Marketing Research

Chapter 12
Test Markets and Experimental Design

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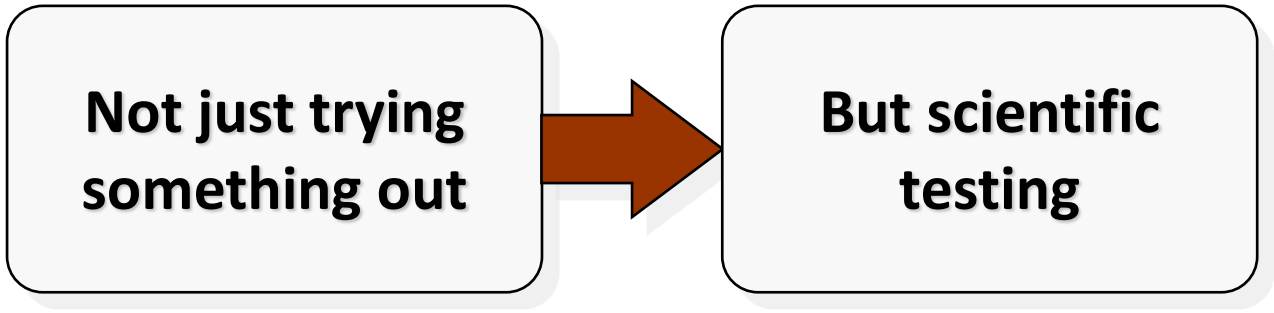
LEARNING OUTCOMES

After studying this chapter, you should be able to

1. Know the basics of test marketing including how experimental manipulations can be used to test marketing strategies in a real world setting
2. Recognize the appropriate uses of test marketing
3. List the advantages and disadvantages of test marketing
4. Use manipulations to implement a completely randomized experimental design, a randomized-block design and a factorial experimental design
5. Display experimental results using graphical charts

Test-Marketing

- Test Marketing
  - An experimental procedure that provides an opportunity to test a new product or a new marketing plan under realistic market conditions to measure sales or profit potential.



