

DEVS306 – Tables & Graphs

Rasa Zakeviciute

rasa.zakeviciute@jyu.fi



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Outline of the sessions

- 1st meeting - Understanding tables & graphs
- 2nd meeting - Creating tables & graphs
- 3rd meeting - Group presentations



Meetings & way of work

Three meetings:

- | | | |
|-------------|-------------|------------|
| – 13.4.2014 | 12:15-16:00 | Viveca 416 |
| – 14.4.2014 | 12:15-16:00 | Viveca 416 |
| – 20.4.2014 | 12:15-16:00 | Viveca 416 |

Group work:

- Creating tables and graphs from the given data
- Presenting created tables and graphs during class
- Active (!) discussion on presentations






Visual presentation of data

what is it?



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ



Estimates of relative survival rates, by cancer site

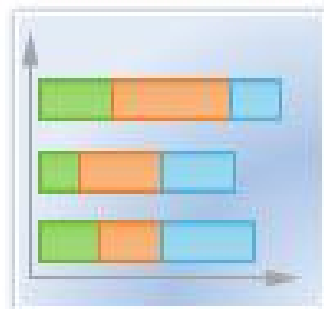
	% survival rates and their standard errors							
	5 year		10 year		15 year		20 year	
Prostate	98.8	0.4	95.2	0.9	87.1	1.7	81.1	3.0
Thyroid	96.0	0.8	95.8	1.2	94.0	1.6	95.4	2.1
Testis	94.7	1.1	94.0	1.3	91.1	1.8	88.2	2.3
Melanomas	89.0	0.8	86.7	1.1	83.5	1.5	82.8	1.9
Breast	86.4	0.4	78.3	0.6	71.3	0.7	65.0	1.0
Hodgkin's disease	85.1	1.7	79.8	2.0	73.8	2.4	67.1	2.8
Corpus uteri, uterus	84.3	1.0	83.2	1.3	80.8	1.7	79.2	2.0
Urinary, bladder	82.1	1.0	76.2	1.4	70.3	1.9	67.9	2.4
Cervix, uteri	70.5	1.6	64.1	1.8	62.8	2.1	60.0	2.4
Larynx	68.8	2.1	56.7	2.5	45.8	2.8	37.8	3.1
Rectum	62.6	1.2	55.2	1.4	51.8	1.8	49.2	2.3
Kidney, renal pelvis	61.8	1.3	54.4	1.6	49.8	2.0	47.3	2.6
Colon	61.7	0.8	55.4	1.0	53.9	1.2	52.3	1.6
Non-Hodgkin's	57.8	1.0	46.3	1.2	38.3	1.4	34.3	1.7
Oral cavity, pharynx	56.7	1.3	44.2	1.4	37.5	1.6	33.0	1.8
Ovary	55.0	1.3	49.3	1.6	49.9	1.9	49.6	2.4
Leukemia	42.5	1.2	32.4	1.3	29.7	1.5	26.2	1.7
Brain, nervous system	32.0	1.4	29.2	1.5	27.6	1.6	26.1	1.9
Multiple myeloma	29.5	1.6	12.7	1.5	7.0	1.3	4.8	1.5
Stomach	23.8	1.3	19.4	1.4	19.0	1.7	14.9	1.9
Lung and bronchus	15.0	0.4	10.6	0.4	8.1	0.4	6.5	0.4
Esophagus	14.2	1.4	7.9	1.3	7.7	1.6	5.4	2.0
Liver, bile duct	7.5	1.1	5.8	1.2	6.3	1.5	7.6	2.0
Pancreas	4.0	0.5	3.0	1.5	2.7	0.6	2.7	0.8

Tables





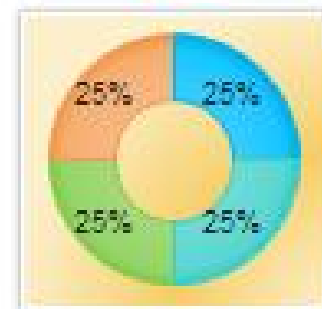
Column



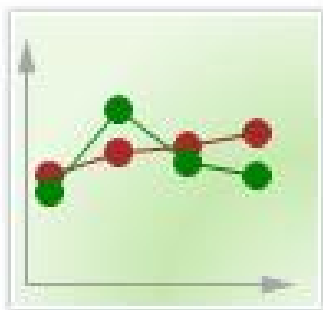
Bar



Pie



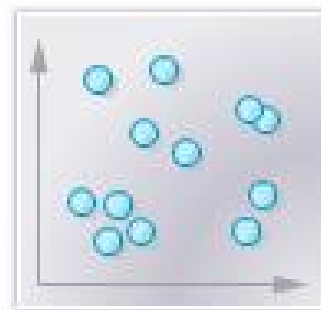
Doughnut



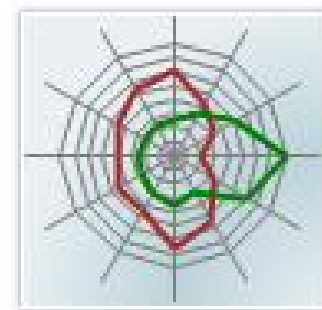
Line



Area



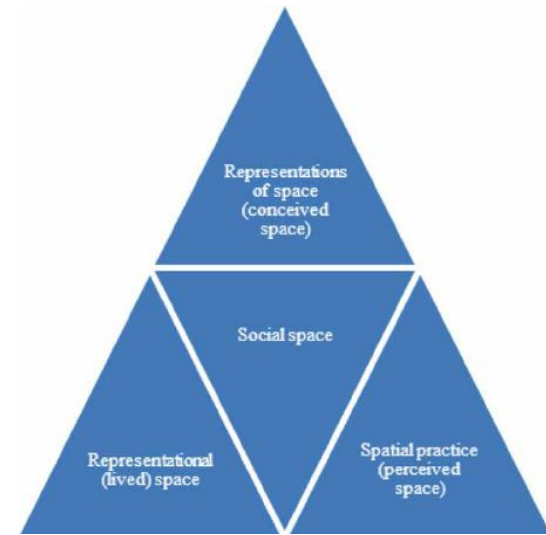
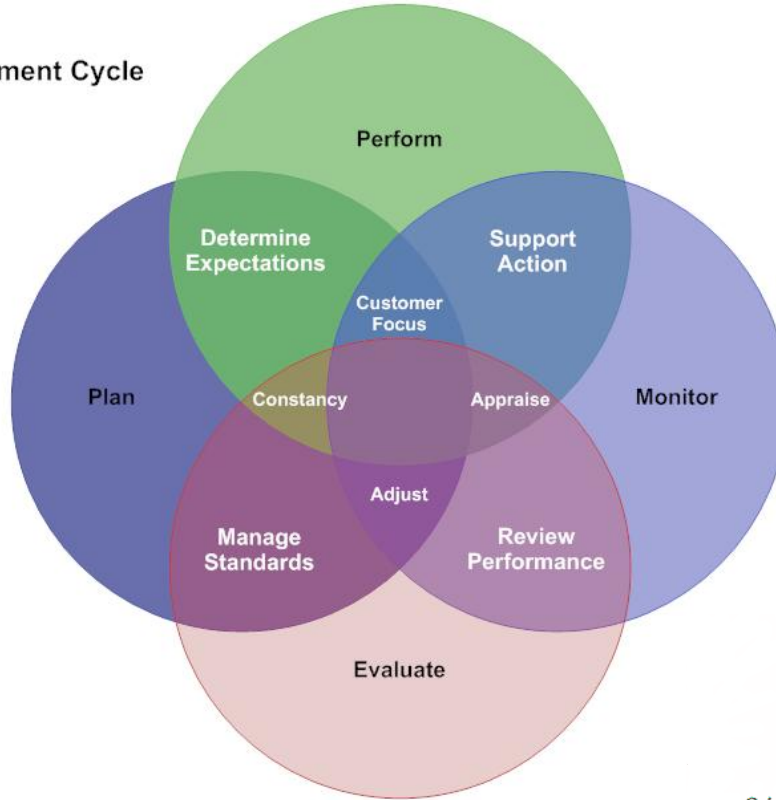
Scatter



