调查研究和测量
(Survey Research and Measurement)

◆ 样本调查是一种获得原始数据的方法，是基于使用书面或者口头提问的方式与代表性样本中的个人之间的沟通交流。

定义中关键概念

- 原始数据Primary data
- 交流Communication
- 代表性Representative
- 样本Sample
- 提问Questioning

可能是**定量**的，也可能是**定性**的

Survey Research

- 数据收集来自个人
  - 调查对象 – 通过回答调查问卷来提供数据以便分析的个体
- 通常样本量较大
- 为了什么目的来进行调查？
  - 描述Description
  - 探究Exploration
  - 解释Explanation

■ 调查研究包含了三种技术

　·标准化问卷答案的收集

　·从已知群体中的随机抽样

　·对调查结果量化的统计分析

1. 根据时间范围

   a) 横截面调查Cross-sectional surveys

   b) 纵向调查Longitudinal surveys

2. 根据沟通的方式
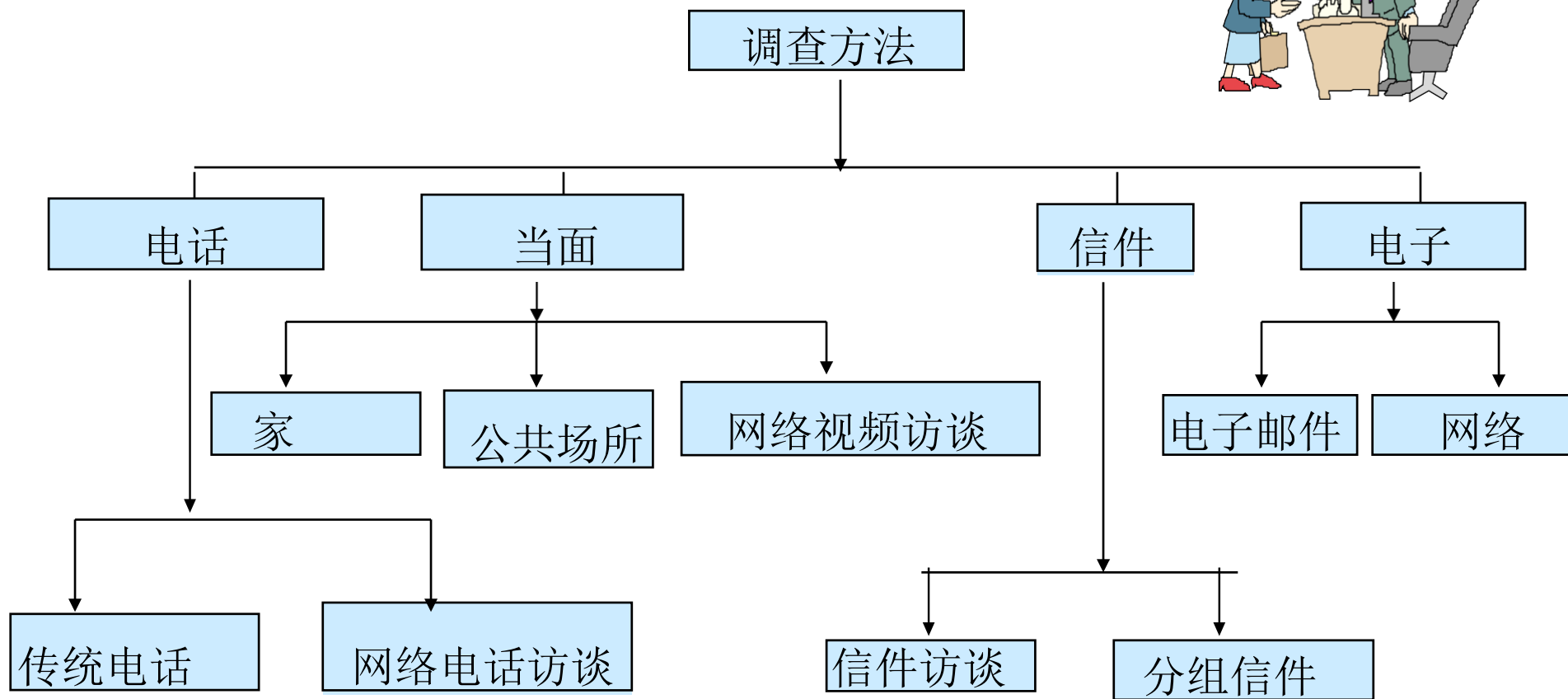
   a) 当面访谈Personal Interviews

