agency/company goals. After initial contacts with a prospective interviewee through phone calls or email messages, they create time frames for when to meet or visit the workplace, or when to conduct interviews through email or by phone. Through the use of email, students are not limited as to the kinds of community contacts they can make. Thus our definition of community can be as broad as to include international contexts. Students realize quickly that they may encounter setbacks. They then must create alternate plans and new timelines when they realize that people in workplaces are not always available to them.

One of our students, Sammy, successfully worked on a manual for a surveying company, demonstrating individual decision-making and independent thinking to address a real problem that affected the company owner and his employees. This contextually-situated manual reflects

the kind of learning experiences we seek for our students. Since Sammy wants to enter the surveying field, he interviewed the owner/president of a surveying company. He communicated his needs/goals effectively, arranged a meeting with the company president, learned about the daily responsibilities of the job, and studied the types of documents this surveying company develops. The president of the company gave Sammy a rough draft of the employee operations manual, an actual document relevant to the context, as the manual needed to be revised for new employees. Having purchased a mapping company to enlarge his business, the president needed a revision of the document to orient the new employees. Some of the new employees did not know how to write proposals for prospective clients, a situation which translated into operating errors and loss of income. Sammy created a timeline for the project and completed the revising and editing of the manual through phone calls and emails to the company owner/president. The writing and the schedule were aligned with the needs of the president and employees. Revising to meet the needs of new employees was a large responsibility, and the process Sammy undertook helped him understand technical writing and, specifically, the manual in a real sense and the importance of planning and time management in its creation. He made decisions within the context of the expectations and responsibilities relative to the specific operation of this company. The process that Sammy experienced represents the pedagogical shift that makes students the key agents in determining what activities they need to participate in and what decisions they need to make to complete a project. The additional benefit is that Sammy's efforts and decisions greatly affected how the owner/president perceived him, because due to the work Sammy produced, the owner/president became interested in Sammy as a future employee.

### *C. Students Selecting Tools to Complete the Project.*

One of the decisions we ask students to make is to determine what tools they will need to create the documents they have chosen to work on. By tools, we refer not only to software programs, which are often one decision involved in this process, but also to tools such as Websites, online sources, company websites, federal agencies, desktop publishing and printing experts, website developers, subject matter experts, and translators. For the third assignment, "Identifying and Addressing a Community Need: Generating Options," Erica, who had already completed an internship with the local police department, visited the instructors in charge of staff development for all police officers. The instructors described a departmental need for a cultural diversity training program. Erica generated ideas in conversations with the instructors and created a Power Point presentation that could be used by these instructors and the officers. The program included many large graphic files, which posed a problem when Erica needed to email her work to the instructors. She was not familiar with the process of zipping files of this nature, so she sought out the help of our computer help desk personnel and learned about the programs we have available to handle large file transfers. This did not completely solve the problem, however, because the instructors did not use the same file compression program. (And at that time, file compression programs were not as widely used and distributed as they are today.) So the instructors at the police department put Erica in contact with their technology support staff and they worked with her to zip the files using the program that was available in that agency. Not only did Erica learn about what she needed to do to create an effective Power Point training presentation, she also learned about delivering the presentation. In an essay entitled "Composition and the Circulation of Writing," John Trimbur points to our lack of attention to the "means of production and delivery" of writing. Trimbur's argument is that "writing instruction

has isolated delivery" from "invention, arrangement, and style," which "has led writing teachers to equate the activity of composing with writing itself and to miss altogether the complex delivery systems through which writing circulates" (189-190). Delivery is a very important issue for technical writing because if we create a document that cannot be used by the audience, we have affected little change. By involving our students in the delivery of the products they produce, they are learning about that part of the decisions involved in the process of writing as well.

#### *D. Students Helping to Establish the Criteria for Evaluation.*

As students work through the key assignments, they become familiar with how the documents are created, specifically how texts are written, presented, and used within each workplace context. In a memo as part of the portfolio, students convey this information, and we, in turn, use this information to evaluate the document they create. In this manner they help establish the criteria used to evaluate the work they submit. As Erica, the student mentioned in the last section, worked through creating the Power Point presentation, she encountered other challenges in addition to how to deliver the document, such as determining what kind of message the audience needed, what information could be used to send the desired message, and how she could make the presentation different from previous formats to create awareness and alter attitudes toward cultural diversity. Realizing that she needed feedback and assessment, she elicited responses from the police instructors. Before we evaluated the work that Erica completed, she had already made changes based on the feedback she received from the instructors in the police department. We find that when students, like Erica, work within the constraints of an agency—limited tools, insufficient budgets, multiple readers—they discover that they have to redo work to satisfy the agency supervisors or the staff. Students learn that teachers are not the only evaluators or the only experts. Actually, Erica, having completed an internship with the department already, has more experience than we do regarding what is needed to make this type of presentation successful. In their article, "Computer Conferences and Learning: Authority, Resistance, and Internally Persuasive Discourse," Marilyn Cooper and Cynthia Selfe support the idea of minimizing the role of teacher as the expert. In discussing the expansion of students' language use, they call for non-traditional forums that "allow interaction patterns disruptive of a teacher-centered hegemony" (847). The context in which Erica chose to work, with the police trainers, promotes these types of patterns. Erica emerged as the expert because of her interaction with the trainers. For Erica evaluation took on a very broad dimension.

#### **V. Students' Struggle with Changes.**

While we are pleased with the changes to the course and the program and we believe that students are much more involved in the decisions that writers need to learn to make, the changes have not met with enthusiasm by all students. For many students this open, student-specific approach upset their understanding and expectations of what should occur in a class and how they should function, such as reading assigned chapters, taking tests, and following specific instructions to complete projects. Some students responded negatively to the changes, voicing frustration and confusion. As they were used to being given all the parameters for their writing, they did not think we were doing our jobs. They wanted us to prescribe their behaviors. During the writing of the first project, a student commented on her needs: "Well, the first thing I need to

do is get with the teacher and have her explain what she expects from us on our project and how we should set it up." Another student, uneasy about the learning environment, commented, "No one around me is doing anything like me." Some students wanted to focus on product, not the process of discovery, of searching, of thinking and reflecting. For these students the known is reassuring; the unfamiliar does not allow them to anchor their work on what they have experienced in their past learning contexts. In our end of semester student evaluations, we receive many comments that reflect students' recognition of their growth as writers, such as "I enjoyed the flexibility that allowed me to make decision about my learning," and "I have never been so involved in a writing project before. I learned a lot." We also receive other comments that record their dissatisfaction, such as "I don't know what you want."

Providing opportunities for students to make choices produced one extremely unexpected outcome. When a student continually complained that she did not understand what was expected of her and how she should proceed with her work, she was asked to critique the instructional approach, which centered on evaluating the course web site, for her third project. She was guided to answer two essential questions: "What are the weak points in the instruction?" and "What are its strengths?" During the oral presentations for her completed project, the student offered a scathing evaluation of the web site and the instructor, citing a lack of specificity, unclear expectations, and a general lack of direction. A few of her peers in class gasped as she became bolder and bolder in her assessment, as clearly they did not agree with the assessment. In closing she stated, "I never knew what I was really doing." According to this student's advisor, the student has above average grades in other courses, which indicates she is successful in the student role that asks her to complete assigned tasks within very specific parameters. Her frustration, then, may stem from the lack of prescribed activities that characterizes the revised approach. Assigning the student yet another decision making activity--critiquing the instructional approach--that did not dictate how she should proceed caused more anxiety. The task was intended to help the student take on the kinds of behaviors that would expand her role, such as becoming an analyst and informed evaluator. However, the independence the assignment offers increased the stress the student already felt and also engendered hostility.

## **VI. Addressing the Struggles of Students.**

Responding to students' struggle involves changing the way we do things. We begin by explaining our new model. We talk about student-centered learning during the first days of class. We emphasize the roles that we expect for ourselves—guide, advisor, and facilitator—and for them—initiator, experimenter, collaborator, decision-maker, problem-solver, and expert. We tell students that in these roles they may find themselves at times in a state of disequilibrium. To address any concerns at the student's point of need, we regularly ask for updates on their experiences as they are immersed in a particular project. At the end of the first month in class this fall semester, the students were asked to respond to three questions: "What is working for you in the class?" "What is not working, and why?" and "What do you need from me?" One student responded to the first question: "I get to think for myself and figure out how I am going to do the project." Another student responded to the same question: "The things I need sometimes is a better understanding of what exactly you want in different assignments." This student's statement appears to mean "Tell me what you want, and I will give that to you." It is a vestige of the Instruction Paradigm that many of our students embrace and feel secure with. In each of our classes there are students who voice this same need. To assuage frustration, we send

emails to our classes, encouraging students to send us their questions or concerns as they encounter them. During the first assignment, we answer many questions. As students move to the second and third projects, they ask fewer questions and become more comfortable making their own decisions. As the semester progresses we are asked fewer of the types of questions that relate to what we as teachers want them to do, and the questions switch to specific matters, such as audience, document design, and evidence/support.

Another strategy that has served to assist students with the changes in our teaching has been to ask students to serve as class leaders (usually five students will serve as class leaders for a class of twenty-five students) who answer questions, listen to the ideas of fellow students, make suggestions, and identify resources. This allows students who are more comfortable making decisions to utilize their skills as leaders and provides more support for students who have not had experience in this area. It also looks good on a resume for a student who has not had much work experience. As an example, a class leader showed a fellow student how to find maps online of the Brownsville/Matamoros border to identify the existing bridges between the southern United States and Mexico. The student, whose brother is a Border Patrol agent, was working on solutions to the problem of congested traffic as drivers cross from Mexico to the United States. We encourage such collaboration among our students to meet the challenges within the projects. The student-centered pedagogy allows them to emerge as experts.

## **VII. Teachers Accepting the Change.**

In this type of approach teachers must be able to look at their roles differently as well. They must be able to give students freedom to work on projects as they make discoveries, encounter difficulties, and change directions when they need to. Students will be in charge of these matters. Further, teachers must be willing to share authority as contact persons in the community will be involved in directing the students' learning, providing feedback, and assessing documents. In evaluating students' work, the teacher must look individually at each student's goals for a project, recognizing that the learning that is important for one student will differ from the learning of another. Knowing what to look for in these student-specific assignments requires not so much more attention but a different perspective. There is no one acceptable end product to look for. We evaluate as much the process and the growth and change from where the process occurred as we do the final documents. And various methods of evaluation are needed due to the varied nature of the projects. Finally, teachers must be prepared to deal with the anxiety and frustration of those students who find security and success in the traditional instructional paradigm.

## **VIII. Conclusion.**

Now, when we step into the classroom, we embrace the role of learner, we share with students the reasons why we use these approaches, and we continually assess students' needs and progress. This alteration in our roles affects the roles that students assume as well. In our course we stress that learning is a process that occurs through social interaction and problem solving. We recognize the importance of describing to students how we have restructured the learning opportunities and explaining that we expect them to extend their roles to include more decision making and personal investment. We tell them that we will have more contact with them and that

contact will be in various forms that may be different from what they are used to receiving in their other classes.

When students walk into our classes they ask "What is technical writing?" In our model technical communication becomes an individual set of decisions, and students internalize the process of making choices. The model has broader implications. Our students represent many majors from across the university. Their experiences in our classes help them to begin to put a face on writing; they understand that the documents they create have a great impact on the lives of many. And even as we continue to work to address the struggle that students may experience, we are changing the expectations they bring to our classrooms. We are moving them away from a dependence on us, away from passive learning. By allowing students to make their own decisions, we help create their authority as students and as technical writers who can think critically. Our model is one response to the call for change issued by Selfe: as public spheres involve more complex issues, not helping students to address "these issues at multiple levels signals our own ability to lead productively as professionals and citizens" (322).

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## **Creating the Teaching Professor: Guiding Graduate Students to Become Effective Teachers**

**Ronald J. Weber, Ann Gabbert, Joanne Kropp, and Patrick Pynes<sup>1</sup>**

*Abstract: This paper describes the practices and outcomes of a pilot graduate student seminar on teaching and learning within the History Department at the University of Texas at El Paso. It documents results by considering the careers of three accomplished PhD students, who learned classroom techniques over different periods of time through personal inquiry, formal training, and by teaching at different levels. Their progress in the History Teaching and Learning Seminar is measured against the documented experiences of thirty other graduate students in three different iterations of the teaching and learning seminar from 2001 to 2004.*

### **I. Introduction.**

A change is underway in colleges and universities to train graduate students and graduate assistants to be better college instructors [Jungst, Licklider, and Wiersema (2003)].<sup>2</sup> It is due in large measure to the work of Ernest Boyer and Parker Palmer.<sup>3</sup> This paper reflects efforts at the University of Texas at El Paso to train graduate students to become effective college instructors. It examines the careers of three accomplished PhD students, Ann Gabbert, Joanne Kropp and Patrick Pynes, who learned classroom techniques over different periods of time through personal inquiry, formal training, and teaching at different levels both within the El Paso community and at the University of Texas at El Paso. Their accounts are compared with the documented experiences of thirty other graduate students in three different iterations of the History Teaching and Learning Seminar as it was taught in the History PhD Program at the University of Texas at El Paso from 2001 to 2004. Including graduate students in the research and writing of this piece reduces the fragmentation of the graduate student career, clarifies the importance of teacher-student coordination in the classroom, and allows the real voice of the graduate student to be heard.

This study began as an investigation of how UTEP's history graduate students came to know and employ collaborative learning techniques. In compiling their experiences, participants realized several key elements of good teaching. One: the essentials of cooperative learning are representative of good teaching in general. Two: developing the skills of an effective teacher is

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<sup>1</sup>Department of History and Humanities, University of Texas at El Paso, 500 University Avenue, El Paso, TX 79968-0723, [rweber@utep.edu](mailto:rweber@utep.edu), [agabbert@utep.edu](mailto:agabbert@utep.edu), [jtkropp@utep.edu](mailto:jtkropp@utep.edu), and [patpynes@utep.edu](mailto:patpynes@utep.edu).

<sup>2</sup> Jungst et al. document how the 1983 report *A Nation at Risk* triggered concern over the American educational system, which led, in turn, to the reforms advocated by the 1993 report, *An American Imperative*. Higher education initially reacted to the problems of America's schools in papers such as the 1995, Association of American Colleges and Universities work "The Direction of Educational Change: Putting Learning at the Center".

<sup>3</sup> One of the most extensive efforts to develop better college teachers is the Preparing Future Faculty Program, a national consortium of some 300 different programs. Information on PFF is available at [www.preparing-faculty.org](http://www.preparing-faculty.org). According to the PFF website, PFF programs that address the teaching of history exist at Arizona State University, Boston College, Florida State University and Howard University.

more important than learning a new teaching technique [Millis and Cottell (1998)].<sup>4</sup> Three: the current training system for college teachers needs greater breadth in the way in which it trains academics to be teachers [Adams (1995)]. As a result, the discussion here is about how graduate students can acquire a strong conceptual framework for their teaching and actualize their teaching and research simultaneously [Murray (1995)]. The goal will be to lay out a plan that integrates research, class preparation, personal abilities, student preferences, learning theory, and institutional structure into a complete teaching and learning process [Gaff (2002)]. In my own career, and—as we shall see—in the careers of Gabbert, Kropp and Pynes, the failure to integrate teaching and scholarship was a significant difficulty.

### A. *Self-Examination.*

In my degree plan teaching and scholarship were separate elements. Scholarship was the focus of my graduate education and the single most important element in it, which for me consisted largely of the attainment and advancement of content knowledge. Teaching was broadly conceived as the dissemination of content knowledge to students. While I had the opportunity to practice delivering content to students, I never received formal training in how students learn, what difficulties they encounter in learning, how to address student learning problems or even how to present material effectively to students. As a result, as a young professor, I utilized a design and a delivery model based on what I had observed and experienced as a student. My criteria for choosing particular teaching styles or techniques were based on my personal success with the technique when I had encountered it as a student. When my undergraduate students were unresponsive, I had no idea why. My recourse in unsuccessful classes was to adopt different teaching techniques, such as more group work, or redeveloped lectures or research projects, which had been successful for colleagues. I had no specific knowledge of what made any teaching technique an effective learning tool, and I often blamed students for what I perceived as unacceptable student achievement. Much of the current literature confirms that my experiences were not unique [Jungst, Licklider, and Wiersema (2003); Rankin (1994)].

After twenty years of college teaching, an encounter with Ernest L. Boyer's *Scholarship Reconsidered: Priorities of the Professoriate* made me realize that I did not understand the connections between scholarship and teaching. I concluded that my separation of scholarship and teaching was one of the basic reasons for my dissatisfaction with what seemed to be persistent underachievement among my students. What I lacked was a basic knowledge of how to build the different tasks of a college professor into an integrated profession [Boyer (1990)]. As a result, one of the goals of the teaching and learning seminar is to assist graduate students to articulate

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<sup>4</sup> Cooperative learning is first and foremost collaborative in that it is based on the working principle of shared action and responsibility among members of a small group and among the different groups and the teacher in the class. It is highly structured with precisely delineated procedures to guide students in the creation of academic products or solutions that utilize and demonstrate learning. As a result, effective cooperative learning devices promote (1) a positive interdependence among group members. Students must be linked in such a way as to promote the belief that all group members succeed when each one succeeds. (2) Cooperative learning involves face-to-face interaction. Students directly assist, encourage, and support one another in the completion of learning activities and projects. (3) In cooperative learning situations there is a precise individual accountability for the group and each member of the group. Students get feedback to see how their work and the work of their peers develops, and they are graded for their contributions at each step. (4) Successful cooperative learning situations provide extensive instruction for students in the social skills needed to organize and operate within a group situation.

for themselves a working career plan, which integrates teaching and scholarship to further their careers and to promote greater student learning [Angelo and Cross (1993)].

