What Did the Hair Dryer Cost?

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This case demonstrates the various types of "costs" that students will be exposed to in a cost/managerial accounting course. This case, a simple example of a student replacing a hair dryer, can be presented on the first day of class and can introduce students, in an interesting way, to many different cost calculations along with the justification for each calculation. The purpose of the case is to stimulate discussion the first day of class and to help students appreciate the complexity and usefulness of cost accounting systems.

CASE

The Problem

This morning, the hair dryer of one of the students in this class broke. The student, Jane, discussed the problem with her older brother Dick.

Dick: Hi Jane. What happened to your hair dryer?
Jane: It broke this morning in the shower. I was multitasking.
Dick: I do not think you should use it in the shower. Wal-Mart has some on sale for $10.00.
Jane: $10.60 with sales tax. And I will have to use my credit card.
Dick: You will have to pay 19% interest; that is $2.00 for one year. You should sign up for a personal finance course.
Jane: Well, I can figure out that I will have some extra driving. According to Google Maps, Wal-Mart is 10 miles from here and the school is 18 miles. But since Wal-Mart is sort of on the way it only adds two miles to the round trip.
Dick: That is also about 15 minutes that you cannot talk to your friends. Are you going to drive or will you have our neighbor Mr. Spot drive you? Mr. Spot is cheap and he will charge you $2.00.
Jane: I prefer to drive.
Dick: You sure have gotten a lot of use out of the Ford Escort I sold you four years ago.
Jane: Yes, that was a good $6,500 investment. In another year, I will have gotten five years use and put 100,000 miles on it, and it will still have a $500 resale value. Since I am graduating then, I can use that $500 as a down payment for a new car. With gas at $3.00 per gallon, I'll need to make sure my new car gets 30 miles to the gallon, like this one.
Dick: What are you doing after school?

Jane: I am going to work at Joe's Bistro. I now get $8.00 per hour and I am up to 20 hours per week. This little problem with the hair dryer will not affect my work hours.
Dick: The economy is booming. By the way, I will give you a dollar for the old hairdryer. I might be able to fix it up and use it to dry the new puppy when it rains.
Jane: Sure. Well, I better get going or I will be late for school.

Assignment Question

What did the hair dryer cost? Present at least three different possible costs that you feel could be defended and present them starting with the most desirable and ending with the least desirable. If you wish to include some additional costs that are not included above, simply add a descriptive statement of the cost you would add; you do not need to assume any monetary amounts for costs where you are not given sufficient information to compute one.

Required

You will work in small groups and each group will prepare one group solution. For purposes of this exercise, all amounts are material (i.e., do not justify excluding an amount because it is immaterial). While many of the amounts would clearly be immaterial in the "real world" the amounts were kept small so that teams could concentrate on the concepts and not number crunching. For each of your selected answers, be prepared to explain the rational for each of the above costs you would include in the cost of the hair dryer and for each you would exclude.

TEACHING NOTES

Purpose

The purpose of the case is to show that, absent generally accepted accounting principles (GAAP), cost is a very nebulous concept. If multiple costs can be obtained in this simple retail purchase of a single product, the complexity of determining cost in a multiple-product manufacturing environment becomes apparent. A second purpose is to set the tone for the course on the first day of class. Students are being told that this is not going to be another memorize GAAP course. While many problems in the course will be structured to have single right answers, a certain level of comfort with ambiguity will be necessary for success in the course. And the case gets students actively involved in their own learning. A third purpose is to introduce the concept of different costs for different purposes. One cost computation may be the best for GAAP, while a different cost computation is best for making the purchase/do not purchase decision. Two secondary purposes of the case are to serve as an icebreaker on the first day of class and to get the students to think about teamwork.

Case Learning Objectives

1. To make students realize that there is no single "right" answer when determining cost. The cost of an asset, product, service or other cost object will be dependent on the objective of the user of the cost information (e.g., satisfying generally accepted accounting principles (GAAP) versus decision making), as well as the philosophy of the individuals calculating the cost (e.g., preference for full versus variable cost).
2. Related to number 1, to get students to realize that costing products (services, etc.) is complex, and multiple computations are often needed to properly capture useful information.
3. Related to numbers 1 and 2, to allow students to discover several of the topics and techniques to be used in the course (such as cost allocation, full costing, and variable/incremental costing), making these topics more intuitively understandable prior to their course coverage.
4. To get students to articulate their justification for determining cost in a particular way (to help them start the habit of having a justification for other decisions during the course).
5. To get students enthused about cost or managerial accounting by providing a case that they can easily relate to their own lives.

6. To provide students with an icebreaker exercise, so that, by working in teams, they will become more familiar with one another.
7. To get students actively involved in their own learning, both by working the case and by the subsequent class discussion of it.

Possible Courses Where This Case Should Be Used

This case can be used on the first day of class in an introductory managerial accounting course (either undergraduate or MBA) and as an introductory case in cost accounting to bring these various cost topics back to the surface.

Analysis of Question/Teaching Plan

Possible responses, some of which will not show up, are presented below. Some comments that may be used by students or the instructor are included in the box with the cost number. The instructor needs to avoid any temptation to indicate to students that any one of these is the true or most correct cost. As indicated in the comments below, the instructor can indicate circumstances where a particular cost factor or computation may be more useful than some alternatives.

