Slide 1:

iNZights into Time Series and Multiple-Response data

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Slide 2:

Time Series

Slide 3:

Further, Faster, Better
- Data world exploding
- Green shoots in Software
- Vision
- Future is visual
- **Accelerators**

Shift of focus

From:

- "*What are all the things I have to do to get the output I'm meant to produce?*"

To:

- "*What are the questions?*"
- "*What can I **see**?*"
- "*What does that tell me?*"

Using *"enabling software"* to **"cut out the middle man"**

Slide 4:

General Aim:

Software that helps people

"see more, faster"

Multiple Response Question

From Census At School NZ

4. Which ethnic group do you belong to? Select the space or spaces which apply to you.

- ☐ New Zealand European
- ☐ Māori
- ☐ Samoan
- ☐ Cook Island Maori
- ☐ Tongan
- ☐ Niuean
- ☐ Chinese
- ☐ Indian
- ☐ Other such as DUTCH, JAPANESE, TOKELAUAN. Please state: [   ]


Online Activities

From Census At School NZ

27. In the last seven days, which of these online activities have you done? (You may tick more than one)

- ☐ Downloaded or listened online to music
- ☐ Downloaded or viewed online video (e.g. YouTube, TV shows, movies)
- ☐ Played online game(s)
- ☐ Kept in touch with friends (e.g. through instant messaging, Bebo or Facebook)
- ☐ Researched topics related to school work
- ☐ Have been online but did none of the above activities
- ☐ Have not been online in the last seven days
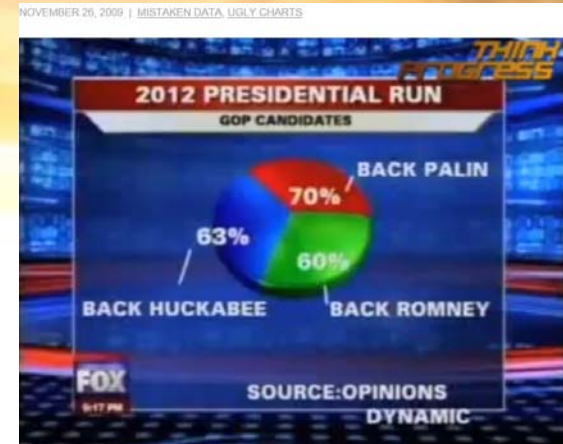

Comparison

- Single response
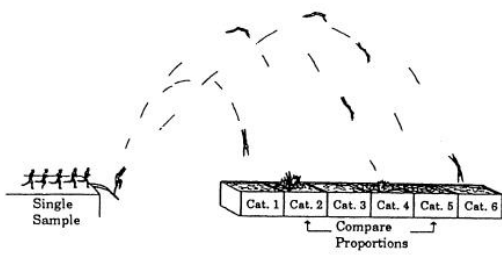
- Multiple response
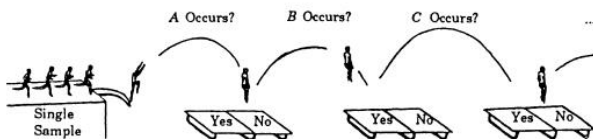
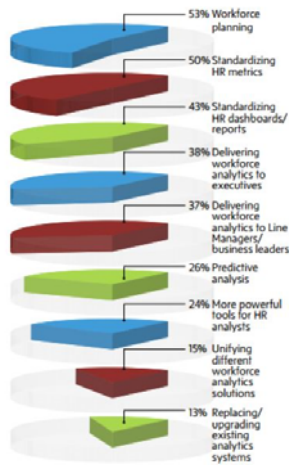## How do people deal with MR questions?

Pie charts that add to more than 100%!

How do people deal with MR questions?

