

“Using Simulation Games in Financial Accounting & Managerial Accounting”

**by David Albrecht
Bowling Green**

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A paradigm shift in collegiate teaching

from teaching



to learning



Old = teacher centered

Around since ancient Greece, especially dominant in USA since Civil War.

Focus on factual content

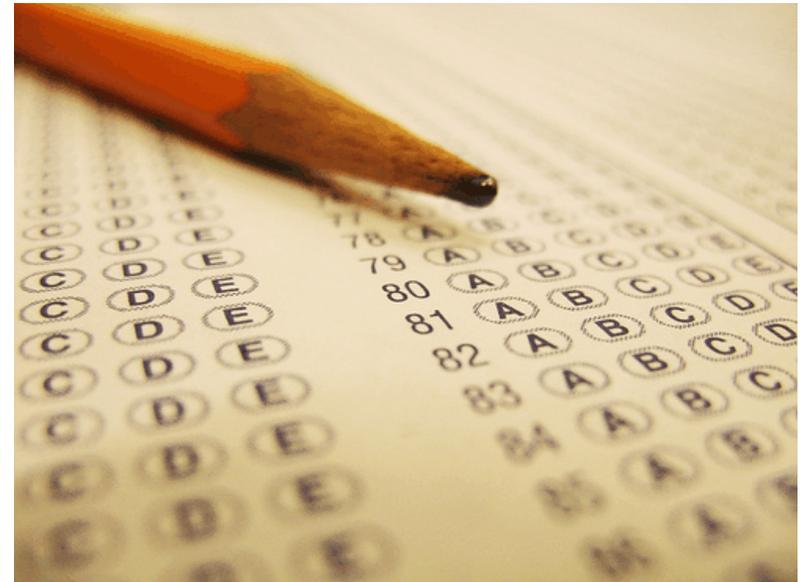
Professors lectures

Student discussion = recitation

MC testing is king!

Little to no use of formative assessment

techniques (if there is, then such things as attendance, homework and discussion are included in the course grade and hence are summative instead of formative).



Guskin “the primary learning environment for undergraduate students, the fairly passive lecture-discussion format where faculty talk and most students listen, is contrary to almost every principle of optimal settings for student learning.

Teacher-centered = Ineffective!

Results of thousands of research studies show the teacher centered approach is not very effective in the hands of *excellent* teachers, and worse (possibly ineffective) in the hands of teachers who are not excellent.

This is because it pays only lip service to the processes by which students learn.

Students remember only a little knowledge by the end of a course, and frequently forget most or all of it within six months. A significant portion of acquired knowledge is forgotten within two weeks.



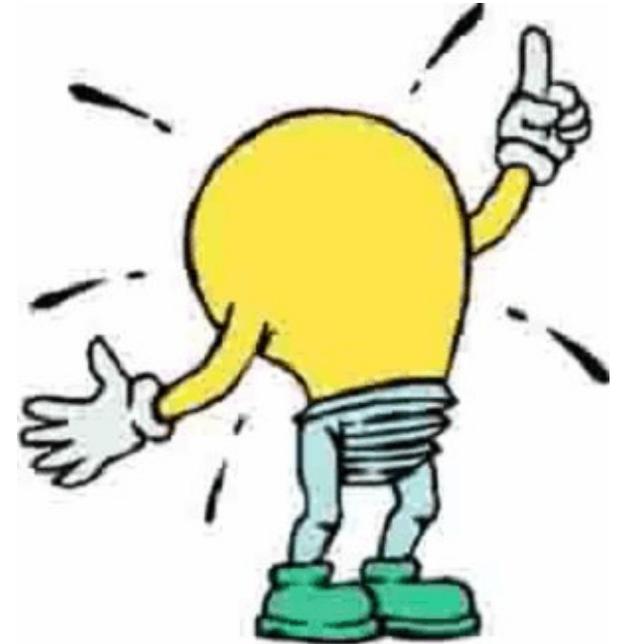
Lecturing on content + MC testing works against student learning!

Sometimes innovative or advanced techniques, such as case studies and problem-based learning, are used to increase instructional effectiveness. If the professor continues ascribing to the teacher-centered approach, then these techniques are merely grafts or patches to the traditional approach. The professor is still the expert in class. Consequently, these techniques are misapplied and not very effective.

New = Learning Centered

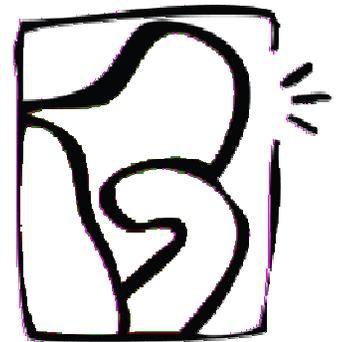
Decades of research = new insights

Learning-centered approach developed in the 1980s as a direct application of decades of research in psychology, sociology and education. **This body of research has revealed new insight into how students learn.**



Significant learning opportunities add value to life

Fink: “Significant learning experiences have a process that engages students and creates high energy in class, and results that produce significant and lasting change (even after the student has left college) and adds value to life.”