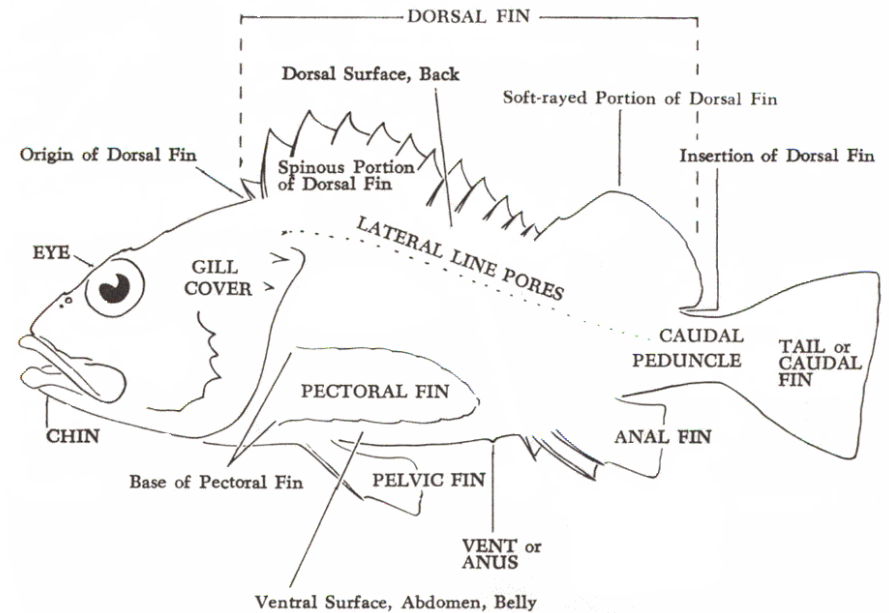
Spider

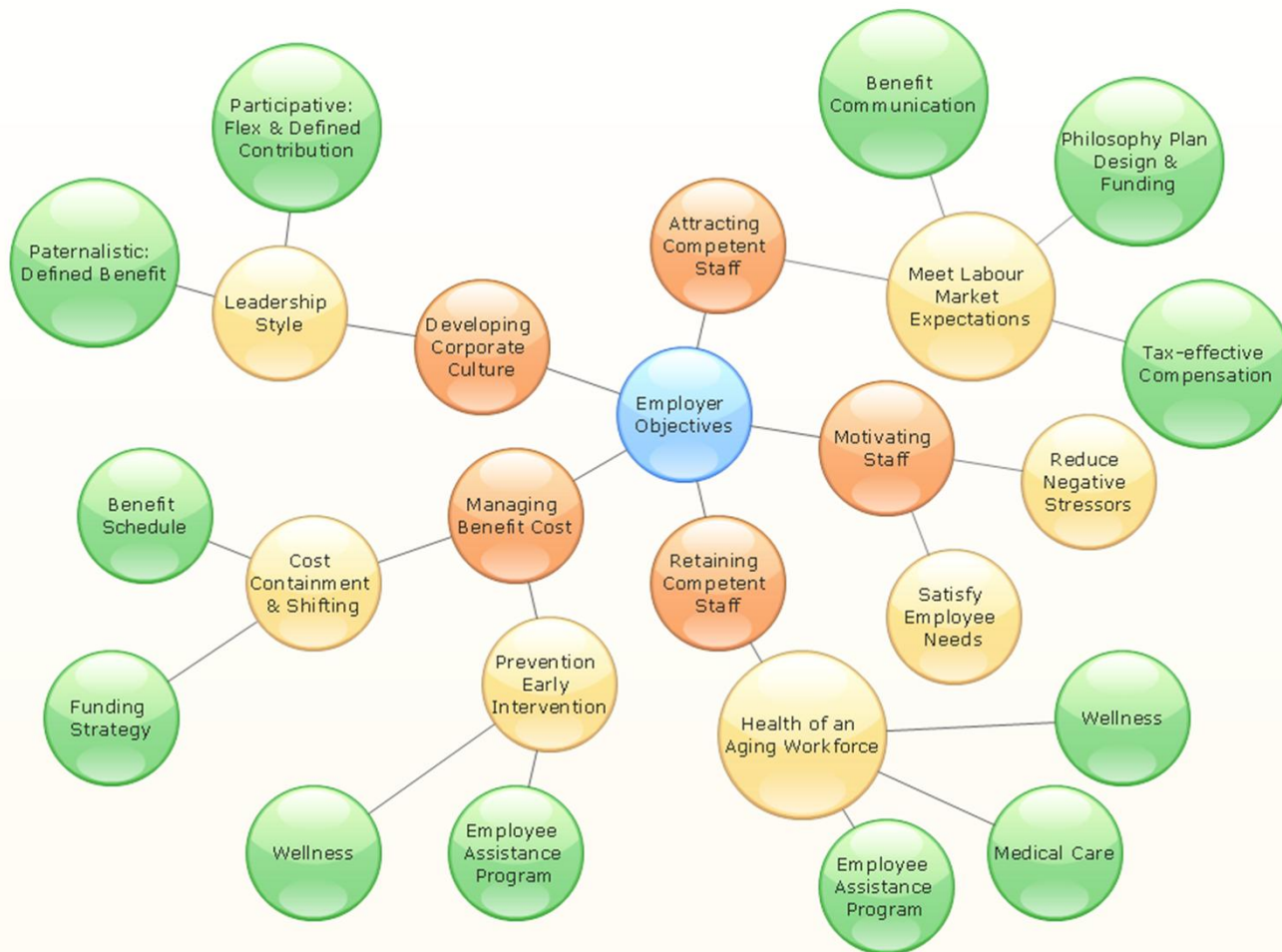
Graphs or charts





Diagrams





Concept maps

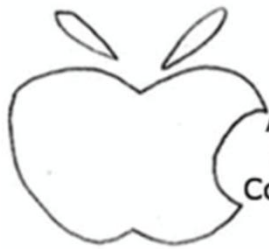




Photography



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ



Apple user
Recall: 10
Confidence: 8



Mixed user
Recall: 5
Confidence: 1



PC user
Recall: 12
Confidence: 8



Apple user
Recall: 5
Confidence: 10



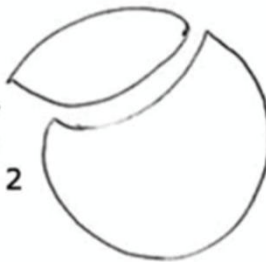
Apple user
Recall: 14
Confidence: 7



Mixed user
Recall: 3
Confidence: 4



Apple user
Recall: 10
Confidence: 2



Apple user
Recall: 6
Confidence: 3



Apple user
Recall: 4
Confidence: 2

Drawings



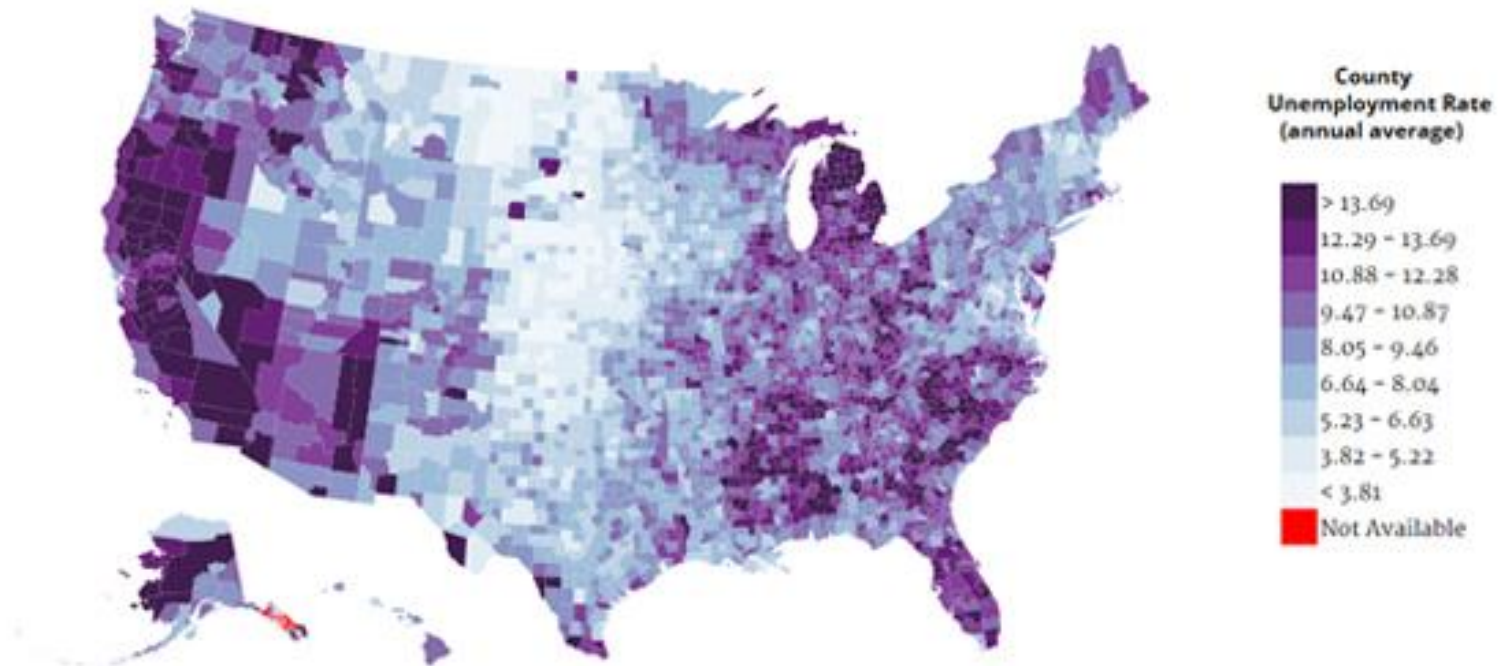


Schemas



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

U.S. Unemployment Map (2000-2013)



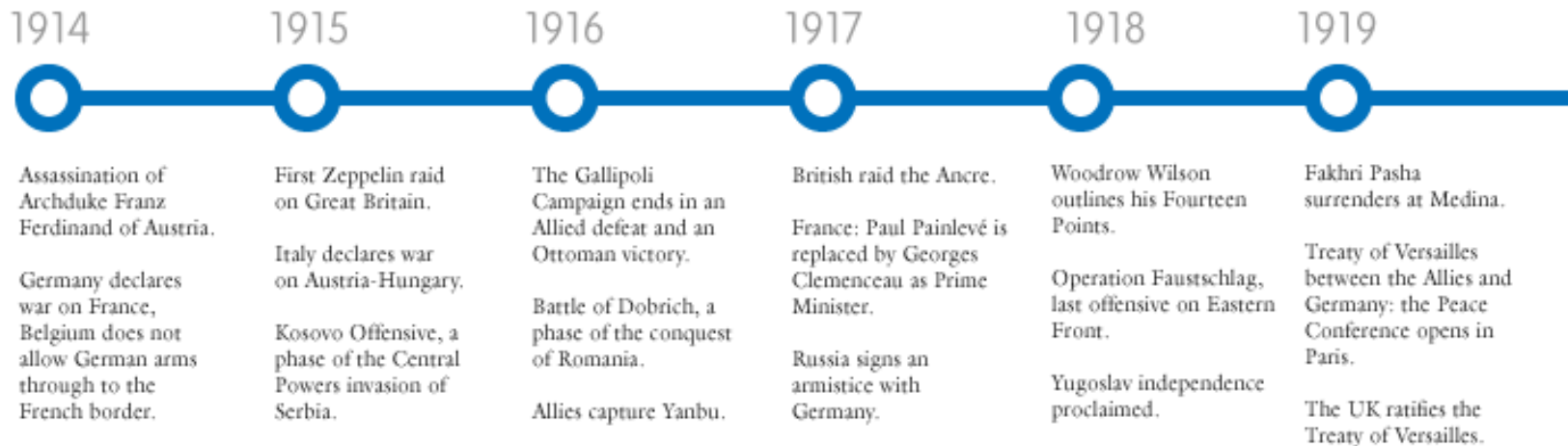
Maps



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Timelines

Timeline of World War I



2. Why do we need visuals in a text?

- Communicates your ideas in different ways
