Quantitative Business Research Methods – Day 2

Spring 2023

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School of Business

Recap from previous lecture

Important installations for your computer:

- VPN from download.aalto.fi
- Letting Google Scholar know that you are from Aalto

Literature search

- A look at top marketing journals
- Searching the most important articles

Systematic Literature Review: Finding the Research Gap

Literature review

- Goals of a literature review goals as follows:
  - (1) to summarize prior research,
  - (2) to critically examine contributions of past research,
  - (3) to explain the results of prior research found within research streams,
  - (4) to clarify alternative views of past research (not necessarily integrated together).

- Source: Schwarz et al. (2006)

Literature review table

- Develop a literature review table.
- Describe relevant studies in rows and evaluate each paper across 4–6 columns (e.g., theory, data, key findings).
- A good literature review table summarizes the field.
- It helps you recognize your own contribution.
- Moreover, you are now able to clarify your contribution, relative to extant research.
- So, you do not do literature review table for its own sake. You do it also to recognize and communicate your own contribution.

Literature review table: Example

Table 1 Summary of key studies

Authors and source	Leadership explored at multilevel	Different mediating process at multilevel	Dependent variable	Level of analysis	Data	Major findings
Chen et al. (2007)	No. Leadership at team level	Yes. Team empowerment at team level and individual empowerment at individual level as partial mediators	Individual and team performance	Multilevel: Individual and team	Multiple source: Team members (n=445), team leaders (n=62), and managers (n=31) of US home improvement firm	Team empowerment partially mediated the relationship between leadership climate and team performance while individual empowerment partially mediated the relationship between leader-member exchange and individual performance
Liao and Chuang (2007)	Yes. Transformational leadership (TFL) at individual and work-unit level	Yes. Only self-efficacy but not affective commitment and job satisfaction as partial mediator at individual level. Service climate did not receive support as partial mediator at work-unit level	Employee service performance and customer relationship outcomes	Multilevel: Individual and work-unit	Multiple source and two phase: Hairstylists (n=420, t=1 and n=243, t=2), store managers (n=110), and customers (n=715) from hair salons in Taiwan	Work-unit TFL did not have a direct effect on service performance. Self-efficacy partially mediated the relationship between individual level TFL and service performance but service climate did not mediate the relationship between work-unit level TFL and service performance. The effect of self-efficacy on service performance was stronger under a positive service climate (cross-level interaction). Employee service performance enhanced customer intention to maintain relationship and # of long-term customers served per day
Morhart et al. (2009)	No. Transformational (TFL) and transactional (TRL) leadership at individual level	No. Internalization (compliance) as the mediating mechanism for TFL (TRL)	Extra-role and in-role brand building behavior, retention	Individual	Single source: Service employees (n=269) of telecom firm (Study 1)	TRL has direct effect on extra-role brand building; however, TFL has no direct effect. TFL's effect is mediated via role identity internalization while TRL's impact is mediated through compliance. TFL's impact is greatest at moderate levels of TRL
MacKenzie et al. (2001)	No. TFL and TRL at individual level	No. Trust in manager mediated TFL-extra-role performance relationship	Extra-role and in-role performance	Individual	Multiple source: Sales agent (n=477) and managers of life insurance firm	Core TFL did not have a direct and positive significant impact on extra-role performance. Core TFL had indirect effect on extra-role performance mediated via trust in manager

Auh, S., Menguc, B., & Jung, Y. S. (2014). Unpacking the relationship between empowering leadership and service-oriented citizenship behaviors: a multilevel approach. *Journal of the Academy of Marketing Science*, *42*(5), 558–579.

Literature review and research gaps

- Research gap refers to what is not known.
- We want the literature review table show us the research gaps.
- You can even combine your literature table and research gaps to the same table (next slide).
- For example, something has been researched among business-to-consumer context (B2C) but not in business-to-business context (B2B).
- In the table some research gaps are related to B2B-context. Others are related to theory.
- All research gaps should not usually be related to context.

