

**Health Education Concepts
KINES 165
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Part I: Introductory Information

A. Institutional

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| 1. Name of University: | The Pennsylvania State University
University Park Campus |
| 2. Total Enrollment: | 40,828 |
| 3. Is the Institution Public or Private? | Public |
| 4. Carnegie Classification | Doctoral/Research University |

B. Individual

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| 1. School: | College of Health and Human Development |
| 2. Department/Division | Department of Kinesiology |
| 3. Faculty Rank: | Assistant Professor (non-tenure-track) |
| 4. Highest Degree Earned: | Doctorate |
| 5. Number of Years Teaching at College Level: | 12 |
| 6. Awards Received for Excellence in Teaching: | Nominated for the Penn State Atherton Teaching Award |

C. Course

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| 1. Course Name: | Health Education Concepts |
| 2. Course Abbreviation and Number: | KINES 165 |
| 3. Number of semester /quarter credit hours: | 3 Credit Hours/Semester |
| 4. Catalog Description: | Principles of healthy living that are the basis of health instruction in schools and health care settings. |
| 5. Number of Students Typically Taught in this Course? | 50 Per Section |
| 6. What Year do Students Enroll in this Course? | Freshman/Sophomore |
| 7. This Course is Best Described as: | A required course for Kinesiology majors in two options (Teacher preparation and Athletic Training) |

D. Problem-Based Learning

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|---|--|
| 1. What Percent of this Course uses PBL? | About 95% |
| 2. How long have you taught the course? | One Year |
| 3. Is the Course Designated as PBL in any Official way? | Recognition through the Penn State Teaching And Learning Consortium Web Site/Faculty Academic Team. Go to www.psu.edu/dept/tlc/teams/faculty/bestpractices |

Website of Course: www.personal.psu.edu/faculty/s/s/s/b5/portfolio/pbl/kines165/index.html

Part II: Course Design

A. Rationale

The purpose of this course portfolio is to explore the effectiveness of Problem-Based Learning (PBL) in an introductory health course (KINES 165). My goal was to have students improve the following skills: teamwork, assessment, written and oral communication, technology integration, critical thinking, and problem-solving while exploring the top health concerns for youth and young adults (injuries, diet and physical inactivity, substance abuse, and sexuality). The course was based on five authentic problems that students may encounter as current college students or as future health and physical education teachers or athletic trainers.

This course is currently required for undergraduate Kinesiology majors with emphasis in teaching preparation (health and physical education and athletic training). Assessment and evaluation strategies included the use of self and peer assessments, readiness assessment tests (RATs) and rubrics.

There is a paradigm shift occurring in American higher education. This shift is moving from an institution that exists to provide instruction towards an institution that exists to promote learning (Barr and Tagg, 1995). The goal of this shift is to prepare graduates with the skills that are necessary in this new millennium. These skills include written and oral communication, critical analysis, interpersonal competence, and the ability to use data and make informed judgments. These skills must be learned, and to do so, they must be taught and practiced (Wingspread Group, 1993). Spence (2001), states that we will not meet the needs for better higher education until professors shift to designers of learning experiences and not teachers.

As an instructor of pre-service health and physical education teachers, I realized the need to model the use of high quality learning experiences. Under this premise, I delved into problem-based learning. I found that problem-based learning, if done well, can improve learning, “enduring understanding” (Wiggins and McTighe, 1998) and connect the classroom to authentic learning experiences that increases the transfer of key concepts to other contexts outside of the classroom. Problem-based learning can also stimulate student creativity and innovation in the classroom (Riis, 2001).

B. Reflective Essay as to the Course Content

Over the past twelve years, I have taught some type of introductory health/wellness course at four different institutions of higher education. The course titles have changed, but typically, the course goal is to introduce students to contemporary health issues. While cleaning my office one day, I came upon notes, handouts, and overheads from the past twelve years. It was then I realized the metamorphosis my course content had gone through in these introductory health courses. In the beginning the content mimicked the table of contents in the text. On average there were twelve chapters, thus twelve separate units of health content were “covered” over the thirteen to fourteen week semester. As time passed, content shrunk as my interest in “activities” increased. In the current problem-based course, there are four units.

Current subject discipline content reflects The Youth Risk Behavior Surveillance System’s (YRBSS) categories of priority health-risk behaviors among youth and young adults. These behaviors contribute to unintentional injuries and violence, tobacco use, alcohol and other drug use, and sexual behaviors that contribute to unintended pregnancy and sexually transmitted diseases (STDs) including human immunodeficiency virus (HIV) infection, unhealthy dietary behaviors, and physical inactivity (Grunbaum, J., et al, 2002). I have combined the content in to four units: Injuries, Diet and Physical Activity, Alcohol, Tobacco and other Drugs (ATOD), and sexuality. The last assignment in the course addresses health advocacy by using the previous content as the evidence for advocacy.

