



*Sixth Annual IIASA-DPRI Forum
Integrated Disaster Risk Management*

*Risk and Challenges
for Business and Industry*



ISTANBUL
METROPOLITAN
MUNICIPALITY



THE WORLD BANK

***Furniture Fastening for Earthquake
Preparedness in Japan. Experts vs. Non-experts
Characterization of Attitudes - Q-method
Approach. Case Study: Osaka Prefecture,
Kishiwada City, Japan***

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Structure of the presentation:

1. Introduction

2. Q-Methodology: An Application

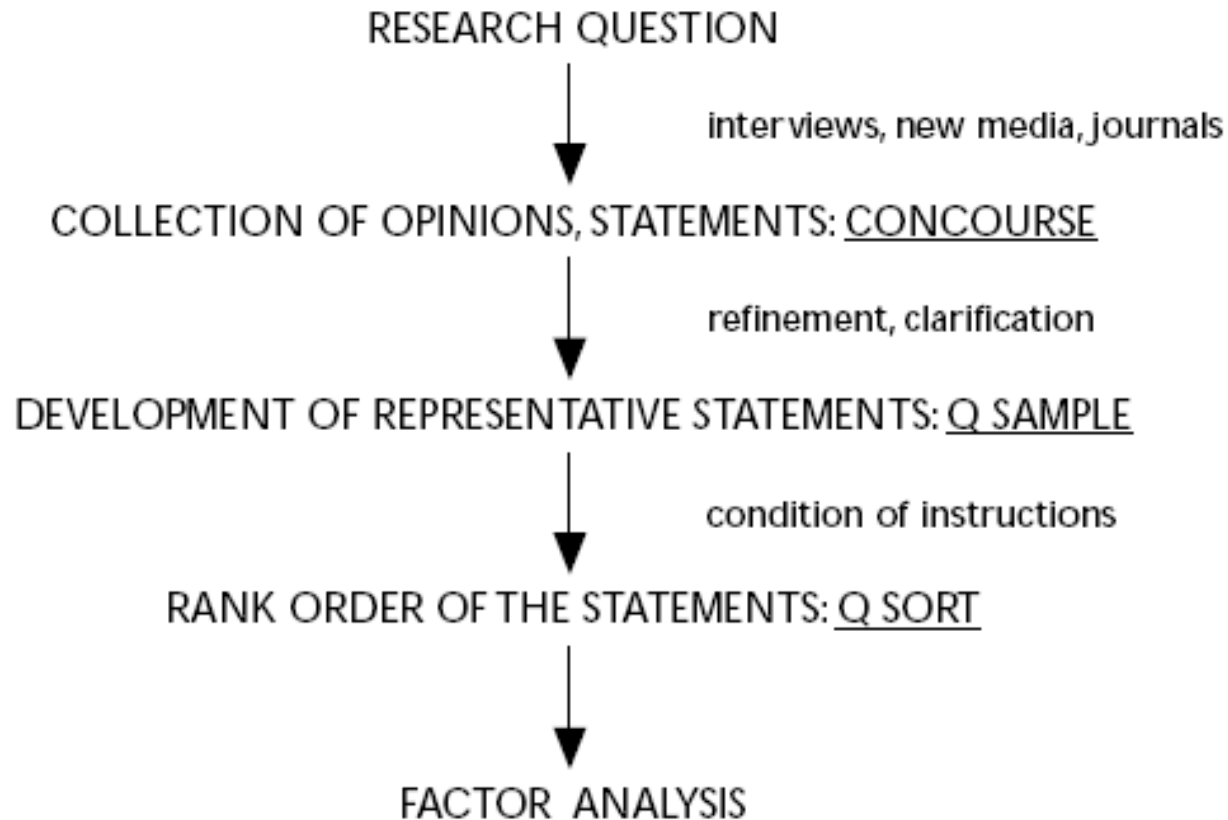
3. Conclusion

1. Introduction

Q methodology is a research technique that allows a researcher to:

- 1) identify, understand, and categorize individual perceptions and opinions, and
- 2) cluster groups based on their perceptions [McKeown & Thomas 88].