- Makes your ideas and statements look more clear, persuasive and supported by evidence
- Emphasizes the most important information in the text
- Makes your text less boring and easier to read



In order to finish this course successfully, you have to attend all three meetings. You have to be active in the discussions during lectures, group work and small classroom tasks. You are required to participate in the group work and fulfill the tasks, assigned by the teacher. As an outcome of the group work, you have to prepare a presentation and to carry it out during the last meeting.



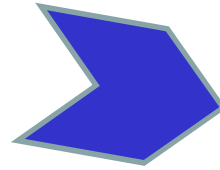
In order to finish this course successfully, you have to:

- attend all three meetings
- be active in the discussions during lectures, group work and small classroom tasks.
- participate in the group work and fulfill the tasks, assigned by the teacher.
- prepare a presentation and to carry it out during the last meeting.





Attend all meetings



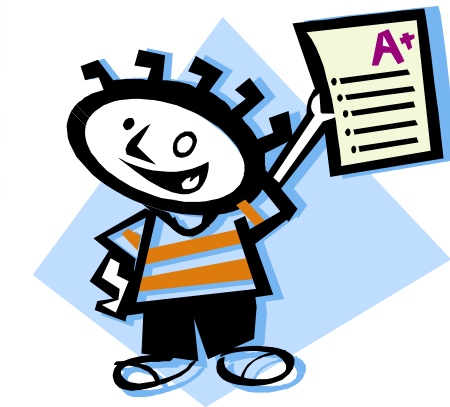
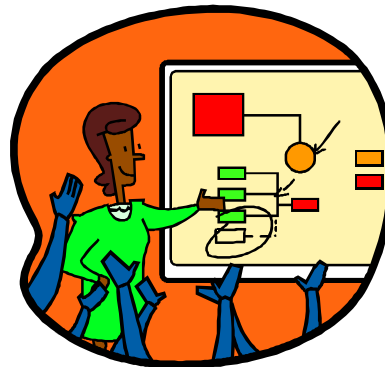
Be active in class