## **II. How Graduate Students Have Been Introduced to Teaching.**

In order to understand the gains that graduate students made in the teaching and learning seminar, we must examine first how University of Texas at El Paso graduate students in History were introduced to teaching. How the teaching and learning seminar addresses the problems they encountered is outlined following their accounts.

### *A. Three Case Studies.*

Ann Gabbert, Joanne Kropp and Patrick Pynes became a part of this project because of their demonstrated effectiveness in teaching undergraduate students. Each of them has a different approach to teaching excellence. More importantly, they are representative of the careers of the thirty students who have been a part of the teaching and learning seminar and the graduate program in History at the University of Texas at El Paso. The following three accounts are personal recollections.

#### *1. Patrick Pynes: March, 2004.*

In August of 1993, as I sat at a computer in the UTEP Library, the Chair of the History Department walked up to me and handed me a slip of paper with a name and phone number on it. He said, "They are looking for a history teacher, and I told them that you are their guy." A day later I left the school—a small private high school with an advanced curriculum—with a job that started in a week and in-service training in three days. I was now a teacher.

I thought about my experience as a student and my minimal experience as a teacher. At the University of Texas at El Paso, I had taught a GRE preparation class, a developmental reading and study skills workshop, and I had been a Teaching Assistant for three years. I knew that there were some things that I wanted to borrow from some professors, as well as some things I did not want to model from other professors. The classes that had seemed to fit my learning patterns best had given me a chance to explore the material and get my questions answered in a prompt manner instead of waiting to catch the professor in his or her office. But how was I to do that? My only formal teacher training would be at a weekend Advanced Placement Conference and Seminar in Albuquerque, New Mexico.

In the fall of 2000, I decided to pursue a PhD in History. After several long discussions, I was set to teach at the high school, be a glorified Teaching Assistant at the University and tackle my studies. However, the Friday before the semester started, I was asked to be the instructor of a university level, freshman survey course. I had the weekend to get ready. I garnered all of the syllabi that the history department had on file, reviewed the books which the bookstore had in stock, and got to work. I also visited one of my intellectual mentors, a good friend, and we began what has become a three-year discussion on how to most effectively utilize learning groups. A year later I was enrolled in the History Teaching and Learning Seminar.

## 2. *Ann Gabbert: March, 2004.*

From 2000 to 2002, I was an assistant instructor to three professors in the history department. This was an opportunity to observe seasoned faculty in the classroom. Each of the professors had a distinctive style, and I found myself borrowing and modeling aspects of each in my own classroom. More importantly, each of these professors was interested in pedagogy and was willing to discuss teaching techniques with me and to allow me to experiment in their classes, either as a lecturer or as a discussion leader. Because of the large size of the classes, each of the professors relied primarily on lectures. As a result, while I gained a great deal of knowledge about how to organize course material—I was also studying for my preliminary exams at the time—my first attempts at lectures in the large auditorium setting resembled conference presentations.

In the spring of 2002, I enrolled in the UTEP History Department Seminar on Teaching and Learning. The course overlapped with my last semester as an assistant instructor, and I was able to apply the instructional methods we learned in the seminar in a classroom setting. In all, I found that the teaching seminar was a wonderful experience. Although some might see the active teaching methods that were stressed in the seminar as a contradiction to passive learning (i.e., lectures), I found the processes complementary. I still believe that lectures are a good way to impart “factoids”, but I also believe that it is necessary to engage the students to complete the learning process.

## 3. *Joanne Kropp: March, 2004.*

I got my job three weeks before the semester started, and I had to create, from scratch, three different courses. Two were large history sections; the third was a seminar in critical thinking. I had been a teaching assistant in history, so I used my supervising professors’ books, syllabi, and notes to frantically prepare for the history classes.

Two professors I worked for had put students into small discussion groups led by TAs. I wanted to use small group discussion in the large classes, but no one had ever explained to me the learning goals and objectives of this technique or how to supervise multiple groups alone. Lecture and regular testing were all I knew.

However, the critical thinking seminar was part of the Entering Students Program in the University College, which provides instructors with a list of specific teaching goals. I was to pick a topic, find suitable readings and design specific activities to accomplish those goals. This seemed overwhelming. Dr. Weber helped me to understand how to stress student learning rather than professor performance, and, after I had planned the course, a committee of University College instructors reviewed the syllabus and made suggestions for improvements. By following the suggestions, I designed a much better course than I had for my history sections.

Because the University College required that I review my courses regularly, I attended workshops sponsored by the Entering Student Program and the Center for Excellence in Teaching and Learning. I learned how to design team tasks that stimulate discussion and how to employ meaningful out-of-class work that compliments in-class activities. A year later, I entered the PhD program, and I took the Teaching and Learning Seminar.

### *B. How the History Teaching and Learning Seminar Responds.*

The experiences of Gabbert, Kropp and Pynes, as they began their teaching careers, describe an inconsistent and poorly focused set of training procedures for college teachers. My career and the current literature confirm that similar practices have persisted in many colleges and universities. [Jungst, Licklider, and Wiersema (2003); Rankin (1994)]. In response, the History Teaching and Learning Seminar was designed to assist graduate student teachers-in-training to integrate the different elements of their careers in a way that prepares them to become teaching professors, who understand and exploit the interdependent relationship between teaching and scholarship. In that capacity the seminar provides graduate students with three things. (1) It provides a guide on how to develop coherent career plans which integrate the different elements of an academic career. Traditionally, graduate training has focused primarily on content mastery, which was considered adequate training to teach. Goals and objectives focused primarily upon a research agenda. (2) It promotes understanding of the learning styles and behaviors of college students. Graduate students who learn their teaching techniques by observing and modeling their professors often do not know the essentials of how and why undergraduates learn in different situations. (3) It provides practical knowledge of the possibilities and limitations of the teaching techniques that are used in modern college classrooms. This is an essential element of effective problem solving. It helps alleviate personal stress and helps teachers address the issues of student retention. New teachers also need practice developing and using various teaching techniques, but without a theoretical grounding newly employed techniques lose effectiveness. It is important that graduate students address these issues from the start of their careers.

### **III. Developing a Career Plan.**

All graduate students who teach courses in the History Program at UTEP are evaluated every year on the planning and execution of their courses. In almost every case, the written comments of evaluators address the issue of content mastery, commenting upon such things as the organization of material, clarity of presentation and the selection of appropriate material for the course at hand. Interviews with graduate students have shown that content is rarely a cause of severe criticism of a graduate student's teaching.<sup>5</sup> Moreover, the rate at which UTEP history students are passing their preliminary PhD exams and publishing their research demonstrates that graduate students are mastering the appropriate content and are becoming competent historical researchers,<sup>6</sup> believing that it is the proper way to become competent teachers [Press and Washburn (2000)].<sup>7</sup>

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<sup>5</sup> A requirement of the academic portfolio is a written evaluation of the graduate student's teaching by a member of the graduate faculty. These letters are the basis of the observation that content is the focus of a majority of the teaching evaluations.

<sup>6</sup> At the time of this writing Ann Gabbert has successfully completed her PhD degree and has published 3 scholarly articles. Joanne Kropp won the university award for outstanding master's thesis. Patrick Pynes has successfully completed three of his four PhD preliminary exams.

<sup>7</sup> In a discussion of the article one student commented: ". . . the 'publish or perish' mentality is very evident in the liberal arts—because it is important to convey a 'research agenda' in order to justify a program's existence . . . , and in my own department, aside from this class, emphasis is placed on writing 'publishable papers'." (Graduate Student 1) A second student had the same impression: "The picture created in these readings fits my experiences and expectations. . . . I have heard the 'publish or perish' expression many times. Upon entering graduate school I was

However, the experiences of Gabbert, Kropp and Pynes indicate a problem in the way graduate students articulate the connections between their own mastery of content material and the learning needs of students. Long-term goals were not mentioned. When first asked about their teaching, Kropp and Pynes did not spontaneously articulate the relationship between their research (content mastery) and their activities in the classroom. Kropp had no time to plan her first class, so she “copied” her professors, but without the resources of a full-time teacher some of the strategies she knew became unusable. Pynes also began without time to plan and “borrowed” from his professors. Gabbert, on the other hand, only realized a gain in her knowledge of how to organize content for the classroom after she began the job of class lecturer, recalling that preparing for preliminary examinations as she wrote her lessons resulted in a better integration of her research with her teaching [Gaff (2002)]. It is clear that young graduate students encounter serious problems in their classes when they are not prepared to articulate their goals and objectives.

In graduate students who had little or no experience directing their own classes there was even less of a sense of the need to prepare goals and objectives in advance. This was most evident in the reactions of graduate students to the teaching and learning seminar’s lesson on syllabus preparation. In preparing for the lesson students had an expectation of the syllabus as the organizational plan for class material alone. For example, one student stated:<sup>8</sup>

I worked hard on my syllabus, and I thought that I had covered all of the bases, but by the end of class I realized that I had not taken my teaching philosophy into consideration when designing my course. To a certain extent my objectives reflect my philosophy, but this was pure luck, because as I designed the class I was not thinking along those lines. (Graduate Student 1)

Even as they grew more comfortable in the classroom, the graduate students continued to overlook how important their own personalities and preferences were to the class equation [Grasha (1996)]. They lacked a set of integrated goals and objectives. As the case studies show they did not plan for the differences between the way in which students learn and the way in which they as instructors planned to teach. They used their personal learning experiences as the basis for selecting teaching methods, addressing only one learning style, the preferred learning style of the teacher. Kropp’s reaction to the lesson on the syllabus demonstrates how she grew as a teacher:

What I took from the class was that the syllabus is a reflection of the teacher’s personality. I always had thought that it was a plan for the course and that students naturally took from it what they were supposed to do. I did not realize its importance as a link between the student and the teacher.

In the same way, the seminar helped most of the other graduate students to understand the importance of balancing their preferences with the learning styles of students when planning a class.

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aware of the several directions professors were pulled. However, I was not aware that this conflict began so early in one’s graduate career.” (Graduate Student 4)

<sup>8</sup> The reactions recorded here are the responses of actual graduate students who had completed a set of readings and had participated in a lesson considering the design, uses, and effects of course syllabi.

To break the cycle of poor planning I require graduate students in the teaching and learning seminar to compile a comprehensive academic/teaching portfolio. A comprehensive portfolio integrates the graduate student's career plan with her/his research agenda, personal learning styles and teaching objectives. It is important to stress to the graduate students that their portfolios must be more than a teaching portfolio. In directing the seminar I have found that focusing only upon a teaching portfolio tends to propagate the assumption that there are divisions between teachers, students, scholarship and teaching. The portfolio provides graduate students with experience integrating research and teaching into their concept of their own careers:

At first, I thought that some of the exercises compartmentalized a person as a particular type of teacher or learner, but when I was asked how I would teach to accommodate the learning style of a fellow student, I could not answer. That exercise made me realize how complicated the teaching-learning process is. (Graduate Student 1)

Just as the faculty mentoring of the Entering Students Program benefited Kropp, building an academic portfolio redirected participants in the seminar.<sup>9</sup>

The first step in building the portfolio is a thorough self-examination by all members of the class—professor and students. Self-examination identifies the biases and pre-conceptions that everyone in the class has about teaching and learning. It helps to establish a set of clear teaching and learning objectives for the class in general and for every member of the class in particular. As the natural consequence of this self-examination each member of the class must identify both their teaching preferences and their personal learning styles and use the information to develop their own teaching philosophy. This sets the direction of the seminar while it demonstrates to graduate students in the class a fundamental process, which good teaching must employ, group identification and cohesion.

As the seminar director I model the practices which graduate students should imitate. I consider it essential that students understand that I work on the principle that teaching and learning are not separate activities and that learning is achieved to the degree that both student and teacher are dedicated to and informed about the teaching and learning process. As teacher I seek to affect learning not simply by presenting information for student absorption, but rather by working as guide, motivator and participant with the students. It is important that students are aware of this. It works for the professor as a real class demonstration of the idea that “teaching is figuring out what students know and then helping them make connections between new information and prior knowledge” [Cross and Steadman (1996)]. For the graduate students, because each of them is responsible for her or his own self-evaluation, the exercise increases each student's buy-in and makes her/him personally accountable—something every teacher needs to promote in their own teaching.

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<sup>9</sup> Good examples of how graduate programs incorporate the portfolio process into their graduate programs are at Michigan State University, which currently offers a Certificate in College Teaching (<http://grad.msu.edu/teaching.htm>) and the Preparing Future Physics Faculty Program at the University of California, San Diego. (<http://ctd.ucsd.edu/programs/pf/f/index.htm>) Both programs require a portfolio as an end product of the graduate students' preparation.

#### **IV. Addressing the Weaknesses in Modeling Teaching Techniques.**

The first drafts of the graduate students' teaching philosophies demonstrate the growth in their knowledge of good teaching. The following are extracts from the first drafts of their teaching philosophies, which Gabbert, Kropp and Pynes wrote at the beginning of the teaching and learning seminar.

*A. Ann Gabbert, January, 2002.*

I believe in active learning. My philosophy of teaching is that learning/teaching is a joint effort between student and faculty. Although I believe that in a history class students must be competent in a body of knowledge, I also feel strongly that a history class should develop a student's critical reading and thinking skills. While students can achieve content mastery through lectures and reading assignments, knowledge that is jointly constructed by teacher and student through cooperative efforts, such as discussion groups and debate, is more likely to promote analytical skills.

*B. Patrick Pynes, January, 2002.*

I teach according to Bloom's Taxonomy by using the discipline of history to demonstrate the necessary tools, which allow students to move beyond simply memorizing, to become independent learners capable of analytical thought. A collaborative group structure is the best way that I have found to encourage students to be active learners, not passive receptors of knowledge. Through the use of cooperative and active strategies students become independent, active, life-long learners capable of analytical analysis.

*C. Joanne Kropp, February, 2004.*

My philosophy of teaching is that content is merely a medium to teach or convey skills. According to Bloom's Taxonomy teacher and student must have the shared goal of exploring material to enhance critical thinking (analytical skills). Improvement in organized writing indicates how well these skills are acquired. Students should have the ability to take in data (read), compare and contrast information in order to break it into components (analyze), reorganize the components (synthesize), in order to express a new or individualized idea (formulate a thesis). They should then be able to compare and contrast various theses in order to find the best/most useful one (evaluation and application). When students master these skills they become effective learners in any field.

*D. Analysis.*

Together with their personal accounts these first attempts at a teaching philosophy reinforce the observation that successful PhD candidates, given enough time, can develop an intuitive grasp of the teaching-learning process on their own and move beyond the thinking that teaching is only a method of information presentation. However, their progress was inconsistent. It was formal training, such as the teaching and learning seminar or the mentoring in the Beginning Students Program, which allowed Gabbert, Kropp and Pynes to do more than give lip

service to the greater goals of improving analytical thinking, motivating students and increasing the retention of historical information.<sup>10</sup>

Lectures and discussions were the preferred classroom activities of most of the graduate students in the teaching and learning seminar. These techniques are the most common ways in which professors address the learning styles of PhD students. However, like Gabbert and Pynes, most of the graduate students when first questioned were not clear about how these techniques would achieve their stated goals. Among the teaching graduate students few could articulate a method for assessing the progress of their students. Kropp's teaching philosophy is a noted exception, but she developed the philosophy after participating in training sessions for faculty in UTEP's Entering Students Program.

In addition, the three graduate students highlighted here gained a significant portion of their teaching experience in "required" courses, the general education element of college curriculum. They were aware of the difficult nature of teaching in such courses, but they had few strategies for dealing with them. Too often they concluded that difficulties arose from the lack of interest and preparation on the part of students, which they identified as an avoidance behavior by the students. They did not realize that for some students avoidance can be a coping mechanism.<sup>11</sup>

Sheila Tobias has identified the type of students found in required courses as the "second tier" of students. They are the students with interest in the subject matter, who for various reasons have decided not to major in the topic. Included in the second tier are the large masses of students who are required to study the material. The problem of second tier students is that they employ a variety of learning strategies that are short term and expedient and do not foster deep learning [Tobias (1990)].<sup>12</sup> As Tobias suggests, the task in dealing with the "second tier" is to develop an active learning structure, which is adaptable to the needs of a broad range of students. The first step in adapting to students is the self-examination mentioned earlier in the discussion of the teaching portfolio.

Graduate faculty need to realize that graduate/student teachers are at a transition point between being a student and being a teacher. As participants in both roles, they are sensitive to the different stresses and needs of both and to the interdependence of students and teacher. As the reactions of graduate students show, because they are both students and teachers, they are in a unique position. As students they require the structure and guidance that allows them to formulate their goals and develop strategies to attain them. Graduate students typically criticize classes that they see as undirected. For example, one student's evaluation of the teaching and learning seminar found the day's readings of no use to him because:

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<sup>10</sup> Beyond enabling graduate students to recognize the overall learning skills of students, training in student evaluation and assessment helps aspiring teachers to recognize other diverse elements in their students such as race, gender and ethnicity, which aids in the implementation of more inclusive classrooms.

<sup>11</sup> Unfortunately the practice of using inexperienced teachers to deal with the most underdeveloped portion of the student body is an all too common practice. Common sense should dictate that the most experienced teachers would be the best prepared to handle greater student needs. It is also a severe indictment of the system that these inexperienced teachers are given so little time to prepare for their initial teaching experience.

<sup>12</sup> Tobias points out that short-term strategies are typically manifested in activities such as note-taking techniques, classroom behaviors and study habits, which indicate a student's level and style of engagement in the class. Frequently, second tier students employ methods in reaction to the lecture style of instruction. The difficulty arises from the fact that lecture and its associated study techniques often do not engage the interests of second tier students.