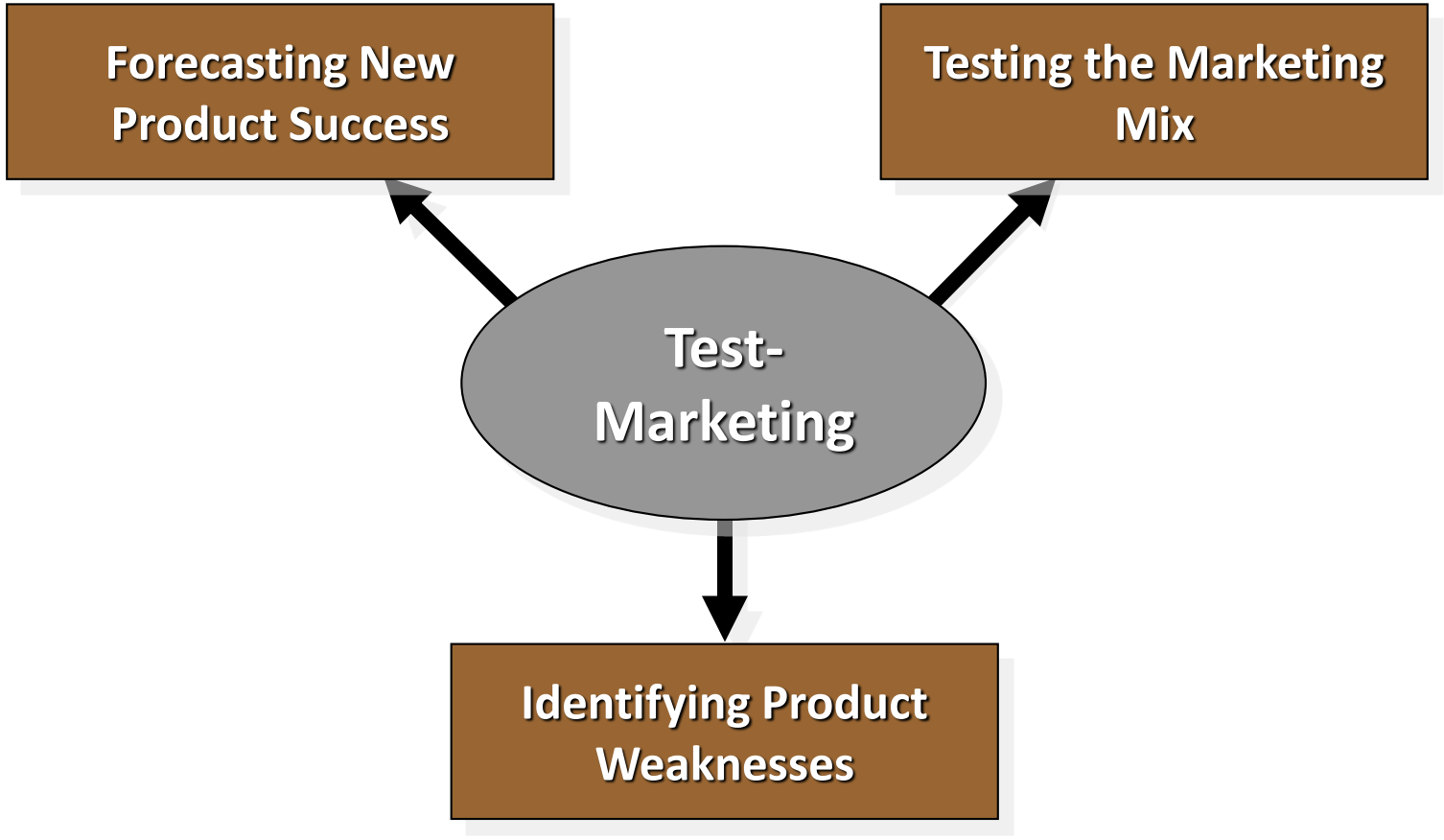
Controlled Experimentation

EXHIBIT 12.1 The Risks and Costs Associated with Product Development Research

Testing Procedure	Number of Ideas Considered	Number That Survive	Approximate Cost of Testing	Total Expense
Initial Idea Screening	80	8	$50	$4,000
Concept Testing	8	4	4,000	$32,000
Product Development	4	2	250,000	$1,000,000
Test Marketing	2	1	2,500,000	$5,000,000
Initial Full Launch	1	1	10,000,000	$10,000,000
				$16,036,000

Sources: Ding, Ming, and Jehoshua Eliashberg (2202), "Structuring the New Product Development Principle," Management Science, 48 (March) 343–363; Kotler, Philip, *Marketing Management,* Upper Saddle River, NJ: Prentice Hall, 1994.

Uses of Test-Marketing



Using Test-Markets

- Effective Uses of Test-marketing
  - Test-marketing has three broad primary uses:
    1. Forecasting the success of a newly developed product.
    2. Testing hypotheses about different options for marketing mix elements.
    3. Identifying weaknesses in product designs or marketing strategies.

Using Test-Markets

- Advantages of Test-marketing
  - Real-world setting
  - Easily communicated results
- Disadvantages of Test-marketing
  - Cost of conducting tests
  - Time required to conduct tests
  - Loss of secrecy
- When Not to Test-market
  - When the cost of producing test units is high.
  - When investment costs to get to market are low.
  - When imitation by competitors is easy.