What would your SET scores reveal if students rated you on how much they learned, or how much you changed their lives?



Changed life = doing something new and useful!

Hakel: “One should be able to do what one knows”

It has frequently been said that students learn by doing. It’s true. If a teacher is able to show a student what is possible to do with the knowledge and concepts that have been taught, then that student is changed for a life-time. Without being able to do something with knowledge and concepts, the knowledge and concepts soon will be completely forgotten.



*Learning by
doing is a
moo-ving
experience*

How to change a life

First, give them a **reason to change**. Not all students are born with an innate motivation to learn specifically from you. Help them see what it would be like to be like Mike.

Second, students must be given a **realistic context** in which to operate. The realistic context should simulate the after-school world as much as possible.

THE
REAL
WORLD

Third, in this realistic context, professors show students how to do things with what they have learned, and **give them enough guidance and practice so they can learn how to do these things**.

Change lives through using simulation games

Game = contest with specified goals and rules (e.g., basketball, checkers, Monopoly)

Simulation = a simplified reality (e.g., pilot training devices, accounting practice sets)

Simulation game = imitates some part of reality and is a contest (e.g., using Monopoly to teach financial accounting (Knechel 1989))

Advantages of a Simulation Game

- ① Motivate **many students** to **participate** to a greater degree than in a traditional setting.
- ② **Enhances cognitive growth** (recall of factual knowledge, improve problem-solving skills, apply concepts and principles)
- ③ **Enhances affective learning.** the potential for students to attribute greater value to accounting information in the decision-making process
- ④ Provides **intensive practice in verbal and written communication**
- ⑤ Requires **flexibility in thinking and an adaptive response to a dynamic environment.**
- ⑥ **Can be repeated with same participants** and additional learning will take place due to the dynamic nature of the game.
- ⑦ Benefits students with varying skills and experience. **Participants can play at their own levels.**



* students get together outside of class to play in their game of Monopoly. They play thirteen turns (one year) and then stop. Each student does the accounting for his or her experience, and then prepares an Annual Report to Stockholders including

(1) CEO letter

(2) financial highlights

(3) MD&A

(4) complete set of financial statements plus notes
(plus comparative statements for prior years)

(5) SOX certification of financial statements plus
internal controls.

* secondary focus is on financial statement analysis and investments that follow from using financial reports

See example

Letter from the Chairman and CEO To our Stockholders:

Once again, I am thrilled to provide great news that we have had another remarkable year at Autobots. We have continued to dominate our market. We built three hotels on our yellow monopoly properties; we are the only company in our market that has hotels. These properties provided great returns on our Net Income, which increased for the third consecutive year to \$1,334.

Additionally, the purchase of our hotels has increased our long-term assets to \$3,467. Our strong year has also increased our Retained Earnings to \$2,952, which places us in the top tier of companies nationally. Our cash flows recovered from a slight dip last year, and increased by \$394 from strong rental revenues. This puts our cash balance at a stronger \$894.

From our strong cash position and strong anticipated rental revenues, we are developing plans to buy some properties from other companies. The establishment of more monopolies will allow us to continue to expand our long-term assets by developing more houses and hotels in other neighborhoods.

I believe that the hard working staff of Autobots has more than earned your support for the next year with an 18% increase in Net Income, a 43% increase in long-term assets, an 82% increase in Retained Earnings, and a 79% increase in cash. I am extremely optimistic that our success will only breed more success, and that our brand name will continue to improve. We are anticipating that we will have another fantastic year next year and that we will continue to be the envy of other companies in our market.

Sincerely, Brent R., Chairman, President, and CEO

Management Discussion and Analysis

The strong performance on the Income Statement was mostly from strong rental revenues. Net rental and investment income was \$1,303, which is 84% of pre-tax income. Slight gains from salary revenue and \$200 of net miscellaneous revenue (compared to miscellaneous expense) provided the rest of the \$1,543 pre-tax income.

On the left side of the Balance Sheet, current assets and long-term assets increased by a similar percentage: 44% (\$994 total) for the former, and 43% (\$3,467 total) for the latter. In terms of pure numbers, the increased long-term assets yielded higher rental revenues, which in turn produced a higher net income and retained earnings on the right side of the Balance Sheet.

The effect of the \$1,578 in rent revenues was also

strong on the Statement of Cash Flows. It provided most of the strong cash flow from operating activities. The slight increase of miscellaneous revenue over miscellaneous expense provided most of the rest of the \$1,744 in net cash flow from operating activities. Once again, strong investing activities in buildings caused a high negative cash flow of \$1,350. However, unlike in year three, this negative cash flow was somewhat less than the cash flows from operating activities. Because there was no financing activity, the somewhat stronger cash flows from operating activities provided an overall positive cash flow of \$394; this allowed the company to increase its cash balance to \$894.

