Using Analogies to Help Students Learn Fundamental Accounting Concepts in the First Week of the First Accounting Course

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INTRODUCTION

Hanson and Phillips (2006) provide evidence that using analogies can be a powerful method for teaching accounting concepts. Prior research (Gentner 1989; Ross 1984) has shown that people often develop analogies that share superficial similarities between the source topic (what the student already knows) and the target topic (what the student is attempting to learn). When students first learn about business balance sheets, they often draw upon their pre-existing knowledge and form an analogy between the business balance sheet and personal net worth. This choice can be very helpful, but part of their pre-existing knowledge does not apply to the business balance sheet. Zook (1991) has demonstrated that students may focus on irrelevant features when analogies are used. Thus, it is important that students understand the parts of the analogy that can be helpful.

Paris and Glynn (2004) demonstrate that analogies are more effective when they are elaborate. Elaborate analogies fully elaborate on the structural features of a target topic that are also present in a source topic. They show that elaborate analogies contribute to students’ more fully comprehending new concepts. This paper describes an elaborate analogy that may be used during the first week of a first financial accounting course to help students understand fundamental accounting concepts. This analogy is used in the form of two related in-class exercises that may be used in a single day or used on separate days.

FIRST IN-CLASS EXERCISE

The first in-class exercise attempts to have the students fully elaborate on the key structural components of personal net worth and then helps them tie these structural components of personal net worth to the business balance sheet. It stresses the components that are quite similar and points out the portions that do not fully apply for business valuation.

Student Task Forming the First Analogy

The class begins by asking the students to take out a sheet of paper and form two lists: “What I Own” and “What I Own.” They are also asked to think about how they would value what they owned if they were asked to do so. Students are given three to five minutes to complete this task.

Once the students have had the opportunity to write down two lists, the instructor forms a common list in the front of the room by asking the students what they listed. Common items on the “own” list include cash, a wide range of electronics, clothes, house, investments, etc. Typical items on the “owe” list are student loans, car loans, and mortgages.
Linking Personal Wealth to Business Balance Sheets

Students are then asked if anyone knows what the difference between what they own and what they owe is. They commonly use the terms equity or net worth. This forms what will be the common components between the source analogy (their knowledge of personal finance) and the target knowledge (a business balance sheet). In class, the students have fully elaborated on what forms “net worth.”

At this point, the students are asked how they typically would value their assets. Common answers are a form of market value. At this point, a discussion may ensue which focuses on asset valuation for a business balance sheet. In particular, it is important to stress the use of historical cost and how this differs from market valuation.

Once the source information has been elicited, it is time to better connect the common structural components to the target information which is a business balance sheet. Since this may be the first day of the course, simple definitions of assets and liabilities may be given which build off the analogy. More complete definitions can be delayed until a subsequent class. It is also helpful to display the equation, \( A-L= NW \), in front of the class. At this point, a business’s owner’s equity may be linked to the concept of net worth. It is important to note that a business’s owners’ equity is not quite the same as an individual’s wealth, or net worth, because many assets on a business balance sheet are valued using historical cost. So, owner’s equity on a business balance sheet will not necessarily indicate the market value of a firm as of the balance sheet date. In addition, it is important to rearrange the personal net worth equation, \( A-L= NW \), to the accounting equation, \( A=L+OE \). Further discussion can point out that this algebraic manipulation rearranges the business balance sheet so that a firm’s resources are on the left side and the sources of those resources are on the right side.

The next part of the in class exercises involves displaying a simple balance sheet from a real company. A discussion follows about what typical business assets and liabilities are. This includes a discussion of two parts of owners’ equity that are relevant to beginning accounting students, contributed capital and retained earnings.

This completes the first in-class exercise. With this exercise, students have formed an analogy between what they know about personal financial position and have applied this pre-existing knowledge to a business balance sheet. They have also learned what part of their pre-existing knowledge will not work very well: how assets are valued on a business balance sheet.