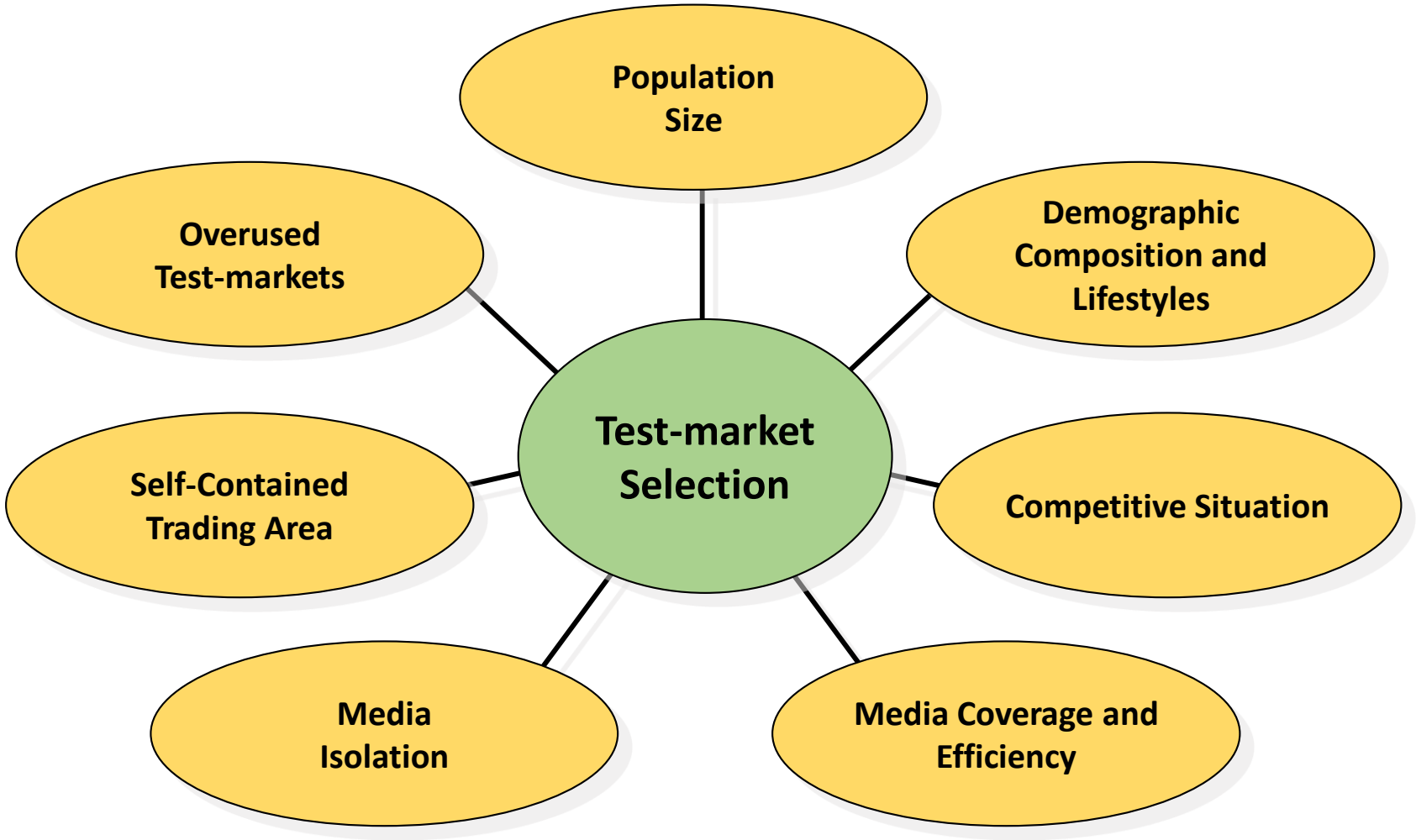
Selecting a Test-Market

- Test-Markets
  - Markets representative of the population comprised of all consumers in the relevant marketing area.
    - Selecting test-markets is a sampling problem.
    - Certain test-market cites have populations that fit the benefit segment to which the product is aimed.
      - Regional or urban differences, atypical climates, unusual ethnic compositions, or different lifestyles
- International Test-Markets
  - Overseas market testing is achieved by testing in cities that are representative markets for larger areas.

EXHIBIT 12.2 Popular Test-Markets and Selected Demographic Characteristics

City	2000 Population	Median Age	Percent of HH w/ Children	Hispanic Proportion (Percent)
Cedar Rapids, IA	191,701	35.2	31.8	1.4
Eau Claire, WI	148,337	34.7	31.4	0.8
Grand Junction, CO	116,255	38.1	31.4	10.0
Odessa-Midland, TX	237,132	33.0	38.4	35.8
Pittsfield, MA	84,699	40.6	27.6	1.7
Wichita Falls, TX	140,518	33.6	33.8	11.8
Entire U.S.	281,000,000	35.3	32.8	12.5

Factors to Consider in Test-market Selection



Estimating Sales Volume: Some Problems

- Problems
  - Over-attention
  - Unrealistic store conditions
  - Reading competitive environment incorrectly
    - Test-market sabotage: intentional attempts to disrupt the results of a test-market being conducted by another firm.
  - Incorrect volume forecasts
    - Adjusted data
    - Penetration and repeat purchase rate
  - Time lapse