1. Introduction



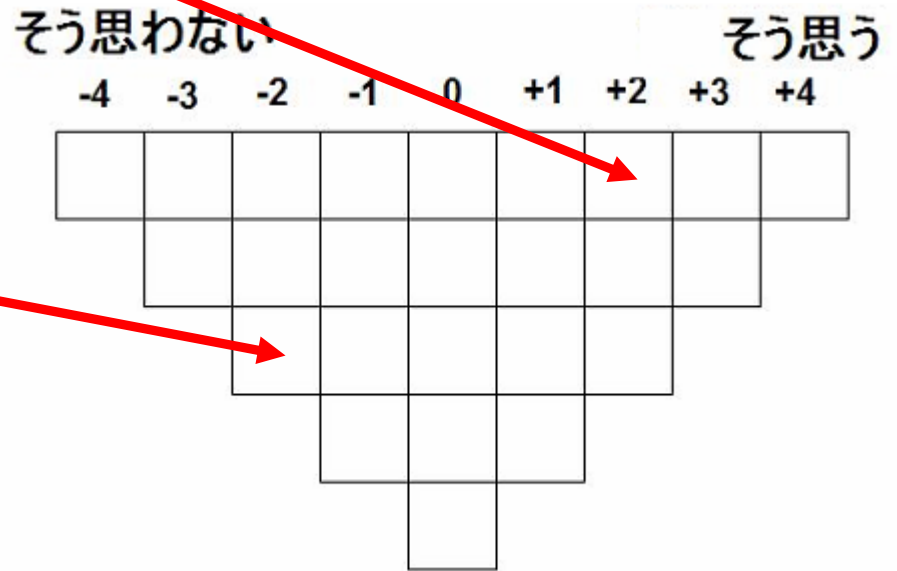
Q-Sample

家具固定に対する考えと行動に関する調査 Furniture nailing-attitudes and views: Q-sample

1. 家具固定は個人で行うのではなく、専門家に依頼すればよい。
1. Furniture nailing is not the thing that I do, the professionals should be asked to do it.
2. 家具固定は大変簡単なので自分でできそうだ。
2. Nailing furniture to the walls is very easy and I can do it by myself.
3. 自治体は家具固定等の地震対策に関して十分な情報を提供してくれている。
3. Local government provided enough information on how to prepare against the earthquake
ex. how to nail furniture
4. 説明会(ワークショップ)に参加し家具固定の方法を学ぶことで自分の家でも簡単に実践できるようになると思う。
4. By learning how to fix furniture to the walls in the workshops, after that I can do it easily in my house.
5. 地震よりもむしろ洪水対策の方が重要だと思う。
5. I think that flood management is more important for us than that of earthquakes.

1. Introduction

<p>1. 家具固定は個人で行うのではなく、専門家に依頼すればよい。</p>	<p>2. 家具固定は大変簡単なので自分でできそう。</p>	<p>3. 自治体は家具等の地震対策として十分な情報提供してくれる。</p>
<p>6. 家具固定がそれほど効果的な対策には思えない。その他にもっとよい対策があるはずだ。</p>	<p>7. 家具固定を自分でするのが難しい人々に対しては、近所で助けてあげる必要がある。</p>	<p>安全な地帯にいるの備える必要はない。</p>
<p>11. 地震に備えるかどうか、家具固定を</p>	<p>12. 私の生きている間に地震は来ない気が</p>	<p>家具固定その実効性</p>



