Forecasting Skills

Unit: Technical Skills

Problem Area: Financial Accounting and Reporting

Lesson: Forecasting Skills

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. **Review forecasting and forecasting skills.**
2. **Explain forecasting strategies.**

Resources. The following resources may be useful in teaching this lesson:

E-unit(s) corresponding to this lesson plan. CAERT, Inc. http://www.mycaert.com.

Ashe-Edmunds, Sam. “Budget Forecasting Techniques,” *Chron*. Accessed March 22, 2017. http://smallbusiness.chron.com/budget-forecasting-techniques-41843.html.

Ashe-Edmunds, Sam. “Differences Between Budgeting and Forecasting,” *Chron*. Accessed March 22, 2017. http://smallbusiness.chron.com/differences-between-forecasting-budgeting-57667.html.

Hagel, Jack. “How to Better Connect Planning, Forecasting, and Budgeting,” *Journal of Accountancy.* Accessed March 22, 2017. http://www.journalofaccountancy.com/issues/2014/apr/forecasting-budgeting-cgma-magazine-20149480.html.

Hatter, Kathryn. “The Definition of Forecasting Skills,” *Chron*. Accessed March 22, 2017. http://smallbusiness.chron.com/definition-forecasting-skills-37840.html.

“Key Economic Indicators,” *Commerce.gov*. Accessed March 22, 2017. https://www.commerce.gov/economicindicators.

Nickolas, Steven. “What’s the Difference Between Budgeting and Financial Forecasting?” *Investopedia.* Accessed March 22, 2017. http://www.investopedia.com/ask/answers/042215/whats-difference-between-budgeting-and-financial-forecasting.asp.

Equipment, Tools, Supplies, and Facilities

- ✓ Overhead or PowerPoint projector
- ✓ Visual(s) from accompanying master(s)
- ✓ Copies of sample test, lab sheet(s), and/or other items designed for duplication
- ✓ Materials listed on duplicated items
- ✓ Computers with printers and Internet access
- ✓ Classroom resource and reference materials

Key Terms.

The following terms are presented in this lesson (shown in bold italics):

- budget
- cash flow
- causal model forecasting
- financial forecasting
- forecast
- forecast analyst
- indicator
- qualitative forecasting
- time series analysis and projection forecasting
- trend
- variance

Interest Approach.

Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

> *Share the following with your students: You may not think of yourself as a forecaster or as a person who has forecasting skills. However, most people do participate in informal forecasting in a variety of ways. Have you ever tried to predict the winner of a national championship? Have you ever planned a large purchase around the money you anticipated getting for your birthday? Have you and your family begun planning your college costs compared with potential scholarships you may be receiving? In all of these instances, you were forecasting an outcome based on variables related to each circumstance. This lesson explores the forecasting skills used in business and accounting professions.*

CONTENT SUMMARY AND TEACHING STRATEGIES

Objective 1: Review forecasting and forecasting skills.

Anticipated Problem: What is forecasting, and what are forecasting skills?

I. Forecasting

A. A ***forecast*** is the use of historic data to estimate or predict a future trend. It is a way to plan business strategies that emphasize not "what" a person thinks, but "how" a person thinks. According to Philip E. Tetlock and Dan Gardner, the authors of *Superforecasting: The Art and Science of Prediction*, good forecasting skills require a person to be "open-minded, intellectually humble, numerate, thoughtful updaters, and hard working." A good forecaster needs to know a little bit about a lot of things. For instance, he or she needs to be current in the issues that directly affect the business's bottom line and to be aware of the world. The following abilities are critical to becoming a successful forecaster:

1. Foresight (the anticipation of "something" coming)
2. Being open to multiple points of view (considering and synthesizing alternative thoughts)
3. Acuity (keen perception)
4. Thinking in probabilities (yes, maybe, or no require timely and accurate feedback about decisions)

B. ***Financial forecasting*** is the process of predicting the expected monetary or economic position of a company's operations and cash flow. Generally, forecasts are limited to major revenue and expense categories. However, cash flow is the only balance sheet item typically forecasted.

1. ***Cash flow*** is the total amount of money going into and out of a business. The forecast is updated in the short term—usually monthly or quarterly.
2. Management uses forecasts to make decisions regarding employee hours, inventory stock levels, and facility production levels in the short run. Forecasting may be used by management to develop "what if" scenarios and contingency plans. When forecasting is used in this manner, management and accountants work together to develop hypothetical situations and project what the results of operations will be under those circumstances.
3. A ***budget*** is an estimate of revenues and expenses for a period of time that is evaluated periodically. Companies create budgets as goals for sales, expenses, and profits. Budgeted amounts are compared to actual amounts to determine if they are meeting goals. Some may think of budgeting and forecasting as the same thing; they differ in that a credible budget is often the result of accurate forecasting. A ***variance*** is the difference between actual and budgeted figures.

Budgets are updated annually unless significant information related to the budget causes a change.