   b) 电话访谈Telephone interviews

   c) 信件 mail

   d) 电子化electronic

Temporal Classification of Survey Research

1. 横截面研究：在某单一时间段对多个样本进行数据收集的研究。

2. 纵向研究：在不同时间段对单一样本进行数据收集的研究

```
                          调查方法
                             |
    ┌────────────┬───────────┴────────────┬─────────────┐
  电话          当面                     信件           电子
    |            |                         |             |
    |      ┌─────┼─────────┐         ┌─────┴─────┐   ┌───┴────┐
    |      |     |         |         |           |   |        |
    |     家  公共场所  网络视频访谈  信件访谈  分组信件  电子邮件  网络
    |
┌───┴──────┐
传统电话  网络电话访谈
```

1. 弄清研究问题
2. 确定实际的约束条件
3. 根据前两条决定采取哪种调查设计才合适
4. 决定采取哪种样本设计最合适
5. 决定样本容量
6. 计划抽样步骤
7. 采用哪种形式的数据收集
8. 借鉴或设计新构念和测量题目
9. 实际操作和数据收集
10. 数据处理
11. 数据分析和解释结果
12. 公布调查结果

- 从大意到核心内涵的转变

- 研究所能达到目的的程度是由确定研究问题过程中涉及到的相关性和完整性的问题来决定的

- 时间Time

- 经济Finance

- 人员Personnel

- 研究的保证Research sponsor
  - 研究主题的详细说明Specification of research topic
  - 发布调查结果Dissemination of findings
  - 调查过程中实际信度的影响Effect on the field credibility of the survey

Survey stages--*Decide type of survey*

- 横向的或者一次性的Cross-sectional or one-off

- 纵向的或者连续的Longitudinal or time series (collection of data at two or more points in time)

- 横向与纵向相结合Combination of Cross-sectional and longitudinal

■ 决定采取哪种样本设计最合适

- Probability samples 概率抽样

  - 简单随机抽样Simple random samples

  - 分群随机抽样Cluster samples

- Non-Probability samples 非概率抽样

  - 定额抽样Quota samples

  - 自愿抽样Volunteer samples

  - 方便样本Convenience samples

  - 滚雪球样本Snowball samples

内容效度Content Validity

■构念是否被准确测量

■文献

表面效度Face Validity

■ 所采用的测量工具是否准确测量目标事物的程度
■ 专家小组

信度Reliability of Subject Answers
■ 内部一致性信度检验

Survey stages-- *Data Collection*

- **步骤**Some steps

  - 提前组织准备Organize in advance

  - 得到调查对象的同意Agree access to your respondents

  - 收集数据Collect the data

  - 监控整个流程Monitor progress

  - 追踪Chasing up

  - 保证数据收集和实际操作过程中的质量Quality of the process of
    fieldwork

and data collection

- 研究报告中真实反映实际工作Report honest and reflect on fieldwork in
  research reports

问题

- 由于编码导致的数据遗失

- 处理没有回答问题或者缺失值

- 0 1 4 3 2 5 4

- 1 4 3 X 2 4 3

- 2 3 1 4 5 3 2

T. 总体满意度	1非常不同意 2基本不同意 3有些不同意 4中立 5有些同意 6基本同意 7非常同意)
1 总的来说，在淘宝买东西是满意的	☐1 ☐2 ☐3 ☐4 ☒5 ☐6 ☐7
2 总的来说，在淘宝买东西是令人愉快的	☐1 ☐2 ☐3 ☐4 ☒5 ☐6 ☐7
3 总的来说，在淘宝买东西是很不错的	☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7
4 以后我很可能还会再在淘宝上买东西	☐1 ☐2 ☐3 ☐4 ☒5 ☐6 ☐7