TABLE 1
Literature Overview of CSR Research in Marketing and Related Fields

	Supplier Perspective		Customer Perspective			
				Customer Outcomes of a Supplier's CSR Engagement		
	CSR Conceptualization/ Operationalization	CSR Implementation/ Operations	Antecedents of a Customer's CSR Orientation	Psychological Outcomes	Behavioral Outcomes	Moderators
B2C	Mostly unidimensional •One overall CSR measure (e.g., Berens, Van Riel, and Van Bruggen 2005; Brown and Dacin 1997; Sen and Bhattacharya 2001; Wagner, Lutz, and Weitz 2009) •Focus on one specific CSR facet (e.g., Lichtenstein, Drumwright, and Braig 2004; Robinson, Irmak, and Jayachandran 2012; Sen, Bhattacharya, and Korschun 2006)	•Product design and manufacturing (e.g., Sharma et al. 2010) •Codes of conduct (e.g., Egels-Zandén 2007) •Supply chain management and supply chain networks (e.g., Tate, Ellram, and Kirchoff 2010)	•Sociodemographic factors (e.g., Auger et al. 2003) •Psychographic factors (e.g., Robinson, Irmak, and Jayachandran 2012) •Cultural factors (e.g., Auger et al. 2003)	Mostly isolated examination •Customer–company identification (e.g., Lichtenstein, Drumwright, and Braig 2004) •Product evaluation (e.g., Berens, Van Riel, and Van Bruggen 2005) •Attitude toward the company (e.g., Brown and Dacin 1997) •Customer satisfaction (e.g., Luo and Bhattacharya 2009) •Trust (e.g., Vlachos et al. 2009) •Resistance to negative company information (e.g., Klein and Dawar 2004)	Mostly isolated examination •Customer loyalty (e.g., Du, Bhattacharya, and Sen 2007; Maignan, Ferrell, and Hult 1999) •Purchase intention (e.g., Du, Bhattacharya, and Sen 2007; Sen, Bhattacharya, and Korschun 2006) •Willingness to pay (e.g., Auger et al. 2003) •Support for CSR initiative (e.g., Bhattacharya and Sen 2004; Lichtenstein, Drumwright, and Braig 2004)	•Supplier- and/or product-related moderators (e.g., Luchs et al. 2010) •Customer-related moderators (e.g., Barone, Norman, and Miyazaki 2007; Wagner, Lutz, and Weitz 2009) •CSR-related moderators (e.g., Du, Bhattacharya, and Sen 2011)
B2B	*Research Gap 3* Distinction between CSR facets (in B2B and B2C contexts)		Purchasing social responsibility (e.g., Carter and Jennings 2004; Drumwright 1994)	*Research Gaps 1 and 4* Customer outcomes of suppliers' CSR engagement in B2B context and simultaneous examination of distinct CSR activities with several outcome variables (in B2B and B2C contexts)		*Research Gap 5* Integration of B2B-specific moderators
	Research Gap 2 Integration of supplier and customer perspective by examining supplier–customer dyads (in B2B and B2C contexts)					

Homburg, C., Stierl, M., & Bornemann, T. (2013). Corporate Social Responsibility in Business-to-Business Markets: How Organizational Customers Account for Supplier Corporate Social Responsibility Engagement. *Journal of Marketing*, *77*(November), 54–72.

Reporting literature review

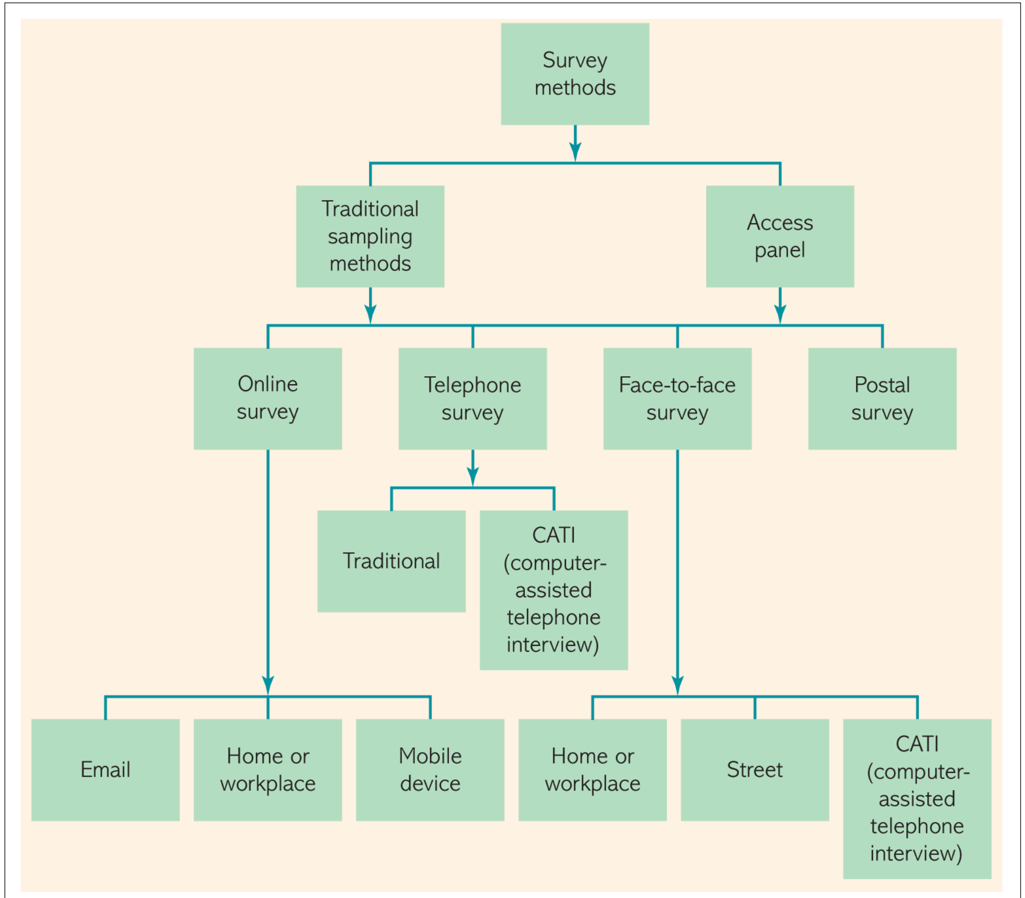
- In journal articles literature review is reported very briefly.
- In Master's thesis the best way is to look guidance from previous thesis, for example:
  - Ainomaria Parikka. Building the dream online: Does participation in luxury brand's social media affect brand experience, brand affect, brand trust, and brand loyalty?
  - Aino Kymäläinen. Exploring motivations to engage in collaborative consumption - Case: Facebook recycling groups.