4. Forecast information is used to make immediate changes to company operations, whereas a budget includes targets a company seeks to hit. Some say forecasting is an educated guess about future revenues and expenses and that budgeting is a goal that reflects future revenues and spending.

C. Forecast analysis

1. Accountants are often part of a business's forecasting process as are forecast analysts. A ***forecast analyst*** is a person who uses data to predict future productivity levels, sales, expenses, etc. A forecast analyst usually has a bachelor's degree in business or economics.
2. Courses helpful for those seeking a role as a forecast analyst are:
   a. Research
   b. Data analysis
   c. Statistics
   d. Economics
   e. Finance
3. Businesses use forecasting to:
   a. Project sales
   b. Organize supply chains of production materials
   c. Project return on investment (ROI) for potential company expansion projects
   d. Budget and plan
   e. Analyze stock market and other investments
   f. Predict probable project costs
   g. Develop "what if" and "worst-case" scenario planning

Teaching Strategy: *Many techniques can be used to help students master this objective. Use VM–A to lead a discussion about the difference between forecasting and budgeting and how they are connected.*

Objective 2: Explain forecasting strategies.

Anticipated Problem: What are forecasting strategies?

II. Forecasting strategies

A. Forecasting tools

1. Forecast analysts use financial models and measurements to make financial predictions. Technology has advanced and so have the number and types of forecasting tools available to forecasters. Selection of the forecasting tool is critical to achieving the best projections for a specific company. Those devel-

oping the forecasts must be familiar with the many methods available and choose the one best suited for the company's circumstances.

2. Some factors that impact the choice of forecast method/tool are:
   a. The amount of available historical data
   b. The desired level of accuracy required for forecast being developed
   c. The time period being forecast
   d. The cost/benefit of the forecast
   e. The time horizon for decision-making
   f. The overall volatility of current economic conditions
3. Technology forecasting tools
   a. Spreadsheet software for modeling, financial analysis, and report generation
   b. Database software to collect data that may be used in decision-making
   c. Industry-specific software to build models particular to certain types of business operations
4. Human forecasting tools include a good understanding of the company and the environment in which it operates. Quality forecasting requires:
   a. Experts who review numbers and statistics
   b. Company executives who weigh options and people who choose the key indicators for any model
5. Forecasting involves identifying and monitoring trends. A ***trend*** is the general direction in which a condition is changing or developing. Analysts map historical data to help identify trends and watch for financial indicators. An ***indicator*** is a statistic or a variable that signals a change or shift in a condition or a trend. Three basic types of indicators are leading, coincident, and lagging.
   a. Leading indicators are predictive and occur before the event or trend takes place.
   b. Coincident indicators happen at the same time as the general trend.
   c. Lagging indicators occur after the trend is established.

B. Forecasting methods: Three basic types of forecasting methods are qualitative, time series analysis and projection, and causal models. Depending on the method chosen for forecasting, the techniques available will vary.

1. ***Qualitative forecasting*** is a technique that relies on opinion and information specific to the forecast being made. Qualitative techniques include gathering opinions of experts. The qualitative technique may or may not take historical information into consideration based on the scenario. Depending upon the forecast being developed, the experts may be customers or those working in the field.
   a. Market research surveys may be conducted with customers.
   b. Questionnaires may be administered to a panel of experts or to company members with extensive experience.

2. ***Time series analysis and projection forecasting*** is a technique that relies on historical data to identify patterns and trends, along with related changes in those patterns. Time series analysis and projection include analysis, such as:
   a. Moving average computations
   b. Mathematical models
   c. Trend analysis
3. ***Causal model forecasting*** is a process that uses information about the relationship between items within the company's systems to develop forecasts. Causal methods include regression models and other models that involve looking at the interdependence of the business with other industry and economic factors. The analysis of economic indicators that may be incorporated in a causal model include:
   a. Inflation rate
   b. Unemployment rate
   c. Gross domestic product growth

Teaching Strategy: *Many techniques can be used to help students master this objective. Use VM–B to lead a discussion on forecasting strategies. Help students link financial forecasting to meteorologists' forecasting of the weather, farmers' predictions of future commodity and livestock prices, and doctors' forecasting of potential health threats based on historic data (e.g., smoking or obesity). Assign LS–A.*

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. If a textbook is being used, questions at the ends of chapters may be included in the Review/Summary.

Application. Use the included visual master(s) and lab sheet(s) to apply the information presented in the lesson.

Evaluation. Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activities. A sample written test is provided.

