Dr. Bates called for a report from the subcommittee for the student learning outcomes focus of the QEP. Mr. Gainer explained that he had attended a workshop on motivation presented by Ms. Heather Stone. The question of motivation that Mr. Gainer focused on for our discussion was “What do you want your students to know five years from now?”

Mr. Gainer passed out and discussed an article in BARRON’s by Kathy Yakal entitled *Why Can’t Johnny Save and Invest?* Mr. Gainer shared other articles on savings, retirement, and investments. Mr. Gainer explained that saving and investing money relates to Question No. 3 on the embedded exam. He discussed how instructors can motivate students to begin to save and invest by showing them how they can become a millionaire.

Mr. Gainer then passed out a sheet with each mathematical question that is embedded in the final exam. These embedded questions are used to measure the General Education Student learning Outcomes which states that graduates will demonstrate the ability to compute basic mathematical operations accurately, comprehend mathematical information, and utilize analytical thinking skills to solve problems. He described the goal of each question, identified the class where the tasks are tested, listed problems that students have with solving the particular question, and provided ideas for addressing the concepts across our curriculum. Mr. Gainer’s ideas are summarized in the table below.

<table>
<thead>
<tr>
<th>Area 1: Computation Skills and Formula Use Goals:</th>
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<tbody>
<tr>
<td>1) Manipulate formulas to match information given and requested.</td>
</tr>
<tr>
<td>2) Substitute properly.</td>
</tr>
<tr>
<td>3) Use of calculator.</td>
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**Tested in MTH 112 by:**
Continuous Interest problem  $A=Pe^{rt}$

**Problems Students Have:**
1) Converting from percent to decimal
2) Following order of operations
3) Proper substitution into formula
4) Use of Calculator
5) What does “A” mean?

**Ideas for Addressing Across Our Curriculum:**

**MTH 091**: “How Much Money Do I Need” multiples from Dave Ramsey. (Practice with multiplication of decimals, use of calculator. Introduces thought of importance of preparing for retirement.)

**MTH 098**: “Retirement Readiness Ratios” Consumer Money Report (Practice with ratio, more emphasis on retirement.)

$I=PRt$, but progress to $A=P(1+RT)$ (introduces “A.” Builds toward MTH 112 problem)

**MTH098/100**: Introduce equation of circle in teaching manipulation of variables. (Helps students learn to use formulas while introducing the equation needed in Area 3 below)

**HIS 202**: Discuss causes of stock market crash of 1929 (Focus on money with an eye on safety)

**HIS 101**: Discuss Romans use of checking accounts in 352 B.C.

**Area 2: Data Representation and Interpretation Goals:**
1) Organize information in a way that is understandable to others.
2) Determining what your information means and how it can be used.

**Tested in MTH 112 by:**
Matching a picture of a line to its equation

**(Area 2 Continued)**

**Problems Students Have:**
1) Understanding slope.
2) Determining intercepts.
3) Determining which axis represents which variable.

**Ideas for Addressing Across Our Curriculum:**

**ECO**: Analysis of stock market graphs
**ECO**: Budget Pie Chart
**CIS**: Use budget created in ECO to create representative graphs (Excel?)
**ART**: artistic side of graphical representation of data
**PSY**: graphical representation of information found in student research
(see Area 3).

**BIO/CHEM/PHY/MTH 265**: Line of best fit, interpolation, extrapolation.

**PHL: SS** debate including charts to develop argument

**ALL CLASSES**: Share statistics on test results--- mean, median, mode.

### Area 3: Creative Critical Thinking Skills

**Goal**: Students will look at a problem and address it by asking:

1) What do I need to do?
2) What information will I need to do that?
3) What tools do I currently have that will help me get there?
4) How do these tools relate to what I need?

**Tested in MTH 112 by:**

Given the endpoints of the diameter of a circle, write its equation.

**Problems Students Have:**

1) Unfamiliar with equation of the circle.
2) Don’t realize the midpoint of the diameter is the center.
3) Can’t find the radius.
4) Too many steps--- frustrated without trying.
5) Lack creativity to find methods to arrive at answer.
6) Lack ability to think in abstract terms.

**Ideas for Addressing Across Our Curriculum:**

**SPH**: Demonstration of Factoring (factoring helps build abstract and creative thinking)

**SPH**: Preparing for Retirement (Answers the 4 questions above and connects to MTH 091/098 retirement activities.)

**ENG**: Explain factoring paper.

**PHL: SS** debate (connects graphing topics to retirement discussion)

**PSY**: Study of psychological impact on people unprepared for retirement or on people with massive debt. (represent outcomes graphically)

Everyone was very impressed with the research Mr. Gainer has done in developing methods to improve mathematical scores by reinforcing these concepts across the curriculum.

The committee then again discussed the enhancement of our learning center **by expanding the existing tutorial services to include credentialed personnel to support students in all disciplines as well as in the development of time management, goal setting, study strategies, and other self-regulated learning skills**. We feel student learning will be improved by the enhancement of our existing learning center and by providing faculty development activities to help instructors learn to address critical thinking and life-enhancing skills across the curriculum.
The initiative that our subcommittee is proposing for the QEP topic will enhance student learning by:

1) motivation – get the students excited by showing them how mathematical skills relate to real life. For example, showing them how they can make a million dollars. Show the students how critical thinking and problem solving relates to real life.

2) Connectivity – develop connectivity across the curriculum by focusing on developing critical thinking and life-enhancing skills.

3) Learning Center - expanding the existing tutorial services to include credentialed personnel.

Respectfully submitted,

Carol Bates