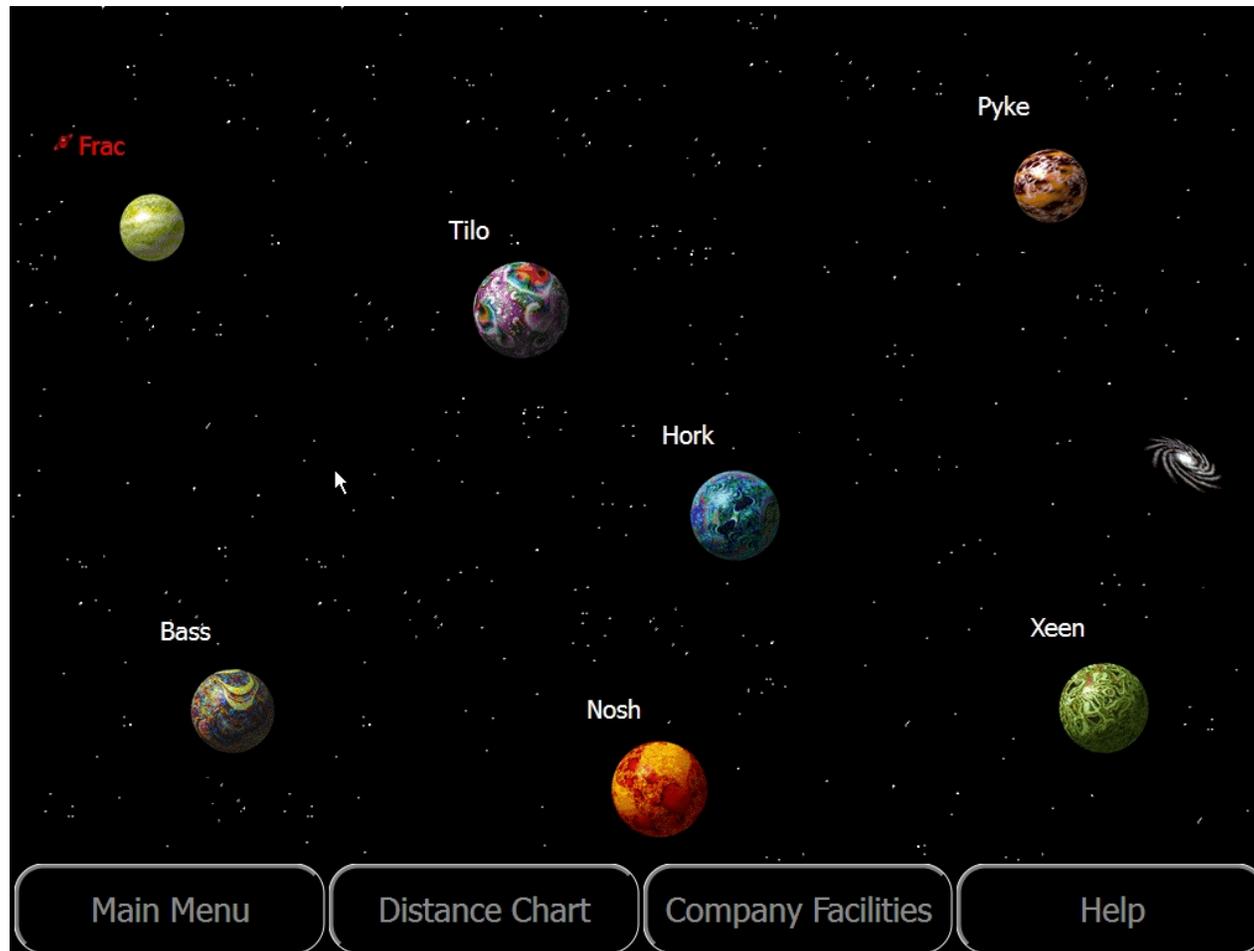
For Managerial Accounting
Real Gazillionaire Accounting

Gazillionaire™



about Gazillionaire

- * Gazillionaire is an old award winning computer game.
- * Each player captains a space ship, ferries passengers and purchases/transport various types of cargo among seven planets



Many Decisions Need to Be Made

- * Niche product mix between passengers and cargo
- * Capacity, speed, operating costs of ship
- * Set ticket prices and advertising outlays
- * Each week, make decisions as to what types and how much cargo to purchase.
- * Cash flow analysis, when to pay bills
- * Best strategies to increase chances of maximizing profit
- * Dealing with uncertain events
- * Purchasing planetary specials
- * Investing in larger ship or new facilities



It is difficult to win the game (be first to 1,000,000 kubar monetary units).

Managerial accounting is used to provide information for decisions.

Students work from a strategic cost management perspective



Students use managerial accounting as they try to win game

identify cost drivers

classify costs as variable, fixed or whatever

develop cost equations using multiple variables of activity

consider revenues and develop equations for computing profit

conduct multiple-product CVP analysis

conduct capital budgeting analyses

identify relevant factors for making decisions

create budgets for operations and cash flow

compare actual results to budget, and compute variances

analyze the variances for insight as to activities that need to be changed

evaluate strategies // project if earnings will help realize future goals