1. Introduction



1. Introduction

そう思わない そう思う

-4 -3 -2 -1 0 +1 +2 +3 +4

9 大地震がいつ発生してもおかしくない。地震が怖いので、私はもう家具固定を済ませてある。	17 家具と壁に壁をつけたくないので家具固定をやりたくない。	12 家具固定は行政がその責を負ってあげなければならない。	15 私が家具固定をしなくても、地震がおきたら自治体が助けてくれると思う。	20 家具の固定器具固定ベルト、突っ張り棒などをどこで買えばいいのかわからない。	8 安全な地域に住んでいるので地震に備える必要はない。	21 町内会や自治体などで集まって話し合い、家具固定を促で行うかどうか決めるべきである。	11 地震に備えるかどうか、家具固定をするかどうかの判断は個人が行うべきだ。	3 家具固定は個人で行うのではなく、専門家に依頼すればよい。
19 家具固定に必要な道具や電気ドリル、きりなどをそろわせていないので、固定を行ってはいない。	14 地震が起きたら何らかの被害が出てしまうはずなので、家具固定のような対策で命を救うことができるとは思えない。	5 地震よりもむしろ洪水対策の方が重要だと思う。	16 地震が起きたら、家具固定のために壁にネジを挿してしなると、引越しの際その壁を破壊しなければならないのでためらいがある。	7 家具固定を自分でするのが難しい。人々に対しては、近所で助けてあげる必要がある。	18 家具固定をすると家具を動かすことが難しくなるので、固定したくない。	3 自治体は家具固定等の地震対策に関して十分な情報を提供してくれている。		
2 家具固定は大変簡単なので自分でできそうだが。			22 家具固定には高額な費用が必要で、そのように使うほどのゆとりがない。	6 家具固定がそれほど効果的な対策には思えない。その他にもっとよい対策があるはずだ。	12 私の住んでいる間に地震は来ないと思うので、家具固定をする必要はないと思う。			
		4 説明会(ワークショップ)に参加し家具固定の方法を学ぶことで自分の家でも簡単に実践できるように思う。	10 私の家は地震で揺れても十分に強く、家具固定のような対策を取る必要はない。	24 壁にやらなければならないことがたくさんあるので家具固定などの地震対策のことを考えない。				
			23 家族のメンバー全員が家具固定の重要性を認識しているのにはまだ時間がかかっていると思う。					

2. Application

- Research Q: What are the discourses indicated by the attitudes and behaviors related to furniture fastening activities?
 - N=53
 - Participants: professionals (local government officials, consultants, researchers) , citizens (members of Jishubosaisoshiki – autonomous organization for disaster reduction)
 - 2006.26.02 in Kishiwada, Osaka.

Professionals

Factor Matrix with an X Indicating a Defining Sort Loadings

QSORT	1	2	3
1	0.6938X	0.2165	0.1839
2	-0.1724	0.4739	0.7013X
3	0.2903	0.1250	0.7198X
4	0.6248	0.0324	0.6712X
5	0.0748	0.8031X	0.2111
6	0.7408X	-0.1873	0.3940
7	0.1173	0.5808X	0.4927
8	0.4638	0.6031X	0.3741
9	0.6081	0.0980	0.6966X
10	0.5274	0.4744	0.2869
11	0.8113X	0.3953	0.0701
12	0.5632	0.5087	0.3577
13	0.7983X	0.3660	-0.1042
% expl.Var.	31	19	21

Distinguishing Statements for Factor 1

($P < .05$; Asterisk (*) Indicates Significance at $P < .01$)

Both the Factor Q-Sort Value and the Normalized Score are Shown.

No. Statement SCORE	Factors					
	No.	1 RNK SCORE	2 RNK SCORE	3 RNK		
AGREE						
1 I realize that the coming earthquake may affect 1.27	1	4	1.96	-1	-0.29	3
13 If I move or buy new furniture I would consider FF. 0.39	13	3	1.36*	-3	-1.06	-1 -
3 I know where the devices for FF are being sold. 0.32	3	2	1.35	0	0.47	0 -
7 FF scratches my furniture. 1.10	7	1	0.06*	4	1.44	2
24 FF look bad. 1.10	24	0	0.04*	3	1.22	2
DISAGREE						
15 I do not want anybody to come to 1.08	15	-1	-0.40	2	0.62	-2 -
10 Moving furniture is difficult (troublesome). 1.08	10	-2	-0.52*	2	0.68	2

Distinguishing Statements for Factor 1

AGREE

- 1. I realize that the coming earthquake may affect me and my family so that by having furniture fixed we can survive.
- 13. If I move or buy new furniture I would consider FF.
- 3. I know where the devices for FF are being sold.
- 7. FF scratches my furniture.
- 24. FF looks bad.