What has become very clear in the past few years is that “process is content.” Moreover, it is as equally important as the subject discipline content. Therefore, in addition to health content there is a focus on

process skills. Through my evolution from a “professional lecturer” to a “facilitator” of learning, I tried to overtly model the following process skills throughout the course: teamwork, assessment, written and oral communication, technology integration, critical thinking, and problem solving (NASPE/NCATE, 2001, SCANS, 1993). I also tried to have the student think and write about their performance of these skills in the context of the health education discipline. These skills are obviously important to future health and physical education teachers. In addition, student athletic trainers are also required to peer teach, communicate effectively with the healthcare system and parents, locate available community-based resources for athletes involved with substance abuse or other psychosocial issues, demonstrate technology use, interpret professional literature, and make effective presentations (Knight, 2001).

C. Reflective Essay as to the Instructional Practice

“People remember:

- 10% of what they read
- 20% of what they hear
- 30% of what they see (picture/video)
- 50% of what they hear and see
- 70% of what they say or write
- 90% of what they say as they do a thing”

(Dale, 1946)

I have always been a practitioner of Edgar Dale’s Cone of Experience. Dale’s Theory (1946) suggests that students retain more information if actively engaged. I have always tried to engage the students in active learning. Even when I primarily lectured twelve years ago, I always ended my lecture with some type of interactive, group activity. A combination of videos, activities, and group work was used. I was considered a “good teacher” and students typically gave me high marks with comments about how fun the classes were.

After years of “edutainment,” my term for presenting “content” in an entertaining fashion, I started to wonder if my students were actually learning anything. I became interested in the transference of knowledge and their ability to transfer knowledge to other contexts outside of the classroom, especially as future teachers and athletic trainers, where life is messy and ill structured. Bransford, et al. (2000), states that teacher education programs need to align with the principles of learning, they need to prepare teachers to think about the enterprise of teaching as building on the existing knowledge base and preconceptions of their students, to teach skills for drawing out and working with existing understandings, and to continually assess the progress of students toward the goal of deep understanding. These programs also need to provide students the opportunity to develop a deep understanding of the subject matter they will teach and the ability to facilitate students’ transfer of knowledge to related areas. They need to prepare teachers to be aware of and directly teach meta-cognitive skills (Bransford, et al. 2001). Cognitive learning theory and its constructivist approach to knowledge also suggests that we not look for what students can repeat or mimic, but for what they can generate, demonstrate, and exhibit (Brooks and Brooks, 1999).

As a constructivist and a trainer of future teachers, problem-based learning (PBL) seems like an obvious instructional practice. I hypothesize that PBL encourages more socially constructed knowledge about health education, while at the same time, provides an avenue for students to “think about their thinking” (meta-cognition) in regards to process skills such as teamwork, critical thinking, and problem-solving. Because I believe in the social construction of knowledge, the majority of work in my class is done in groups.

D. Problem-Based Learning Context and Application

Table 1 provides a brief outline and sequence of a problem in the course.

Table 1: Sequence and Outline of a Problem in KINES 165
1. Teams formed and group process activities begin (same teams all semester)
2. Readiness Assessment Tests on background readings (individual, group, appeal)
3. Problem is presented (for pre-service teachers and for athletic training students)
4. Grading Rubric is presented
5. Teams work through the following steps:
5a. Defining the problem
5b. Identifying key issues
5c. Collecting data and information, determine missing information
5d. Identifying assumptions
5e. Break the problem apart
5f. Model-sub problems/generate solutions for each sub-problem
5g. Integrate solutions
5h. Test and validate/assess the quality of the solution peer-assess, self-assess, and instructor assess with rubric
5i. Generalize the solution
5j. Communicate the solution in written or oral form, instructor evaluates/grades with rubric

Groups were formed in the course within the first week of the semester. On the first day of class, I collected a variety of information on index cards from each of the fifty students. The information includes gender, extracurricular activities, family, sports, urban or rural hometown, pets, etc. I try to diversify the ten groups of five students as much as possible. This was based on gender, ethnicity, interests, hometown, club affiliation, sport teams, etc. These groups worked together for the entire semester. In the beginning of the semester, we spent a few days doing [group process activities](#).