Cost 1: Provided by the instructor as the minimum cost. Expense sales tax as a consumption/use tax, instead of including it in the purchase cost. No attempt is made to justify this as a good cost, nor is it labeled a bad cost. It is simply presented as the simplest alternative that might be considered appropriate.	
Purchase price	$10.00

Cost 2: The sales receipt amount. The person on the street would usually give this answer when asked what something cost. The instructor might indicate that this is a good GAAP cost computation, but not inclusive enough to be the best computation to use for the purchase/do not purchase decision.	
Purchase price	$10.00
Sales tax	0.60
Total	$10.60

Cost 3: The instructor can discuss interest as a financing cost that is only capitalized by GAAP for self-constructed long-lived assets and certain discrete inventory projects. However, interest can and should be considered a legitimate cost for internal decision making, such as deciding whether to purchase an asset.	
Purchase price	$10.00
Sales tax	0.60
Interest	2.00
Total	$12.60

Cost 4: For this option, he instructor can discuss incremental or marginal costing. The instructor can point out that this makes some sense if there is idle capacity (sunk costs).	
Purchase price	$10.00
Sales tax	0.60
Interest (may not appear; OK if it does or does not)	2.00
Gas: 2 extra miles at $0.10 per mile. Students could choose to use 20 miles ($2.00) for a round trip to Wal-Mart or 38 miles ($3.80) for total round trip to school and back. If the student chooses the 38 miles, they could also reduce	

the gas cost by the $2.00 a neighbor would have charged to take the student to school, making it $1.80 net. These nuances get students to think, as long as they are simply presented as defensible alternatives.	0.20
Total	$12.80

Cost 5: For this cost, the instructor can discuss full costing. The instructor can indicate that, in the long run, a business must recover all of its costs before a profit can be generated. This cost also makes sense when dealing with a capacity constraint, i.e., where additional capacity will be needed.	
Purchase price	$10.00
Sales tax	0.60
Interest (may not appear; OK if it does or does not)	2.00
Gas: alternative amounts discussed in Cost 4	0.20
Depreciation: Some students may argue that the car cost will be there anyway, allowing the introduction of the sunk cost concept. Student who depreciate generally use units of output: ($6,500-$500)/100,000 miles = $0.06 per mile. Use the same mileage as used for gas. So, this could be 20 or 38 miles, as shown in Cost 4 under gas. Straight-line depreciation can also be used, allowing a discussion of whether to charge for one full day or a partial day, such as fifteen minutes. When discussing these possibilities, do not get bogged down in the minute computations.	0.12
Total	$12.92

Cost 6: This cost provides an option to discuss opportunity cost.	
Purchase price	$10.00
Sales tax	0.60
Interest (may not appear; OK if it does or does not)	2.00
Gas: alternative amounts discussed in Cost 4	0.20
Depreciation: alternatives discussed in Cost 5	0.12
Time Lost: This allows discussion of the concept of opportunity cost. If students fail to discuss time lost, the instructor can raise the issue near the end of the case. The computation is 15 minutes at $8.00 per hour. While the student lost hallway talk time, the job provides one way to monetize the value of the time. Can also mention the cost of the owner's capital as another sometimes overlooked opportunity cost.	2.00
Total	$14.92

The case requirements say, "If you wish to include some additional costs that are not included above, simply add a descriptive statement of the cost you would add; you do not need to assume any monetary amounts for costs where you are not given sufficient information to compute one."

Additional Possible Considerations for Case	
The case (and the above cost computations) omits some relevant maintenance costs that some students may wish to add: oil change, tune up, new tires. If students do not bring this up, immediately before ending the case, the instructor can ask the class if there are any relevant costs omitted from the case.	
Occasionally, some students will suggest using the Internal Revenue Service mileage rate (instead of gas and depreciation), in order to capture all of the	

relevant automobile costs, in which case the above point is moot.	
Some students may wish to use the $1.00 sale of the old hair dryer as an offset to the cost of the new hair dryer, using a net cost approach. Here, the instructor can discuss the idea of separate economic events, but point out that a $1.00 "trade-in" of the old hair dryer would trigger the like-kind exchange rules used by GAAP and taxes, where an offset is considered relevant.	(1.00)

Strategy for Using the Case in Class

The case should not be rushed; however, as shown below, it could be completed more quickly if the faculty member presenting the case allots less time for students to create a solution and less time to reviewing solutions.

Activity	Minutes
Hand out the case and read it to the class (can save a couple of minutes by handing out case before class as students arrive)	5
Have students turn chairs around to form ad hoc teams of 3-to-5; first row with second row, third row with fourth row, etc.	2
Team time to create a solution (can reduce to 10, if necessary, but 15 allows students to work without feeling rushed and to engage in small talk a few minutes after creating their solutions)	15
Class time to review solutions (can reduce to 20, if necessary)	25
Debrief	2
Total (can reduce 10 minutes fairly easily, as shown above)	49

While students are asked to rank their solutions in the case requirements, it is not necessary to go over solutions in rank order. Instead, when presenting the case, instructors are advised to start with one simple solution by asking one team chosen at random for its simplest solution. Then each remaining team is asked for its simplest solution that is not already on the board, cycling thorough the teams until there are no new responses.