DISAGREE

- 15. I do not want anybody to come to my house and fasten my furniture's because it disturbs my privacy.
- 10. Moving furniture is difficult (troublesome).

Optimists

- We do not need to think about them, they have already taken care about their selves.

Distinguishing Statements for Factor 2

AGREE

15. I do not want anybody to come to my house and fasten my furniture because it disturbs my privacy.
18. Even the earthquake happens; I think my house will not be damaged so I do not need FF.
3. I know where the devices for FF are being sold.

DISAGREE

1. I realize that the coming earthquake may affect me and my family so that by having furniture fixed we can survive.

Resistant Unbelievers

- We can try to help them realize the inevitability of coming earthquake or...just to live them as they are.

Distinguishing Statements for Factor 3

AGREE

- 6. I want to do but I can't execute it from myself. (したいけれどなかなか実行できない)
- 1. I realize that the coming earthquake may affect me and my family so that by having furniture fixed we can survive.
- 9. I do not have tools to do FF.
- 21. FF is difficult because I have a lot of stuff in my house.

DISAGREE

- 3. I know where the devices for FF are being sold.
- 4. I can do FF fast and easily by myself.
- 23. *I do not need to do FF because there is no furniture in my bedroom.*
- 15. I do not want anybody to come to my house and fasten my furniture's because it disturbs my privacy.

Lazy

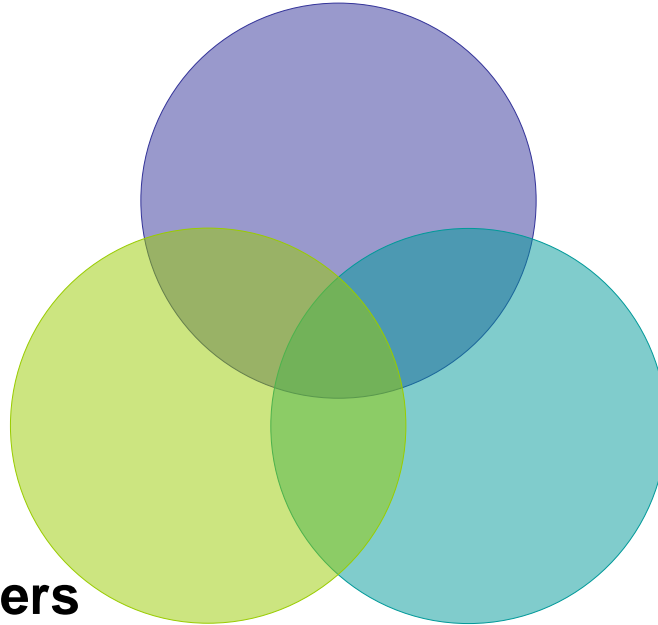
- This group needs to show or/and carry out FF instead.

Professionals

Optimists

Resistant unbelievers

Lazy



Citizens

Distinguishing Statements for Factor 1

AGREE

3 I know where the devices for FF are being sold.

23 I do not need to do FF because there is no furniture in my bedroom

2 The City Government has provided enough information on how to carry out FF

7 FF scratches my furniture.

13 If I move or buy new furniture I would consider FF.

DISAGREE

11 FF is not my business. It is the business of professionals,

18 Even the earthquake happens; I think my house will not be destroyed

5 I doubt that FF is effective or not. Even they say it is.

21 FF is difficult because I have a lots of stuff in my house.

20 My walls and ceiling are very hard so I can't do FF. .

Active Optimists/Individualists but reserved.

