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*Developing and Implementing Just-in-Time-Teaching Techniques in the Principles of Economics Course*

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### **Warmup: Modeling**

**Develop a verbal model to explain the relationship between two variables that describe the behavior of an activity related to your own personal experience (e.g. time spent studying and grade on upcoming exam - but don't use *this* example). Also, how would you illustrate your model graphically? What would the graph look like? Explain.**

**Text reference: pp. 28-32**

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### **Student Responses Used in Class**

Model 1

I have been working in a restaurant-eatery for a few months now and I have been noticing that when the employees smile a lot to customers, the most likely they are to get big tips. The smiler we are, the more money we get. Graphically I would put on the Y-axis the amount of tips left by customers and on the X-axis I would put the "average of smile" form the workers. The bigger this number is , the upper the line goes, at least for a while. After, even if the numbers of smile is still going up, the amount of tips left does not increase as much.

Model 2

If I put in more hours at my job, I would make more money. And therefore I will have some extra money to spend on what I want. In my situation variable 1 is hours spent working and variable 2 is wages earned. In this situation there is a positive relationship because if hours spent working is increased then wages earned will also increase. In the graph there will be an upward curve that will continue to go up.

Model 3

My day is just not long enough to accomplish everything that I want to accomplish. There is an opportunity cost for everything that I do. I have noticed that if I do not spend any time with my girlfriend that our relationship suffers. My girlfriend is not happy if everyday I do not at least call her (15 minutes). If I see her (1 hour) she continues to be even more happier. However after an hour while her enjoyment contiunues to grow, it is at a slower rate. After 3 hours, her enjoyment stops growing and begins to decrease. This model has allowed me to maximize her enjoyment without increasing my oppourtunity costs. For example I have to eat so I have lunch with her 1 hour. The increasing opportunity cost of having to spend more time with my girlfriend for her to

get the same amount of enjoyment occurs at the one hour mark and increases at the two hour mark. As we get closer to three hours I know that the rate at which the increasing opportunity costs grows until at the three hour mark her enjoyment actually decreases. Yes with Economic Models even personal issues can be studied and handled much more effectively. From now on I will spend only one hour a day with my girlfriend and spend the other two hours studying Economics.

#### Model 4

I work at a camera store, I have attended several workshops about cameras and sale techniques. Because of these workshops my sales has increased; therefore my commission will increase along with my knowledge. Graphically: I would use a line graph with two variables. Variable one (axis x) would be how many workshops I attended and variable two (axis y) would be the amount of commission I will receive. Therefore this would be positively related variables. The graph will be upward-sloping lines that will show how one variable increases the other variable increases. The more workshops I attend the more money I will make.

#### Model 5

An example of a model that explain the relationship between two variables that describe the behavior of an activity related is as a manager of a jewelry store, I'm able to determined the sales differences when we hired more Spanish/English speaking sales associates and decreases the number of employee that speak English only. The increase of both Spanish and English speaking increases our sales. A bar graph is a graphical model that describe the situation in a clear manner. On the x-axis, it would be the number of Spanish/English speaker and on the y-axis would be the sales amount. By looking at the bar graph, the bar tend to move up as we increases the number of Spanish/English speaker. Therefore, there would be a slope going upward, showing that there's a increase of sales as we increase more Spanish/English speaker.