- **分析数据和解释结果**
  - 数据是否有意义？ Does the data make sense?
  - 谨防伪造Beware of spurious patterns
  - 多次数据比较Compare like with like
  - 结果中允许偶然因素的出现Always allow role of chance in your findings
- **呈现和发布调查结果**

What do I need to consider when doing surveys?

- 准备好你的调查问题
- 附加调查对象的信息如年龄，职业或者性别
- 你的样本？
- 样本容量是否足够大？样本容量是否合适？
- 你的样本是否具有代表性？
- 什么时候开展调查？调查要持续多久？
- 调查对象如何回答问题？
- 你如何呈现调查结果？

Characteristics of Good Survey Research

- Quantitative 定量

- Self-monitoring 自检

- Contemporary 实时性

- Replicable 可重复性

- Impartial 中立

- Representative 代表性

- Theory-based 理论化

优点Strengths

■快速Quick

■便宜Inexpensive

■高效Efficient

■准确Accurate

■灵活Flexible

缺点Weaknesses

■不好设计Poor design

■不正确的执行Improper execution

- 样本偏差

- 问题不好措词

- 采访者不能很好地被指导和监督

- 结果被误解
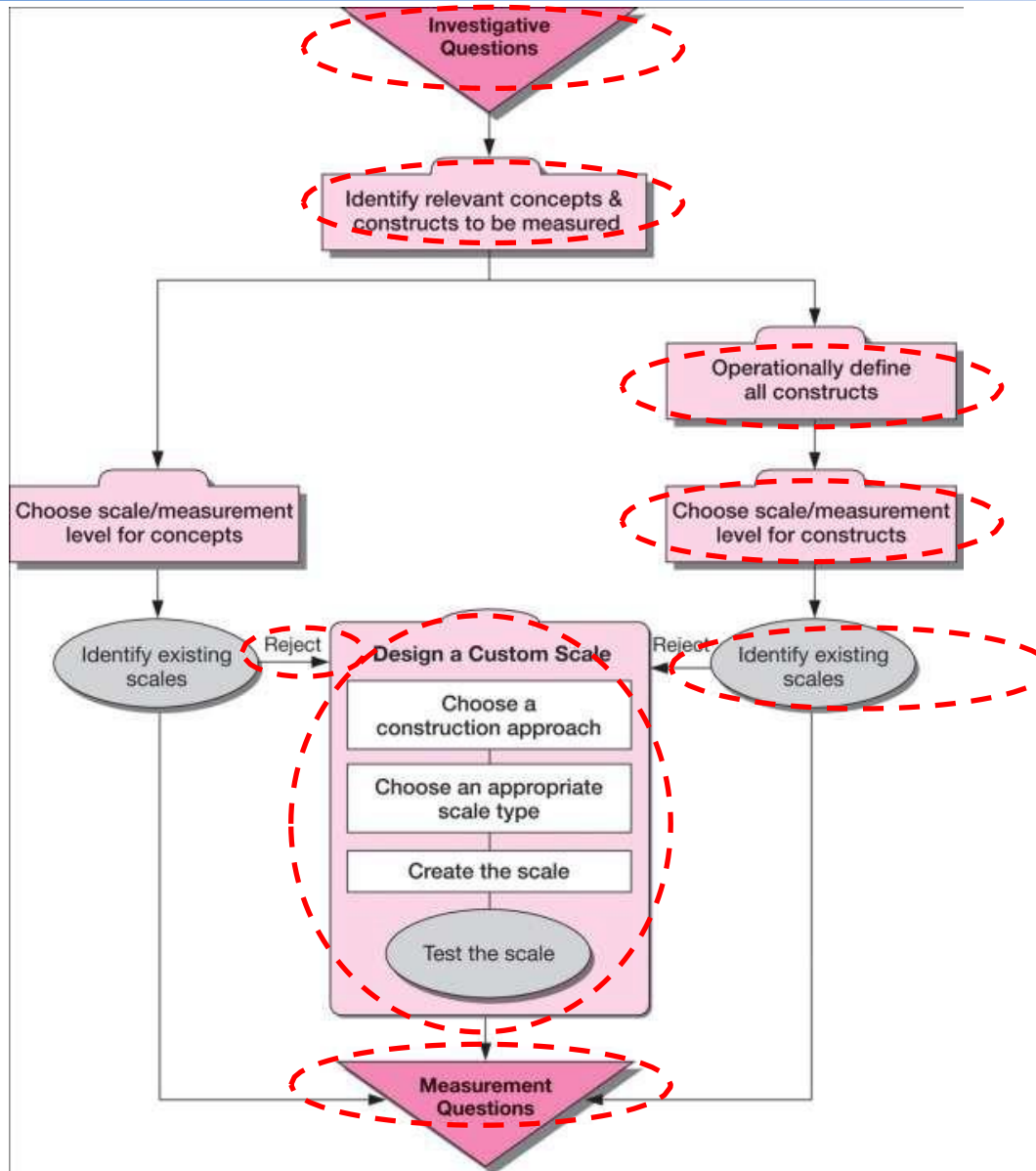
Research Methodology—*Measurement process*