Distinguishing Statements for Factor 2

AGREE

12 I learnt from TV and newspapers that that Tokai - Tonankai earthquake may affect Kishiwada City so that I need preparation for it

21 FF is difficult because I have a lot of stuff in my house.

23 I do not need to do FF because there is no furniture in my bedroom

5 I doubt that FF is effective or not. Even they say it is.

20 My walls and ceiling are very hard so I can't do FF.

DISAGREE

9 I do not have tools to do FF.

8 I am worrying about the cost of FF.

4 I can do FF fast and easily by myself.

22 I do not do FF because it can't cause big injury (if it falls...

Unbelievers

Distinguishing Statements for Factor 3

AGREE

8 I am worrying about the cost of FF.

5 I doubt that FF is effective or not. Even they say it is.

23 I do not need to do FF because there is no furniture in my bedroom

21 FF is difficult because I have a lot of stuff in my house.

DISAGREE

19 I do not believe that such a big earthquake (causing F falling furniture) will occur in my life.

10 Moving furniture is difficult (troublesome).

20 My walls and ceiling are very hard so I can't do FF.

24 FF look bad.

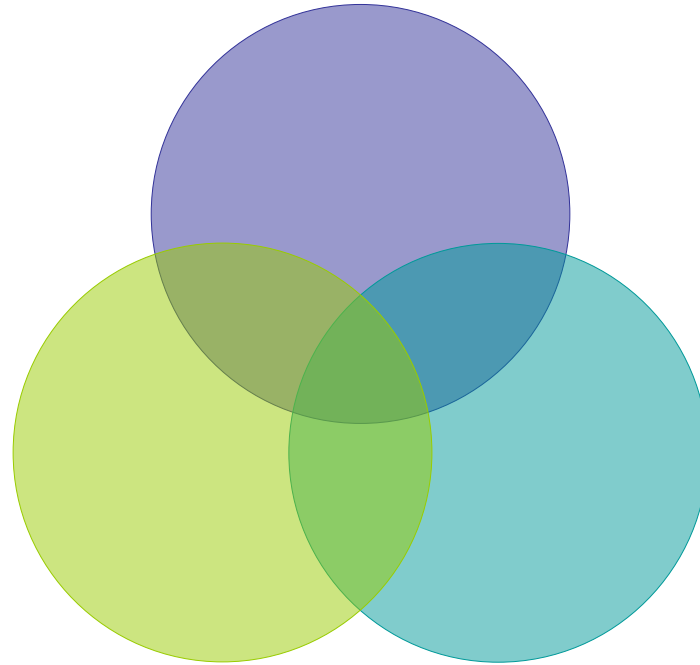
18 Even the earthquake happens; I think my house will not be damaged.