Piemaster

AUGUST 7, 2013 | UGLY CHARTS

I'm not entirely sure where this came from, but it's from someone who describes himself as "an innovation leader in delivering analytics." Yep. The 3-D. The layering. The piemaster. [via]

- 53% Workforce planning
- 50% Standardizing HR metrics
- 43% Standardizing HR dashboards/ reports
- 38% Delivering workforce analytics to executives
- 37% Delivering workforce analytics to Line Managers/ business leaders
- 26% Predictive analysis
- 24% More powerful tools for HR analysts
- 15% Unifying different workforce analytics solutions
- 13% Replacing/ upgrading existing analytics systems

Data Structure

	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG
	technone	cellmonths	onlinemusic	onlinevideo	onlinegame	onlinefriend	onlineschool	onlineother	onlinenone	bedtime
	no	12	yes	yes	no	yes	yes	no	no	11:45:00
	no	1	yes	yes	no	yes	no	no	no	12:30:00
	no	NULL	yes	yes	yes	yes	yes	no	no	10:00:00
	no	36	yes	yes	no	yes	no	no	no	10:00:00
	no	10	no	no	no	no	no	no	no	11:30:00
	no	12	no	no	yes	yes	yes	no	no	10:00:00
	no	1	yes	yes	yes	yes	no	no	no	9:00:00
	no	17	no	yes	yes	yes	no	no	no	10:00:00
	no	13	no	yes	yes	yes	yes	no	no	8:45:00
	no	2	no	no	no	no	yes	no	no	8:45:00
	no	3	no	yes	no	no	yes	no	no	10:00:00
	no	13	yes	yes	no	yes	no	no	no	10:00:00
	no	11	yes	yes	no	yes	no	no	no	10:30:00
	yes	7	no	no	no	no	no	no	yes	8:00:00
	yes	NULL	no	no	no	no	yes	no	no	12:00:00
	no	12	yes	yes	yes	yes	yes	no	no	NULL
	no	15	yes	yes	yes	yes	no	no	no	10:30:00
	no	13	yes	yes	no	yes	yes	no	no	10:15:00
	no	14	yes	no	yes	yes	yes	no	no	10:30:00
	no	5	yes	yes	yes	yes	yes	no	no	10:30:00
	no	5	no	no	yes	no	yes	no	no	8:00:00
	no	8	yes	yes	no	yes	no	no	no	22:30:00
	no	5	no	yes	yes	yes	no	no	no	10:30:00
	no	NULL	no	no	yes	no	no	no	no	10:00:00
	no	9	yes	yes	no	no	yes	no	no	9:30:00
	no	14	yes	yes	yes	yes	yes	no	no	11:00:00

How do people deal with MR questions?

	AZ	BA	BB	BC	BD	BE	BF
hs	onlinemusic	onlinevideo	onlinegame	onlinefriend	onlineschool	onlineother	onlinenone
2	yes	yes	no	yes	yes	no	no
1	yes	yes	no	yes	no	no	no
5	yes	yes	yes	yes	no	no	no

- MR data typically coded using a set of variables
  - 1 variable for each response category
- Statistical software typically set up to cope with variables, not a set of variables
- But it makes sense "to keep these things together"
  - That's why the question was asked this way!
- So want to see all the responses together
  - as a "profile"
 - & see how this profile changes with levels of other variables

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Online Activities
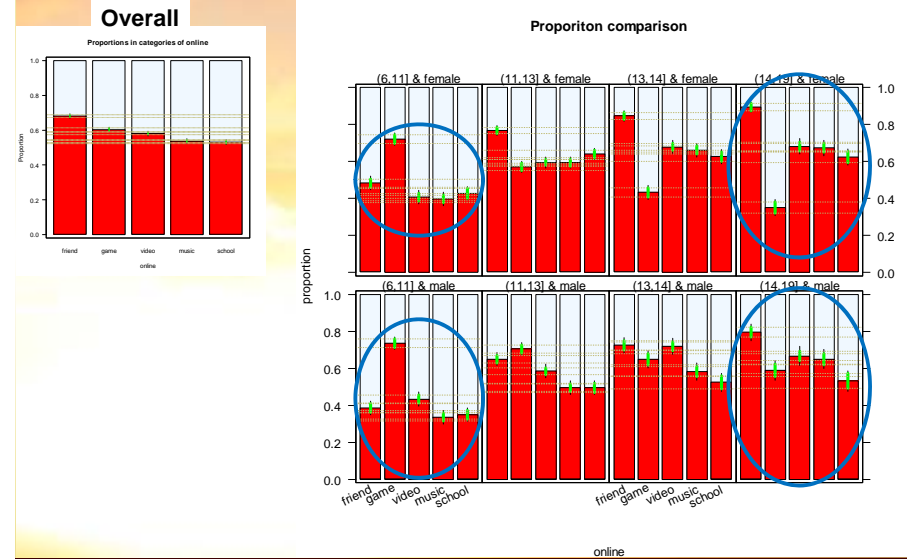
From Census At School NZ