Projecting Test-Market Results

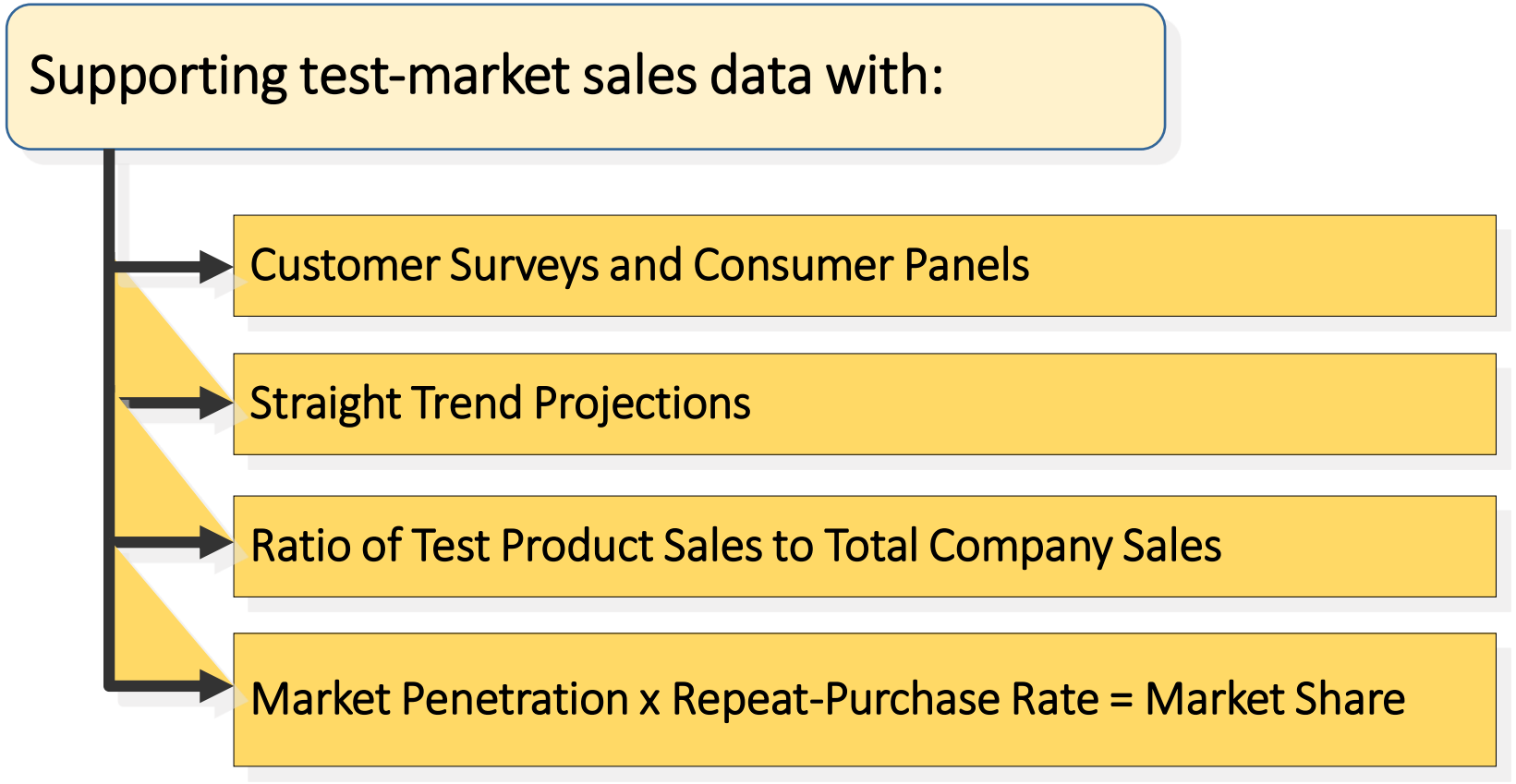
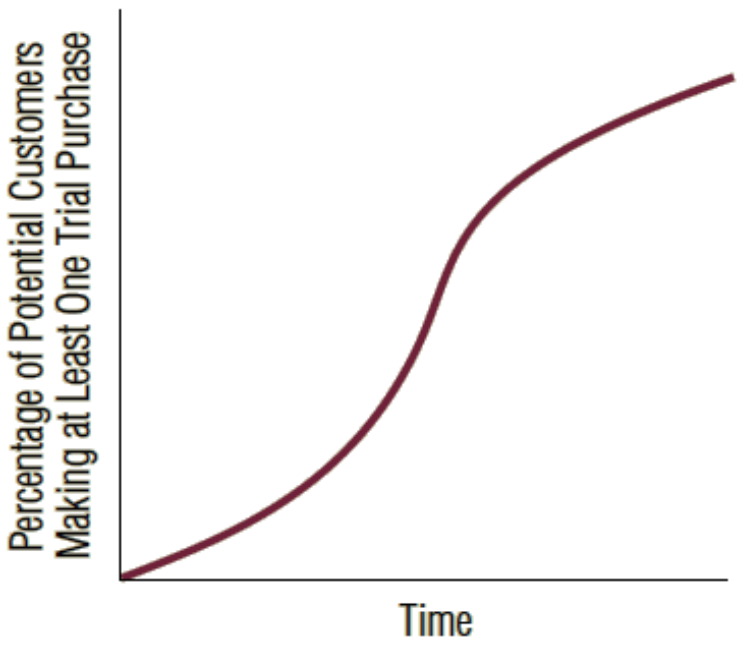
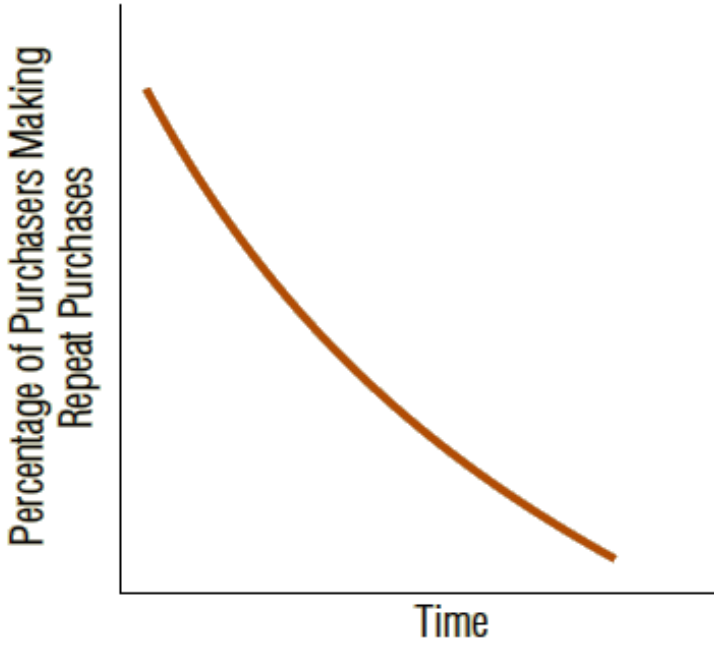