15 I do not want anybody to come to my house and fasten my furniture

Pessimists

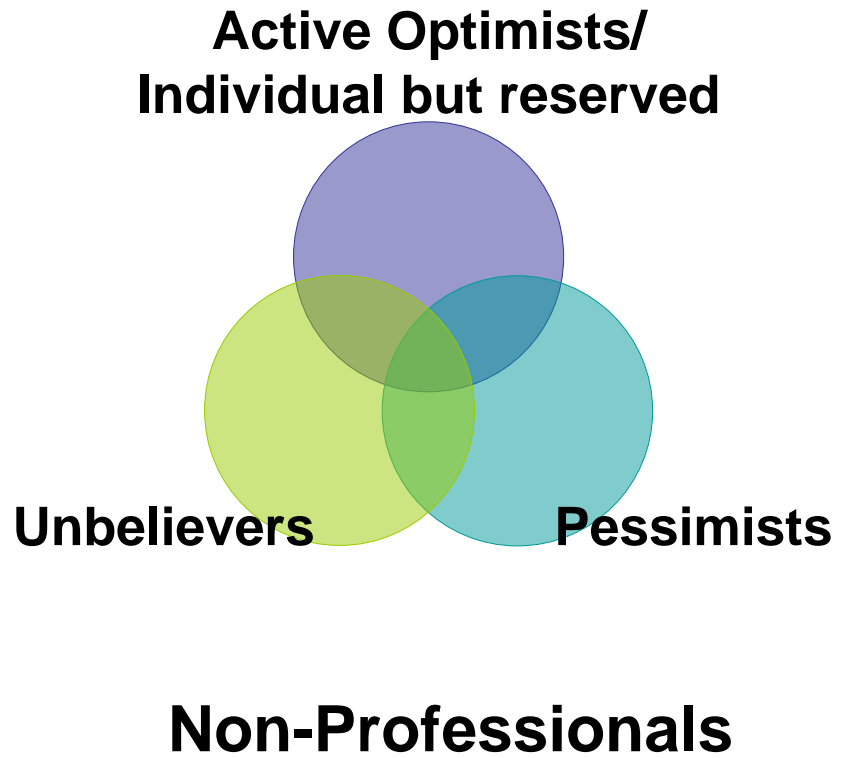
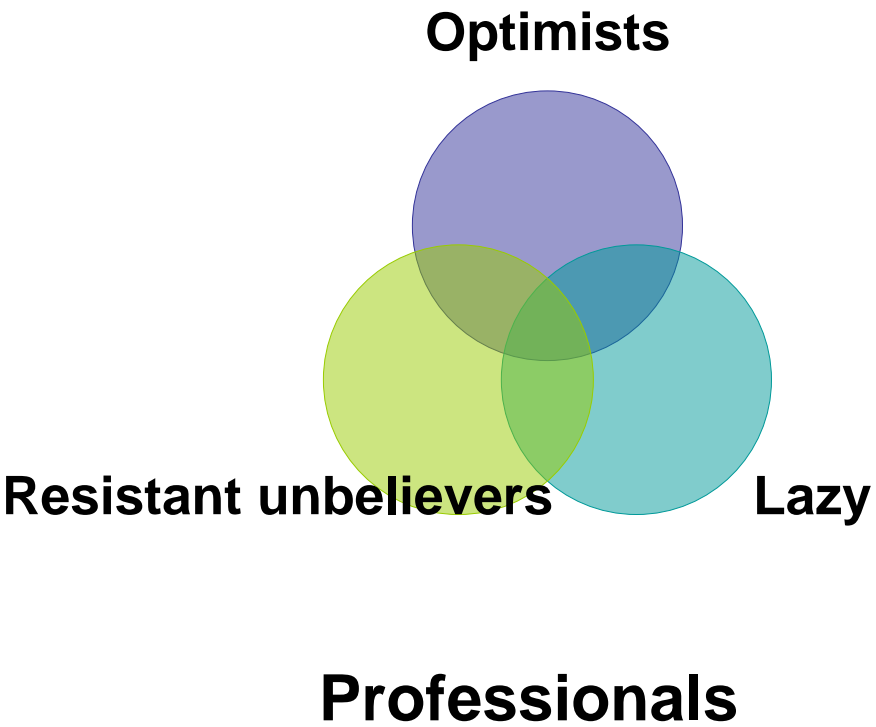
Citizens

**Active Optimists/
Individual but reserved**



Unbelievers

Pessimists



3. Conclusions

- The pattern of attitudes held by members of both of the groups remains the same. (Is Q-method a way to test Cultural Theory?)
- Attitudes of Professionals are more distinctive.
- Attitudes of Non-Professionals are more passive, reserved or sometimes pessimistic regarding FF.
- All of the groups of Non-Professionals share the believe that they do not need FF because they “have no furniture in the bedroom”.

Future research

1. What is the “set” of actions that household/individual can do to get prepared against earthquake and what is the relative importance (if any) of Furniture Fastening in comparison to other counter measures?
2. To test the validity of Cultural Theory using Q-Method.

Thank you



1: Nature shows a delicate balance.
Small disturbances may have
catastrophic results.



2: Nature is robust within certain limits.
If the disturbances are small, nature
will return to equilibrium.



3: Nature is very robust.
Nature will return to equilibrium
even after large disturbances.



4: Nature is random and unpredictable.
We do not know what will happen.

Grid

		High	
	Fatalistic		Hierarchic
Group	Low		High
	Individualistic		Egalitarian
		Low	

Douglas 1978