27. In the last seven days, which of these online activities have you done? (You may tick more than one)

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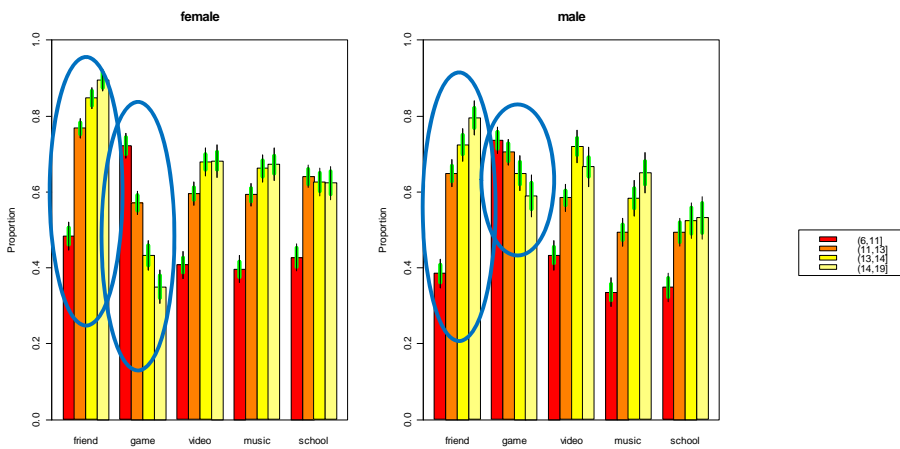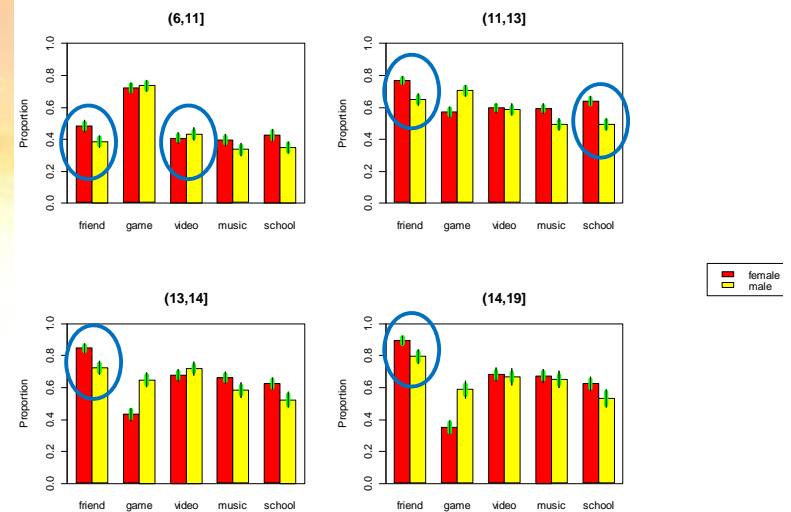- ☐ Have not been online in the last seven days

Online activity for ...