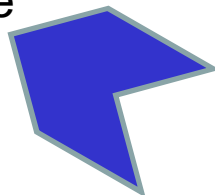
Do group work



Make a presentation



Get your grade



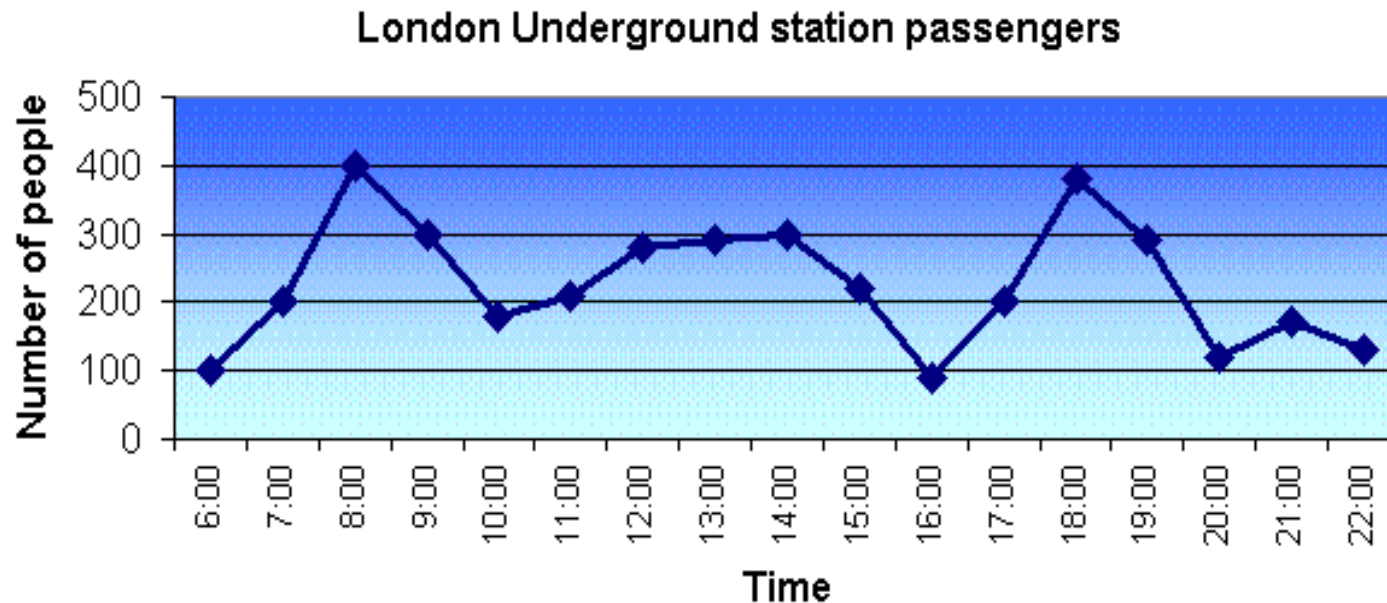
JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

3. When do we need tables or graphs in a text?

- (I) When we deal with numbers:
 - Many different numerical expressions in one paragraph or sub-chapter (time, temperature, percentages, size, etc)
 - Many very large or very small numbers in one paragraph / sub-chapter (number of country inhabitants, GDP, sizes of atom, etc)
 - When these numbers are your main or at least one of the most important results



The busiest time of the day at a London underground station is in the morning. There is a sharp increase between 06:00 and 08:00, with 400 people using the station at 8 o'clock. After this the numbers drop quickly to less than 200 at 10 o'clock. Between 11 am and 3 pm the number rises, with a plateau of just under 300 people using the station. In the afternoon, numbers decline, with less than 100 using the station at 4 pm. There is then a rapid rise to a peak of 380 at 6pm. After 7 pm, numbers fall significantly, with only a slight increase again at 8pm, tailing off after 9 pm.



3. When do we need tables or graphs in a text?

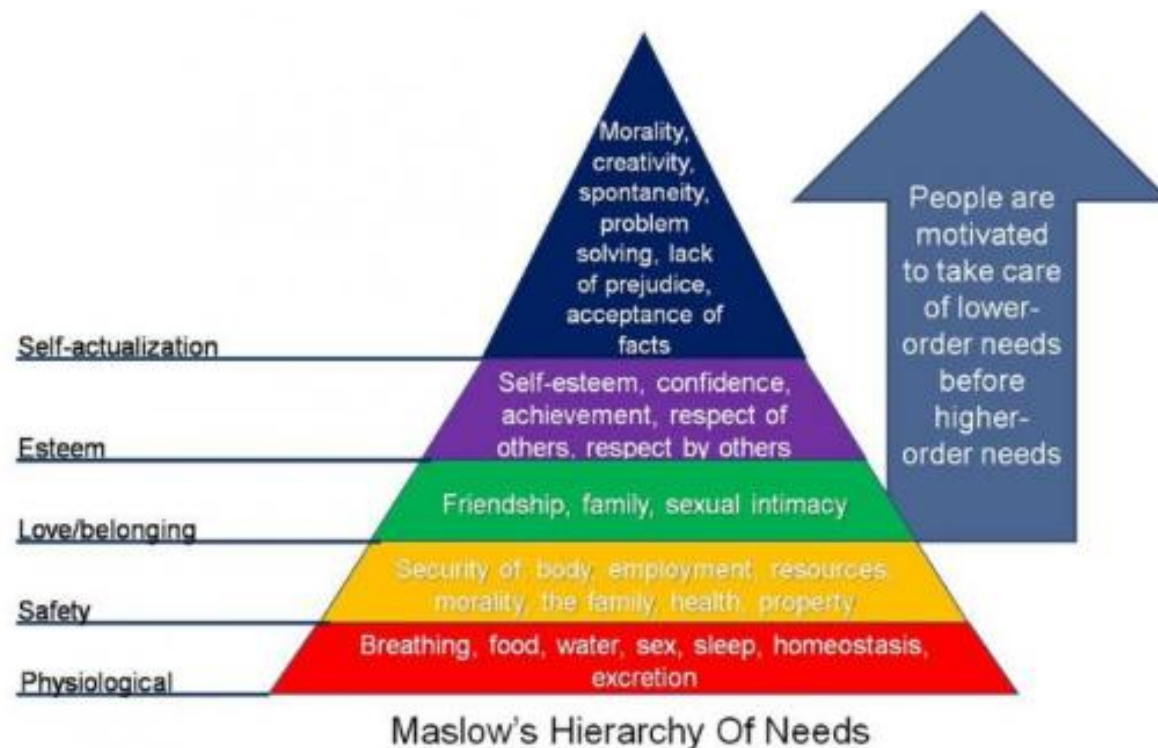
- (II) When we deal with categories or groups:
 - If there are many categories or groups and you use them often in the text
 - If it is important for a reader to remember the groups and categories used in the text
 - If there is specific connection between groups or categories stressed in the text
 - When these categories or groups are your main or at least one of the most important results



Informant title	Gender	Size of firm	Experience (years)	Qualification
1. Senior executive	Male	B	19	MBA
2. Owner	Male	A	8	BSc
3. Senior executive	Male	C	23	MBA
4. Senior executive	Male	C	12	BSc
5. Senior executive	Male	B	16	MBA
6. Owner	Female	A	17	BA
7. Senior executive	Male	B	18	BA
8. Senior executive	Male	D	22	PhD
9. Owner	Male	A	14	BSc
10. Senior executive	Male	A	19	MBA
11. Owner	Male	A	12	BA
12. Senior executive	Male	A	16	BA
13. Senior executive	Male	B	8	MBA

Table I.
Descriptive list of the
informants

Notes: A, fewer than ten full-time employees; B, 11-49 full-time employees; C, 50-249 full-time employees; D, more than 250 full-time employees



2. When do we need other visual means in a text?

- (III) When we deal with visual analysis or want to show the context:
 - Provide graphics to illustrate your main ideas or findings (important posters, signs, photos, etc)
 - If it is very important for the reader to know the context (photos of the place, illustration of an area)
 - Be very careful not to overload the text with graphics!