...they were neither explored nor reinforced. I depend on class discussions of readings to open my mind...I am still waiting for concrete instructions or suggestions on what to do to become a better teacher. (Graduate student 5)

Thus, like undergraduates, the graduate students felt themselves failing when their professor failed to provide structure, or they were unable to perceive and utilize the structure:

I felt really stupid after I read those chapters (twice) and still could not say what they were about. It did not occur to me that the problem was my unfamiliarity with that type of material; I just thought something was wrong with me. This was a great experience because after the professor's remark I realized how my students feel reading material of a type that is not familiar to them. The comforting idea that it was not me but the material renewed my energy for trying to get through it again. (Joanne Kropp)

As this shows, when the graduate student teachers realized their dual roles they became more aware of the needs of their own students and better able to adjust to meet those needs.

To match teaching style with learning style it is essential to know how college students learn. It is obvious in all of the teaching philosophies quoted above that these developing teachers, early in their formal development, had only a general somewhat anecdotal impression of how learning in students evolves. Pynes mentioned Bloom's Taxonomy, and Kropp described actual examples of learning activities for each stage of Bloom's Taxonomy. Bloom is a useful tool for more advanced teachers, but his Taxonomy is an outline not a detailed plan for the college classroom.

In using Bloom, Kropp, like Pynes and Gabbert, was proceeding as if addressing a monolithic group, not accounting for the diversity of the student body, which was common in many of the graduate students before they took the seminar. The teaching and learning seminar introduced them to Anthony Grasha's integrated model of teaching and learning [Grasha (1996)], which was developed under the influence of William Perry [Perry (1970)]. Grasha and Perry are more immediately useful tools than Bloom, because they are more adaptable and focus upon the learning of college level students in clear and practical terms.

Perry views the central experience of a college education as the student encounter with the multiplicity of ideas and opinions that constitute the body of knowledge. The undergraduate's task is to learn to differentiate among opinions and to formulate conclusions that have the best application to particular problems. Perry empirically documents the process and demonstrates how the instructor can expect to encounter actual student learning. Understanding the cognitive skills of students is Perry's first principle in elevating them to a higher functioning level.

Students must be approached at their own levels. For example, Perry's college freshmen are in the discovery stage where each theory or its variance is a separate entity. It is the unequal value of each idea that differentiates between the bits of knowledge. Perry referred to this pitting of one idea against another as dualistic thinking, which seeks to discover the right answer [Culver and Hackos (1982)]. Multiple choice questions or fill-in-the-blank answers satisfy students at this level. A problem for educators is that dualist students are not "their own people". They rely on the values and ideas of the most influential authorities in their previous lives [Culver and Hackos (1982)]. In many cases therefore, the dualist is confused by the dialectic he/she encounters in the college classroom where answers are not fixed and conclusions are relative to the person or situation at hand. Unfortunately, in colleges and universities the dualistic

tendencies of students are often reinforced by the instructional practice of the lecturing expert emphasizing the importance of a right or expected answer. As long as instructors perpetuate an atmosphere that prioritizes the right answer, progress in learning is slowed.

Perry's second stage of student learning is multiplism. Students encounter a great deal of uncertainty at this phase. The normally attentive college student encounters multiple answers for every question, which tests previous notions about the certainty of knowledge and threatens long-standing beliefs. As a result, puzzled by the apparent lack of standards, students either see all ideas as equally valid or equally biased, becoming suspicious of the truth of any evidence or authority. Perry found that this could cause students to avoid a thorough consideration of alternative views and to develop opinions largely on the basis of whim or personal belief [Culver and Hackos (1982)].

Students who remain at the multiplistic level of learning are troublesome for history teachers. Some may reject the evidence-based method desired in good historical argument. Others can become discouraged, if they seek knowledge as a means to structure and intellectual certainty. History teachers need to realize these tendencies in students and act accordingly, because different objectives require different approaches. For example, the hard sciences and mathematics appear to be based more firmly in objective authority [Culver and Hackos (1982)]. Typically science and math are taught with an authoritative rule-based perspective, and as Perry pointed out, this is why the hard sciences become so attractive to students who are uncomfortable with multiple degrees of certainty. A similar opinion about historical argument is often expressed by those who see higher education as the means to practical, applicable skills [Dewey (1916)].<sup>13</sup>

Students can remain at the dualistic and multiplistic stages and survive in college by reading class material and by listening to lectures. But application skills are made possible only when students progress beyond the mere marshalling of facts to the third stage of learning, relativism. At the relativistic stage, the student perceives that all knowledge and value are relative and contextual, and he/she must differentiate between concepts by using the evidence of what, when and how. Teachers must know what it means to guide their students to this stage.

The History Teaching and Learning Seminar leads graduate students along Perry's scale and allows them to gain experience in developing lessons which implement Perry's principles. For example, a typical lesson could consider an examination of the intellectual evolution of Charles Darwin's idea of natural selection. Darwin, the scientist, embarked on one of mankind's universal quests, the search for the beginning of things. His original authority was the world system whose multiple manifestations some people considered to be a complete, fully developed system—constant and unchanging. Religion had defined this as the work of a Divine Authority—this gave dualistic certainty. By Darwin's day, the discovery of mutable life forms in skeletons and fossils, geological anomalies and the changes in society had brought into question the unchanging nature of existence. This created the equivalent of multiplistic uncertainty. In response, during his trip around the world, meticulously recording his observations and experiences and then patiently reflecting on them, Darwin formulated a compelling argument for the adaptation of species based on differences in context and environment. He in effect realized the importance of understanding individual cases by observing and applying the evidence around

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<sup>13</sup> John Dewey is the great advocate of the practical application of education. Dewey has had significant effect upon American education because of his idea that in a democracy education is the tool that facilitates personal improvement. For Dewey the function of the tool of education is to integrate one's personal growth (culture) with one's function (vocation). He equated personal growth with skills training and considered their co-development as eminently practical for citizens of a democracy.

them. Darwin exemplifies the mind that is able to distinguish between the relative values of ideas and concepts by marshalling evidence for the better concept in a particular venue. As a metaphor for a quality college education, Darwin's experience shows how the student achieves knowledge by committing to the true examination of authorities in order to synthesize results without relying on others.

Perry noted that students do not advance through the dualistic to the multiplicitous to the relativistic stages and achieve a real synthesis of knowledge until they can make a commitment to an idea or value that affirms their own identity. Commitment entails the realization that all ideas and dreams are fallible, changeable and eventually in need of reevaluation. In the end, a true commitment to knowledge results in the realization that all opinions and values may change. Furthermore, Perry clearly articulates, unlike Bloom, that knowing is an intimate engagement not a detached encounter. The well-prepared teacher must realize the intimacy of the teaching/learning experience and that fostering commitment in students entails changing student behavior.

As true as Perry's stages of learning are for undergraduates, they are equally as valid for graduate student teachers. Graduate student teachers better engage their students when they commit to their own identity. Like undergraduates, graduate students have a set of learning behaviors and expectations. Because they were successful as undergraduates, graduate students have better developed and more deeply internalized learning behaviors. Unfortunately, since most of them were educated predominantly within the lecture format, they are also better repeaters of information, and reluctant to give up the lecture style. Their demonstrations of synthesis can become too much of a repetition of the syntheses of their professors and textbooks, not their own thought. But as both the teaching philosophies and the case studies show, through practice and the seminar's practicum they become more aware of themselves and consequently more aware of what their students will need.

In addition to treating young academics as students, the seminar also leads them to think and act as teachers by planning and organizing a college class. They must participate in group work, present mini-lessons to the seminar and teach in regular undergraduate classes. The difference from my career is that the graduate student teachers of the teaching and learning seminar are observed and given thoughtful feedback on their teaching performances. Consequently, when they take over in the classroom, either as teaching assistants or even as the teachers of record, they can articulate the goals and the structure and the synthesis—which modeling the actions of professors and individual trial and error did not prepare them to do. When diagnosing and addressing problems in the classroom, seminar participants are better prepared.

## **V. Creating a Theoretical Base.**

To this point discussion has focused upon how the teaching and learning seminar assists graduate student teachers in transforming their observations and impressions of effective teaching into real actions that promote learning. Seminar topics included the usefulness of a coordinated job plan, the need for compatibility between teaching and learning styles and the need to understand the stages of student learning. The last point for consideration is the importance of a strong theoretical knowledge of what learning is and how it manifests itself.

In spite of the fact that student learning is well defined in books, articles, and schools of education, the graduate student teachers who came to the teaching and learning seminar were not

informed about it. In general, they agreed that the study of history consisted of the examination of great texts and important documents in search of culturally defined ideas and values. As they saw it, the purpose of such study was to develop students who were able to comprehend the ambiguities and abstractions of ideas and the difficulties of clearly defining social values and principles. Basically, their language is no different from the definitions of learning in applied fields. However, the teaching philosophies of the students in the seminar did not articulate the behaviors that demonstrate real learning in history.<sup>14</sup> Consider, for example, how Barbara Millis and Philip Cottell define learning: "...an active, constructive process that...‘provides opportunities for students to **talk and listen, read, write, and reflect** as they approach course content through exercises which require students to **apply** what they are learning’ [Millis and Cottell (1998)].” Until graduate students can articulate these basic activities, they are not ready to move on to formulating classroom techniques that cause students to do them.

There are two fundamental conditions that hinder the implementation of improved practices. The first is the traditional way that graduate students become conditioned to view content knowledge. The second is the study practices of modern students. Content knowledge in history is actually the raw material of deep learning. It is the information base that the student must learn to apply. The case studies show that competent graduate students realize this at a very early stage. They expect that in history classes students generally acquire a workable information base in two ways: (1) by assessing and reading diverse, complicated, and lengthy texts expressed in written or visual mediums (a skill transferable to any discipline) and (2) by oral transmission from professors and fellow students. But the graduate/student teachers were faced with a practical conundrum. Content was the thing most stressed in their graduate careers, and they were conditioned to imitate how their teachers passed content onto them—through lectures. Moreover, as products of a lecture system, and as their accounts reveal, graduate students use the lecture as the fallback position when undergraduates fail to use the other means of content acquisition, reading the texts.<sup>15</sup> And, as their frustrations show, the current generation of developing college teachers is faced with a growing body of students who cannot model their teachers well, because the current generation of undergraduates doesn’t listen, read and reflect like graduate students.

Achieving a balance between making the content knowledge available and improving student skills is not easy. If undergraduates only master content, they have attained only the most rudimentary stage of learning, so young teachers perceive the need to use class time to instruct undergraduates in how to apply content. But lectures require large amounts of class time. How then can instructors balance time used to present content with class time needed to mentor students in the arts of listening, reflecting and applying historical information? In the case studies, the graduate students chose to model class discussions, because they saw discussions as one way to teach some historical application. But this also takes away from lecture time and content acquisition time. In response to these difficulties, the teaching and learning seminar

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<sup>14</sup> Kropp’s concept of learning is more advanced and is actually the exception that proves the rule, because her conceptualization was formed after training in the Entering Students Program of the University College.

<sup>15</sup> Some graduate student teachers, as the case studies and classroom questionnaires show, hold tightly to the lecture format, configuring all activities around the basic core of their lecture presentation. In the 2004 class most of the graduate students would not deviate significantly from the lecture format when demonstrating their classroom techniques. When asked why, a typical response was that they could not understand how undergraduate students could progress without the material. There was basically no trust that students would or could acquire content without a lecture. This was also the main objection to using collaborative learning techniques such as small group work or problem based lessons.

offers an alternative strategy to new teachers: learning to motivate students to improve their content acquisition by more effective reading, and thereby free more class time to reflect and apply. This entails trying to change student behavior outside of class. In essence, the seminar offers new college history teachers an alternative job description.

Changing the job description of the college teacher to cover the task of modifying student behavior outside of the classroom requires a departure from traditional methods of college teaching. This involves transforming the students from passive receptors of knowledge to active participants in the learning process. The key word is active. Learning that is active focuses on involving the student more directly in the learning process. It moves away from an emphasis upon the content to a focus upon developing students' skills to encounter the material. It shifts the responsibility for learning to the student and away from the teacher. The process can only be successful by modifying the preconception that the benefits of a college course accrue only within the walls of the classroom. Students must be made responsible for their learning at all times. And so we come back to where we began, to a consideration of cooperative/collaborative learning as a developmental model for aspiring graduate student teachers.

## **VI. Increasing student responsibility.**

As a result of the experiences documented here, the teaching and learning seminar now requires the graduate student teachers to use the self-evaluation/student assessment planning model discussed so far. This is not an unqualified endorsement of collaborative techniques over other more traditional methods such as a lecture/discussion format. The advantage of emphasizing collaborative learning in the seminar is that it provides a context within which the graduate student teachers can employ active learning techniques to test the kinds of teaching methods that elicit student learning. And more importantly, it gives them the knowledge and skills that will allow them to develop teaching practices that are compatible to their own teaching preferences.

Central to the seminar activity are the four elements of team-based learning presented by Larry K. Michaelsen, Arletta Bauman Knight and L. Dee Fink in their book, *Team-Based Learning: A Transformative Use of Small Groups*:

1. groups must be properly formed and managed;
2. students must be made accountable for their individual and group work;
3. group assignments must promote both learning and team development;
4. students must have frequent and timely performance feedback [Michaelsen, Knight, and Fink (2002)].

These four essential elements of team-based learning are useful directives because on the one hand they embody the seven principles for good practice articulated by Arthur W. Chickering, Zelda F. Gamson and Louis M. Barsi [Chickering and Gamson (1987)]. On the other hand, they are actual applications of foundational elements required in every effective teaching encounter and adaptable to most teaching styles.

For example, element one emphasizes the absolute necessity of pre-planning and organization in the creation of an effective learning environment. It is important in every classroom, and, when combined with the planning embodied in the portfolio activities of the seminar, it brings home the necessity of organization and preparation in every phase of the teaching process. In the same way, Michaelsen's element three reinforces the importance of incorporating process learning with content acquisition as discussed above. Then there is the

focus of this part of the paper, element two, making students accountable. Accountability is the vehicle that moves students to work to change their behavior outside of class, saving time for in class activities, which lead them to become more effective learners.

Michaelsen's team-based methods modify student behavior by employing a technique called the Readiness Assurance Process [Michaelsen, Knight and Fink (2002)]. The Readiness Assurance Process initiates student accountability by informing students in the very first moments of a class about the objectives and the organizational framework that is being used to achieve class goals. This information empowers students to adapt their personal learning strategies to the class plan, reinforcing the idea of personal responsibility for the work at hand. In a typical college course, extra-class readings are a part of the class plan. With the Readiness Assurance Process students are tested on the concepts introduced by the readings at the start of each new class segment or lesson. Individual students initially take a test (Michaelsen recommends multiple choice tests) on the assigned readings followed immediately by the team attempting the same test as a group. The theory is to add to the accountability students normally have to the instructor in their personal work by making each student responsible to the other members of the team as well. Students are also given formal opportunities to evaluate team members. The principle is that peers are more aware of the efforts of their fellow students and that social pressure is a significant and more pervasive motivating force for students than the threat of the professor's grade alone [Michaelsen, Knight and Fink (2002)].

The lesson learned from the Readiness Assurance Process is that strict accountability standards and peer review are powerful methods to modify stubborn student behaviors. Frequent and timely feedback (Michaelsen's fourth point) reinforces student responsibility and promotes effective learning. Some might call it enforcement; I would prefer to use the term reinforcement. Like anyone else, students need reasonable assurances of success in the activities they undertake—this is one type of reinforcement. Therefore, all assignments, such as essays or exams or the Readiness Assessment Tests, must be structured in a fashion compatible with student intellectual levels and student learning styles [Michaelsen, Knight and Fink (2002)]. They must include clear instructions on how students are to perform. Recall the discussion regarding student assessment above. Again, this applies to whatever teaching style the instructor uses. A second type of reinforcement is the creation in students of the expectation that their accountability is constant, that their learning will progress when they are prepared to progress, and that they will be held accountable in every class. Team based learning works well in this regard because it requires the students to produce a measurable product for every activity, and the team format can be monitored at every stage.

Maintaining accountability in students promotes responsibility among team members, a useful social skill, which enables students to work effectively with others. By working with others on a regular basis, students encounter different ideas and approaches, enhancing their ability to distinguish among multiple ideas. This is Perry's fourth level of knowing, critical thought, what every college instructor desires. It is “. . . deliberate, conscious thought or reflection that is directed toward accomplishing some goal . . . It has some purpose such as solving problems, making decisions, or applying information to our lives . . . [Grasha (1996)]. ” It is reasoned thought in that it enables one to consider a broad range of information relevant to an issue and then to develop an informed conclusion. And “critical thinking evaluates in a constructive manner more than one side of an issue as well as the positive and negative attributes of a situation [Michaelsen, Knight and Fink (2002)].”

## VII. Results.

What have been the results when these principles have been applied in the classroom? In the end, it is the graduate student teachers themselves who are the measure of the process.

### *A. Patrick Pynes: December, 2004.*

Cooperative teaching with learning groups has increased my students' success and improved my effectiveness as their instructor. Groups allow me to get to know the students and discover what they are thinking, so that I can move the class in a direction that encourages them to learn. Since I have used the readiness assessment process, grades have continually risen on the quizzes. We cover more material than when I was the talking head at the front of the class.

Many teachers have asked me at what level this process works. I use it with college freshmen as well as in a junior level humanities course, which I teach during the summer. I also use it with my high school students with great results. This year, I have convinced an eighth grade history teacher to try my approach. Using a somewhat modified form, he has reported good results.

Employing the process takes work, but by using it I have learned to listen to my students and to understand their responses. The only way to do this is to know the students beyond faces in a lecture. We live in a world that is different from just ten years ago. Students have so many more potential distractions. Understanding the principles of active learning has helped me to compete with some of the things which draw my students' attention away from their studies. I think I have become a better history teacher.

### *B. Ann Gabbert: January, 2005.*

While preparing for my first semester as instructor of record, a one year doctoral fellowship allowed me to write all of my own lectures using readings from my comprehensive exams, which incorporated my own research. It also gave me time to explore active teaching methods and to utilize techniques from the teaching seminar in the classroom.