1. 定义将要测度的概念 Define concepts to be measured

2. 定义概念的维度 Define attributes of the concepts

3. 选择测度尺度（数据类型）Select scale of measurement (data type)

4. 产生项目/问题 Generate Items/Questions

   • 措辞 Wording

   • 回应形式 Response format

5. 设计问卷 Layout and design questionnaire

6. 预测试并改进 Pretest and refine

Types of Scales

定类尺度Nominal Scales

定序尺度Ordinal Scales

定距尺度Interval Scales

定比尺度Ratio Scales

Nominal Scales 定类尺度

定类尺度仅要求回答者提供有关类型描述的回答
Nominal scales focus on only requiring a respondent to provide some type of descriptor as the raw response

- 将事物分类Classify things into categories
- 是测量的最弱形式It is the weakest form of measurement
- 互斥性Mutually exclusive
- 详尽性Exhaustive

Example.

Please indicate your current martial status.

__Married   __Single, never married   __Single, divorced   __Widowed

Ordinal Scales 定序尺度

定序尺度允许回答者在对问题的原始回应上表达"相对量级"

Ordinal scales allow the respondent to express "relative magnitude" between the raw responses to a question

- 分类 Allow classification
- 排序 Rank ordering
- 选项的重要程度没有区别 There is no difference between the importance of the choices
- 非连续性 Non-continuous, 离散性变量 discrete variable

Example.

Please indicate your education

A. undergraduate B. Master C. PhD

定距尺度表示出各尺度点之间的绝对差异
Interval scales demonstrate the absolute differences between each scale point

- 当间隔相等时使用 Used when the intervals are equal
- 没有绝对的零There is no absolute zero

Example.

How likely are you to recommend Facebook to a friend?

Definitely will not   Definitely will

1   2   3   4   5

Ratio Scales 定比尺度

定比尺度考虑到各尺度点之间的绝对差异以及初始回应之间的绝对比较
Ratio scales allow for the identification of absolute differences between each scale point, and absolute comparisons between raw responses

- 数字之间的间隔相等The intervals between numbers are equal
- 定比尺度有绝对的零Ratio scales have an absolute zero

Example.

Approximately how many hours do you spend on the Internet daily?