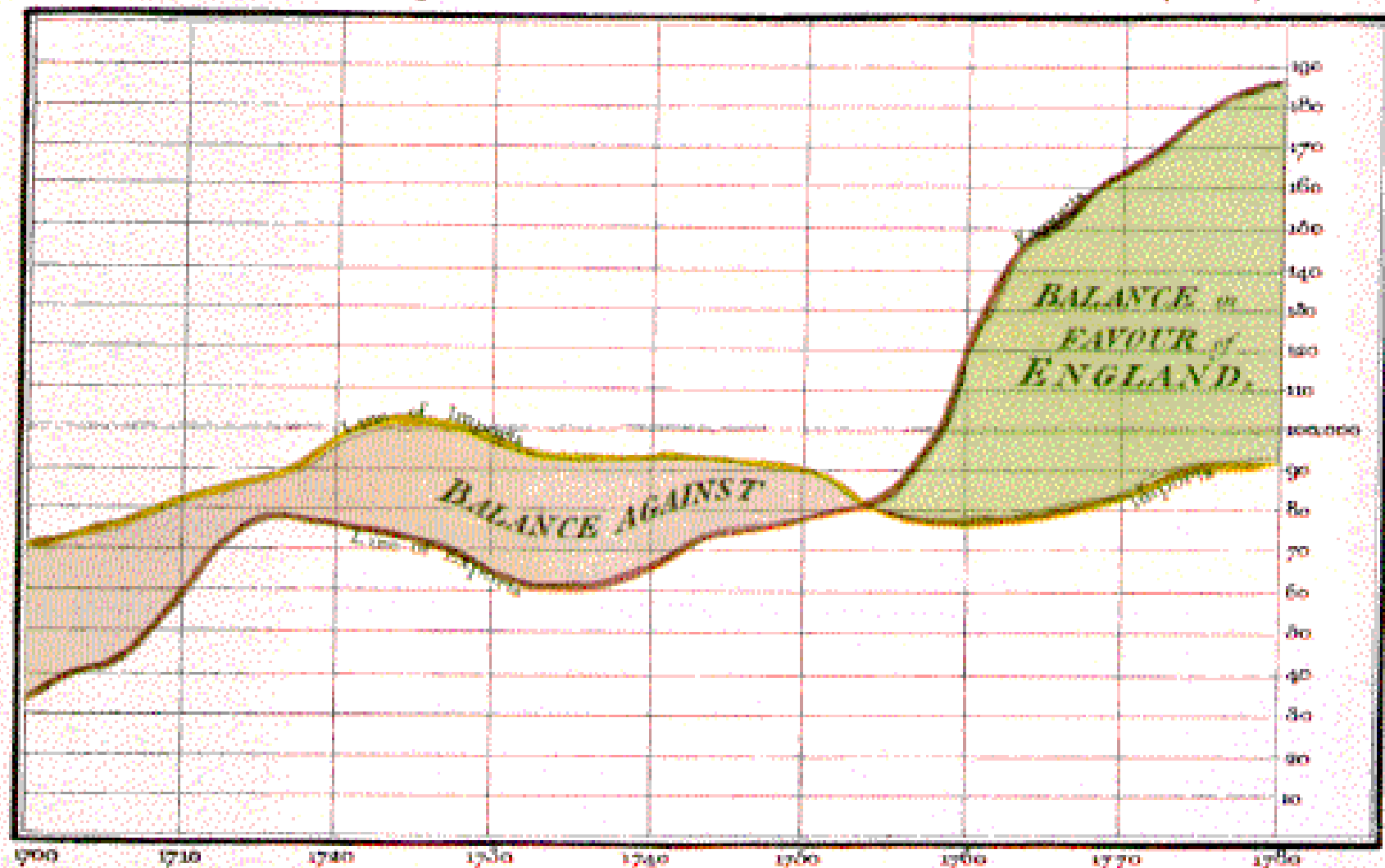


Figure 3. Posters showing icons of the Soviet past and post-communist consumerism

ushered in 'normality' also introduced new 'heroes'. If within this category one counts those who courageously participated in the anti-Soviet opposition, one may highlight dissidents, progressive members of the cultural elite and ordinary citizens who resisted oppression. If one counts those who are venerated in the public square, one might be persuaded that contemporary adulation – if not heroism in its conventional sense – is granted to the post-communist European consumer who has crushed beneath the soles of his stylish new shoes the drab, gray proletarian hero of Soviet society. The proletarian



Exports and Imports to and from DENMARK & NORWAY from 1700 to 1780



The Bottom line is divided into Years, the Right hand line into 10,000 each.

Published as the first volume of the 1780 by W. Playfair

Made under Act, Second Edition

4. How to understand tables and graphs in a text?

■ General five steps:

Step 1: General overview

Step 2: WHAT do the numbers mean?

Step 3: HOW do they differ?

Step 4: WHERE are the differences?

Step 5: WHY do they change?



Step 1: General overview

- Find most important information:
 - what is the general topic being examined?
 - what is being compared?
 - how are they being compared?
 - what is the source and credibility of the data?

LOOK AT: title, axes, headings, legends, footnotes and source.

Take into account the questions asked in surveys and polls, sample size, sampling procedures and sampling error.



Table 4 Selected labour market indicators of the G7 for those aged 25 to 64

	United States	United Kingdom	Canada	Japan	France	Germany	Italy
Educational attainment¹							
1991				%			
Below upper secondary	16	35	30	..	49	18	72
Upper secondary and postsecondary	54	49	42	..	36	60	22
Tertiary	30	16	28	..	15	22	6
2002							
Below upper secondary	13	16	17	16	35	17	54
Upper secondary and postsecondary	49	57	40	47	41	60	36
Tertiary	38	27	43	36	24	23	10
Employment rate by educational attainment							
1991							
Below upper secondary	52	61	55	..	58	51	54
Upper secondary and postsecondary	74	78	75	..	78	74	74
Tertiary	85	86	82	..	85	86	87
2002							
Below upper secondary	57	53	55	67	56	51	50
Upper secondary and postsecondary	74	79	76	74	77	77	76
Tertiary	83	88	82	80	83	84	82
Overall unemployment rate							
1993	6.9	10.0	11.4	2.5	11.1	7.7	10.1
1998	4.5	6.2	8.3	4.1	11.1	9.1	11.7
2003	6.0	5.0	7.6	5.3	9.4	9.6	8.6
Average actual hours worked per week				Hours			
1993	35.1	33.1	33.0	36.6	30.5	29.6	31.2
1998	35.4	33.3	33.7	35.4	29.7	28.6	31.2
2003	34.5	32.2	33.0	34.6	27.5	27.8	30.6

Source: OECD

¹ Levels have been classified according to an international coding system.

Note: The selection of years was largely based on what was currently available from the OECD.