More about the topic

- Webster, J., & Watson, R. T. (2002). Analyzing the Past to Prepare for the Future: Writing a Literature Review. MIS Quarterly, 26(2), 13–23.
- Rowe, F. (2014). What literature review is not: diversity, boundaries and recommendations. European Journal of Information Systems, 23(3), 241–255.
- Seuring, S., & Gold, S. (2012). Conducting content-analysis based literature reviews in supply chain management. Supply Chain Management: An International Journal, 17(5), 544–555.
- Aquilani, B., Silvestri, C., & Ruggieri, A. (2017). A systematic literature review on total quality management critical success factors and the identification of new avenues of research. The TQM Journal, 29(1), 184–213.
- Wolfswinkel, J. F., Furtmueller, E., & Wilderom, C. P. M. (2013). Using grounded theory as a method for rigorously reviewing literature. European Journal of Information Systems, 22(1), 45–55.

Data Collection, Primary Scales of Measurement and Sampling

A classification of survey methods



Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

Advantages and disadvantages of online surveys

Advantages:

- speed
- cost
- quality of response
- no interviewer bias
- data quality
- contact with certain target groups.

Disadvantages:

- sampling frames
- access to the web
- technical problems.

Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

A comparative evaluation of survey techniques (1/3)

	Email	Online	Telephone CATI	Home and workplace	Street surveys	CAPI	Postal
Flexibility of data collection	*	****	****	*****	*****	****	*
Diversity of questions	***	****	*	*****	*****	*****	***
Use of physical stimuli	*	***	*	****	*****	*****	***
Sample control	*	**	****	****	****	***	*
Quantity of data	***	****	**	***	***	***	**
Response rate	*	**	***	*****	****	*****	*

(key: low = *, moderate to low = **, moderate = ***, moderate to high = ****, high = *****)

Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

A comparative evaluation of survey techniques (2/3)

	Email	Online	Telephone CATI	Home and workplace	Street surveys	CAPI	Postal
Control of data-collection environment	*	*	***	****	*****	*****	*
Control of field force	*****	*****	***	*	***	***	*****
Potential for interviewer bias	None	None	***	*****	*****	*	None
Potential to probe participants	*	*	*	*****	***	***	*
Potential to build rapport	*	*	***	*****	****	****	*
Speed	*****	*****	*****	****	***	****	*

(key: low = *, moderate to low = **, moderate = ***, moderate to high = ****, high = *****)

Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

A comparative evaluation of survey techniques (3/3)

	Email	Online	Telephone CATI	Home and workplace	Street surveys	CAPI	Postal
Low cost	*****	*****	***	*	**	**	****
Perceived participant anonymity	***	*****	***	*	*	*	*****
Social desirability	*****	*****	***	**	*	****	*****
Obtaining sensitive information	***	***	*	*****	*	***	***
Low incidence rate	***	*****	*****	*	*	*	***
Participant control	*****	****	**	*	*	*	*****

(key: low = *, moderate to low = **, moderate = ***, moderate to high = ****, high = *****)

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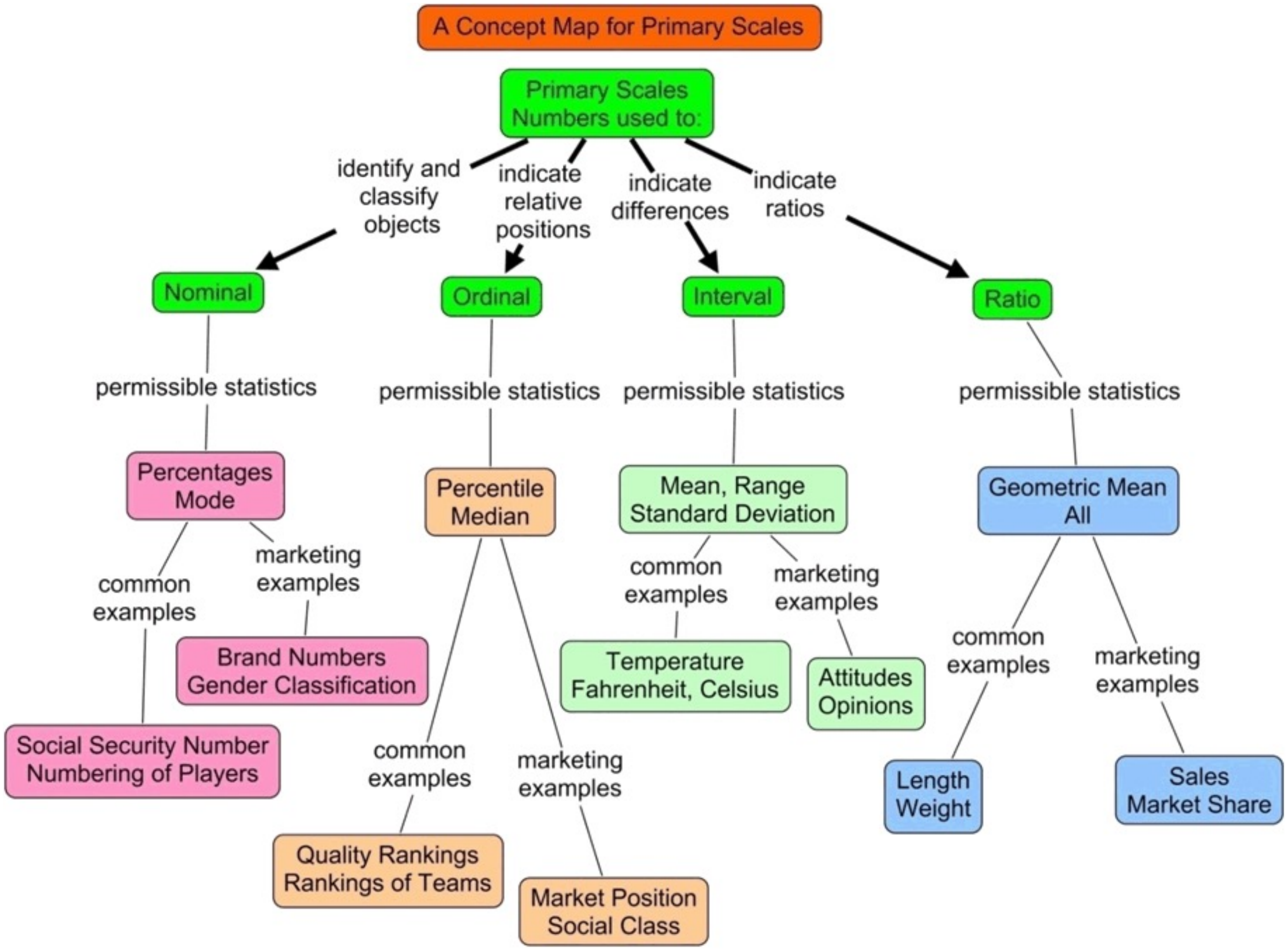
Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