In the course, [five problems](#) are provided for groups to solve throughout the semester. These problems provided an authentic context, clear performance criteria, and included evaluation criteria and/or a rubric. The [rubrics](#) are used for self-assessment, peer assessment, and instructor evaluation/grading. Before each new unit, the students are held accountable for learning some background and factual knowledge (Anderson and Krathwohl, 2001) on their own with [Readiness Assessment Tests \(RATs\)](#). Experience with the first year students taught me that they must be held accountable for reading. Most students in this course have not experienced a PBL course and the Kinesiology Curriculum does not reflect PBL. Therefore, to break the habit of being passive learners and waiting for the instructor to tell them what to know and do, I found that requiring background reading and holding them accountable

with RATs started to send the message that this is a learner-centered course in which students will have to learn on their own.

The RATs were developed by Michaelsen and Black (1994) to improve the use of teams in the learning process. RATs are quizzes taken initially by the individual student. The second part includes completing the same quiz as a group. The third part includes an appeals process by the group to challenge quiz questions. RATs do several things that supplement PBL: 1) they hold students accountable for doing the background reading. I find it critical in a PBL course that students come to class prepared, 2) RATs provides the opportunity for groups to socially construct knowledge and to peer teach. This sets the stage for what I believe to be more effective PBL, as most of it is done in groups, 3) RATs requires students to develop communication and negotiation skills, and 4) RATs makes students think critically about the content at hand as it is discussed and negotiated with their peers. Once again, these skills are necessary in PBL and the use of RATs sets the tone for the problem.

After the completion and discussion of the RAT, each group immediately delved into the problem. They were required to answer “[critical thinking](#)” questions before exploring the problem. This step set the stage for exploring the multidimensional issues surrounding the problem. We typically spent about two to three weeks on each problem.

All the problems included a group product that was evaluated at the end of the unit (see [Student Work Samples](#).) For example, an oral presentation is required for the first problem on determining the top three injury issues for teenagers, the second problem required a poster presentation to state legislators on the solution to childhood obesity in Pennsylvania, and the third problem required a Power Point presentation on what it means for adolescents to be “sexually healthy.” These products are evaluated as part of the group grade. Table 2 summarizes the work products and methods of evaluation required of both groups and individuals.

Table 2: Summary of Student Work Products

Problem	Product	Evaluation
Injuries	Group: 2 page written report & 3 minute oral presentation	RAT: individual and group Criteria Checklist for group product
Diet and Physical Inactivity	Group: Poster Presentation Individual: research valid and reliable web sites	RAT: individual and group Rubric for Power Point
Human Sexuality	Group: Power Point Presentation Individual: Produce one slide	RAT: individual and group Rubric for Power Point
ATOD	Group: Letter Individual: Answer questions that require library research	RAT: individual and group Rubric for Letter
Health Advocacy	Individual: Written Report	Rubric for Report
Family Tree Assignment	Individual: Diagram and Narrative	Criteria Checklist

I did learn over time, that if groups are to be effective, individual deliverables or assignments are necessary throughout the process. This reduces the star pupil leading the low performers through the entire process. Individual accountability is necessary with PBL. I have individuals to summarize readings, answer questions, and turn in pieces of the final product. All students also complete peer assessment, and self-assessments for the process and the product. This technique helps enhance meta-

cognitive skills, and models for the student the importance of continual assessment and reflection of their process skills and conceptual knowledge.

I value the group process and my role as a facilitator, therefore, the majority of the class time is spent in groups working on the problems. Students have access to the Internet in the classroom and many bring laptops to class. Some groups opt to leave the class and work in another space, i.e. computer lab, or library. I do not encourage this as my role as the facilitator is less effective. Mini-lectures often intercept the class as several groups grasp with similar issues and ask for my guidance or input. Often the mini-lecture reflects the performance criteria in the accompanying rubric.

[Rubrics](#) are used for several of the problems. Measuring a performance, a work product, or a process skill can prove to be challenging without the appropriate measuring tool. Rubrics can help measure conceptual knowledge, performance skills, and attitudes. These are not only easily measured using traditional selected-response methods such as a multiple-choice test. Basic facts and terminology, also referred to as factual knowledge (Anderson and Krathwohl, 2001), can be measured with selected-response methods. However, higher order thinking, procedural knowledge, and enduring understanding that is reflected in PBL, requires more open-ended, complex and authentic types of assessment and evaluation (Angelo, 2002, Wiggins and McTighe, 1998). These types of assessments and evaluations that are found in PBL, required students to “construct” knowledge (called constructed-response) and cannot be scored easily with a computer bubble sheet. Rubrics can help measure the learner’s ability to use and apply factual, conceptual, procedural and meta-cognitive knowledge (Angelo, 2002, Anderson and Krathwohl, 2001, Bloom, 1956).