Row titles

Table legend
Column titles

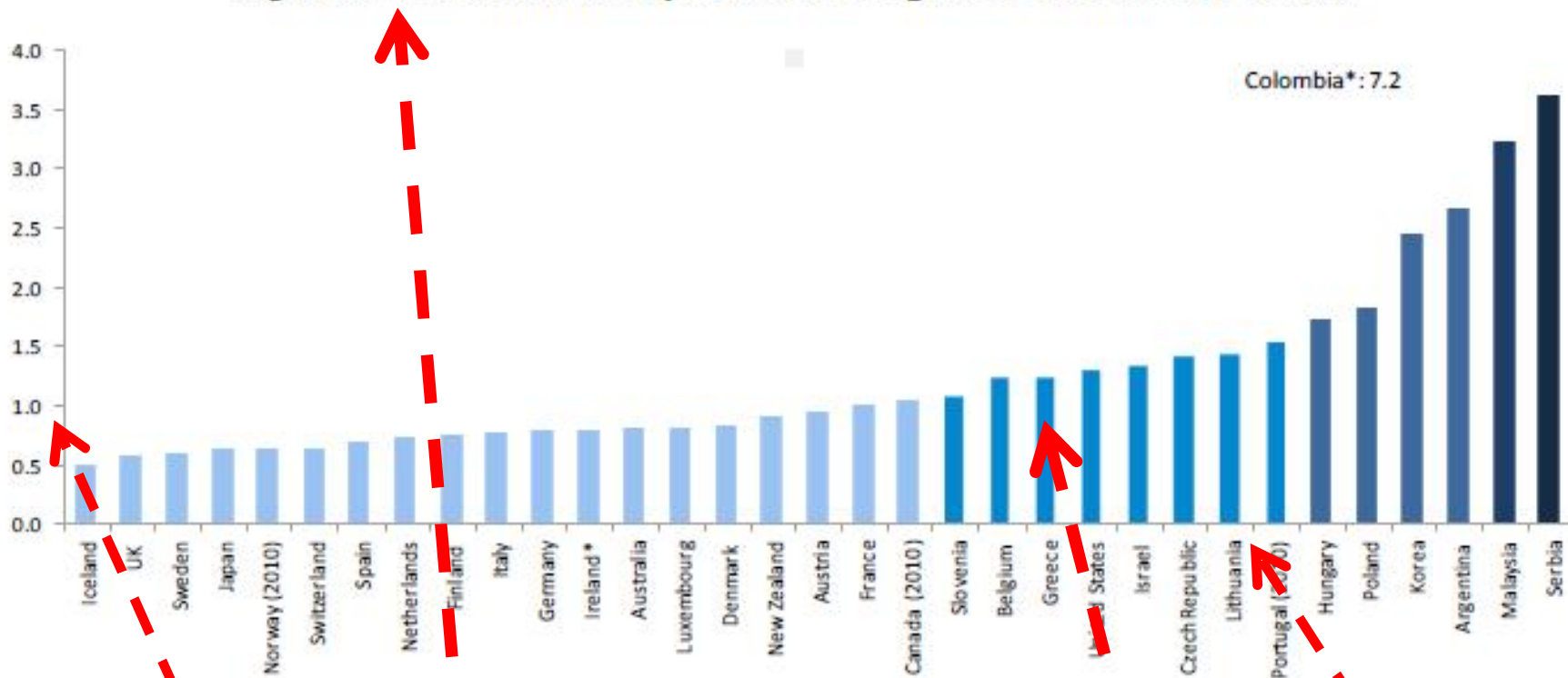
Table body (data)

Footnotes



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Figure 8. Road fatalities per 10 000 registered vehicles in 2011



Note: data for Colombia, Malaysia and Serbia are not yet validated by IRTAD. *: denominator also includes mopeds.

IRTAD 2013 Annual Report © OECD/ITF 2013

Source

Y axis

Graph legend

Footnotes

Graph body (data)

X axis

Step 2: WHAT do the numbers mean?

- Make sure you know what all the numbers (% , average, '000s, CI, per capita, etc.) represent
- Look for the largest and smallest values in one or more categories or years to get an impression of the data
- Look what stands for total number (where do you find 100 percent?)
- Try to find if there are any exceptional numbers (too high or too small)



Table 4 Selected labour market indicators of the G7 for those aged 25 to 64

	United States	United Kingdom	Canada	Japan	France	Germany	Italy
Educational attainment¹				%			
1991							
Below upper secondary	16 ⁺	35	30	..	49	18	72
Upper secondary and postsecondary	54 ⁺	49	42	..	36	60	22
Tertiary	30 ⁺	16	28	..	15	22	6
	= 100%						
2002							
Below upper secondary	13	16	17	16	35	17	54
Upper secondary and postsecondary	49	57	40	47	41	60	38
Tertiary	38	27	43	36	24	23	10
Employment rate by educational attainment							
1991							
Below upper secondary	52	61	55	..	58	51	54
Upper secondary and postsecondary	74	78	75	..	78	74	74
Tertiary	85	86	82	..	85	86	87
	100% = 52% employed + 48% other status						
2002							
Below upper secondary	57	53	55	67	58	51	50
Upper secondary and postsecondary	74	79	76	74	77	70	72
Tertiary	83	88	82	80	83	84	82
Overall unemployment rate							
1993	6.9	10.0	11.4	2.5	11.1	7.7	10.1
1998	4.5	6.2	8.3	4.1	11.1	9.1	11.7
2003	6.0	5.0	7.6	5.3	9.4	9.6	8.6
Average actual hours worked per week				Hours			
1993	35.1	33.1	33.0	36.8	30.5	29.6	31.2
1998	35.4	33.3	33.7	35.4	29.7	28.6	31.2
2003	34.5	32.2	33.0	34.6	27.5	27.8	30.6

Source: OECD

¹ Levels have been classified according to an international coding system.

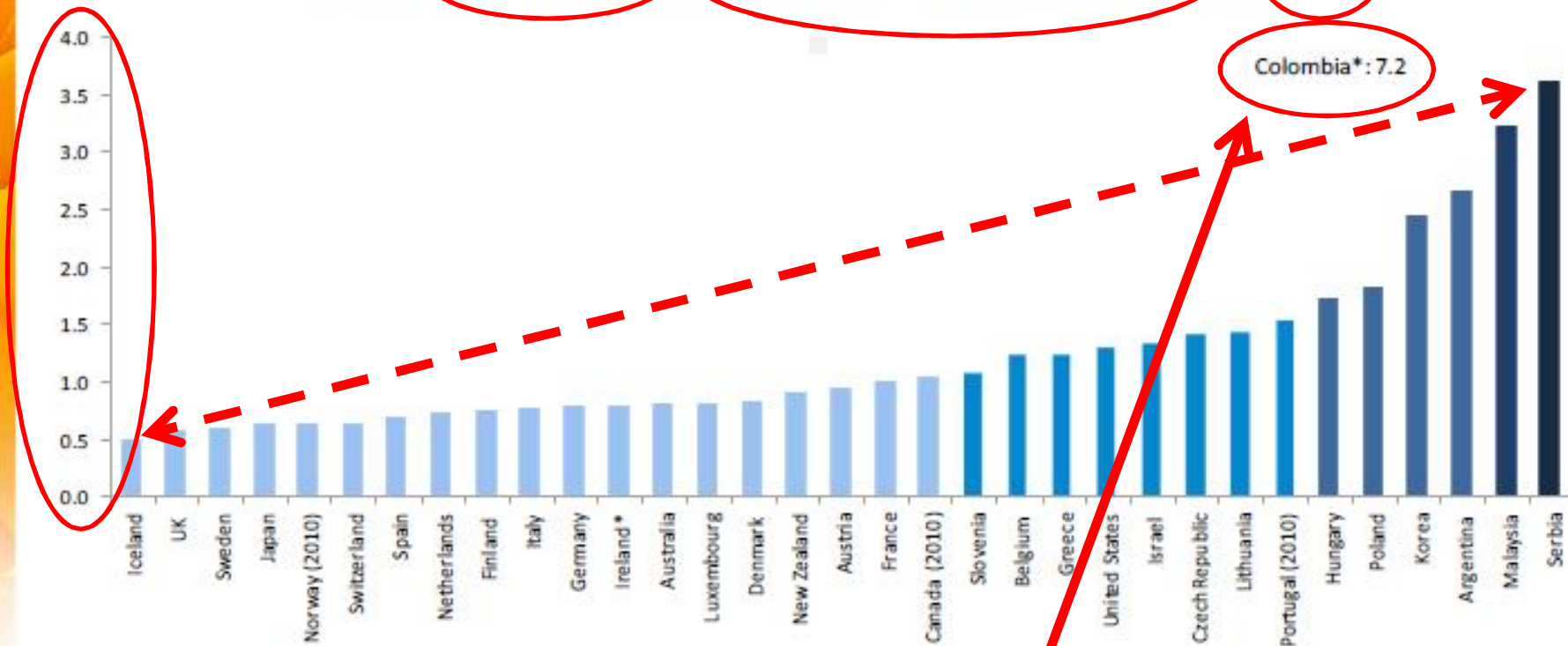
Note: The selection of years was largely based on what was currently available from the OECD.