EXHIBIT 12.3 New-Product Trial Purchase Curve and Repeat-Purchase Curve



(a) Market Penetration Curve

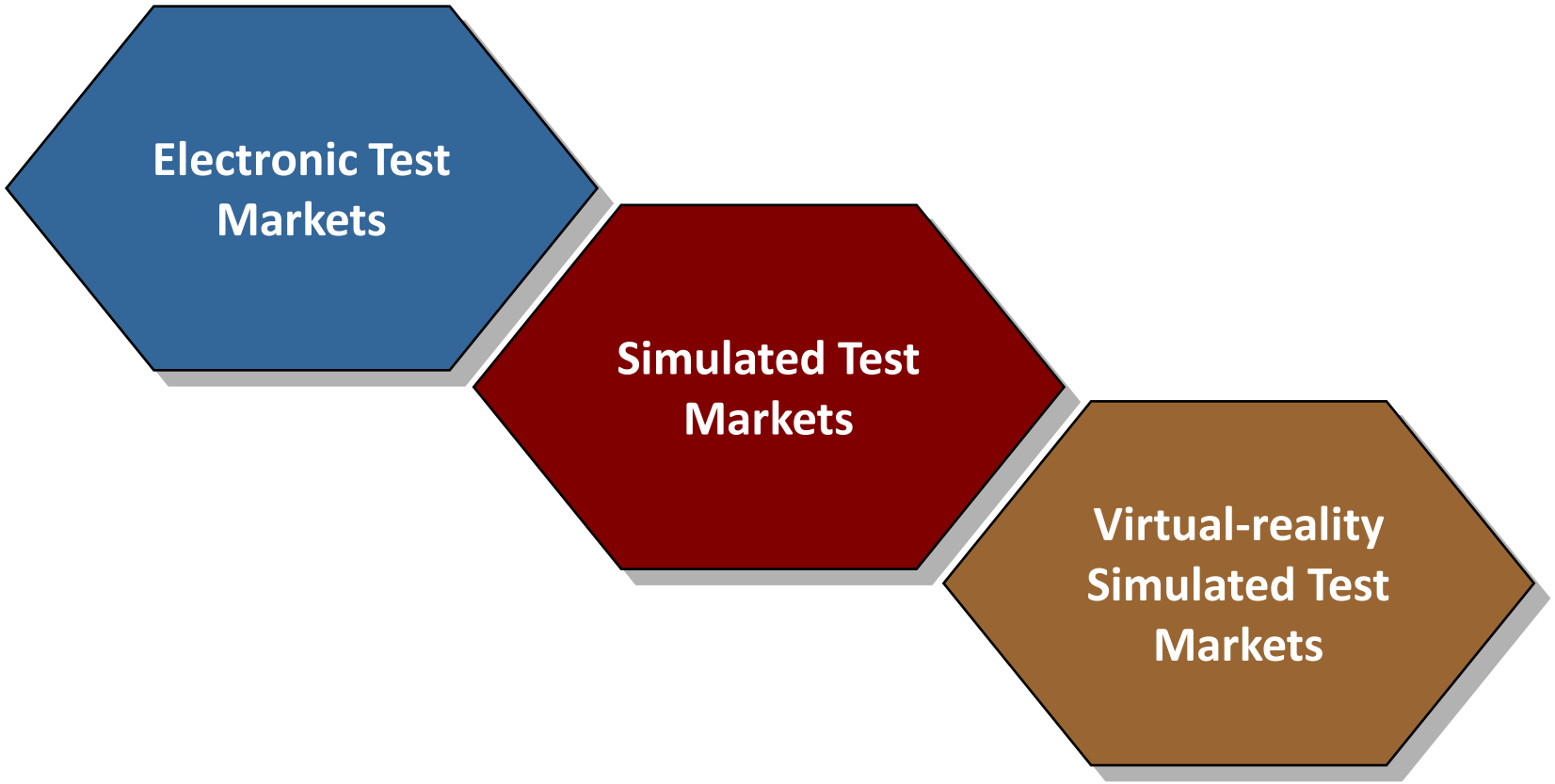


(b) Repeat Purchase Curve

Alternative Test-Market Methods

- Control Method of Test-marketing
  - A “minimarket test” using forced distribution in a small city; retailers are paid for shelf space so that the test-marketer can be guaranteed distribution.
- Advantages of Using the Control Method
  1. Reduced costs