Problem-based learning is an active learning strategy. Active learning suggests that students demonstrate what they know and are able to do. Rather than measuring discrete, isolated skills; authentic assessment emphasizes the application and use of knowledge. Authentic assessment includes the holistic performance of meaningful, complex tasks in challenging environments that involve contextualized problems (Montgomery, 2002). I tried to develop authentic problems that the students would encounter in their future professions. These problems require rubrics to measure the level of success.

When used for assessment (non-graded), rubrics helped the students and the instructor identify where strengths and areas for improvement resided in the learning process. I used rubrics and criteria checklists from the first day of the problem and continued referring to them as the students self and peer-assessed their progress towards the outcome. I am still learning about rubric use and construction, and will continue to develop and re-design more valid and reliable rubrics for the PBL courses.

Part III Student Understanding

A. Evidence of Students Achieving the Learning Objectives

There were three general learning objectives for this course. I will address two of these in the discussion of evidence of student learning. Two of the performance criteria for this course under learning objectives (see [Syllabus](#)) was that students complete problem-solving activities with high quality and that they do so effectively with their peers. The [Diet and Physical Inactivity assignment](#), [work samples](#) and evaluation [rubric](#) provided the evidence to support these performance criteria.

The [Diet and Physical Inactivity assignment](#) states that this grassroots group of professional educators and athletic trainers are to design a poster for state legislators that demonstrates an understanding of the complexity of the childhood obesity issue and highlights key issues and solutions for this problem. The four sample [posters](#) demonstrate differing levels of performance achievement. The performance criteria for this particular problem required the students to be able to identify the problems surrounding childhood obesity and develop an integrative solution. They are required to design a solution with

supporting evidence. This last step also addresses the third course objective that states that students would be able to access and evaluate health valid and reliable information from multiple sources.

The [rubric](#) for this assignment helps to differentiate quality of the posters. Based on this evaluation, the sample posters are ranked in quality from higher to lower: example [#3](#), example [#1](#) and example [#2](#), and example [#4](#). Quality was demonstrated by how well they defined the problem of childhood obesity in Pennsylvania and the validation of their solution. Quality was also based on the communication of the main idea, ease of interpretation, and resources. Though all four posters highlighted issues around physical inactivity and nutrition, example [#3](#) and example [#1](#) provided current and reliable citations to support the proposed solutions; they are visually appealing and easy to interpret, and the solutions are integrative and based on the most current research literature. Example [#3](#) and [#1](#) were the two highest scoring posters in the class. The instructor and classmates, using the [rubric](#), evaluated all the posters. Examples [#2](#) and [#4](#) were of lower quality based on inadequate data to support the main ideas. Though not the lowest quality products in the class, the overall visual presentation, communication of main ideas, and ease of interpretation was not as high quality as the first two examples.

The process of designing these posters required the students to work as a group to define the problem and key issues surrounding childhood obesity in Pennsylvania. Several class periods were spent narrowing down the key issues that required more information. I have ten groups composed of five to six students in this class. These groups often share their findings and debate the evidence during the problem identification process. This is initiated through the exploration of the critical thinking questions that accompany each assignment. Once each group identifies the information needed, the next step requires them to seek strategies to access and evaluate the quality of information they intend to use. Once again, other groups in the class assist in this process. I also run a listserv for the course, and occasionally students will publicly share findings, questions, and recommendations on the listserv. The entire course and student work samples are [available on-line](#).

B. Reflection on the Evidence of Student Learning

When I revisit my hypothesis that PBL can improve learning, endure understanding, and improve transfer of socially constructed knowledge, I believe that student learning is more meaningful than past classes. Multiple examples of student work demonstrate improved in-depth learning than previous multiple-choice exams.

In order for PBL to be effective, I believe PBL must be done well and that comes with practice by the instructor and student. It has been one year since I taught this PBL course, and was my first attempt. Data suggests that about sixty percent (60%) of the class met the course objectives with high quality. This is based on RAT scores, individual and group assignment scores, and student feedback through course evaluations. The Student Rating of Teaching Effectiveness (SRTE) scores (fall 2000) for overall course quality and overall instructor quality were 5.35 and 5.81 on a 7-point Likert scale. Faculty Teaching 'Open Ended' Evaluation Summaries reflected that students liked that the course required them to be independent and self-directed learners with their group members. I have had most of the teacher preparation students from the PBL course in two other courses since that time. Anecdotally, students state that they understand the need to provide "evidence" to support a position. They also know what I mean by formative assessment vs. evaluation, and as future teachers, the value of understanding that difference. They have also stated numerous times that they know what the "good" resources are in the health domain (i.e. CDC, NIH, and Healthy People, 2010). This is based on their research efforts in the PBL course.