The graduate teaching seminar helped me to mature as an instructor. By using Angelo's and Cross's Teaching Goals Inventory I realized that, for me, although I believed that students should have a basic knowledge of historical events, my main concern was to foster higher-order thinking skills. Consequently, my stated teaching goals focus on students while guiding them beyond Perry's dualistic and multiplistic stages of intellectual development. Through the use of critical analysis of primary documents within their historical context, construction of simple essay arguments that use historical evidence, and differentiation between fact and interpretation, students begin to understand that history is relative in the sense that "knowledge" is based on one's perspective. The seminar class also taught me to think about the way students learn actively and passively, and how diversity in learning styles affects the classroom setting.

Because I want my students to progress beyond a simple dualistic approach to history, I always begin the first class with a session on "what is history?" At the same time that the students are learning the differences between primary and secondary sources, I introduce the idea of historiography and how historians interpret events and sources based on their own perspectives or cultural baggage. I have discovered that the students respond well to examples of changing interpretations of history, especially when they are involved by playing the role of

“historian” through the analysis of primary sources. The second class session contains opposing viewpoint primary document analysis where the students discuss possible hidden motives or agendas behind the written word or the visual medium. I want my students to internalize the processes that will allow them to differentiate between “fact” and interpretation in our own contemporary existence (i.e. newspapers, magazines, etc.). My goal is to guide students to a stage of complex understanding of the relativism of historical interpretations.

While I believe that it would be difficult to forgo lectures entirely in a freshman survey class, I have found that the students respond very well to mini-lectures prompted by Socratic method questions and interspersed with small informal group discussions of historical documents. These discussion exercises have multiple purposes and the students (and myself) enjoy the opportunity for a more active learning process than simply listening to lectures. I find that the use of sources, other than textual, appeals to diverse learning styles, and I consistently get high student ratings for my use of multimedia. The teaching seminar helped me realize the necessity of engaging the students as active participants in the process of acquiring historical knowledge, and prompted me to develop methods of instruction that would allow my students to develop historical understanding while integrating new factoids within their prior knowledge framework.

*C. Joanne Kropp: January, 2005.*

Last fall, armed with the results of Tony Grasha’s self-assessment test and batches of readiness assessment quizzes, I eagerly planned my lectures. The semester was a disaster. What went wrong? First, converting my lectures into discussion questions was difficult for me. I probably never did design really good questions. Second, most students never grasped the purpose of the group discussions. They did not discuss the questions; they just went with whatever answer most people “guessed” was right. They refused to take notes on discussions in the small groups or even when the whole class went over the work, thus they did not have the requisite information to do well on the final exam. As a result of the Teaching and Learning Seminar, I realized that the problem was that the “reward” for thinking about the discussion questions was not immediate. It would be weeks before they would even begin their papers, and then it was another week before I returned them. And lastly, the scores on the readiness assessment quizzes were dreadful across the board. Group scores were always higher, but never high enough to offset the very low individual scores. Thus many students, who did well on other assignments, became frustrated.

This semester I have made numerous adjustments. In my large classes I am now more aware of students’ multiple learning styles, so I “mix up” class sessions. I give mini-lectures and use visuals (slides, maps, handouts). I put the students into ad-hoc groups to discuss the chapter themes, or to discuss specific questions about a document. Students receive the questions in *advance* and then arrive in class having to work out an answer as a group. For a kinesthetic dimension to these auditory and visual teaching methods, I have students write results on the board, or illustrate their ideas by drawing pictures or inventing symbols. I have also asked them to role play. To put more pressure on students to be ready for class, I give them limited time to work in the small groups. The quizzes are now only given on an individual basis so the students don’t have a group score to rely on if they don’t prepare.

The Teaching and Learning Seminar and the grand experiment last semester helped me to know that there are as many methods for teaching as there are students with different needs and

abilities. *All* lecture or *all* discussion/group work is not appropriate for either my students or me. I learned that better assessments could have allowed me to change what I was doing by pinpointing why the students weren't doing well. I am now more aware that it is up to me to plan creatively in order to reach as many students as possible, but it is also up to the students to prepare for class and to engage with the material. The Teaching and Learning Seminar has given me a bigger arsenal of ideas to draw upon. In a semester that did not go well, I could look back at what I learned for something to help me with my students.

#### *D. Conclusion.*

Good teaching is not simply the result of modeling former instructors. Teaching has as its ultimate goal the learning of students, but teaching and learning are not isolated processes. When done well they are an intricate melding of content, the individual preferences of teacher and students, learning theory and teaching technique. Good teachers evolve from the trial and error of traditional graduate programs, but the process is inconsistent and uncertain. The current academic climate requires targeted programs, which intervene early in the graduate student's career to assist future college instructors to develop a comprehensive career plan and to understand student learning styles and teaching theory. The History Teaching and Learning Seminar represents the efforts to improve the teacher training of graduate students in the History Department at the University of Texas at El Paso.

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## Case-Based Ethics Education in Physical Therapy

Mollie Venglar and Michael Theall<sup>1</sup>

*Abstract: Physical therapist students often think ethics content to be less relevant than other course material. The purpose of this study was to assess whether changing from lecture to case-based method, would impact ethics awareness and integration. In focus groups, students in the case-based course reported greater perceived value of the ethics content and felt that the material was easier to integrate into practice, while students in lecture-based course reported that content should be compressed into a shorter period of time and did not integrate it as effectively. The model was also effective in improving critical thinking in clinical practice situations.*

*Key Words: ethics; case-based; physical therapy.*

### I. Background and Purpose.

In physical therapist education, instructors teach clinical skills by dealing with tissue (such as muscle, ligament, tendon, etc.), diagnosis, or through the use of cases. Students are taught how to evaluate a problem, determine the physical therapy diagnosis, and plan a treatment appropriate to the diagnosis integrating the psychosocial, past medical history, financial, and pharmacologic co-variants in the plan of care. Carry-over of the didactic instruction of clinical skills content from the academic setting to the clinic is evident through performance assessment during clinical education internships and is required to pass the physical therapist education program. Clinical skills competencies are emphasized through practical examinations, clinical education, and clinical performance evaluation tools (Anonymous. 1997).

Traditionally, ethical issues are not integrated into the teaching of the clinical decision-making process involved in patient care. The American Physical Therapy Association (APTA) has indicated some concern about this aspect of professionalism as the physical therapy profession completes the transition to the direct access role. Direct access allows individuals to seek physical therapy services without physician referral. In the APTA statement on professionalism, ethical consideration of patient care is prevalent, thus indicating that ethics education and the carry-over of that knowledge to the clinical setting is vital in professional clinical practice (American Physical Therapy Association, 2003).

The Realm-Individual Process-Situation (RIPS) Model of Ethical Decision-Making (Swisher LL, Arslanian LA, & Davis CM, 2005) was designed to assist physical therapist clinicians in identifying clinical situations that could include ethical issues. The model directs the clinician to determine the party with the greatest responsibility for the situation, determine the moral background, and determine the nature of the situation. In doing so, the clinician is better able to understand the potential stake holders of any given ethical situation. The clinician is then empowered to direct the situation to the primary stakeholder and facilitate a solution.

#### **Table 1. The Realm-Individual Process-Situation Model of Ethical Decision-Making.**

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<sup>1</sup> Department of Physical Therapy, Youngstown State University, One University Plaza, Youngstown, OH 44555, [mcvenglar@ysu.edu](mailto:mcvenglar@ysu.edu) and Department of Teacher Education, [mtheall@ysu.edu](mailto:mtheall@ysu.edu)

(Swisher LL et al., 2005)

Realm	Individual Process	Situation
Individual	Moral Sensitivity	Issue or problem
Organizational/Institutional	Moral Judgment	Dilemma
Societal	Moral Motivation	Distress
	Moral Courage	Temptation
		Silence

The RIPS model is based on the work of Glaser,(Glaser JW, 1994; Glaser JW, 2005) Rest and Narvaez,(1994), Rest, Narvaez, Bebeau, and Thoma (Rest JR & Narvaez D, 1994; Rest JR, Narvaez D, Bebeau MJ, & Thoma SJ, 1999) Purtillo (2005) and Kidder (1995). Since it is designed for clinical use, the model is appropriate to use in the academic education of entry-level physical therapists. By using cases or scenarios, much like those in the clinical skills content, an instructor can use the RIPS model as a viable method for teaching ethics content. The RIPS model directs the student to evaluate the situation, diagnose the components of the situation, identify the stakeholders, and plan necessary action as appropriate; the same steps taken in therapist intervention of a physical problem. An example of how the RIPS model can be used in provided in the Appendix.

Lecture-style teaching has been criticized for producing passive learners and preventing critical thinking in the classroom (Limbach BJ & Waugh WL, 2005). In contrast, many medical education studies have reported the positive impact of using cases to help students learn course content (Hudson JN & Buckley P, 2004; Jonassen DH & Hernandez-Serrano J, 2002; Keefer M & Ashley KD, 2001; McGinty SM, 2000; Triezenberg HL & McGrath JH, 2001). Hudson and Buckley (2004) studied the perception of case-based teaching in the physiology curriculum for pre-medical students. They found that the case-based method increased confidence of the students when they moved to the clinical courses. The case-based method allowed the students to study physiology in reference to hypothetical patient scenarios, thus creating a non-threatening environment in which the students could attempt to solve the case without fear of consequence (Hudson JN et al., 2004).

Keefer and Ashley (Keefer M et al., 2001) reported the comparison of student response to ethicists' responses to ethical problems. They determined that the student responses were based on common morality; the ethicists' responses were based on professional morality. Although common morality is no less important than professional morality the lack of knowledge of moral issues that relate to the professional world limited the students' abilities to perceive the complete threat and the wide realm of potential solutions (Keefer M et al., 2001). Without exposure to professional ethics, in a manner that expresses the importance of professional ethical decision-making, students can not be expected to grasp the variability of solutions.

Triezenberg and McGrath (Triezenberg HL et al., 2001) report students' perceptions following an applied ethics course in which the primary teaching method was through the use of narratives. The authors reported that students perceived the method in a positive manner and that narratives enhanced their learning of the integration of ethical theory and professional behavior (Triezenberg HL et al., 2001).

Historically, physical therapist students are taught ethics content in a remote, nearly third person, sense. Unlike the physical intervention and client management content, ethics content is not treated as relevant to daily physical therapy practice. The purpose of this paper is to describe the outcomes of a teaching methodology change in an ethics class in a physical therapist education program, and the effects of that change on perceived value of ethics education

following subsequent clinical education for master's level students in a physical therapy program.

## **II. Method/Model Descriptions and Evaluation.**

The ethics curriculum at the author's university is half of a two semester-hour course entitled "Legal and Ethical Issues in PT". The course has two instructors, one for the primary legal content, and one for the primary ethics content. Traditionally, the ethics content was taught in a lecture format. The students were assessed via a cumulative course examination (both legal and ethics content) and a paper/presentation based on a directed interview with a clinician.

The lecture format for the ethics content was abandoned by the instructor, and a case-based format was adopted by the same instructor using the same topics as in the traditional lecture format. In addition, the traditional textbook was abandoned and replaced with popular articles that were relevant to the topics discussed in the class. Eight key aspects of professional ethics were chosen on which to base the case discussions. Prior to attending class all students were provided with an article to read that incorporated a case related to the topic of discussion for that day. At the start of class the topic was briefly presented and the students were asked to identify and discuss the key aspects of ethics most prevalent in the article. The students were also asked to discuss the realm, individual process, and situation most prevalent in the article as defined by the RIPS model. Articles were chosen based on relevance to the topic of discussion for that day, and relevance to a health care professional. The articles were not specific to physical therapy so as to provide students with a more global view of ethical concerns in the health care environment as well as to prepare the students for potential participation in a wide variety of ethics-based discussions later in their professional roles.

Additionally, each student completed two narrative papers on articles discussed during the course. The papers were designed to allow each student to express his/her opinion, with appropriate defense of his/her opinion, prior to initiating in-class discussion. In the paper, as in class discussion, the student was required to identify the aspects of professional ethics most prevalent in the article as well as the realm, individual process, and situation. The student was then required to defend his/her choices of the above in the paper, quoting sources as appropriate. Finally, the student was asked to provide insight for how he/she, as a physical therapist, might be impacted by the situation, and thus how he/she would handle the situation.

In addition, cases from concurrent clinical skills courses were used in the discussion of the daily topic. The use of cases from other courses allowed for the transfer of the ethics topics to clinical skill-related courses with the emphasis that ethics transcends the defined ethics class and is truly important in everyday clinical practice.

Assessment of student performance in the course was made via a midterm and final examination (both legal and ethics content), two narratives, and the paper/presentation of a directed clinician interview.

## **III. Evaluation Methods.**

In the summer following presentation of the ethics curriculum the students at the authors' university embark on their second clinical education experience. Students from the final year of the traditional lecture format, and students from the first year of the case-based format were asked to participate in focus group discussions following the clinical education experience. The

focus groups were run by an individual, unrelated to the department of physical therapy, and experienced in educational methodology and group assessment. The instructor for the class was not present. Answers to the focus group questions were presented to the instructor/author in aggregate format by the individual who performed the focus group assessments. Because the ethics content is half of the “Legal and Ethical Issues in PT” course, students were asked to reflect on the course as a whole with particular attention to the ethics content. The answers of the two focus groups were compared to determine if the change of curricular format impacted the perceived value of the material presented in the ethics class as well as increased awareness or integration of ethics knowledge during the subsequent clinical education experience.

Focus groups were used because qualitative methods (Patton, 1990) were expected to be more effective for exploration of attitudes and opinions in a situation where it was not possible to collect on-site, quantitative data, and where implementation of ethical principles and behaviors first required progressive gains in the affective domain (Krathwohl, Bloom and Masia, 1956). The incorporation of ethical principles into professional practice can be expected only if students have reached levels three through five of the affective taxonomy (valuing, organization, and characterization by a value or value complex). In other words, ethical values will be exhibited through behaviors that can be assessed qualitatively rather than through measurement in traditional quantitative tests.

#### **IV. Limitations.**

This study involved two classes of physical therapist students with a total of 19 students (10 in Year A and 9 in Year B). Thus, given the sample sizes, sophisticated quantitative analyses, and hypothesis testing would have been questionable. While the comments of individual students in the focus group activities might have been isolated, coded, and quantified, using for example, coded responses and student demographics as variables, it would have been problematic to apply even non-parametric tests such as chi square due to small cell sizes. Indeed, part of the focus group process involves striving for consensus to extract major issues and thus, individual student comments do not form part of typical reports of results and are not collected as such.

Another issue to consider is that the incorporation of ethical considerations into professional behaviors and practice is, as noted above, related to the affective domain and thus, the most accurate way to observe and record the incorporation of beliefs into a value system is to observe those beliefs as evidenced by behaviors over time. Longitudinal studies were not possible at this stage and even if planned, they would require both time and (again with such small samples) the collection of enough data to allow appropriate analysis. Such investigation also requires financial support and at the moment, the studies are in the realm of action research or classroom research, for which funding is limited at best. The way to overcome both of these limitations would be to secure funding for a study on a larger scale involving several physical therapist programs and a collaborative research agenda that would allow comparison and analyses of students’ behaviors and attitudes. During this study, this kind of exploration was not possible.

#### **V. Outcomes.**

In both groups, the students were reportedly candid and open in their responses. Responses, as reported by the group facilitator, to each questions are presented below. Year A is the class taught via traditional lecture format. Year B is the class taught via the case-based format.

A. *Question 1.* “What were the three most important (valuable) things you learned in the course?”

*Year A:* Students were pragmatic in their views, noting the value of 1) knowing relevant laws; 2) interacting with in-service clinicians; 3) understanding HIPAA and Medicare rules; and 4) reviewing job descriptions.

*Year B:* 1) Students reported that they had gained a broader perspective on ethical issues due to having to consider various stakeholder views. The complexity of the issues was also clearer as a result of students having to respond to the cases employed in the course. 2) A related opinion was that the case-based approach led to more application of the knowledge gained in the course both during the course and later, in clinical experiences. 3) Students also said that they had gained more/better knowledge of legal issues [through discussion of ethical issues] and that their clinical experiences supplemented this knowledge.

B. *Question 2.* “Were you able to integrate the course content into your practice/profession when you were taking the course? If yes, then how? If no, then why not?”

*Year A:* The consensus was that students were able to integrate content during the course because they had to: 1) recognize situations with legal/ethical implications; 2) follow regulations (e.g. Health Insurance Portability and Accountability Act); and 3) learn to observe practice in clinical situations.

*Year B:* The consensus was that students benefited from the case-based approach because it required this kind of integration. While they felt (as had the previous group) that they entered into the course with mature understanding of ethical issues and the ability to make appropriate ethical decisions, the practical benefit of the case method was that it demonstrated that they could improve their problem-solving skills.

C. *Question 3.* “When you had your clinical experience after the course, were you able to better integrate the course content into your practice/profession? If yes, then how? If no, then why not?”

*Year A:* Students felt that their clinical experiences improved their ability to integrate course content. They cited straightforward responsibilities such as billing, the delegation of appropriate responsibilities to others, and the opportunity to observe a variety of situations, particularly those that repeated previous situations and thus re-emphasized their prior learning and experience.

When asked about the extent to which they experienced any direct instruction or assistance (i.e. did they receive any training on the job) they said that any dialogue on

legal/ethical issues had been initiated by their observations or questions and that they had not received any direct training. In effect, one had to be observant and willing to ask if/when legal/ethical issues arose. No one reported resistance to questions, but there was an indication that students felt that some long-term clinicians might not be as well informed about new regulations as they were. In effect with these individuals, there was no point in asking for advice from someone who didn't have current knowledge.

*Year B:* Students felt that their clinical experiences improved their ability to integrate course content. The combination of active practice through the cases and the clinical experience allowed further development of their awareness and the practical application of ideas in the sense of blending legal and ethical knowledge when making professional decisions.