  2. Shorter time period needed for reading test-market results
  3. Increased secrecy from competitors
  4. No distraction of company salespeople from regular product lines

High Technology Systems Using Scanner Data

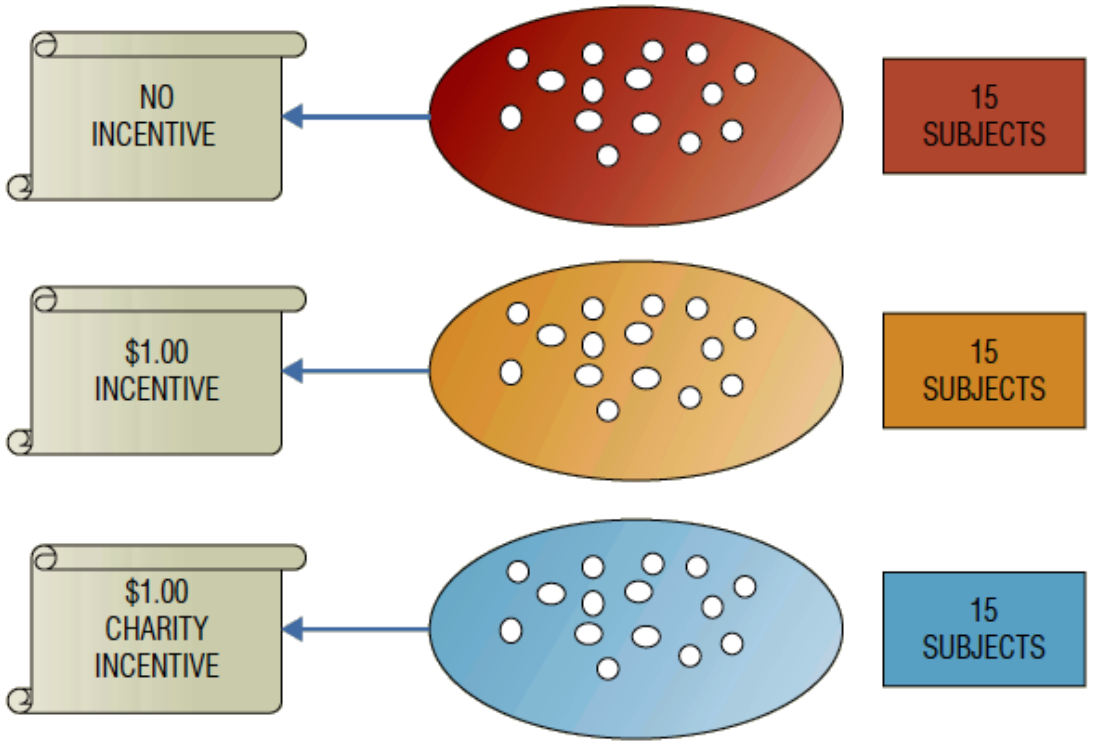


Complex Experimental Designs

Complex Experimental Designs (cont'd)

- Completely Randomized Design
  - An experimental design that uses a random process to assign subjects (test units) to treatment levels to investigate the effects of an experimental variable.