Proportions in categories of online
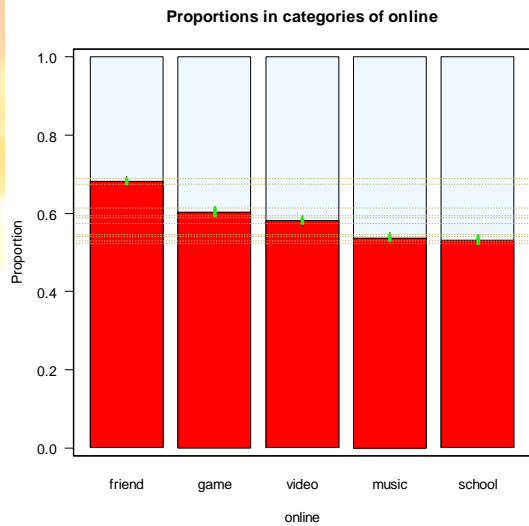
Comparing whole profiles – by age and gender

Overall

Proporiton comparison

Comparing categories – by age within gender

female

male

Comparing categories – by gender within age

(6,11)
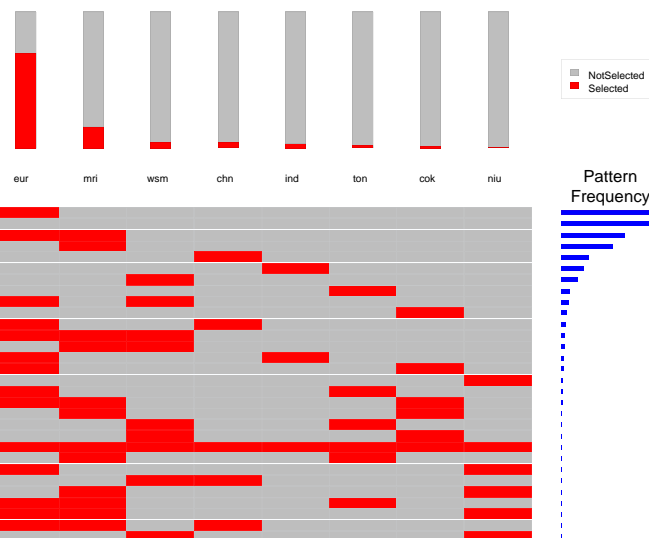
(11,13)

(13,14)

(14,19)

Show MR module

Multiple Response Question

From Census At School NZ

4. Which ethnic group do you belong to? Select the space or spaces which apply to you.

- ☐ New Zealand European
- ☐ Māori
- ☐ Samoan
- ☐ Cook Island Maori
- ☐ Tongan
- ☐ Niuean
- ☐ Chinese
- ☐ Indian
- ☐ Other such as DUTCH, JAPANESE, TOKELAUAN. Please state: [＿＿＿＿＿]

Combination Plot

% Present

Legend: NotSelected (grey), Selected (red)

Categories: eur, mri, wsm, chn, ind, ton, cok, niu

Pattern Frequency

Technology question 2013

27. Which of the following do you have? (You may tick more than one.)

- ☐ your own cell phone
- ☐ a TV in your bedroom
- ☐ your own MP3 player e.g. iPod
- ☐ access to the internet at home
- ☐ access to the internet from your cellphone
- ☐ your own Facebook page
- ☐ your own Twitter page
- ☐ your own Bebo page
- ☐ your own MySpace page
- ☐ Skype on a computer at home
- ☐ a game console at home e.g. PlayStation, Xbox, Nintendo
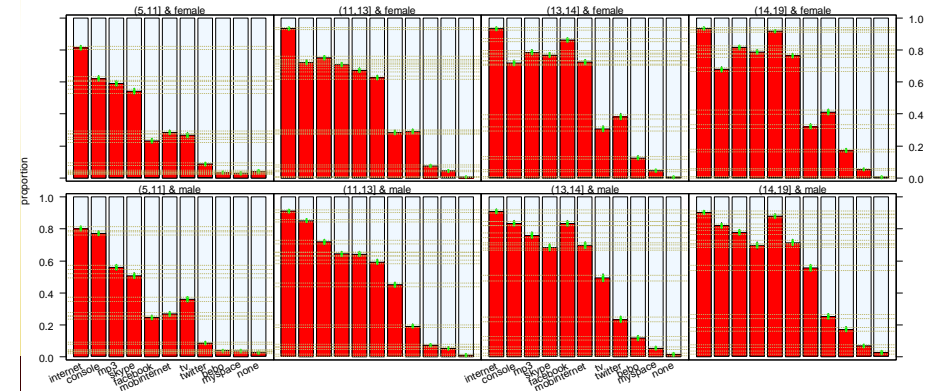- ☐ none of these