*D. Question 4.* "Do you believe that the course is important/valuable? If yes, then why? If no, then why not?"

*Year A:* Students felt that the content was valuable, but the course was less so. They indicated that more emphasis should be placed on legal aspects because they needed specific knowledge of laws and regulations. They indicated that they felt capable of making ethical decisions without as much course work, saying, "...we are mature enough to understand ethical dilemmas and consequences."

*Year B:* Students felt that the course was both important and valuable. All felt that they needed to be aware of the issues so that they could deal with situations that arise in professional practice. The extent of this feeling varied as a function of the intended career paths of the individuals. Those who were considering private practice or management roles indicated that they would deal with complex legal-ethical issues more often than would those whose career interests were more focused on direct provision of patient/client care.

The main legal-ethical issue that students noted was the balance between the business/economic requirements faced by care providers and the need to provide clients with the most appropriate amount of care for the most appropriate amount of time. In applied terms, this issue involved deciding how much care to provide given two possibly conflicting agendas: the need for the clinic to make a profit (i.e. using available insurance coverage to provide services that bring a return to the clinic) and the need to preserve the client's fiscal protection (i.e. not using up all of the insurance coverage so that the client could get further services if needed).

*E. Question 5.* "What would you recommend that would make the course more valuable?"

*Year A:* Responses to the previous question relate to students feelings that this course requires more time than is necessary. They suggested that this course could be combined with management or positive health courses. One reason offered for this opinion was that when students reported on their visits to clinics and interviews with clinicians, they found very similar situations and got very similar responses. Thus, when in-class reports were

given, the reports were repetitive. After the first few reports, nothing new was learned from hearing those remaining.

*Year B:* Students offered the idea that more regular integration of legal and ethical topics would help them to develop more sophisticated decision-making skills. They said that having one topic on one day and the other topic on another day tended to separate rather than integrate the two content areas. Since they felt that their professional decisions would most often require a blending of legal and ethical considerations, they also felt they would benefit from more frequent combinations of the topics. Students also said the use of the case-based methods in treating legal content would help them to develop better problem solving skills in this area.

Finally, students noted a desire for more discussion. This can be related to the use of cases that require more activity and engagement than do passive methods such as lecture. In the context of discussing cases, students have to verbalize their thinking and respond to each other. Discussions would be expected to supplement the thinking required by the cases and to make the various decision options more obvious (i.e. there are many possibilities) as well as more clear (i.e. discussion may reveal the most appropriate courses of action).

## **VI. Discussion.**

The focus group comments indicate that the students taught using the traditional lecture format for ethics content apparently valued little of the content following the course. Responses to all of the questions are largely focused on the legal content taught in the course. Apparently the content covered during the ethics portion of the course was either already known (as stated in the answer to Question 4), or considered less relevant/valuable while the students were in the clinic. In addition, the group comment in question five, asking how to make the course more valuable, indicates that the content is not of value and should be condensed in lieu of other more pressing topics. Although knowledge of the legal aspects of the physical therapy profession is vital, ethical practice is also vital. This point, however, was apparently not conveyed well in the traditional lecture format.

The responses from the students in Year B indicate that using cases and encouraging students to voice and defend their opinions, caused the students to better recognize and integrate what they had learned in class to their clinical experiences. An unanticipated outcome was the report that the case-based format of the ethics content allowed for better integration of the legal and ethical aspects of the class. The class is not formatted such that the two topics are intentionally integrated; however, in all of the case discussions students raised questions of law as well as the pertinent ethical aspects. These students did not feel the course content should be condensed, as had previous students, but rather recommended intentional integration of the legal content and the ethics content with further use of cases. The case-based method, requiring critical thinking and problem-solving for case discussion, appears to have sensitized the students to the ethical subtleties in clinical practice during their subsequent clinical experience.

Given the importance that the APTA has attached to incorporation of ethical standards into professional practice, future investigation is necessary into effective methods of teaching about ethical issues, helping students to understand and apply ethical principles, and motivating students to attend to these issues in their classes, clinical experiences, and professional lives. The

limitations in this study suggest that an appropriate and perhaps necessary strategy for definitive research would be to secure funding for large-scale exploration of the issues across multiple institutions and over time. With sufficient data, more rigorous analysis could be applied to determine direct cognitive gains with the target of raising the taxonomic levels of learning to application at minimum, and to higher levels in practice. Additionally, the duration of the effects could be assessed through longitudinal study of professional practices of individuals accompanied by a practical assessment of the impact of workplace environments, management practices, and operational behaviors in clinical, out-patient, and other settings.

## **VII. Conclusions.**

In the physical therapy profession we teach students to treat individual patients and to treat patients as individuals. Each patient is a “case” with its own unique characteristics, but with traits that put that case into a general category for diagnosis and treatment. The expectation that students will naturally translate generalized knowledge into appropriate cases without practice is perhaps unrealistic. Students have limited exposure to clinical situations prior to becoming physical therapists, thus they require sensitizing not only to those situations that require clinical skill, but also to those situations which may impact them ethically. The above outcomes demonstrate that the use of cases, relating ethical issues to cases in other courses, and allowing students to explore the articles/cases using a guided decision-making process improves students’ awareness of ethical issues, enhances critical thinking in non-clinical aspects of a client case, and increases the value of ethics education for the students. The students had an opportunity to participate in the critical thinking needed to make the content personally relevant and incorporate it into their approach to patient care (Atton C, 2005; Limbach BJ et al., 2005).

The effort of the American Physical Therapy Association to improve professionalism in physical therapy involves ethical decision-making. This approach to ethics education resulted in subjective student reports of increased perceptions of the value of the content, increased awareness of ethical situations, and increased understanding of the prevalence and significance of ethical decision-making in the clinical setting. Although the method presented is only one option for teaching ethics content, the outcomes indicate that teaching ethics in a format similar to that used in teaching clinical skills is effective for increasing understanding of the issues, enhancing the value of the content, raising awareness of ethical issues in clinical settings, and developing higher-level professional problem-solving skills.

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## Appendix 1. Scenario of RIPS Decision-making Model.

This is a brief scenario to serve as an example of the RIPS decision-making model. Students are asked to identify the Realm, Individual Process and Situation, and then to provide appropriate rationale for their choices of each. There is discussion prior to initiating this activity that all opinions are respected when accompanied by adequate rationale, and any legal influence should be considered when it impacts the ethical decision-making. Following this activity the class discusses appropriate courses of action based on the results of the model.

### Scenario:

John is a therapist with a contract to provide services to the patients of a managed care company. The company is very clear in its contract that John is to follow the critical pathways. He can treat patients for less time than anticipated, but he cannot extend additional care without approval. He is not free to refer patients to outside therapists, nor is he in any way to “undermine” the credibility of the care offered by the company.

In the course of treating a 42 year old man for injuries resulting from multiple-trauma, John realizes that his patient should have the care of a certified hand therapist. He also realizes that he will not be able to help the patient reach his potential within the number of visits approved by the managed care company.

The company has never honored any of his previous requests for extension of visits. If John does not petition for an extension and the patient is harmed, then John may be liable for the harm. But another petition from him might reduce the likelihood that his contract will be renewed and even put him at risk for dismissal. If he informs the patient that he needs a therapist with expertise in hand therapy, and if the patient then demands from the managed care company the expertise that John recommends, John will most certainly be dismissed. However, if John uses his social skills and convinces the patient that he is getting the very best care, it is unlikely there will be any negative repercussions for John.

(Adapted from “Physical Therapy Ethics” by Donald Gabard and Mike Martin; Copyright 2003, FA Davis)

There are two possible arguments in this scenario:

<b>RIPS</b>	<b>Argument A</b>	<b>Argument B</b>
<b>Realm</b> – environmental context	<b>Individual</b> – John, as the individual employee, is the primary stakeholder of this situation. As the person working directly with the patient, he is the one to make the decisions that will impact the patient’s care and progress. Therefore, he “owns” the decision-making	<b>Organizational</b> – The managed care company, the organization, is the primary stakeholder. Their policies have created a situation in which patients can only receive expert care if the expert is already part of the company. Managed care companies are often chastised for putting finances ahead of patient

	ability/responsibility	care. The scenario appears to fit that notion. If the managed care company allowed patients, even on a case-by-case basis to be referred outside of the company for care not available within the company, this ethical situation may not have existed.
<b>Individual Process-</b> aspect of morality	<p><b>Moral Sensitivity –</b> Moral sensitivity is the ability to recognize and interpret a situation as one with ethical concern. John recognized that the need of the patient conflicted with the policies of the managed care company. He also recognized that the steps to follow to meet the patient’s needs have been unsuccessful in the past with previous patients.</p> <p><b>Moral Courage –</b> Moral courage means having courage to practice ethically as well as persisting in one’s efforts to implement ethical care. John appears to be struggling with moral courage. This may be due to past efforts being unsuccessful; this may be due to concern for his job/livelihood. He appears to know what the ethical course of action is, but is lacking full courage to implement the action.</p>	<p><b>Moral Motivation –</b> Moral motivation is the act of prioritizing ethical values over other values. This scenario demonstrates a lack of moral motivation on the part of the managed care company. Although John is in the position to advocate for the patient, the policies of the company will, and have previously, limit the success of his advocacy. The company appears to prioritize finances over ethical, and quality, treatment of patients.</p>
<b>Situation –</b> nature of the ethical concern	<p><b>Dilemma –</b> A dilemma is two apparently “right” courses of action; taking one “right” course compromises the other “right” course. Both can not exist together. John has a dilemma in that if he chooses to request an extension of time or refer the patient to an expert he will likely lose his job. If John chooses to convince the patient he is getting better, the patient</p>	<p><b>Temptation –</b> Temptation is the choice of right vs. wrong in which one stands to profit from choosing wrong. Although the company can not state they are choosing to do “wrong” by their patients, the actions of the company in preventing employees from referring a patient for the most appropriate care appear wrong. In preventing the action from</p>

	<p>does not receive the most appropriate care, but John maintains his job. If John serves the patient he puts himself at risk; if he serves himself he neglects the full needs of the patient.</p> <p><b>Distress –</b> Distress is when the stakeholder knows the right thing to do but is not empowered to act. John is in distress because his clinical expertise tells him his patient needs the skills of an expert hand therapist. He is restricted by the managed care company in his effort to make the appropriate referral for his patient. He is not empowered to provide the best care for the patient.</p>	<p>occurring, the company benefits financially.</p>
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## **Three Professors' Teaching Philosophy of Education: Strategies and Considerations for Undergraduate Courses**

**Caroline R. Pryor, Kris Sloan and Funmi Amobi<sup>1</sup>**

*Abstract: This study investigated the impact of teaching about philosophical approaches on preservice teachers' coherence-non-coherence perspectives. Participants were 56 preservice teachers from two research universities in two states, and three professors at these universities. Data were collected using (a) a 105-item Philosophy of Education Scale (POES) (Pryor, 2004b), and (b) professor and student self-reflections. A correlational matrix was used to determine the relationship among five philosophical orientations and seven dimensions of educational practice. Results indicate that students are more consistent in their ratings of approaches they are less likely to adopt in their teaching than those they are more likely to use. Implications include suggestions for enhancing foundations courses and the use of the POES as a reflective tool.*

### **I. Introduction.**

Professors of undergraduate teacher education courses often hear students express anxiety about demonstrating their teaching skills. Although they ponder, write and re-write lesson plans and reflect about possible problems they might face (i.e. student behavior, appropriate content), we suspect that instead of solely seeking advice on tools, tips and tricks for their lessons, these preservice teachers might be better served by drawing on foundational understandings to support the tools they use. Foundational knowledge in teacher education (philosophy, history and sociology of education) has long afforded teachers a means for self-knowledge about their beliefs about the goals of education—a self-knowledge that leads to clarity in making classroom decisions (Feinberg & Soltis, 2004; Oliva, 2005; Wactler, 1990 and others).

However, many who teach in preservice teacher education programs have noticed that foundational courses (in particular philosophy of education courses) have become either less a staple or have entirely disappeared as stand alone courses in undergraduate programs. One response to this concern is that other areas (e.g., mathematics education) have become more attractive to doctoral students than coursework leading to foundations concentrations in the degree plan. Or, perhaps the paucity of trained foundations professors (Carbone, 1991; Henry & Shea, 1986) suggests that these professors have been courted to teach graduate level courses. If this latter statement is true, will undergraduate teacher education programs concentrate solely on pedagogical practice (methods, management and media)? To determine how professors who do teach in undergraduate programs might enhance students' expression of their philosophical beliefs about teaching (i.e., their beliefs about how to approach teaching decisions), this study reviewed strategies and course methods used in three undergraduate courses. Because foundational courses help pre-service teachers better understand the philosophic beliefs that underlie their goals and purposes of education (Feinberg & Soltis, 2004) or selection of

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<sup>1</sup> Department of Secondary Education, Southern Illinois University Edwardsville, Box 1122, Edwardsville, IL 62026, [capryor@siue.edu](mailto:capryor@siue.edu), College of Education, St. Edward's University, [kriss@stedwards.edu](mailto:kriss@stedwards.edu) and College of Teaching Education and Leadership, Arizona State University, [funmi.amobi@asu.edu](mailto:funmi.amobi@asu.edu).

particular teaching pedagogies (Pryor, 2004b) —the study investigated students’ cohesive and internally consistent philosophic approach to teaching.

Teaching about philosophical foundations of education has a long-standing and well-regarded position in teacher education, a status that has remained fundamentally unchanged (Hlebowitsh, 2005, Oliva, 2004; Tanner & Tanner, 1995). For example, an overwhelming number of teacher educators continue to [state that] they believe philosophy of education plays an important role in undergraduate education (e.g., Gunzenhauser, (2003); Rainer & Guyton, 1999 and others). Teacher accreditation organizations also remain dedicated to the benefits of including educational foundations in undergraduate course work. The National Council of Accreditation of Teacher Education (NCATE) (2000 revision) states that candidates of accredited institutions should be prepared with a sound foundational base of the role of the teacher in education. In order to respond to this requirement, The Council of Learned Societies in Education (CLSE) developed two standards used in NCATE institutional evaluation: (a) Standard II, candidates demonstrate skill in interpretation of the goals of education, and (b) Standard VIII, appropriately prepared faculty<sup>3</sup>. It seems appropriate then that the mission to enhance philosophy of education courses should not be underestimated. Morey (2001) compared the quality of teacher education programs in universities with programs offered by for-profit providers with a discernable effect noted in programs with a provision for the translation of theory into practice. Morey states:

A disturbing fact about [for-profit providers] is its reliance on practical experience and practitioners at the expense of theory. The ability of these practitioner-trained teachers to make judgments about effective educational practices could be seriously impaired by their lack of understanding of educational theory [and] probably will not produce the type of reflective practitioners that many believe are essential for the improvement of today’s schools (pp. 309-310).”

It appears, therefore, that the long-standing inclusion of foundations knowledge integrated into an undergraduate course is not a poorly thought out idea. Anyone who has tried his or her hand at carpentry knows that predicting the outcome of a project built with a poor foundation is not difficult. What is difficult is how to respond to two programmatic concerns, vibrant course delivery and professor preparation. Central to program delivery, Butin (2004) suggests, is the provision for “substantive inquiry, intellectual debate, and deep reflection” (p. 7). Unspoken in this second concern is a substantive discussion of high-impact strategies that support faculty delivery of this foundational content and an understanding of the insights students’ might derive as a result of learning about their philosophical approach to teaching.

## II. Literature Review.

The suggestion that knowledge of philosophy of education can be extrapolated as practical knowledge, that is, it can serve to inform, frame, justify and clarify the work of practitioners, is well regarded by many (Arnstine, 2002; Leahy & Corcoran, 1996; Petress, 2003; Pryor, 2003a; Schonwetter, Sokal, Friesen, & Taylor, 2002; Soltis, 1986). For preservice teachers, however, these benefits sometimes appear oblique. To counter this difficulty, Petress

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<sup>3</sup> In 2002, NCATE included these two standards as part of the narrative in all standards; see for example, standard 3 on teacher dispositions.

(2003) urged us to provide students with “guideposts” or opportunities for students to draw on their developing philosophies when thinking about classroom instruction, a reflexive *weighing* of educational decisions. Similarly, Schonwetter, (2002) favored the notion that understanding one’s philosophical approach would foster evaluation of teaching decisions, particularly as teachers find themselves evaluated on external measures such students’ standardized test scores. As professors seek to link philosophical understanding with classroom decision-making, the actual beliefs held by these preservice teachers can become marginalized to more pressing issues of learning how to teach (e.g., how to administer a spelling test, or grade essays) (Leahy & Corcoran, 1996). Providing students with a means to identify their beliefs is one strategy from which they might draw clarification when selecting teaching strategies.

### *A. Benefits of Philosophical Coherence.*

The aim of reflecting on philosophical approaches is not to cement preservice teachers’ orientations into pre-figured, categories that could minimize their efforts to make sense of the complexities of classroom life. Rather, the aim is for preservice teachers to draw upon prompts such as a metaphoric image or an analytic survey to facilitate a self-examination process. The goal of this self-examination is the creation of a coherent philosophic framework, which makes possible the navigation of classroom complexities. A coherent philosophic framework is one that is internally consistent epistemologically, ontologically, and axiologically. Antonovsky (1987) uses the phrase “sense of coherence” to describe a belief system in which the world is viewed as comprehensible, manageable, and meaningful. Comprehensibility is the degree to which one perceives a predictable, ordered, and explicable world; manageability is the degree to which one believes that he or she has the personal and social resources to handle a demand. Complementary to these beliefs is meaningfulness in which one believes that demands are challenges worthy of investment and commitment.