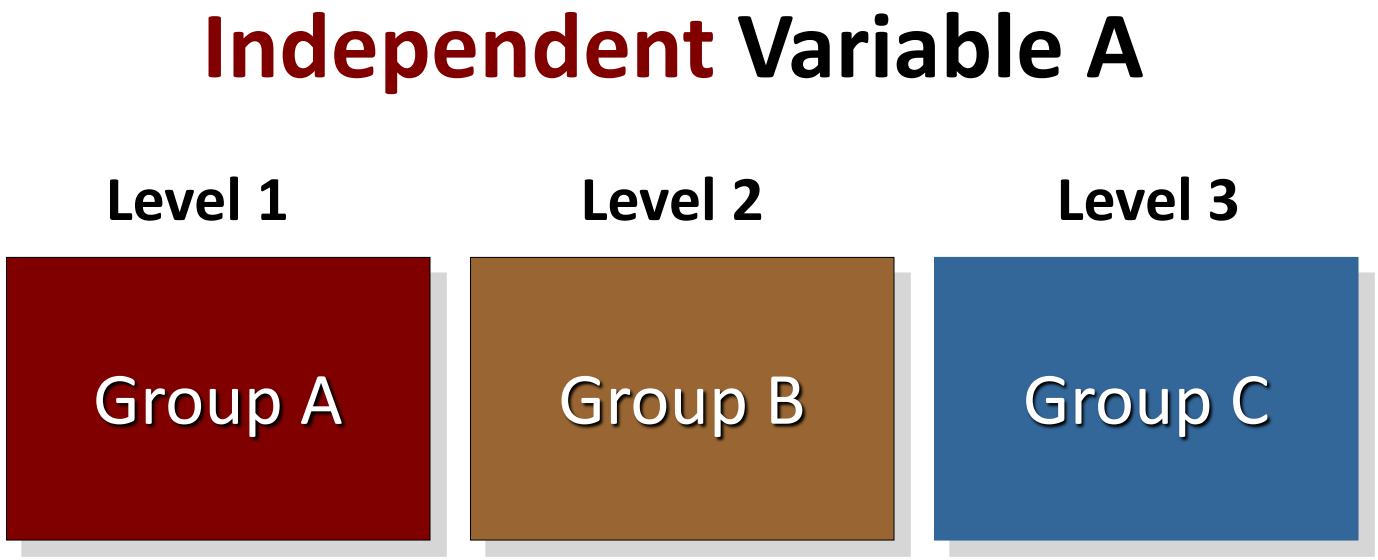
EXHIBIT 12.4 Experiment Examining Effect of Incentive on Response Rate



DUMMY TABLE OF RESULTS:

	Experimental Treatment		
	No Incentive	**$1**	**$1 To Charity**
Responses	3	6	7
Observations	15	15	15

Completely Randomized Design



Completely Randomized Design

With a pretest posttest

Group A R O_1 X_1O_2

Group A R O_3 X_2O_4

Group A R O_5 X_3O_6

Completely Randomized Design

With a posttest

Group A R X_1 O_1

Group B R X_2 O_2

Group C R X_3 O_3

Complex Experimental Designs (cont'd)

- Randomized Block Design
  - An extension of the completely randomized design: a single categorical extraneous variable that might affect test units' response to the treatment is identified and the effects of this variable are isolated by being blocked out.
- Blocking Variable
  - A categorical variable that is expected to be associated with different values of a dependent variable for each group. It effectively controls for an extraneous cause in experimental analysis.

EXHIBIT 12.5 Randomized Block Design

Treatment	Percentage Who Purchase Product			
	Mountain	North Central West	North Central East	Mean for Treatments
Package A	14.0% (Phoenix)	12.0% (St. Louis)	7.0% (Milwaukee)	11.0%
Package B	16.0% (Albuquerque)	15.0% (Kansas City)	10.0% (Indianapolis)	13.6%
Mean for cities	15.0%	13.5%	8.5%	

Complex Experimental Designs (cont'd)

- Factorial Design
  - An experiment that investigates the interaction of two or more independent variables on a single dependent variable.

EXHIBIT 12.6 Factorial Design—Toy Robots

Price	Package Design	
	Red	Gold
$25	Cell 1	Cell 4
$30	Cell 2	Cell 5
$35	Cell 3	Cell 6

Effects in Factorial Design

- Main effect
  - The influence of a single independent variable on a dependent variable.
- Interaction effect
  - The influence on a dependent variable by combinations of two or more independent variables.
  - Interaction occurs if the effect of one treatment differs at various levels of the other treatment.