SECOND IN-CLASS EXERCISE

The second in-class exercise attempts to help students better understand a business income statement. It starts by referring back to personal net worth and what they have already learned in terms of its components. An important point is that a person can be wealthy without having a considerable amount of cash.
In-Class Task

Students are asked to form pairs. Since this is typically the first or second day of class, they are asked to introduce themselves in an attempt to break the ice. Once a brief period of time has elapsed, they are asked to reflect on personal net worth and the equation: A-L=NW. The pairs are asked to provide two examples of what would cause a change in an individual’s net worth.

Student Responses

Student responses are then shared. Some will be incorrect; they are just as important as the correct answers. Common responses are displayed in Table 1.

<table>
<thead>
<tr>
<th>TABLE 1</th>
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<tbody>
<tr>
<td><strong>Categories of Correct Student Responses</strong></td>
</tr>
<tr>
<td>Receive assets from some other party</td>
</tr>
<tr>
<td>Give assets to another party who is not a creditor</td>
</tr>
<tr>
<td>Assets increase in value</td>
</tr>
<tr>
<td>Assets decrease in value</td>
</tr>
<tr>
<td>Income</td>
</tr>
<tr>
<td>Costs of living</td>
</tr>
<tr>
<td><strong>Examples of Incorrect Responses</strong></td>
</tr>
<tr>
<td>Paying off debt</td>
</tr>
<tr>
<td>Buying a asset</td>
</tr>
</tbody>
</table>

The correct responses are listed in the order that they typically arise. The notion of working to increase wealth is often the last idea that students volunteer. The incorrect responses are very helpful to help students better understand why a change in cash does not necessarily mean a change in income. With debt payment, some students believe that paying the debt will increase wealth because liabilities are lower. Or, they believe that paying debt will cause wealth to be lower because cash, an asset, is lower. Referring back to the equation, A-L=NW is helpful to point out the offsetting decrease in assets and liabilities. A similar issue arises with buying an asset. Again, some students will focus on half of the transaction. They will either posit that there is an increase in wealth because they have a new asset but forget they used cash or incurred a liability. Or, they will focus on the decrease in cash (or increase in debt) without noting the offsetting increase in assets.
Analogy to Help Understand Accrual Based Income Measurement

The incorrect responses can be very helpful in terms of laying the foundation for a better understanding accrual based income measurement. Students often have difficulty understanding cash basis versus accrual based income measurement. The following analogy may be helpful. Suppose you go to the grocery store and pay $50 for groceries with cash. Has your wealth changed? After a discussion of the typical incorrect responses, students do understand that buying food does not cause a change in wealth. When does the change in wealth occur? Students will typically be able to respond that it occurs when the food is eaten. Although accrual based income measurement does not measure a change in wealth in an economic sense, the grocery store analogy is very useful in later classes when students have difficulty understanding why some cash payments are not considered expenses.

Linking the Changes in Personal Wealth to Business Income Statement

A discussion can follow which leads to the conclusion that businesses provide services or sell a product in order to maximize shareholder wealth. If one is concerned about maximizing shareholder wealth, then a measure of how well firms have performed recently can be helpful.

The final portion of this in-class exercise is to link a business income statement to changes in personal net worth. First, businesses do not have some of the changes in wealth that individuals do. For example, they do not receive inheritances, gifts or win the lottery. Second, students are asked to recall historical cost valuation for assets on a balance sheet. If one were to use strictly historical cost, then one wouldn’t measure any changes in asset values. But, a business’s performing a service or selling a product is similar to an individuals working for a salary. Similarly, a business has costs that it incurs to generate revenues just as individuals have costs of living. Finally, business measure income in a manner that is closer to a measurement of wealth than it is a measurement of changes in cash.

To conclude this exercise, one can display a simple income statement from a real company. Students may discuss typical sources of revenue and common types of expenses.
REFERENCES