Exceptional numbers?



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Figure 8. Road fatalities per 10 000 registered vehicles in 2011



Note: data for Colombia, Malaysia and Serbia are not yet validated by IRTAD. *: denominator also includes mopeds.

IRTAD 2013 Annual Report © OECD/ITF 2013

Exceptional numbers?



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Step 3: HOW do they differ?

- Look at the differences in the values of the data.
 - **Where is the biggest difference?**
 - **How much is the biggest difference?**
 - **Does it represent any change?**
- Look at the differences
 - over time, or
 - comparison within a category (male-female, etc.)
- Graphs and tables ALWAYS show differences!



Table 4 Selected labour market indicators of the G7 for those aged 25 to 64

	United States	United Kingdom	Canada	Japan	France	Germany	Italy
Educational attainment¹							
1991				%			
Below upper secondary	16	35	30	..	49	18	72
Upper secondary and postsecondary	54	49	42	..	36	60	22
Tertiary	30	16	28	..	15	22	6
2002							
Below upper secondary	13	16	17	16	35	17	54
Upper secondary and postsecondary	49	57	40	47	41	60	36
Tertiary	38	27	43	36	24	23	10
Employment rate by educational attainment							
1991							
Below upper secondary	52	61	55	..	58	51	54
Upper secondary and postsecondary	74	78	75	..	78	74	74
Tertiary	85	86	82	..	85	86	87
2002							
Below upper secondary	57	53	55	67	58	51	50
Upper secondary and postsecondary	74	79	76	74	77	70	72
Tertiary	83	88	82	80	83	84	82
Overall unemployment rate							
1993	6.9	10.0	11.4	2.5	11.1	7.7	10.1
1998	4.5	6.2	8.3	4.1	11.1	9.1	11.7
2003	6.0	5.0	7.6	5.3	9.4	9.6	8.6
Average actual hours worked per week				Hours			
1993	35.1	33.1	33.0	36.6	30.5	29.6	31.2
1998	35.4	33.3	33.7	35.4	29.7	28.6	31.2
2003	34.5	32.2	33.0	34.6	27.5	27.8	30.6

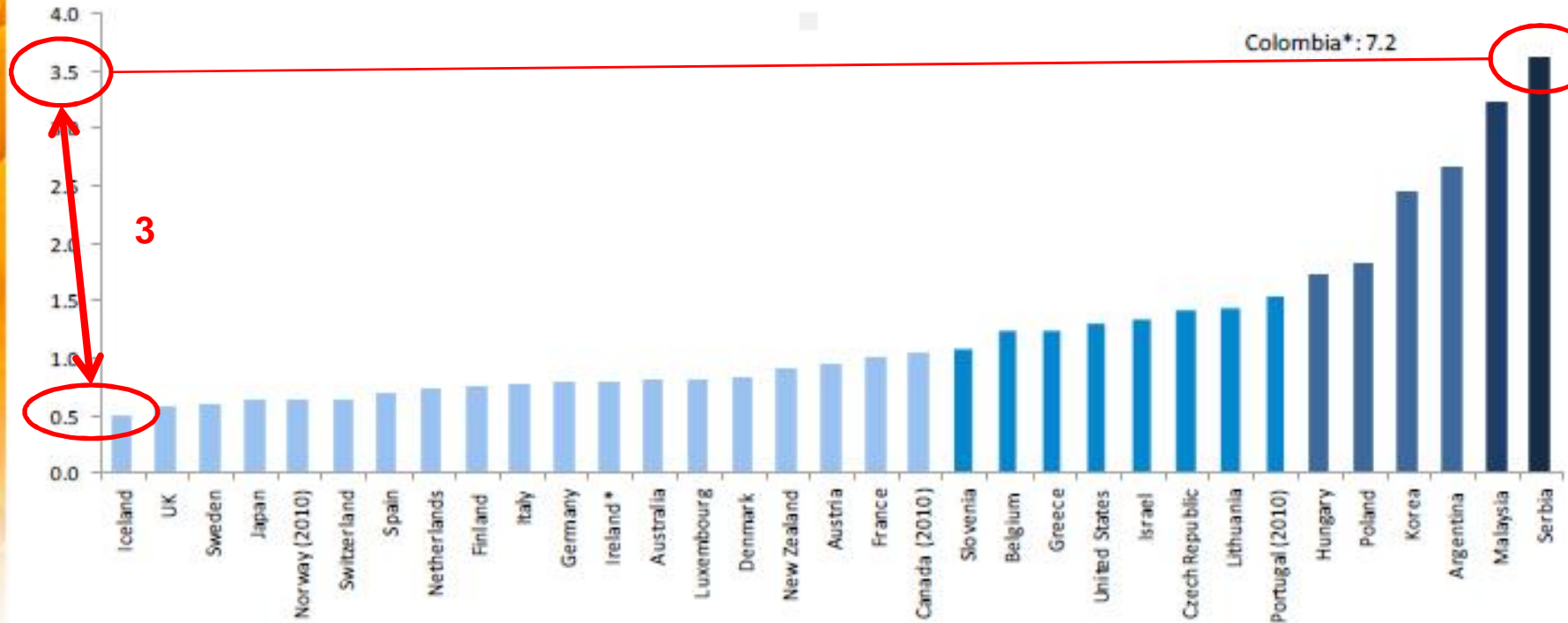
Source: OECD

¹ Levels have been classified according to an international coding system.

Note: The selection of years was largely based on what was currently available from the OECD.



Figure 8. Road fatalities per 10 000 registered vehicles in 2011



Note: data for Colombia, Malaysia and Serbia are not yet validated by IRTAD. *: denominator also includes mopeds.

IRTAD 2013 Annual Report © OECD/ITF 2013



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Step 4: WHERE are the differences?

- What are the relationships that connect the variables?
- What do these values (numbers) stand for?
What is exactly different?
- Use information from Step 3 to help you make comparisons across two or more categories or time frames!