Primary scales of measurement

				Permissible statistics	
Scale	Basic characteristics	Common examples	Marketing example	Descriptive	Inferential
Nominal	Numbers identify and classify objects	Student registration numbers, numbers on football players' shirts	Gender classification of retail outlet types	Percentages, mode	Chi-square, binomial test
Ordinal	Numbers indicate the relative positions of the objects but not the magnitude of differences between them	Rankings of the top four teams in the football World Cup	Ranking of service quality delivered by a number of shops; rank order of favourite TV programmes	Percentile, median	Rank order correlation, Friedman, ANOVA
Interval	Differences between objects can be compared; zero point is arbitrary	Temperature (Fahrenheit, Celsius)	Attitudes, opinions, index numbers	Range, mean, standard deviation	Product moment correlations, t tests, ANOVA, regression, factor analysis
Ratio	Zero point is fixed; ratios of scale values can be computed	Length, weight	Age, income, costs, sales, market shares	Geometric mean, harmonic mean	Coefficient of variation

Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.



Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

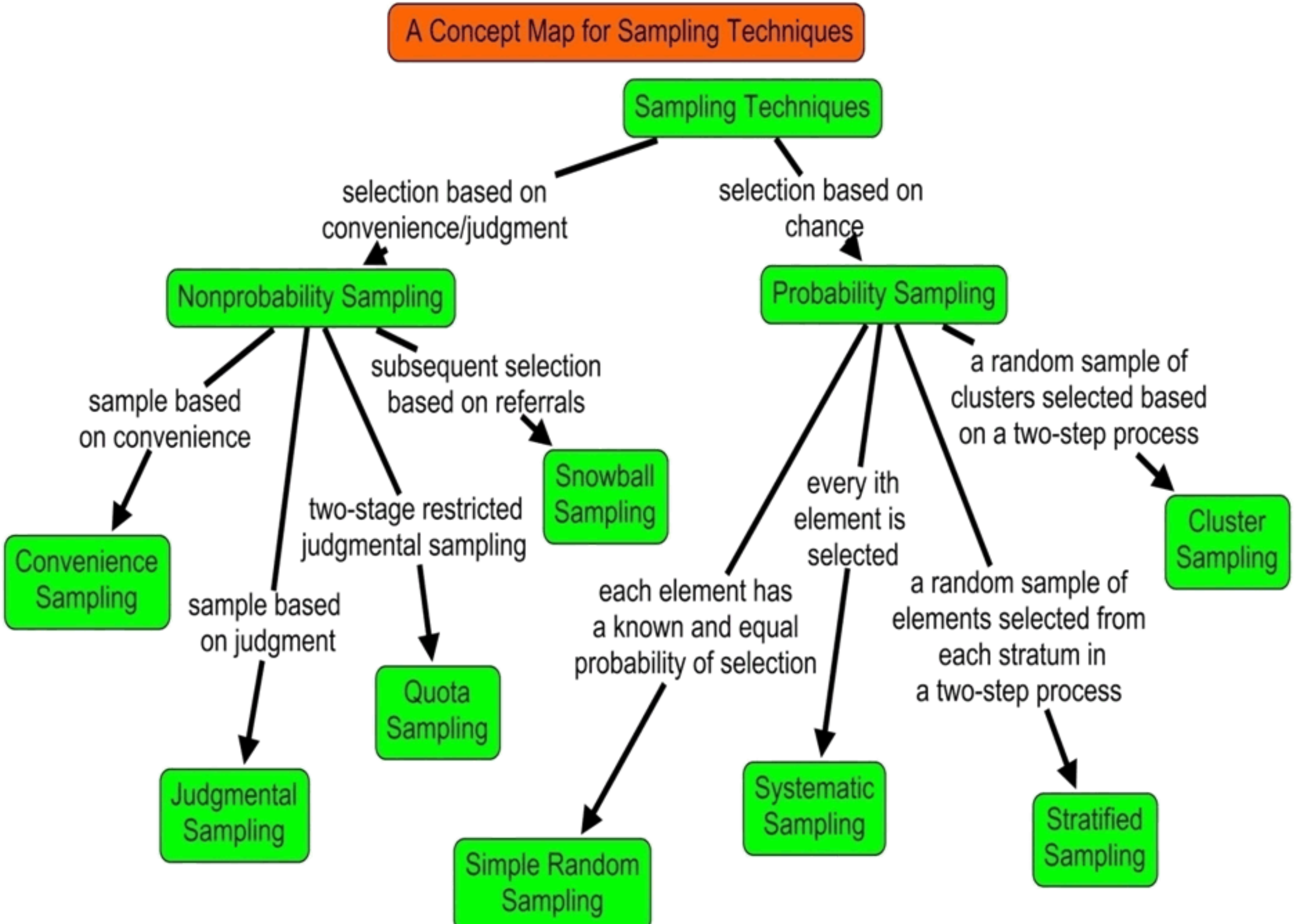
The Likert scale

Instructions
Listed below are different beliefs about the Odeon cinema. Please indicate how strongly you agree or disagree with each by using the following scale:

1 = Strongly disagree, 2 = Disagree, 3 = Neither agree nor disagree, 4 = Agree, 5 = Strongly agree

	1	2	3	4	5
1 I like to visit Odeon cinemas		✓			
2 The Odeon sells poor-quality food		✓			
3 The Odeon presents a wide variety of film genres			✓		
4 I do not like Odeon advertisements				✓	
5 The Odeon charges fair prices				✓	
6 Booking a seat at the Odeon is difficult	✓				
7 The acoustics at Odeon cinemas are excellent				✓	
8 Odeon staff serve their customers very well				✓	
9 The Odeon is a great place for families to enjoy films		✓			

Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.



Source: Nunan et al. (2020): Marketing Research - Applied Insight. Sixth Edition.

Survey design

Where to the questions for a survey come from?

- When you do academic research you do not usually ‘invent’ the questions for a survey yourself.
- Instead, the questions are usually based on previous research.
- A bunch of questions measuring a certain concept is called a “scale”.

Example

Table 4. Scales chosen for this research