Some students have obviously transferred some of the process skills and maybe some of the content knowledge. The most observable measure of success of the PBL course is the value of teamwork. Data from the Faculty Teaching 'Opened Ended' Evaluation Summaries support this finding. Many of the students from the PBL course are still great friends, even though they entered the course as strangers. Many stated that group work in the course was the best part of the course. They feel a sense of

community and connectedness in their major that they did not have before. I believe this is very important, especially at a large research university where over fifty percent (50%) of our students transfer from a branch campus and enter as sophomores and/or juniors. Reflecting on student feedback from the Faculty Teaching 'Open Ended' Evaluation Summaries motivates me to improve four areas of the course for this fall.

First, I will make sure my objectives, assignments, and rubrics are in alignment with each other. Some of the rubrics I created did not measure what I wanted to measure. They were not valid assessment tools based on the objectives stated. Some assignments did not have rubrics, and this will be changed immediately as I have learned that clear performance criteria and rubrics can provide some great needed guidance in a PBL environment.

The second change I will make to improve the PBL process is the grouping of students. I always made the groups as diverse as possible, including the option of study (teachers vs. athletic trainers). Feedback from the students indicated to me that more homogenous groups (all athletic trainers together) provided the opportunity to make the problem at hand more "meaningful and relevant" to each group. This way each group could tailor the problem to their interest area and future profession.

Relevance and meaning is my third change. I thought the problems were meaningful and relevant to all students. I was wrong. The athletic training students felt the course was not relevant to them. This year, I plan to provide a menu of problems or ask students to help devise problems in the four content areas. The key to PBL is designing a good problem that is meaningful and relevant to the students at this point in their career. Re-grouping may help some, but student input may also facilitate the process.

Last, I want to focus more on the meta-cognitive process of PBL. Though I attempted to have the students reflect, assess, and talk about the process, feedback from the Faculty Teaching 'Open Ended' Evaluation Summaries told me they did not value this process. Once again, I need to design "reflection" activities that tie into the problem and are relevant to the student. Another solution to this issue is to continue to follow my own advice that "less is more." Many times the students felt overwhelmed with the amount of work, assessments, readings, etc., they were required to do. They could not value the process because they were so inundated with materials to help them assess the process ([See Formative Assessment](#)).

I value assessment, therefore, I asked students numerous times during the semester for their feedback using SII assessment forms and a [mid-term assessment](#). I valued their feedback, and I plan to use it to improve this PBL course in the future.

Part IV: Reflective Summary of the Course

The purpose of this course portfolio was to explore the effectiveness of PBL in an introductory health course (KINES 165). My goal was to have students improve the following process skills: teamwork, assessment, written and oral communication, technology integration, critical thinking, and problem-solving while exploring the top health concerns for youth and young adults (injuries, diet and physical inactivity, substance abuse and sexuality). The course was based on five authentic problems that students may encounter as current college students or as future health and physical teachers or athletic trainers. Assessment and evaluation strategies included the use of self and peer assessments, Readiness Assessment Tests (RATs) and rubrics.

Overall, the course was deemed successful based on the work products and feedback from students. Data from the Faculty Teaching 'Open Ended' Evaluation Summaries suggest that teamwork contributed a great deal to this feeling of success. Many students stated that their groups had become their best friends or their community within a large major. This is important, especially at a large research university (N=40,828) where many students get lost in the crowd and classroom. Student work samples

and feedback provide evidence of a more in-depth understanding of the health content, especially the ability to evaluate valid and reliable health information.

Assessment of this course provides direction for improvements. These improvements include: improving alignment of course/problem objectives, activities and rubric design, grouping of student by career interests, developing problems that are meaningful and relevant to students, and using meta-cognitive activities thoughtfully and sparingly as to not overwhelm the students.

This course portfolio has facilitated the assessment of this course in a systematic process. What better activity for a teacher of teachers to experience and share with her future teachers.

References

Note: The following web site provides all supplementary and supporting evidence:

<http://www.personal.psu.edu/faculty/s/s/ssb5/portfolio/pbl/kines165/index.html>

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