Technology question 2013

Proportions in categories of technology
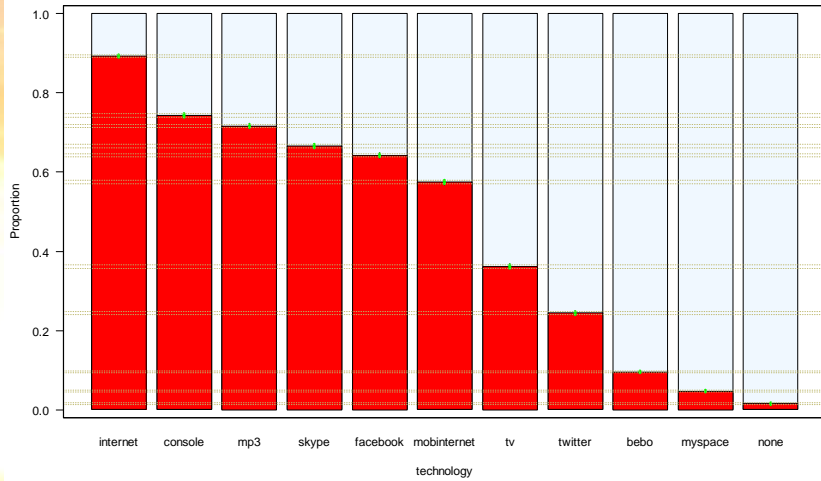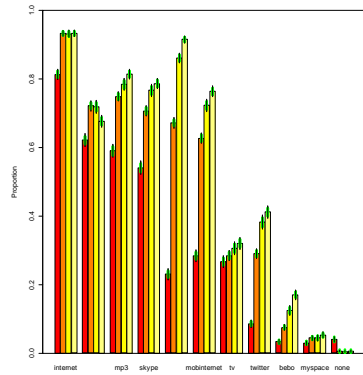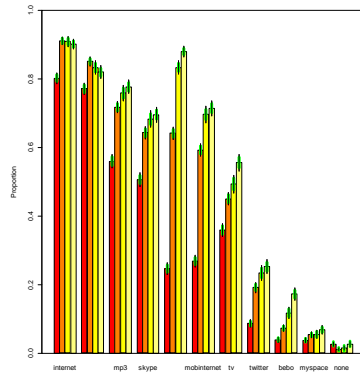
Technology by age and gender

Overall
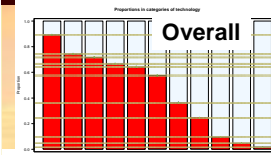
Proporiton comparison
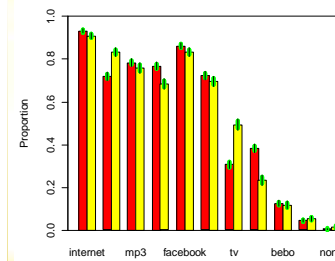
Technology by gender and age

female

male

(5,11)

(11,13)

(13,14)

(14,19)

female
male
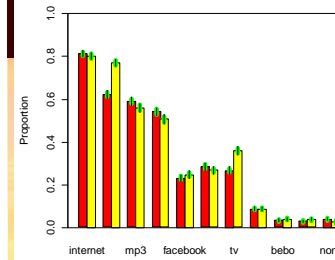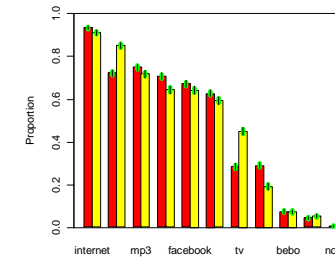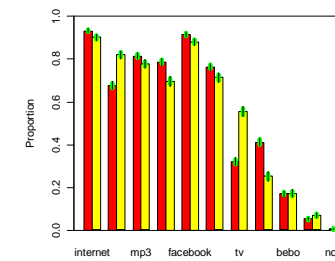
Thank you for your attention