Chosen scales for this research	Previous research: Authors	Previous research: Construct label
Sharing	Ozanne & Ballantine (2010) ; Albinsson & Perera (2012)	"Sharing"
Liquid relationship to possessions	Bardhi et al. (2012)	n/a
Materialism	Moeller & Wittkowski (2010) ; Ozanne & Ballantine (2010)	"Importance of possessions" ; "Materialism"
Anti-consumption	Ozanne & Ballantine (2010)	
Green consumer values	Moeller & Wittkowski (2010)	"Environmentalism"
Community building	Ozanne & Ballantine (2010) ; Albinsson & Perera (2012)	"Community building"
Enjoyment	Moeller & Wittkowski (2010)	"Experience orientation"
Frugality	Moeller & Wittkowski (2010) ; Ozanne & Ballantine (2010)	"Price consciousness" ; "Saving money"

Aino Kymäläinen: Exploring Motivations to Engage in Collaborative Consumption Case: Facebook Recycling Groups. Master's Thesis. Aalto 2015.

Example

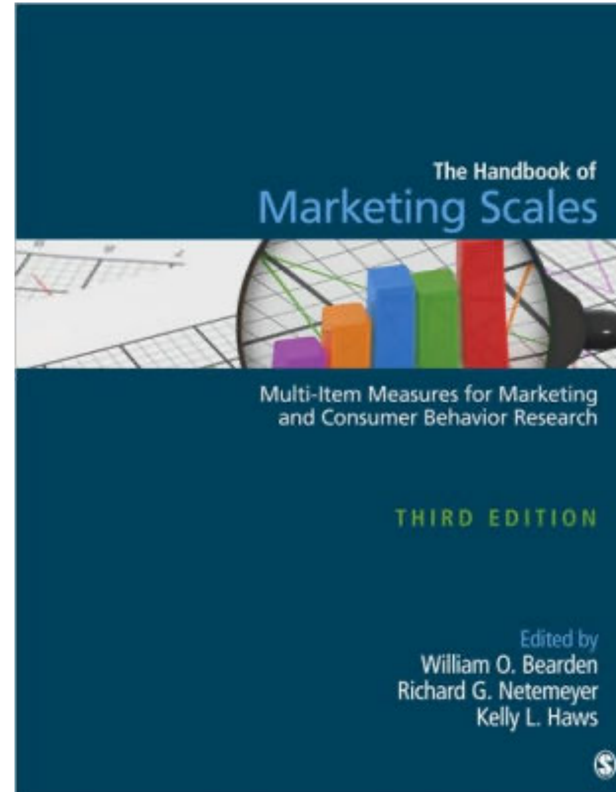
Table 1 Constructs and items used in the questionnaire

Constructs	Items	Reference(s)
Customer perceived ethicality	The brand is a socially responsible brand	Brunk (2012)
	The brand seems to make an effort to create new jobs	Eisingerich et al. (2011)
	The brand seems to be environmentally responsible	Walsh and Beatty (2007)
	The brand appears to support good causes	
	The brand contributes to the society	
	The brand is more beneficial for the welfare of the society than other brands	
Brand heritage	This brand has a long history	Lehmann et al. (2008)
	This brand has been around for a long time	
	This brand has served me well	
Brand image	This brand provides good value for money	Martinez and de Chernatony (2004)
	There is a reason to buy the brand instead of others	
	The brand has personality	
	The brand is interesting	
	I have a clear impression of the type of people who consume the brand	
	This brand is different from competing brands	
Recognition benefits	Being a customer of this brand makes me feel privileged compared to others	Wagner et al. (2009)
	Being a customer of this brand makes me feel special compared to others	
	Because I am customer of this brand others look up to me	
	Being customer of this brand makes me demonstrate greater success than others	
Brand equity	Even if another brand has the same features as this brand, I would prefer to buy this brand	Yasin et al. (2012)
	If I have to choose among different brands offering the same type of service, I would definitely choose this brand	Yoo et al. (2000)
	Even if another brand has the same price as this brand, I would still buy this brand	