0   2   4   6   8

Guidelines for Using Scales

- 当间隔相等且有绝对的零时，使用定比尺度 Use a ratio scale when intervals are equal and there is an absolute zero

- 当间隔相等但没有绝对的零时，使用定距尺度 Use an interval scale when intervals are equal but there is no absolute zero

- 当间隔不等且分类可以排序时，使用定序尺度Use an ordinal scale when the intervals are not equal but classes can be ranked

- 当分类不可排序时，使用定类尺度 Use a nominal scale when classifying but not ranking

Rating scale评比尺度
- Dichotomous scale 二分量表
- Numerical scale 数值量表
- Likert scale 李克特量表
- Semantic differential scale 语义差别量表
- Graphic rating scale 图形评点量表

Ranking scale排序尺度
- 配对比较量表Paired-comparison scale
- 强迫选择量表Forced ranking scale
- 比较量表Comparative scale

二分量表Dichotomous scale

I plan to purchase a laptop in the 12 months.
☐ Yes
☐ No

数值量表Numerical Scale

EXTREMELY FAVORABLE   5   4   3   2   1   EXTREMELY UNFAVORABLE

Employee's cooperation in teams ____
Employee's knowledge of task ____
Employee's planning effectiveness ____

Likert Scales 李科特综合量表

李科特综合量表是一种归类量表，它要求回答者指出他们对一系列关于某种事物的精神或行为信念陈述的<u>同意或不同意程度</u> A likert scale is a rating scale format that asks respondents to indicate the extent to which they agree or disagree with a series of mental or behavioral belief statements about a given object

IT Flexibility

To what extent do you agree with the following statements? (1: Do not agree; 7: Agree completely)

Hardware Compatibility

Software applications can be easily transported and used across multiple platforms

Our user interfaces provide transparent access to all platforms and applications

Our firm offers multiple interfaces or entry points (e.g., web access) to external users

Our firm makes extensive use of middleware to integrate key enterprise applications

Example:

Q.18.Please measure the following affirmative perceptions about your library OPAC (Online Public Access Catalogue) and Web OPAC use .

Codes: 1-strongly disagree, 2- disagree, 3- neutral, 4-agree, 5- strongly agree						
S/N	**Affirmative perception statements**	**Codes**				
(i)	OPAC / Web OPAC was Easier to use than I expected	1	2	3	4	5
(ii)	It was Fun to use	1	2	3	4	5
(iii)	It was Easy to use	1	2	3	4	5
(iv)	It helped me in finding the documents faster	1	2	3	4	5
(v)	It is Very difficult to use	1	2	3	4	5
(vi)	It is Very confusing to use	1	2	3	4	5
(vii)	I found more items than expected	1	2	3	4	5
(viii)	I am comfortable with simple search	1	2	3	4	5
(ix)	I am comfortable complex/Advance search	1	2	3	4	5
(x)	I am comfortable quick search	1	2	3	4	5
(xi)	I am comfortable when using OPAC/Web OPAC	1	2	3	4	5

优点Likert scale：

■可测量较复杂和多重属性(多构面)的变量(概念)。

■可以提供定距数值类型，方便统计分析使用。

■评量的题目具有多重属性，数量较多，即使少数几题设计有瑕疵，仍可于事后剔除

缺点Likert scale：

■量表题目(项目)设计不易，需耗费大量时间搜集、整理、归纳 、比较、设计、分析与修改。

■题目数量可能很多，填写者(受访者)需耗费较多时间阅读和填答，容易产生倦怠感，导致测量效度之降低。

■量表中单独任何一个题目，经过统计分析后的数值(mean ± SD) 其数值意义与参考价值不高。

Semantic Differential Scales (SD)语意差别量表

语意差别量表是一种有两极的定序尺度，它用来获取人们对于某种事物的态度 A semantic differential scale is unique bipolar ordinal scale format that captures a person＇s attitudes and/or feelings about a given object