The research on cohesion indicates that *sense of coherence* is a construct that significantly influences an individual’s adjustment to the complexities of daily experiences (Antonovsky, 1987; Korotokov, 1998; Lustig, Rosenthal, Strauser, & Haynes, 2000; Motzer & Stewart, 1996; Soderberg, Lundman, & Norberg, 1997; Szymanski, Hershensen, Enright, & Ettinger, 1996) A framework that lacks internal coherence is apt to result in what Emerson (1841) called a “foolish consistency,” that in the end leads to novice teachers either misapplying or misusing theory (Haggerson, 2002). At times this misapplication might not appear salient to the preservice teacher as their urgency to “get my lesson ready” is --understandably—prescient, but inadequate for resolving dissonance within practice. Thus for many preservice teachers, an incomplete understanding of assumptions underlying coherence can result in later professional frustration or stagnation (Kalimo & Vuori, 1990). *Growing* a preservice teachers’ sense of philosophic coherence might moderate these effects (Noddings, 1995; Szymanski, Hershensen, Enright, & Ettinger, 1996). Thus some discussion regarding programmatic pathways to growing these understandings might prove helpful to teacher educators.

### *B. Program Concerns.*

The case that foundations courses can be well taught, and relevant to students and faculty remains a programmatic challenge (Bredo, 2002; Burbules, 2002; Edel, 1972). Steiner (2004) claims the preparation of teachers is intellectually barren and focused on indoctrination, which

has been refuted by Butin (2004). Foundations *topics* do appear in undergraduate education programs, however there are some concerns about the delivery of this content. The first concern is that philosophy of education is often presented as a limited section within an introductory course, thus fragmenting philosophy from the overall course topic (Appleton, 1979; Petress, 2003; Steiner, 2004). The second concern regards unevenness of content delivery when often it is taught by under-prepared faculty (Shea, Sola & Jones, 1987). Towers (1991) suggests that even among prepared faculty, teaching philosophy and history of education is less favored than coursework in current social issues. However, in *particular* programmatic constructs, when course activities facilitate practical decisions (deciding on a grading policy, a homework policy) Towers posits, understanding the foundations of education can become highly valued by both students and professors.

Some course activities are particularly well regarded by students. For example, Gross (1996) used a didactic questioning framework to foster the link between preservice teachers' reflections on the role of the teacher, course readings, and observations during students' field experiences. Wactler (1990) found that student teachers' journal reflections on the role of the teacher were efficacious to understanding personal teaching beliefs. Rainer & Guyton (1999) noted that learning about their philosophical approaches provided preservice teachers with a basis for discerning which of their mentors' practices they might want to adopt in their own teaching. Lastly, Fen (1967) suggested that acquiring a personal philosophy of education enables preservice teachers to answer questions about *how* they substantiate their practice, particularly when conferencing with a classroom mentor teacher.

### *C. How can teacher educators help pre-service teachers understand philosophy?*

Teacher educators face several challenges as they attempt to support students understanding of their philosophical approach to teaching. First, although the benefits of understanding one's approach to education is well described, some literature on the legitimacy of philosophy of education presents an unflattering picture of its place and possibility for survival in teacher education (Bredo, 2002; Burbules, 2002; Carbone, 1991). In part, this survival is challenged in the present educational climate by an emerging predominance of competency-based outcomes (CBO); there are some indications that CBO might serve to marginalize efforts to portray the effectiveness of understanding one's educational philosophy (Guzenhouse, 2003). Second, the construct of traditional approaches to teaching philosophy might also have exacerbated the perceived lack of importance of learning about philosophy. For example, in most educational foundations textbooks, the traditional approach is didactic, using explicit content delivered in a linear-lecture model (Butin, 2004). This approach typically begins by defining the term "philosophy" and related explanatory terms such as "realism," "idealism" and others. Having provided this scaffold, the instructor delves into an exposition of the various systems of educational philosophy, beliefs about the purpose of education, curriculum and role of teachers and students. Before moving on, the instructor, mindful of the need to have students construct their own philosophies of education, offers a concluding exercise to that effect.

Critics therefore can easily point to the dissonance between philosophers' and educational practitioners' perspectives about the application of philosophy of education in finding workable solutions to educational issues. In this regard, philosophy of education is often deemed too abstract to provide guidance to the everyday concerns of practitioners (Carbone, 1991). In the everyday realities of classroom life teachers are not always guided by *episteme* —a

theoretically created procedural of teaching. Invariably, teachers' reactions are driven by what Korthagen and Kessels (1999) termed *phronesis*, that is, situation-specific knowledge of teaching created by the teacher. Programmatic concerns would do well to consider processes that help preservice teachers combine an *episteme-phronesis* gestalt to good advantage during their preservice preparation. To facilitate this gestalt to teaching educational philosophy, teacher educators increasingly turn to more reflective approaches.

*Reflective Approaches.* Reflective approaches provide experiences that elicit introspection on the assumptions and implications of philosophies of education (Preskill, 1979). A common method of promoting reflection is through the use of educational surveys, such as the *Witcher-Travers Survey of Educational Beliefs* (1999), which assesses tendencies toward transmissive or progressive beliefs. This instrument is composed of stem items related to educational beliefs ("Tests are a good measure of student knowledge") each of which is rated on a five-point Likert-type scale and scored for two oppositional philosophical approaches—behaviorism and progressivism. Another instrument, and the one used in this present study, the *Philosophy of Education Scale (POES)* (Pryor, 2004b) proffers cross-classification of five approaches to teaching (executive, humanist, subject specialist, citizen, and explorer) with seven dimensions of instruction such as classroom environment, lesson plans, or classroom management. Other reflective approaches involve the development of metaphors of teaching or reflection based on field experience observations, or journal writing (Wactler, 1990). According to Amobi (2003), "...writing a metaphor of teaching requires tapping into one's personal experiences to inform one's teaching" (p. 28). Thus, the main focus of employing reflective strategies in teaching educational philosophy is to expand preservice teachers' self-understanding at a time when they are developing value judgments about teaching decisions.

*Professors' Expectations.* Belief in reflective approaches are the work of the three professors involved in this present study; however each utilizes different strategies to achieve reflexivity among the preservice teachers in their classes. Below, we offer first person descriptions of our goals for (a) students' understanding of the purpose of education, (b) the deficit of current affordances used in our courses (i.e. philosophy statements, metaphor, autobiography), and (c) expectations of the use of the *Philosophy of Education Scale* in each of our courses. These offerings are reflections of authors A (Pryor), B (Sloan) and C (Amobi). Although we used reflection strategies in our courses, our expectations for this reflection differed. Our common expectations for our students was that reflection on philosophic approach would enable a student to (a) become more philosophically coherent in selecting teaching strategies, (b) make sense of coherence in their approach, and (c) use philosophical approach to disaggregate school controversy. At the end of the results section, we reflect on some changes we plan to use in our courses.

*Professor A:* My purpose in using the POES was to provide students with a strategy to evoke a personal reservoir of meaning, or at least an approximation of meaning of beliefs about teaching (Wactler, 1990). Not unlike the experience of Professor B, I found my preservice teachers either lacking or hesitant in their ability to draw from their autobiographical memories of school, or from case studies provided in initial coursework when they attempted to explain their educational beliefs. For example, when asked to explain the role of the teacher, the prompt questions I used were, "Think about the stories you remember about teachers and school," and "When you consider the role of the teacher, what comes to mind?" In response, one student wrote: "My role is to help each student become the best person they can be." What appeared missing from this student's beginning explanation was a deep understanding of how her

perception of the role of the teacher will be acted on; that is, given her belief, what is her target teaching action and how consonant is this action with this her beliefs about teaching? The prompts (indicators on the POES described below) appeared to me to function as markers (events in *currere*, (Pinar, 1975) much as Ausubel's (1963) advanced organizer functions as markers of experiences remembered and useful in the projection of expectations and hopes. I hoped the POES prompts would unveil coherence-non-coherence of beliefs en route to a students' next ontological step about selecting teaching practices. My thinking was that the POES could provide students with a strategy for disaggregation of their beliefs about schooling and enhance their understandings of the beliefs underlying the decisions they would make about classroom practice.

*Professor B.* Although autobiography has been a rich source of inquiry and theorizing in the curriculum field and teacher education since the 1970s when Pinar (1975) first purposed *currere*, I have frequently been frustrated in my attempts to utilize autobiographic techniques in my teacher education courses. Although *currere* has been described as both a method and theory of curriculum (Pinar & Grumet, 1976), a significant number of pre-service teachers in my courses struggle in their attempts to produce self-focused autobiographical narratives that further their own philosophic understandings of curriculum and pedagogy. Worse, I sense that some pre-service teachers simply perform autobiography to prove to their professor they have "learned" something. Thus, I turned to the use of the POES as yet another reflective strategy, admittedly a more structured strategy that both promotes self-understandings and helps pre-service teachers develop a more coherent philosophic understanding of their educational decisions. In this investigation, I hoped to learn how the use of the POES might help me better understand pre-service teachers' perspectives on philosophic approaches and develop additional strategies to foster self-understanding and philosophic coherence.

*Professor C.* I had hoped to use the POES to provoke students to make sense of experiences that structures their emergent philosophies of education. I hoped the instrument would become a triggering event for students to reflect on past and present knowledge and experiences—and spur their philosophic classifications (Dewey, 1933; Pryor, 2003a). I compared the *POES* to *The Witcher-Travers* (1999) philosophy scale, finding these complementary to each other on three points: (1) the Witcher-Travers provides three broad classifications, while the POES provides five philosophic themes; (2) the Witcher-Travers incorporates questions that subsume *indistinct* commonplaces of teaching, while the POES includes prompts that are derived from *distinct* commonplaces of teaching and learning (i.e., classroom environment, lesson plans, classroom management knowledge/instruction ); and (3) the Online Witcher-Travers provides immediate, detailed feedback to survey-takers, while the POES results are calculated and aggregated by participants, and/or external researchers.

I respond in this article to my use of the POES and its efficacy for providing a contextual environment for class discussions. Given our interest in understanding the philosophical beliefs of our students this study investigated philosophical coherence-non-coherence among preservice teachers. As an outcome of this investigation, we will present course strategies that might enhance preservice programs.

### III. Methodology.

#### A. Participants.

The 42 students in Instructor A and B's courses were enrolled in a Research I university. Instructor A's course was composed of 27 first semester seniors enrolled in a field-based course in *Elementary Methods of Teaching Social Studies*; Instructor B's course was composed of 15 second semester juniors enrolled in *Curriculum Development and Instructional Strategies in Early Childhood Education*. Instructor C's students (N=14) were second semester secondary education juniors and seniors enrolled in *Critical Issues in Secondary Education* at a branch campus of a Research I university in another state. All three professors were trained in philosophy of education in their doctoral programs.

#### B. Course Procedures.

*Professor A.* In a program entitled *Citizen Teacher* (Pryor, 2003b; 2004a), students discussed theories related to three themes of democracy, liberty/freedom, justice/fairness/ and equality/equal opportunity using one text on democratic practice and a second on philosophy of education. The social studies methods course was linked to a 20-hour per week field- experience in which preservice teachers observed and participated in limited entry-level teaching. In addition to discussions related to social studies content, the course experience included reflection on: (a) educational biography, (b) observations of mentors' practice, and (c) observation forms centered on identifying democratic practices. The capstone activity included completion of the POES and development and analysis of a philosophy of education statement.

*Professor B.* This course examined the curriculum and pedagogies used in early childhood education, often of opposing viewpoints, included: classroom debates, viewing of films, and presentations by community-based educators. Students were encouraged to think critically about the promises and limitations of various models of curriculum and pedagogy and afforded extended opportunities to mine their previous experiences through reflective essays. Lastly, students were asked to develop, over the length of the semester, metaphoric images of the classroom and their vision of teaching practices (Connelly & Clandinin, 1988). These metaphors were considered "figurative tropes" (Coffey & Atkinson, 1996, p. 84) that helped preservice teachers better access their own philosophic framework as well as epistemological, ontological, and axiological assumptions about curriculum and pedagogy. Such imagery unveiled personal and situated knowledge that might otherwise remain unrevealed, or, as in a failed or mixed metaphor, revelations of levels of confusion or ignorance not otherwise seen (Coffey & Atkinson, 1996).

*Professor C.* This course examined past and current controversies regarding public schooling focusing on secondary education. Students were encouraged to develop their own viewpoints about controversial issues. It was hoped that exploring these viewpoints through the lens of philosophic background knowledge would enhance students' experience and abilities to analyze the underpinnings of ideas espoused by "respected voices" in education whose writings spanned the readings for the course. Students completed the *Witcher-Travers Survey* and the POES and reacted to the outcome of classifications, after which the class interpreted the philosophical tendencies of major characters in popular high school movies such as *To Sir, With Love*, *Dead Poet's Society*, *Dangerous Minds*, or *Mr. Holland's Opus*. Following this activity,

students wrote metaphors of teaching, which were then compared to their perceptions of a teaching metaphor in their chosen ‘movie’ teacher. The purpose of combining traditional and reflective approaches in teaching was to encourage the propensity that “philosophy of education is not just the way we think, but also the way we do” (Amobi, 2003, p. 27), and to provide students a framework for analyzing the philosophical assumptions that previously stranded the controversial issues brought forth in the course.

### C. Instrument.

*Philosophical Orientations.* Five categories of philosophical orientations or beliefs central to the POES have been described in the literature as philosophical teaching *approaches* (Feinberg & Soltis, 2004; Oliva, 2005; Pinar, Reynolds, Slattery, & Taubman, 2000; Tanner & Tanner, 2000). The five approaches used in the POES are: (a) executive (behaviorism, a production model), (b) humanist (progressivism, student centered), (c) subject specialist (perennialism, content focused) (Tanner & Tanner, 2000), (d) explorer (deconstructivism, revealing social myths, Pinar, Reynolds, Slattery, & Taubman, 2000), and (e) citizen teacher (essentialism, core civic values, Ravitch & Thernstrom, 1992). Additional description of these approaches is found in Appendix A (see also Pryor, 2004b).

*Dimensions.* The Philosophy of Education Scale (POES, see Appendix B) is composed of seven dimensions of teaching, derived from the core standards of the *Interstate New Teacher Assessment and Support Council* (INTASC) (1992), and the *National Council of Accreditation of Teacher Education* (NCATE) Standard One (2000 revision) of effective teaching: classroom environment, lesson plans, classroom management, activities, grading/evaluation, knowledge, and teacher’s role. The seven dimensions of the POES are triangulated across five philosophical teaching approaches described in the literature. In all, the POES is comprised of 105 indicators, each independently rated, and 35 philosophical approach items, each ranked. Studies of the 105-item POES investigating preservice teachers (Pryor, 2003b; Pryor & Eskirmireh, 2004), report reliability ranging from .61 to .68, considered well above the benchmark range of 0.50 to 0.60 set by Nunnally (1967) for an instrument intended as an analytic tool.<sup>4</sup> Reliability in this present study is  $r = .71$ .

### D. Data Analysis.

*Philosophical Classification.* Each philosophical approach (e.g. executive) calculation was determined by classifying an individual into an approach type—termed an *identifier*—if their obtained score reached one half of one standard deviation above the mean score of the total sample score; the total score possible is 105. For example, if the average score for this sample of

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<sup>4</sup> Within each dimension (e.g., lesson plans), five cells represent each approach; each cell is composed of three indicators representing a particular approach. Each *indicator* is independently rated using a five point evaluative scale, after which the cell is compared across the five approaches of a dimension and each approach is ranked using the five-point scale. The summated ranked scores derive an overall philosophical orientation score. These ranked scores also portray the contribution of each dimension to overall philosophical approach. Reliability studies of the POES were developed by (a) determining indicator-cell coefficients (Cronbach’s alpha), (b) determining coefficients for each of the seven dimensions and five corresponding philosophical approaches, and (c) averaging the mean coefficients of either the five approaches or the seven dimensions, leading to the same result. In this present study, data were collected by each professor from participants at the middle of the semester as part of their coursework, and results were discussed in class; small sample size prevented replication of reliability.

students for the executive approach is 80 (SD=10), then a score of at least 85 will result in an executive categorization. An individual can be classified into more than one approach category or not classified into any one particular category. The sum of the number of participants in each category, then, will not total the sample n. This procedure was selected to respond to the analytic nature of the instrument in which participants draw on more than one philosophical approach when evaluating classroom practice (Wactler, 1990).

*Coherence Matrix and Coherence Pairs Analysis.* A correlational matrix was developed to determine the degree of coherence in each philosophical approach. This matrix was developed by correlating the seven dimensions of teaching on the POES with each of the five philosophical approaches. Further analysis was conducted to disaggregate the coherence matrix data to determine the high and low correlations pairs for each philosophical approach (e.g., coherence of lesson plans and classroom management in the executive philosophy). Correlational pairs of at least  $r=.50$  were considered highly correlated. In order to provide information to enhance development of instructional course construct, the data pairs reported below regard only those pairs in which high correlation exists; the remainder of the correlational pairs were considered low and not reported here.

#### IV. Results.

##### A. Do preservice teachers hold a coherent philosophical approach to teaching?

As portrayed in Table One, students were more consistent in what they believe *they are not* (philosophically) than what they believe *they are*. This is true among all the philosophical approaches except the executive approach, in which students who are primarily categorized as “executive” consistently indicate low coherence to all of the approaches. The average correlations describing the level of coherence for those who are identified as belonging to a particular approach are: executive ( $r=0.19$ ,  $SD=0.27$ ), humanist, ( $r=-0.01$ ,  $SD=0.21$ ), subject specialist ( $r=0.23$ ,  $SD=0.28$ ), explorer, ( $r=0.14$ ,  $SD=0.18$ ), and citizen teacher ( $r=0.06$ ,  $SD=0.25$ ). Students were consistent about which philosophical approach they *were not*. For example, students who were classified as humanists were not only the least aligned to their own overall philosophical orientation ( $-0.01$ ), they were also most consistent in describing themselves as *not executive* ( $r=0.63$ ,  $SD=0.15$ ), *not subject specialists* ( $r=0.49$ ,  $SD=0.13$ ), *not explorers* ( $r=0.48$ ,  $SD=0.16$ ), and *somewhat not citizen teachers* ( $r=0.32$ ,  $SD=0.19$ ).