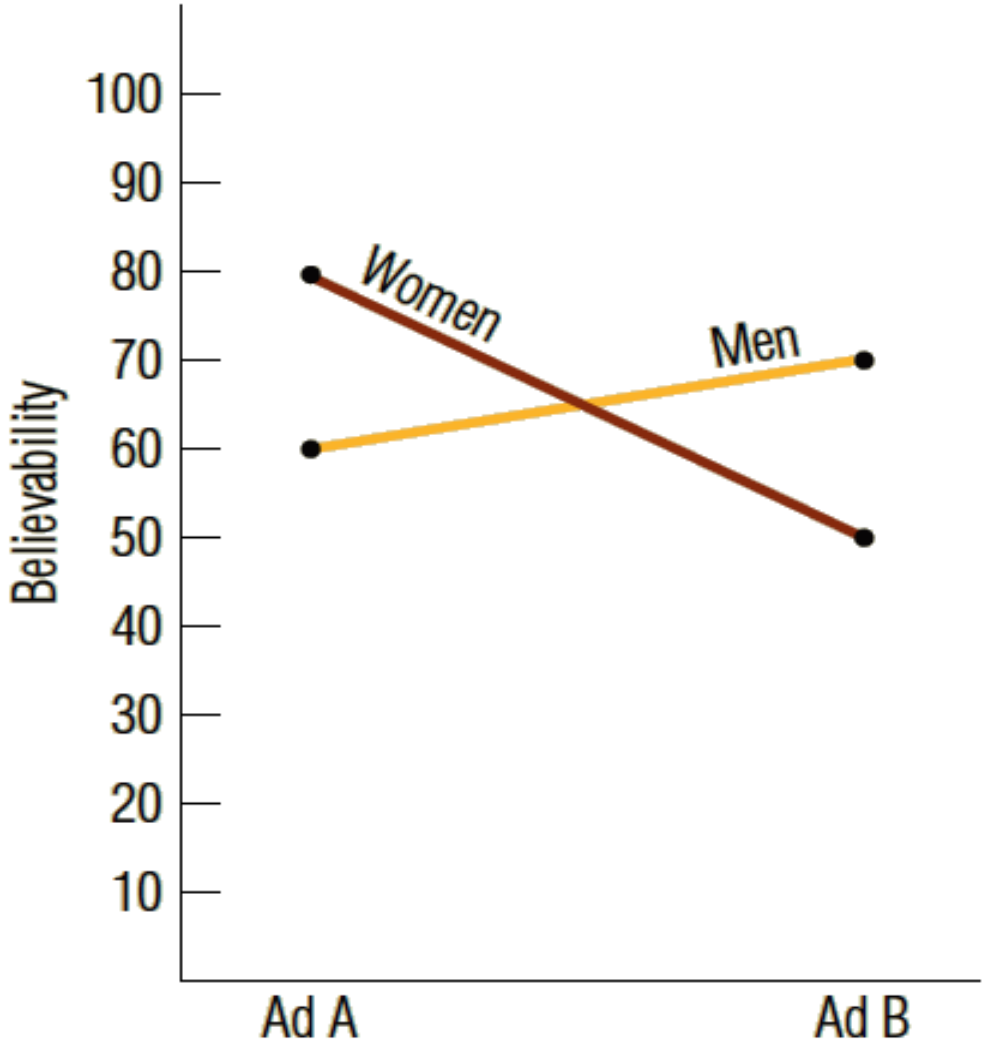
EXHIBIT 12.7 A 2 × 2 Factorial Design That Illustrates the Effects of Gender and Ad Content on Believability

	Ad A	Ad B	
Men	60	70	65
Women	80	50	65
	70	60	

Main effects of gender

Main effects of ad

EXHIBIT 12.8 Graphic Illustration of Interaction between Gender and Advertising Copy



Advanced Experimental Designs

- Latin Square Design
  - A balanced, two-way classification scheme that attempts to control or block out the effect of two or more extraneous factors by restricting randomization with respect to the row and column effects.

		Order of Usage		
		1	2	3
Subject	1	A	B	C
	2	B	C	A
	3	C	A	B

	1	2	3	4	5
1	A	B	C	D	E
2	B	C	D	E	A
3	C	D	E	A	B
4	D	E	A	B	C
5	E	A	B	C	D

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Key Terms and Concepts

- cannibalize
- test-market sabotage
- market penetration
- control method of test marketing
- electronic test markets
- simulated test market
- virtual-reality test market
- completely randomized design
- randomized block design
- blocking variable
- factorial design
- main effects
- interaction effects
- Latin square design

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Thank you