Now with respect to Tiger Woods as the spokesperson for Nike golf apparel, we would like to know your opinions about the expertise, trustworthiness, and attractiveness that you believe he brings to the advertisement. Each dimension has five factors that may or may not represent your opinion. For each listed factor, **please check the line that best expresses your opinion about that factor.**

Expertise:

Knowledgeable	____	____	____	____	____	____	____	Unknowledgeable
Expert	____	____	____	____	____	____	____	Not an Expert
Skilled	____	____	____	____	____	____	____	Unskilled
Qualified	____	____	____	____	____	____	____	Unqualified
Experienced	____	____	____	____	____	____	____	Inexperienced

Trustworthiness:

Reliable	____	____	____	____	____	____	____	Unreliable
Sincere	____	____	____	____	____	____	____	Insincere
Trustworthy	____	____	____	____	____	____	____	Untrustworthy
Dependable	____	____	____	____	____	____	____	Undependable
Honest	____	____	____	____	____	____	____	Dishonest

Rating Scales 评比量表
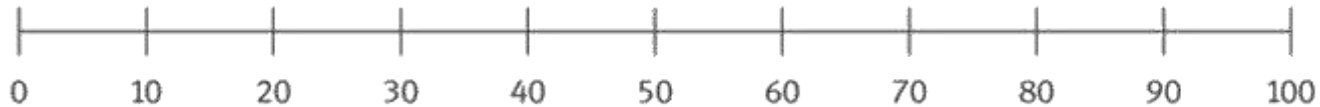
■ **图形评点量表**Graphic Rating Scales

1. Usage (Quantitiy) Descriptors:

Never Use   Use All the Time

0   10   20   30   40   50   60   70   80   90   100

2. Smiling Face Descriptors:

1   2   3   4   5   6   7

评比尺度Rating scale

等级尺度Ranking scale

Ranking Scales

- 配对比较量表Paired-comparison scale

- 强迫选择量表Forced ranking scale

- 比较量表Comparative scale

Ranking Scales 等级量表

配对比较量表Paired-Comparison Scale

"For each pair of two-seat sports cars listed, place a check beside the one you would most prefer if you had to choose between the two."

___ BMW Z4 M Coupe
___ Porsche Cayman S

___ Chevrolet Corvette Z06
___ Porsche Cayman S

___ Chevrolet Corvette Z06
___ BMW Z4 M Coupe

___ Porsche Cayman S
___ Dodge Viper SRT10

___ Chevrolet Corvette Z06
___ Dodge Viper SRT10

___ Dodge Viper SRT10
___ BMW Z4 M Coupe

Ranking Scales 等级量表

强迫排序量表Forced Ranking Scale

"Rank the radar detection features in your order of preference. Place the number 1 next to the most preferred, 2 by the second choice, and so forth."

___ User programming
___ Cordless capability
___ Small size
___ Long-range warning
___ Minimal false alarms

比较量表Comparative Scale

"Compared to your previous hair dryer's performance, the new one is":

SUPERIOR		ABOUT THE SAME		INFERIOR
—	—	—	—	—
1	2	3	4	5

**一维
Unidimensional**

Hardware Compatibility

Software applications can be easily transported and used across multiple platforms

Our user interfaces provide transparent access to all platforms and applications

Our firm offers multiple interfaces or entry points (e.g., web access) to external users

Our firm makes extensive use of middleware to integrate key enterprise applications

IT Flexibility

To what extent do you agree with the following statements? (1: Do not agree; 7: Agree completely)

Hardware Compatibility

Software applications can be easily transported and used across multiple platforms

Our user interfaces provide transparent access to all platforms and applications

Our firm offers multiple interfaces or entry points (e.g., web access) to external users

Our firm makes extensive use of middleware to integrate key enterprise applications

Software Modularity

Reusable software modules are widely used throughout our systems development unit

Legacy systems within our firm do not hamper the development of new IT applications

Functionality can be quickly added to critical applications based on end-user requests

Our firm can easily handle variations in data formats and standards

**多维
Multi-dimensional**