**Table 1. Correlations among Philosophical Identifiers by Approach Category.**

	<i>Executive</i>		<i>Humanist</i>		<i>Subject Specialist</i>		<i>Explorer</i>		<i>Citizen Teacher</i>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<i>Classified as Executive</i>	<b>.19</b>	<b>.27</b>	.16	.19	.26	.24	.31	.21	.14	.23
<i>Classified as Humanist</i>	.63	.15	<b>-.01</b>	<b>.21</b>	.49	.13	.48	.16	.32	.19
<i>Classified as Subject Specialist</i>	.27	.25	.42	.27	<b>.23</b>	<b>.28</b>	.55	.19	.49	.18
<i>Classified as Explorer</i>	.67	.13	.29	.23	.38	.18	<b>.14</b>	<b>.18</b>	.25	.25
<i>Classified as Citizen Teacher</i>	.67	.14	.11	.24	.30	.19	.28	.21	<b>.06</b>	<b>.25</b>

The seven dimensions of teaching on the POES provide contextualization of the five philosophical approaches that frame initial understandings of teaching decisions. Of these, four relate to pedagogy (classroom environment [CE], management [CM], lesson plans [LP], and activities [A]), one to domain area (knowledge [K]), and two are related to school policy (grading [G] and the role of the teacher [TR]). As an example of information that can be learned from the disaggregation of students' teaching beliefs across these seven dimensions, we provide in Table 2 one type of disaggregation of the POES using the Executive approach as an example. In order to more fully understand the [dimensional] source of these Executive identifiers' coherence-non-coherence, we portray in Table 2, high correlational pairs indicating the Executive identifier coherence to the approach, and high correlational pairs indicating their non-coherence to the approach.

The data in Table 2 was developed as we asked the following question: Do student scores indicate an internally consistent approach as we look across the seven teaching dimensions? We learned that some non-coherence to an approach can be identified, and which teaching dimension pairs were related to this non-coherence. In this study, executive identifiers are coherent in their approach on the dimension pairs of lesson planning, classroom management, and classroom activities. These three areas were important to the Executive identifier—students valued (and might likely use) the executive approach in these three dimensions of teaching. In a classroom activity about the findings of the POES, a student in Professor A's course explained why she might use the executive approach in classroom management:

My mentor teacher knows the students in her classroom very well. She knows how to respond to students when they are off task and she understands the reasons behind their actions. I am learning to understand the students, but I don't want the entire class to "fall apart" when I teach my first few lessons. I want things to go smoothly, so I give them rules

However, when these Executive identifiers think about the "knowledge" (content or domain area knowledge) dimension, they are not coherent in their philosophical approach. Their pair ratings regarding the nature of knowledge were higher in approaches other than the Executive. Thus, even as Executive identifiers, these preservice teachers held non-Executive beliefs about the construct of knowledge. As one student pondered her goals as a teacher she noticed how strongly she believed in the value of students' opportunity to experience the breadth and wide perspective of knowledge. She explained:

Here I want students to become critical thinkers. To do this, I will plan in-depth content units, such as a very broad unit on Texas history, or a really good unit about money in my math lesson. I want them to be critical consumers, to know what a society has to offer them. If they only memorize facts, they lose out on thinking about possibilities—they miss reflection on content (Professor A).

Through discussions and reflections, we also noticed how a teaching dimension such as "knowledge" might add or detract from coherence within a particular approach. For example, finding that those classified as Executives were not influenced by the structure or content of domain area content knowledge (i.e., "I believe history or mathematics information should be taught only in a linear-behaviorist approach—that is teach the facts) when making classroom

decisions gave us some insight into these students' beliefs about how they might frame a lesson plan, or which activities they might select to use in the classroom. We noticed however, that although the knowledge dimension does not predict coherence for executive identifiers, we now have information that allows us to pay attention to the attributes of knowledge that *does* motivate the executive identifier. In this case, the executive identifiers' high coherence pairs regarding their beliefs about the construct of knowledge was found *not* in the executive approach, rather in the humanist, subject specialist, and explorer approaches, and these three approaches were then paired to several other dimensions of teaching ("I'm an executive overall, however, I am a humanist in my beliefs about the relationship between knowledge and classroom management,  $r = .52$ ).

It is important to note that these scores portray a consonance-dissonance correlation at an identified point *in time* in students' professional development. The scores also enhance professors' understanding about what students believe about teaching and where gaps in their teaching knowledge might exist. When viewed by professors of preservice courses the sample correlations among dimensions can provide information that suggests revisions in course strategies. For professors teaching undergraduate courses, using strategies such as *currere* in which a students learn to project possibilities (Pinar, 1975)— of a teaching approach- provides students with an opportunity to develop a "conceptual fund" upon which they might draw their future decisions about approaches to teaching (Wactler, 1990).

Professor A asked her students to project/reflect on which teaching strategies comes to mind when addressing the issue of consonance-dissonance within a practice—such as grading policies:

I always use the dimension of grading as a probe about student beliefs. I ask if they believe their professors grade fairly and if so, how would these same policies be used in K-12 settings. After all, they see us grade their work, they have had K-12 teachers grading their work over the years, yet we expect these preservice teachers will develop a broad repertoire about approaches to teaching that will lead them to decisions based on a typically undiscussed rationale--their philosophy of education.

Few students link their philosophy statements to the choices they think they might make in classroom practice. They tell me that philosophy is abstract—like a made up story about teaching. They do not see how philosophy is useful in the field experience where they have to demonstrate what they know about teaching. In other words, pedagogical decisions, such as grading is not seen as a philosophical act (Professor A).

Mindful of the suggestion of Preskill (1979) to seek opportunities to discover how philosophy and practical activities might align, another common dimension of teaching—grading—is used as a discussion topic here. In this particular study, only the dimension of *Grading/evaluation* was highly aligned with the other six dimensions (in each of the five approaches). This finding indicates that the dimension of grading more than any other dimension best represents the direction of an individual's philosophical orientation. Given the nature of grading, an evaluative process resulting in self-categorization (good student-bad student, Kohn, 1986), it is not

surprising that novice teachers, still in the evaluative environment of a university, can easily target coherence within their own approach using the grading referent.

*B. Which dimensional pairs contribute most to coherence or non-coherence within each approach?*

As seen in Table 1, high pair correlations differed between philosophical approach identifiers (e.g., “The executive approach is *most like* me) and non-identifiers (“The executive approach is *not like* me.”) These identifier-non-identifiers were also different when their philosophical approach ratings were triangulated using the seven POES dimensions of teaching (see, for example, Executive approach correlations such as LP correlated with CM in Table 2). We continue our use of the Executive approach as an example in the discussion and Table 2 below in order to highlight correlational pair results of approach identifiers and non-identifiers.

Preservice teachers who were categorized as “executives” were highly consistent in their ratings of two paired correlations, Lesson Planning and Classroom Management and Classroom Activities and Classroom Management. Among *non-identifiers*, numerous dimension pair correlations were found above the .50 level. This finding corroborates the notion that pre-service teachers appear to know what they *are not*, rather than what *they are*. One example of *non-identifier* high pair correlation concerns the dimension of grading, which is common among approaches of highly correlated pairs. For example, the correlation of CA and GR is  $r = .55$  in the citizen teacher approach, indicating that citizen teachers strongly believe that they are *not executive* when they consider the relationship between CA and GR.

**Table 2. High Correlational Pairs on the POES Using an Executive Identifier Example.**

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Executive Ratings of Executive Approach

LP & CM (.68)

CA & CM (.62)

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Executive Ratings of Humanist Approach

KN & CM (.52)

---

Executive Ratings of Subject Specialist Approach

LP & KN (.64)

KN & GR (.64)

CM & GR (.54)

LP & GR (.52)

---

Executive Ratings of Explorer Approach

CM & KN (.71)

CM & GR (.58)

LP & KN (.55)

CA & TR (.53)

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Executive Ratings of Citizen Teacher Approach

CA & GR (.55)

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*Note.* CE represents the dimension of classroom environment, LP represents lesson planning, CM represents for classroom management, CA represents classroom activities, GR represents grading, KN represents knowledge, and TR represents teacher’s role.

Interviews with our students provided us with feedback about how the POES helped with the process of self-identification of philosophical approach. One of Professor C's students told her:

The *POES* classified me as a Humanist. The results were very similar to the *Witcher-Travers* survey results. A pro [positive attribute] for the [POES] Scale was the simple and clear way to categorize yourself. There were no awkward sentences to un-jumble. It was just picking what sounded more like you.

One of Professor B's students told him:

Taking the [POES] survey was particularly meaningful to me because I was able to see myself more clearly, or the teacher I DON'T want to become. Often times, while I am working with my students [in my field placement], I find myself wanting to control the situation or guide them to the right answer. Too often I will underestimate their intelligence or understanding of the situation and just sort of "give" them the answer for fear that they will become frustrated or lack the confidence to produce the right answer. In my head, I know that this is NOT the approach that I want to take, but something inside of me just wants to "baby" my students.

In addition to seeking clarity in the format of scales or surveys, students also wanted instruments to help them make sense of their philosophic approach. Wactler, (1990) found that in addition to word or phrase prompts, students wanted to discuss their approach with their professor – somehow checking to see if their approach is coherent in light of school concerns. As one student explained to her professor:

The [POES] seemed to classify me correctly as well. I do feel that the teacher's role is more than that of a facilitator, even though I am math [secondary]. The [POES] was easier to complete than the *Witcher-Travers*. However, I felt that the items were just scratching at the surface instead of asking directly about the issues (student in course, Professor C).

Another preservice teacher responded to Professor B:

[Our discussion of the POES] showed me my "executive" tendencies. For example, as a teacher I hope to plan lessons and activities a year in advance, but I also know that I have to take into account problems and situations that might evolve. My humanist tendencies, however, remind me take into account that I do not yet know the children I will have for that school year. Overall, I've come to realize that it's okay to be have different tendencies so long as I am flexible and responsive to children in my class.

Finally, we noted that students turned to their professor for guidance and discussion about the breadth of philosophical approaches that they might hold (i.e. Do I approach teaching solely using one approach? Should I only have one approach?). Here, these students tell us, it is helpful

for professors to contextualize school settings, so students can recognize how they might change approaches during their field experiences. A third student in Professor C's course explained:

A con [negative] for both surveys is, from a statistical point of view, how accurate can they be? Overall, I felt that both surveys were very accurate *at this time* [emphasis added] in my evaluation. I am eclectic and [likely think of myself as] a teacher as an Executive

To access the complete analysis of correlational data pair information see Pryor<sup>1</sup>.

*C. Which attributes of philosophical approaches might explain coherence or non-coherence?*

Personal beliefs about the goal of education frame teachers' stated lesson objectives (Wactler, 1990) and these beliefs provide insights about how the approach might be applied in the classroom. As preservice teachers become experienced in describing their ideas about the goal of education, a tool such as the POES can be helpful in the developing the remaining construct of their approach to teaching. Questions such as "under what teaching conditions would you want to use a particular approach?" are a helpful prompt to use. The POES offers students information beyond that of self-identification as it provides an opportunity to disaggregate which of the seven dimensions contribute to philosophical coherence. For example, teaching efficiently (using a quickly paced approach with linear and easily observed procedures) is the purpose of the executive approach; it would follow therefore that consistent, internally harmonious curriculum decisions would be developed by a teacher selecting this approach (Ediger, 2003). Table 2 above portrays these results.

However, for other approaches, particularly those composed of attributes less objectively observed, complex, or non-unilaterally defined, approach coherence is often less apparent to the novice teacher (Feinberg & Soltis, 2004). The explorer approach is one example of complexity as this approach is centered on beliefs that abhor externally imposed objectives. In less objectively observed approaches, identifiers select teaching objectives that demythologize the benefits of the changing nature of knowledge (Haggerson, 2002). Kincheloe (1999) suggests that a democratic (citizen teacher) approach is strengthened by the discourse of chaos, and personal interpretation of objectives. From the perspective of the humanist approach, objectives should be unbounded without formulae (Feinberg & Soltis, 2004). Similarly, in this present study, the subject-specialist approach was prescient in non-coherence, as the construct of this approach rarely includes use linear procedures, particularly on the dimension of grading (see Pryor for full correlational data).

Students participating in this study noted that a two-dimensional survey such as the POES provides for convergence in their thinking about their teaching approach. This convergence within philosophical approach supports students as they begin to try out their teaching practice, in part because they have yet to establish a currere or experiential base in which their philosophical rationale resides (Wactler, 1990). They need to practice their beliefs—try out what works, and seek convergence in what appears to them as "best practice" (Rainer & Guyton, 1999). Dewey (1933) supported the need for application—trying out beliefs—stating, "the formation of purposes [philosophical approach] and the organization of means [practices] to execute them are the work of intelligence" (p.72). Unlike the Witcher-Travis survey in which a student must judge a stem item in a Likert-type question, the cells in the POES are composed of

three indicators of a dimension, and the dimension is composed of five approaches. The rating of three indicators within a cell function in a less dichotomous manner than a stem item/Likert rating format (Huck, 2000). The three-indicator/cell format allows the indicators to converge into a cell score for the item, as well as to reveal the contribution of each independent indicator to a cell with stand-alone scores per indicator (see Appendix B).

One student explained how this type of disaggregation helped them make sense of their teaching approach:

The [POES] gives you more classifications. You weren't bunched together [one stem item linked to a single score]. In addition, you had more control of the survey. You were able to rate yourself, and you knew where the classifications came from. I was able to see all of my scores in each row to see which areas are strongest in me. It gave me more options to consider. (student in course, Professor C).

#### *D. Are preservice teachers attracted to the objective, linear nature of an approach?*

Preservice teachers find objective, linear teaching procedures efficacious (e.g., Wactler, 1990), particularly when encouraged by mentors during the field-experience (Pryor & Kuhn, 2004). It also might be natural for preservice teachers to value the linear nature of an approach which they believe will allow for a strong level of classroom control and demonstration of teaching competence (Enz, Freeman, & Wallin, 1996; Veenman, 1984). In fact, Wilkins-Canter (1996) reported that the most requested information preservice teachers hoped to receive from mentors are strategies for "discipline." However, students do indicate that they are eager to learn how to implement "hands on inquiry" and "exploratory projects," the capstone activities of a humanist approach to teaching (Guyton, Rainer, & Wright, 1997). For students to develop a belief in the importance of a non-linear philosophical approach to teaching, they must also believe that they are capable of using a classroom management plan in which they will not struggle with the use of open-ended inquiry approaches to teaching.

#### *E. Implications for teacher education.*

The professor-researchers in this study identified the following three enhancement areas they planned to add to their courses. These enhancements reflected individual purposes, (a) Professor A, unveiling philosophical assumptions of practice (Feinberg, 2004); (b) Professor B, developmentally appropriate practice (DAP, Bredenkamp, 1997 and others) and (c) Professor C, ontological synthesis (Bredo, 2002). To focus attention on the personal nature of the integration of these enhancements rather than suggest replication, these enhancements are discussed below in first person narratives.

*Professor A.* I focused my first class session on an introduction of the assumptions of each philosophical approach on the POES, followed by a session in which students discussed how each of these assumptions might be linked to beliefs about the role of the teacher and sample classroom activities. I hoped students would notice that the POES indicators represented personal meanings, rather than feel compelled to use the indicator/prompt as the *only* frame for their response. However, at this early point in the course students had little field experience from

which to frame their POES ratings and discussion, and many simply replicated the language used in the prompts.

I realized I needed strategies to foster students' unveiling/demythologizing of beliefs, and I identified the following course goals and used three teaching strategies to achieve these :

Goal 1. Enhance Student Engagement

Students will develop a rationale to foster their engagement of particular classroom practices (Wactler, 1990).

Teaching Strategy: Lengthen the autobiography section in philosophy statement.

Goal 2. Understand Assumptions

Students will be able to describe philosophical assumptions underlying goals of education (Feinberg & Soltis, 2004).

Teaching Strategy: Add philosophical content focus during classroom reflection discussion on students' observations in the schools .

Goal 3. Describe Belief Coherence-dissonance

Students will describe the coherence-dissonance of their beliefs (Korotokov, 1998).

Teaching Strategy: Class discussion using POES results with students identifying where coherence-dissonance exists in their teaching observation reflections using personal rationale.

By the end of the course, evidence of students' understanding of their beliefs about teaching began to emerge in their responses during course discussions (e.g., "Now that I understand my mentor teacher's approach, I think my mentor teacher should...") and some (but not all) responses *grew* into insightful analysis statements (e.g., "Lesson plans that are objective [executive] focused are not always considerate of students' needs. If I were the real teacher, I would change that part of the lesson plan").

*Professor B.* Drawing heavily on the guidelines for developmentally appropriate practices (DAP) as defined by the National Association for the Education of Young Children (NAEYC), (Bredekamp & Copple, 1997), the content of my early childhood courses is decidedly constructivist. Through such an orientation, I emphasize the importance of instructional approaches that foster open-ended, child-determined experiences and guided discovery rather than teacher-determined experiences and teacher lecture. Thus, I was surprised to find that most of the students in my course more closely aligned themselves with an executive approach. Throughout the semester, I explicitly challenged tenets more closely associated with the executive approach, in particular the teacher-as-leader role and the limitation of direct instructional approaches in the classroom.