Iglesias, O., Markovic, S., Singh, J.J. and Sierra, V. (2019), “Do Customer Perceptions of Corporate Services Brand Ethicality Improve Brand Equity? Considering the Roles of Brand Heritage, Brand Image, and Recognition Benefits”, *Journal of Business Ethics*, Springer Netherlands, Vol. 154 No. 2, pp. 441–459.

Handbook of Marketing Scales

- There are books that present hundreds of pages scales.
- However, most common way of finding the questions for a survey is from studies that are used in the literature review.



Creating a scale: Example

KAPITAN, S., KENNEDY, A.-M. AND BERTH, N. (2019), “Sustainably superior versus greenwasher: A scale measure of B2B sustainability positioning”, *Industrial Marketing Management*, Elsevier, Vol. 76, pp. 84–97.

Highlights

- B2B marketers and scholars lack a clear tool to articulate how B2B brands are perceived in terms of sustainability.
- A qualitative sample of buyers and a literature review are used to build the B2B sustainability positioning measure
- The B2B sustainability positioning construct is validated with 578 industrial buyers and marketing managers in B2B firms
- The 30-item measure sustainability credibility, environmental impact, stakeholders, resource efficiency, and holistic philosophy
- The result is a generalizable, internationally tested scale ripe for use in evolving B2B marketing communications efforts

Creating a scale: Example

KAPITAN, S., KENNEDY, A.-M. AND BERTH, N. (2019), “Sustainably superior versus greenwasher: A scale measure of B2B sustainability positioning”, *Industrial Marketing Management*, Elsevier, Vol. 76, pp. 84–97.

Industrial Marketing Management 76 (2019) 84–97

Table 2
Factor loadings for the 30-item B2B sustainability positioning scale.

Item	Study 2A	Study 2B
Dimension 1: credibility		
Target firm uses green words to describe its practices.	0.82	0.71
Target firm uses sustainable actions in its practices.	0.86	0.80
Target firm has established processes that demonstrate sustainability.	0.86	0.76
Target firm has established business initiatives that demonstrate a focus on the environment.	0.84	0.83
Cronbach's alpha	0.82	0.87
Dimension 2: environmental impact		
Target firm clearly takes care of its carbon footprint.	0.86	0.82
Environmental concerns are high on *target firm*'s priorities.	0.87	0.80
Target firm is actively trying to produce less waste.	0.84	0.78
Target firm is leading initiatives to offset energy use.	0.87	0.83
Target firm is actively trying to lower emissions caused by the company.	0.88	0.85
Target firm is leading initiatives to lower emissions.	0.88	0.81

Creating a scale: Extreme example

”In nine quantitative studies (surveys and experiments), the authors develop scale items to reliably measure the component characteristics of brand coolness”

WARREN, C., BATRA, R., LOUREIRO, S.M.C. AND BAGOZZI, R.P. (2019), “Brand Coolness”, *Journal of Marketing*, Vol. 83 No. 5, pp. 36–56.

AMERICAN MARKETING ASSOCIATION

Article

Journal of Marketing
1-21

DOI: 10.1177/0022242919857698
journals.sagepub.com/home/jmx
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Brand Coolness

Caleb Warren, Rajeev Batra, Sandra Maria Correia Loureiro, and Richard P. Bagozzi

Abstract

Marketers strive to create cool brands, but the literature does not offer a blueprint for what “brand coolness” means or what features characterize cool brands. This research uses a mixed-methods approach to conceptualize brand coolness and identify a set of characteristics typically associated with cool brands. Focus groups, depth interviews, and an essay study indicate that cool brands are perceived to be extraordinary, aesthetically appealing, energetic, high status, rebellious, original, authentic, subcultural, iconic, and popular. In nine quantitative studies (surveys and experiments), the authors develop scale items to reliably measure the component characteristics of brand coolness; show that brand coolness influences important outcome variables, including consumers’ attitudes toward, satisfaction with, intentions to talk about, and willingness to pay for the brand; and demonstrate how cool brands change over time. At first, most brands become cool to a small niche, at which point they are perceived to be more subcultural, rebellious, authentic, and original. Over time, some cool brands become adopted by the masses, at which point they are perceived to be more popular and iconic.

Keywords

attitudes, authenticity, brands, coolness, niche, scale development, structural equation modeling

Online supplement: https://doi.org/10.1177/0022242919857698

Picture: Safal Niveshak

Example from Master's Thesis

3.3.1. Developing a new scale for liquid relationship to possessions

Specifically for the purpose of this study a new 6-item scale to capture the construct of liquid relationship to possessions (see Table 5) was developed. The scale is constructed based on the research by Bardhi et al. (2012). As mentioned before (in chapter 2.3) there are three key elements

Aino Kymäläinen: Exploring Motivations to Engage in Collaborative Consumption
Case: Facebook Recycling Groups. Master's Thesis. Aalto 2015.