Answers to Sample Test:

Part One: Matching

1. e
2. d
3. a
4. f

5. c
6. b

Part Two: Completion

1. causal model
2. qualitative forecasting
3. financial forecasting
4. forecast analyst
5. time series analysis and projection forecasting
6. business or economics

Part Three: Short Answer

Technology forecasting tools include:

a. Spreadsheet software for modeling, financial analysis, and report generation
b. Database software to collect data that may be used in decision-making
c. Industry-specific software to build models particular to certain types of business operations

Sample Test

Name ______________________________

Forecasting Skills

Part One: Matching

Instructions: **Match the term with the correct definition.**

a. budget
b. cash flow
c. forecast
d. indicator
e. trend
f. variance

_____1. The general direction in which a condition is changing or developing

_____2. A statistic or a variable that signals a change or shift in a condition or a trend

_____3. An estimate of revenues and expenses for a period of time that is evaluated periodically

_____4. The difference between actual and budgeted figures

_____5. The use of historic data to estimate or predict a future trend

_____6. The total amount of money going into and out of a business

Part Two: Completion

Instructions: **Provide the word or words to complete the following statements.**

1. The forecasting technique that uses information about the relationship between items within the company's systems to develop forecasts is a/an ____________________.

2. The forecasting technique that relies on opinion and information specific to the forecast being made that relies on opinion and information is the ____________________.

3. The prediction of the expected monetary or economic position of a company's operations and cash flow is ____________________.

4. The professional who uses data to predict future productivity levels, sales, expenses, etc. is a/an ____________________.

5. The forecasting technique that relies on historical data to identify patterns and trends, along with related changes in those patterns, is ________________________.

6. Forecast analysts usually have a bachelor's degree in ________________________.

Part Three: Short Answer

Instructions: **Answer the following.**

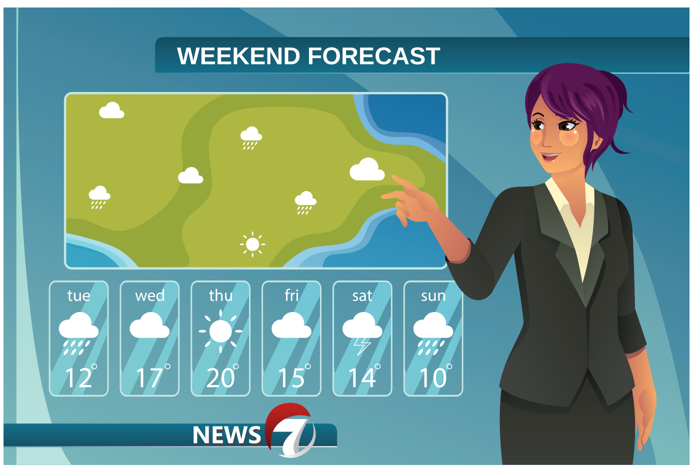
Describe three technology forecasting tools.

BUDGETING VS. FORECASTING

Suppose you are planning a budget for your senior trip. What items would you include in the budget? Which items would you need to forecast? To what degree do you think you would be able to stick to your budget while traveling? How closely do you think your forecasted budget and the items in the budget would be realized? How are forecasting and budgeting related? How are they different?

FORECASTING STRATEGIES

Technology forecasting tools include spreadsheet (for modeling, financial analysis, report generation), database (to collect data for decision-making), and industry-specific software (to build models particular to certain types of business operations). Many professionals use forecasting skills.



Name ________________________________

Developing Forecasting Skills

Purpose

The purpose of this activity is to practice your forecasting skills.

Objectives

1. Decide on a location for a senior trip.
2. Create the logistic details related to the trip.
3. Use historical data and economic projections to forecast the trip costs.
4. Prepare a multimedia presentation about your trip forecast.
5. Participate in a discussion of class members' presentations.

Materials

- lab sheet
- writing utensil
- paper
- class notes
- device with Internet access and presentation software

Procedure

1. Work independently or with a partner. Review your class notes about forecasting.
2. Practice your forecasting skills by creating a trip plan and budget for your high school graduation senior trip.
   a. Select a location for the senior trip.

b. Conduct research related to trip costs and then forecast the cost. At a minimum, consider include the following categories for budgeting and forecasting:
   - How many people will be going on the trip and sharing the costs?
   - What mode of transportation is suggested/required?
   - How long will the trip be?
   - What trip activities will require money? (e.g., lodging, transportation, meals, and movies)
   - What is the current cost of taking a trip of this type?
   - What economic indicators might impact the cost of your trip in the future (e.g., inflation rate or currency exchange rate)?
   - What other factors might impact the cost of your trip (e.g., time of year, location, and popularity of location)?
   - How much time will pass between the forecasting you are making and the actual trip?

3. Based on your research, create a multimedia presentation that includes information about the trip you planned and the forecasted costs. Your presentation should include, but is not limited to, the following:

   a. Destination
   b. Travel dates
   c. Forecasted costs for:
      - Transportation
      - Lodging
      - Meals
      - Activities (e.g., tours)
      - Souvenirs
      - Contingency for unexpected costs
   d. Assumptions you made when generating your forecast
   e. Other factors that influenced your forecast
   f. Sources of information (e.g., websites, travel bureaus, and transportation companies)

4. Present your trip budget and forecast.

5. Participate in a discussion of class members' trip forecasts.

6. Turn in your completed lab sheet to your instructor.