These findings suggested to me that I had not done an adequate enough job of shaking free these preservice teachers from traditional (what I often call "default") modes of teaching whereby the institutional circumstances and traditions of school tend to favor teacher directed, even teacher dominated, approaches. More importantly, however, the findings of the POES demonstrated that I needed to offer the preservice teachers in my class more explicit experiences with instructional approaches in which teachers serve as facilitators of learning rather than directors, even dictators, and that I needed to provide the pre-service teachers with more structured experiences in how to both manage and assess open-ended experiences through which children present multiple interpretations of their understandings. Most of all, the findings of the POES demonstrated to me that it is not enough to talk about constructivist approaches to teaching and learning, but to demonstrate and operationalize such approaches (Burlubes, 2002). To this end, I have begun to use more video vignettes of classroom teachers as a means to not

only understand what a teacher is doing, but also speculate about possible alternatives that would foster child-directed inquiry and discovery.

*Professor C.* The differences in survey-question construction and procedures notwithstanding used together, both instruments provoked students' reflectivity on their educational beliefs along two important lines. First, students had the opportunity to make meaning on their philosophical orientation separately on each instrument. Second, they had the opportunity to commingle these isolated reflection-responses into an interpretive analysis by responding to both questionnaires. The reflective cogitations that the two instruments sparked in my students' class discussions appear to me to corroborate Dewey's pronouncement that "the formation of purposes [educational philosophy] and the organization of means to execute them are the work of intelligence" (Amobi, 2003, p. 77).<sup>5</sup>

## V. Conclusion.

This study investigated three instructors' course methods developed to help pre-service teachers better understand their philosophic foundations of education. The POES used in this study provided coherence information about preservice students approaches to teaching. Professors and student comments suggested that more importance should be placed on developing course strategies that enhance opportunity for preservice teachers to portray emerging beliefs about their early experiences in schools. The data in this study indicated how a tool, such as the POES can be used to unveil non-linear relationships between seven content-pedagogical dimensions of teaching and philosophical teaching approaches. For example, even for those who held strong beliefs in which linearity is common—such as executive (behaviorist) beliefs—coherence is demonstrated contextually (e.g. "I'm ok with it [the Executive approach] in developing activities for the kids, but not in classroom management. Some of these kids really need the teacher to help them."). We learned from both our course discussions, and in our administration of the POES that our preservice students were more likely to describe what they *were not* ("I am *not* an Executive when I grade students") than what they *were* ("I'm *not* always an Executive").

The three professors in this study considered how these results might impact their teaching goals, and suggested three program areas and related activities for possible use in similar courses. The purpose of developing these philosophy *to* practice translations during actual coursework time and before the summative evaluations period occurring in the more intense field experience semester (semester two-student teaching) was twofold: (1) to mediate the potential of "washing out" of the use of theoretical rationale in teaching decisions (Zeichner & Tabachnick, 1981), and (2) to create a format for long term reflection on practice (Wactler, 1990). However, this study was limited by the following factors: (a) participants represented two research universities in two separate states, (b) preservice teachers were enrolled in different program levels (elementary or secondary), (c) field experience either differed, or was not a part of the course, and (d) structured and non-structured texts were not used in a similar manner.

Several concerns remain regarding how course construct might effectively engage students' knowledge about their beliefs about teaching. In part, little is known about the circumstances that contribute to students' engagement in philosophical discussion—especially as

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<sup>5</sup> However, Huck (2000) suggests that item response on similar topics or multiple instructions should not be interpreted as a main effect. Huck writes that tests (such as a three-way ANOVA) of these effects could be used.

autobiographical-personal beliefs might be consonant or dissonant with the beliefs of others (classmates, mentor teachers, professor). Because of the importance of philosophical beliefs to the decisions teachers make about their teaching, additional research is needed to determine how students' previously held or current beliefs are enhanced, disengaged, or impeded by important others (their mentor teacher, other students, teachers they know), particularly as they progress in their preparation program.

Interaction among faculty outside the domain area of teacher education would enhance this discussion. For example, Hager, Pryor and Bryant (2004), compared approaches to designing a field experience (called an *internship*) across four domain areas: political science, health science, teacher education and construction science education. Although Hager described the programmatic organization of internships in several domains, there was no discussion about the goals students might hold for themselves, their beliefs about how to best implement theories of practice learned in the university program, or their understandings of the implications of use of particular practices.

For example, health sciences faculty might want to evaluate the course activities they use to enhance student belief in holistic diet, or exercise programs when these students are engaged in a parallel experience in a field-based internship. Will their students hold beliefs similar to their professors? Are students' beliefs coherent with their field mentor? As faculties in teacher education (and other applied programs) review the scope and sequence of courses provided in their preparation programs, alternative program design formats such as seminars and blocked sections within courses (Appleton, 1979; Pryor, 2003a) should be evaluated so that implications might be shared among university domains. To advance this discussion, we propose two resources useful for continuing discussions about our course practices: (a) a newly developed URL containing the online version of the POES, ([http://texascbt.tamu.edu/survey/Philosophy\\_of\\_Education/scale.htm](http://texascbt.tamu.edu/survey/Philosophy_of_Education/scale.htm)), which includes immediate participant feedback on scoring and SPSS data analysis, and (b) use of interactive media formats to augment development perspectives. These suggestions might lead to similar scale development and investigations helpful in other domain areas. Importantly, scales and other reflective methods might reveal that students' non-coherence portrays an unintended outcome—student independence from the normative saliency of promoted philosophical orientation.

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## **Appendix A. Definitions.**

*The Executive Approach.* Efficiency is the focus of this approach, in which example concerns might include: time on task, test attainment, and rules that direct classroom management (Feinberg & Soltis, 2004). It is not unusual for executive teachers to consider student behavior and an organized classroom environment primary to effective teaching. Berliner (1986) wrote that these teachers approach their teaching as managers of a business, a notion grounded in the functionalist concepts underlying a factory model of education (Feinberg & Soltis, 2004).

*The Humanist Approach.* The humanist approach is primarily concerned with providing an environment in which the interests and abilities of each student can be fully developed (Tanner & Tanner, 1995). This approach suggests formulating pedagogical decisions based on recognizing various levels of student ability, and has historical support from progressivist theorists such as Rousseau, Froebel, Dewey and others (Smith, 1984).

*The Subject Specialist Approach.* The subject specialist approach is focused on students becoming knowledgeable within a particular domain area (e.g., mathematics) and use of pedagogical practices based on the nature of the subject. Here, a teacher's focus is the breadth and depth of the subject area with student interests and abilities less central. Historically, a hierarchy has existed among the subject areas considered most important to teach (Smith, 1984).

*The Citizen Teacher Approach.* The goal of the citizen teacher is to prepare students as active and informed participants in a democracy. Three principles of democracy define this approach: liberty-freedom, justice-fairness, and equality-equal opportunity (Pryor, 2003b; Gutmann, 1987). Using this approach, a teacher provides a foundation for analysis of the social, historical and economic roles of citizenry using activities such as discourse and communication.

*The Explorer Approach.* The explorer approach emphasizes discovery of vast amounts of information, however Information is considered distinctly different from the term knowledge used in the subject specialist approach. In the subject specialist approach, knowledge is valued for its collective potential; the explorer approach seeks instead to understand the rapid change in information. An explorer teacher helps students investigate the changing world through global interaction, often using multi-media as primary tool.

### Appendix B. Sample POES Scoring Across One Dimension of Teaching.

The Philosophy of Education Scale is available online at [http://texascbt.tamu.edu/survey/Philosophy\\_of\\_Education/scale.htm](http://texascbt.tamu.edu/survey/Philosophy_of_Education/scale.htm) or hard copy (Pryor, 2004a).

This form has seven rows (e.g., “Classroom Environment”) of large boxes. Each large box has a small box and three descriptors of teaching beliefs and practice. First, start with the descriptors. Rate each of the three indicators in each large box in the first row, going from left to right, using the scale below as a guide. *Rating numbers can be repeated.*

Most like me 5 4 3 2 1 least like me

Second, *rank* each of the five large boxes in *across* each row from the one most like you (5), to the one least like you (1) using the scale above. Use each ranking number only once; *place this number in the small box*. Repeat this process for the remaining rows.

Third, add the small boxes (*down*), for each column total.

### Sample POES Dimension: Lesson Plans

Rate Indicators	Rate Indicators	Rate indicators	Rate Indicators	Rate Indicators
Rank Approach	Rank Approach	Rank Approach	Rank Approach	Rank Approach
<b>Lesson Plans</b> ▼ <u>4</u> Specific objectives and standards clearly defined <u>4</u> Essential elements of instruction are addressed <u>5</u> Meets district guidelines, scope and sequence	▼ <u>1</u> Long-term, broadly structured outcome <u>1</u> Thematic and integrated curriculum <u>1</u> Student-centered learning	▼ <u>3</u> Emphasis on depth of knowledge <u>3</u> Instruction extends beyond standardized testing <u>2</u> Extensive resources (field trips, guest speakers)	▼ <u>1</u> Open-ended objectives <u>2</u> Inquiry <u>3</u> Emphasize technological skills and information interpreting techniques	▼ <u>2</u> Flexible goals based on community and citizenship needs <u>3</u> Practical knowledge and life skills <u>5</u> Higher-order, critical thinking and problem-solving

Note: To determine *overall* philosophical approach, sum total only the ranked small boxes *down the column*.

# JoSoTL Mission

Founded in 2001, the Journal of Scholarship of Teaching and Learning (JoSoTL) is a forum for the dissemination of the Scholarship of Teaching and Learning in higher education for the community of teacher-scholars. The journal promotes SoTL investigations that are theory-based and supported by evidence. JoSoTL's objective is to publish articles that promote effective practices in teaching and learning and add to the knowledge base.

The themes of the Journal reflect the breadth of interest in the pedagogy forum. The themes of articles include:

1. Data-driven studies: formal research projects with appropriate statistical analysis, formal hypotheses and their testing, etc. These studies are either with a quantitative or qualitative emphasis and authors should indicate the appropriate domain. Acceptable articles establish a research rigor that leads to significant new understanding in pedagogy.
2. Reflective essays: integrative evaluations of other work, essays that challenge current practice and encourage experimentation, novel conclusions or perspectives derived from prior work
3. Reviews: Literature reviews illuminating new relationships and understanding, meta-analysis, analytical and integrated reviews, etc.
4. Case studies: These studies illustrate SOTL and its applications, usually generalizable to a wide and multidisciplinary audience.
5. Comments and communications: Primarily, these are comments based on previously published JoSOTL articles, but can also include book reviews, critiques and evaluations of other published results in new contexts or dimensions

# Submissions

Please see the [Mission Statement](#) for a discussion of the editorial philosophy for **JoSoTL**. Authors are encouraged to submit work in one of the following categories:

- **Traditional Research Reports: data driven studies with either a quantitative or qualitative emphasis**
- **Reflective Essays on SoTL**
- **Reviews of current themes in SoTL research including meta-analysis**
- **Case studies illustrating SoTL and its applications**
- **Comments and Communications on previous Journal articles, or book or software reviews**

In your e-mail with your submission, please indicate which of the above categories most applies to your submission. Despite their differences, all of these types of submissions should include the author's expression of the implications their work has for the teaching-learning process. This reflective critique is central to our mission in furthering understanding of SoTL. Authors are encouraged to review the [Guidelines for Reviewers](#) in order to understand how their submissions will be evaluated. **Authors are strongly encouraged to study the [Reviewer's Rubric](#) that reviewers shall apply in evaluating their submitted work.**

Authors should submit their article to [josotl@iupui.edu](mailto:josotl@iupui.edu). Submissions must be prepared in an electronic format using Microsoft Word on either PC or Macintosh platforms. Submissions should be uncompressed files attached to an e-mail, not in the body of an e-mail text. If e-mail transmissions are not possible, **JoSoTL** will accept submission on either CD or a USB flash drive (which cannot be returned).

All submissions must be prepared following the guidelines below. While there is no formal page limit, authors should adhere to recent article lengths, typically 20 pages or less. Authors are expected to include proper referencing for their sources, especially URLs for web sites that might contain material of interest to our readership.

Every submission must include a cover page preceding the article with the following information:

- Title of article
- For each author:
  - Name and affiliation
  - Postal address
  - e-mail address
  - telephone number
- Abstract (less than 100 words)
- Keyword list related to the submission (less than eight words or short phrases)

This cover page should be followed by the article formatted according to the JoSoTL Style Sheet (available in either .doc or .pdf format).

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Authors will be required to sign a **Copyright Agreement** with the Trustees of Indiana University. Authors must be prepared to sign this agreement upon acceptance of their work and prior to publication in the Journal. For more information regarding copyright, please see the **statement of copyright and terms of use**.

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**Donald Coffin**

Associate Professor of  
Economics

[dcoffin@iun.edu](mailto:dcoffin@iun.edu)

<http://www.iun.edu/~bnwdac/>

School Of Business & Economics  
Indiana University Northwest, Gary, IN  
219.980.6913

**Eugenia Fernandez**

Associate Professor of  
Computer &  
Information  
Technology

[efernand@iupui.edu](mailto:efernand@iupui.edu)

<http://www.engr.iupui.edu/~efernand>

Purdue School of Engineering and Technology  
Indiana University Purdue University Indianapolis  
317.274.6794

**Joan E. Lafuze**

Professor of Biology

[jlafuze@indiana.edu](mailto:jlafuze@indiana.edu)

Instructional Programs  
Indiana University East, Richmond, IN  
765.973.8246

**David J. Malik**

Associate Executive  
Vice President,  
Indiana University  
FACET Director  
Chancellor's Professor  
of Chemistry

[dmalik@iupui.edu](mailto:dmalik@iupui.edu)

<http://chem.iupui.edu/Faculty/malik.html>

School of Science  
Indiana University Purdue University Indianapolis  
317.274.6884

**Julie Saam**

Assistant Professor of  
Secondary Science  
Education

[jsaam@iuk.edu](mailto:jsaam@iuk.edu)

Division of Education  
Indiana University Kokomo  
765.455.9302

**Ellen A. Sigler**

Assistant Professor of  
Educational  
Psychology

[elsigler@iuk.edu](mailto:elsigler@iuk.edu)

Division of Education  
Indiana University Kokomo  
765.455.9419

## **Style Sheet for *The Journal of Scholarship of Teaching and Learning***

**John Dewey<sup>1</sup>**

*Abstract: This paper provides the style sheet for **The Journal of Scholarship of Teaching and Learning**. Manuscripts submitted for publication should adhere to these guidelines.*

*Keywords: teaching, learning, scholarship, educational philosophy.*

### **I. General Guidelines for the Manuscript.**

The final manuscript should be prepared in 12-point, Times New Roman, and single spaced. Submissions should be double-spaced. All margins should be 1 inch. The text should be fully left- and right-justified. The title (in 16 point bold) and author's name (in 12 pt. bold) should be at the top of the first page. The author's name should be followed by a footnote reference that provides the author's institutional affiliation and address. The abstract should be indented 0.5" left and right from the margins, and should be in italics.

Paragraphs should have a 0.5" first line indent. Use only one space after the period of a sentence (word processors automatically adjust for the additional character spacing between sentences). The keywords should be formatted identically to the abstract with one line space between the abstract and the keywords.

Pages should be unnumbered since they will be entered by the Journal editorial staff. We will also insert a header on the first page of the article, as above.

References should be incorporated in the text as authors name and date of publication (Coffin, 1993), with a reference section at the end of the manuscript (see below for the desired format for the references). Titles of articles should be included in the references in sentence case. Unless instructed otherwise in this Style Sheet, please use APA style formatting. Footnotes should incorporate material that is relevant, but not in the main text.

### **II. Section and Sub-Section Headings.**

#### *A. Major Sections.*

Major section headings should be flush-left, bold-faced, and roman-numeral numbered. Major section headings should have one-line space before and after. The first paragraph(s) of the article do not require a major heading.

#### *B. Sub-Sections.*

Sub-section headings should also be flush-left, in italics, and alphabetically numbered. Sub-section headings should have a one-line space before and after. Sub-sub-sections should appear at the beginning of a paragraph (i.e., with an 0.5" indent, followed immediately by the text of the sub-sub-section), with the heading also in italics.

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<sup>1</sup>Department of Educational Philosophy, Indiana University Northwest, 3400 Broadway, Gary, IN 46408, [jdewey@iun.edu](mailto:jdewey@iun.edu).

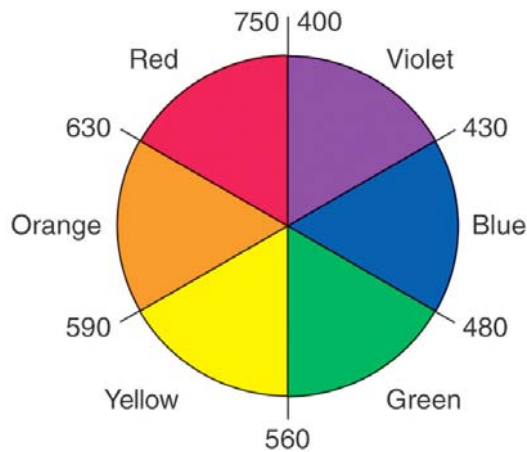
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Tables and figures should be inserted in the text where the author believes they best fit. They may be moved around a little to better correspond to the space requirements of the Journal. If necessary, tables and figures may occupy an entire page to ensure readability and may be in either portrait or landscape orientation. Insofar as possible, tables should fit onto a single page. All tables and figures should be germane to the paper. Tables should be labeled as follows with the title at the beginning (in bold), with data entries single-spaced, and numbered. Column labels should be half-line spacing above data.

**Table 1. The title of the table.**

Unit	Length, inches
Point	1/12
Pica	1/6

Figures should have their captions follow the. Captions should be single-spaced, with title in bold. Additional text should not be in bold. The Editorial staff may adjust layout to allow optimal use of space.



**Figure 1. Color wheel with wavelengths indicated in millimicrons.** Opposite colors are complementary.

### Acknowledgements

Acknowledgements should identify grants or other financial support for this research by agency (source) and number (if appropriate). You may also acknowledge colleagues that have played a significant role in this research.

### Appendix

Please insert any appendices after the acknowledgments. The should be labeled as follows:

**Appendix 1. The Title of the Appendix.**

**References**

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