Example from Master's Thesis

Table 5. Description of indicators for liquid relationship to possessions

Latent variable	Indicator	Criterion	Description
Liquid relationship to possessions	LRP1	If I were to move abroad, I would take with me important items which remind me of home.	**Situational value**. As attachment to an item is temporary and situational, meanings do not transfer over time and space
	LRP2	Some items that I've had for years have a strong meaning for me.	**Situational value**. Memories are not stored in things and items are not kept for years just for sentimental reasons.
	LRP3	All items I own must have a clear functional purpose.	**Use-value**. Instead of symbolic value, items are valued for their functionality.
	LPR4	I rarely buy things only for pure pleasure.	**Use-value**. Items are valued for their functionality.
	LRP5	If all my belongings were destroyed in a fire, I would not mind as long as everything was replaced by the insurance company.	**Use-value**. As items are valued for their functionality, disconnecting with them is easier without feeling personal loss. Everything can be replaced.
	LRP6	I prefer electronic versions of e.g. books, movies or music over physical products.	**Immateriality**. Items are appreciated for their immaterial characteristics.

Aino Kymäläinen: Exploring Motivations to Engage in Collaborative Consumption Case: Facebook Recycling Groups. Master's Thesis. Aalto 2015.

Web Survey in Practise

Web survey tool

Webropol - Electronic survey system

Webropol is an electronic survey system that is available to students and staff members at Aalto University. The system can be used to perform electronic surveys and implement statistical and quality-related analyses of data.

Login:
survey.aalto.fi

Webropol Instructions

- Manuals are available on the Webropol website (‘Help Center’-button)
- However, Webropol is relatively easy. You can just start creating your survey.

Download Manual

Webropol Events manual, PDF (1,8 MB)
Webropol Survey&Reporting SMS Survey instructions, PDF (0,97 MB)
Professional Statistics manual, PDF
URL parameters introduction (PDF)

Writing the Theoretical Part - Getting Organized

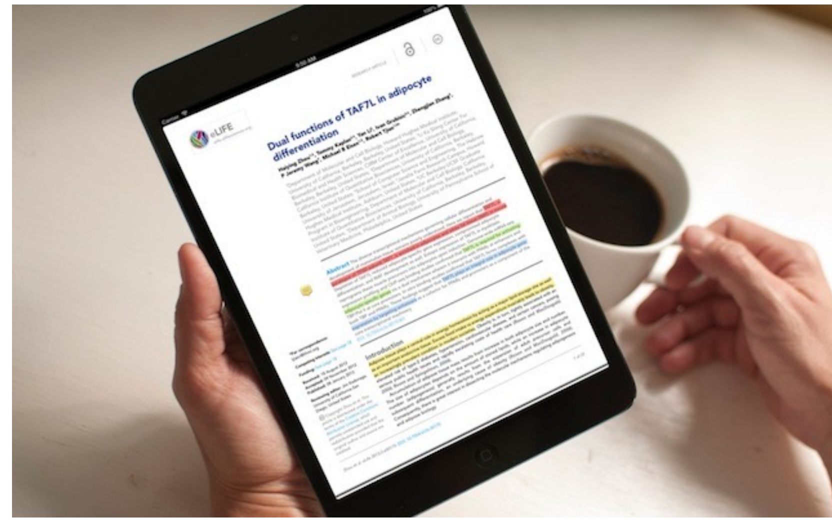
Getting Organized: Targets

Soon you have hundreds journal articles in your computer and you have to get organized in order to:

- Make highlights and remarks to articles when reading
- Search content <u>inside</u> all your of your articles when writing
- Make references and the list of references automatically when writing
- Have access to your articles from multiple devices (your articles must be stored in some cloud service).

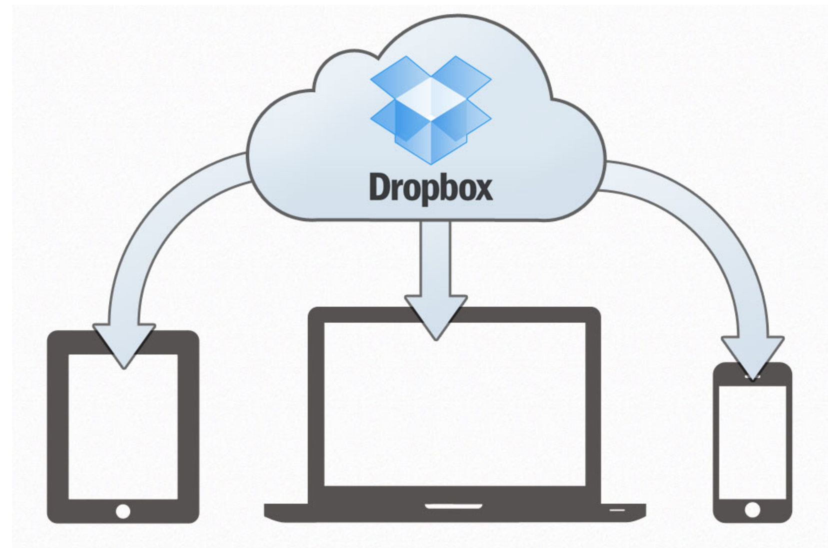
Getting Organized: Tools

- You need a cloud service where you store your journal articles – e.g. Dropbox or Google Drive.
- You need a web based service which you use for thing called “reference management” – e.g. Mendeley or Mendeley.
- You need a reading device – you can begin with desktop or laptop but later you want a tablet.
- You need a reading app for tablet – e.g. Goodreader.
- Goodreader costs about 5 Euros, Mendeley, Dropbox and Google Drive are free.
- Endnote is free for Aalto students and employees (download.aalto.fi).