Table 4 Selected labour market indicators of the G7 for those aged 25 to 64

	United States	United Kingdom	Canada	Japan	France	Germany	Italy
Educational attainment¹							
1991							
Below upper secondary	16	35	30	..	49	18	72
Upper secondary and postsecondary	54	49	42	..	36	60	22
Tertiary	30	16	28	..	15	22	6
2002							
Below upper secondary	13	16	17	16	35	17	54
Upper secondary and postsecondary	49	57	40	47	41	60	36
Tertiary	38	27	43	36	24	23	10
Employment rate by educational attainment							
1991							
Below upper secondary	52	61	55	..	58	51	54
Upper secondary and postsecondary	74	78	75	..	78	74	74
Tertiary	85	86	82	..	85	86	87
2002							
Below upper secondary	57	53	55	67	58	51	50
Upper secondary and postsecondary	74	79	76	74	77	70	72
Tertiary	83	88	82	80	83	84	82
Overall unemployment rate							
1993	6.9	10.0	11.4	2.5	11.1	7.7	10.1
1998	4.5	6.2	8.3	4.1	11.1	9.1	11.7
2003	6.0	5.0	7.6	5.3	9.4	9.6	8.6
Average actual hours worked per week							
1993	35.1	33.1	33.0	36.6	30.5	29.6	31.2
1998	35.4	33.3	33.7	35.4	29.7	28.6	31.2
2003	34.5	32.2	33.0	34.6	27.5	27.8	30.6

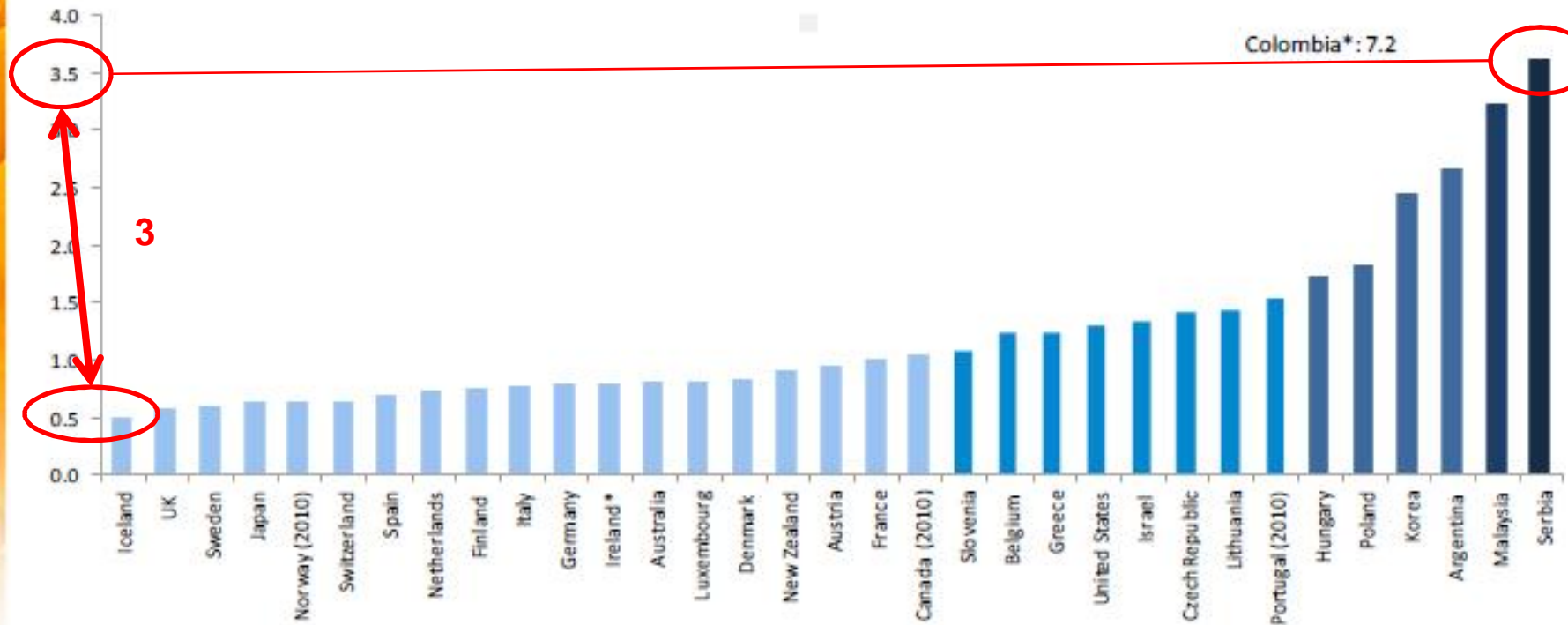
Source: OECD

¹ Levels have been classified according to an international coding system.

Note: The selection of years was largely based on what was currently available from the OECD.



Figure 8. Road fatalities per 10 000 registered vehicles in 2011



Note: data for Colombia, Malaysia and Serbia are not yet validated by IRTAD. *: denominator also includes mopeds.

IRTAD 2013 Annual Report © OECD/ITF 2013



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

Step 5: WHY do they change?

- Why are there differences? Try to explain them!
- Look for reasons by considering social, environmental and economic factors
- Think about sudden or unexpected changes in terms of state, national and international policies
- Think BROADER about the relationships and differences you just found!



How many people are living with a spouse **WITHOUT** children?

		Family type			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single living person	185	16,0	16,7	16,7
	Single parent with one or more not-adult child	35	3,0	3,2	19,8
	Single parent, living with his/her adult child/children	14	1,2	1,3	21,1
	Living with a spouse without children	274	23,7	24,7	45,8
	Living with a spouse with one or more not-adult child	396	34,3	35,7	81,5
	Living with a spouse with adult child/children	45	3,9	4,1	85,6
	Other type	160	13,9	14,4	100,0
Total		1109	96,1	100,0	
Missing	No information	2	,2		
	System	43	3,7		
	Total	45	3,9		
Total		1154	100,0		



5. How to write about tables and graphs in a text? (I)

- *Every* Figure and Table included in the paper **MUST** be referred to from the text
- When referring to a Figure in the text, it is abbreviated as "Fig.", while "Table" is not
- Figures and Tables are numbered *independently*, in *sequence* referred in the text (starting with Figure 1 and Table 1)
- Place each Table or Figure as near as possible to the place where you first refer to it



How to write about tables and graphs in a text? (II)

- Do **NOT** retell the table or graph in a text! Analyze it!
- Do not repeat all numbers from the table or graph (**Exception:** if there are no exact numbers in the graph!)
- Avoid sentences that only direct to the Figure or Table
 - **GOOD:** Road fatalities per 10 000 registered vehicles differed up to 7 times in 2004 (Fig. 8)
 - **BAD:** Figure 8 shows road fatalities per 10 000 registered vehicles in 2004.



How to write about tables and graphs in a text? (III)

■ The **structure of paragraph** about tables and graphs:

- Introductory sentence, presenting the topic and main result
- Few sentences about other results
- Conclusion, explanation, interpretation of results

■ Introductory expressions: (avoid according to)

- The graph / table shows / indicates / illustrates / reveals / represents
- It is clear / It can be seen from the graph / table
- As the graph / table shows,
- As can be seen from the graph / table,
- As is shown / illustrated by the graph / table,



Group task

- Interpret the table and graph you receive
 - Analyze according to the 5 Step Framework
 - Try to explain the differences or relationships
 - Formulate 3 sentences which you could write in a text about the table and the graph
 - **Write the sentences!**