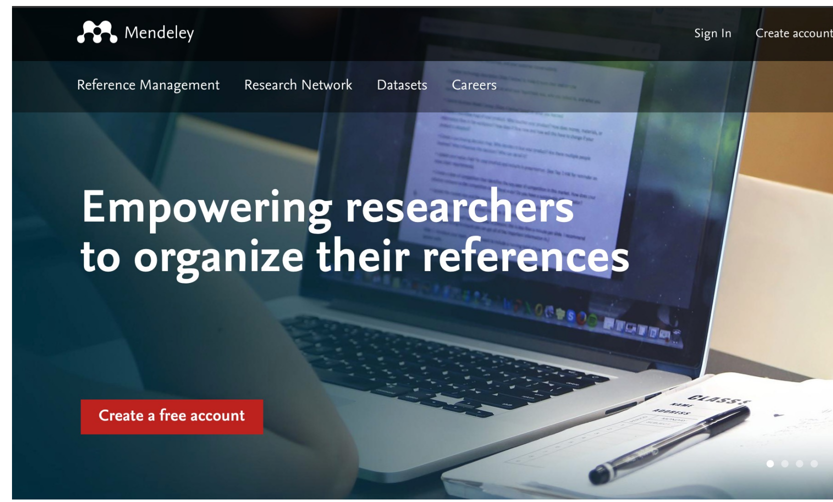
Dropbox or Google Drive

- If you store your pdf-files in Dropbox (or Google Drive) you can access them from as many computers, tablets and phones as you like.



Mendeley – Reference Management (free)

- Mendeley is a reference management software.
- You add your Pdf-files there and Mendeley finds reference information (Journal, authors, page numbers etc.) automatically for most of them.
- You can now search inside your Pdf-files and make references to them in Word.
- Download Mendeley Desktop from Mendeley.com and register for the service. You also need to download from there a small add-on to Word (Mendeley Cite).



Mendeley – Website has all instructions

Mendeley Search Library Sami Kajalo

Help Guides Support Center

Getting started with Mendeley Reference Manager

This guide helps you start using Mendeley Reference Manager to save time managing your references

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Mendeley Reference Manager

Mendeley Reference Manager is a free web and desktop reference management application. It helps you simplify your reference management workflow so you can focus on achieving your goals.

With Mendeley Reference Manager you can:

- Store, organize and search all your references from just one library.
- Seamlessly insert references and bibliographies into your Microsoft® Word documents using Mendeley Cite.
- Read, highlight and annotate PDFs, and keep all your thoughts across multiple documents in one place.
- Collaborate with others by sharing references and ideas.

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Endnote – Reference Management (free for Aalto students and employees)

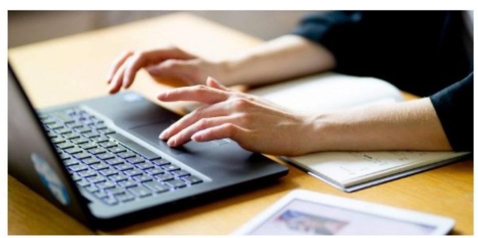
Reference Management Software EndNote

For Aalto community

Aalto University has a full licence for reference management tool EndNote for our students, academic and other staff members.

EndNote is a tool for recording, saving and utilizing bibliographic citations otherwise known as references. It allows users to collect, write, import, organise, and format references. Users can also collaborate and share references with other users having access to the same reference management software.

Managing references properly is an important part of any research or scientific work. At the same time, writing or organising a comprehensive reference list can be a tedious and time-consuming task. It gets even complicated when there are hundreds of references to be recorded. However, with reference management software, you can save the time and effort needed to format your references correctly in accordance with the chosen reference style.



- **Download from: download.aalto.fi**
- **Instructions and training materials:**
- **https://clarivate.com/webofsciencegroup/support/endnote/**

Data Analysis with SPSS Software: Introduction

What is IBM SPSS Statistics?

Why use IBM SPSS Statistics?

IBM SPSS Statistics is the world's leading statistical software. It enables you to quickly dig deeper into your data, making it a much more effective tool than spreadsheets, databases or standard multi-dimensional tools for analysts. SPSS Statistics excels at making sense of complex patterns and associations—enabling users to draw conclusions and make predictions. And it's fast—handling tasks like data manipulation and statistical procedures in a third of the time of many non-statistical programs.

IBM

Propel research and analysis with a comprehensive statistical software solution

IBM® SPSS® Statistics software delivers a powerful set of statistical features that enable your organization to make the most of the valuable information your data provides. By digging deeper into your data, you can discover information to improve decision making—ultimately expanding markets, improving research outcomes, ensuring regulatory compliance, managing risk and maximizing ROI to name a few.

IBM SPSS Statistics features robust and sophisticated functionality and procedures that address the entire analytics lifecycle:

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SPSS Amos*** (Windows, Desktop only)	Add-on	Add-on	Add-on	●

SPSS manuals

- https://www.ibm.com/support/pages/ibm-spss-statistics-28-documentation
- Especially useful there:
  - IBM_SPSS_Statistics_Brief_Guide.pdf
  - IBM_SPSS_Statistics_Base.pdf

SPSS – Overview

- Importing data
- Editing data (e.g. creating new variables)
- Selecting some part of data (e.g. doing analysis for just young persons)

Thank you!