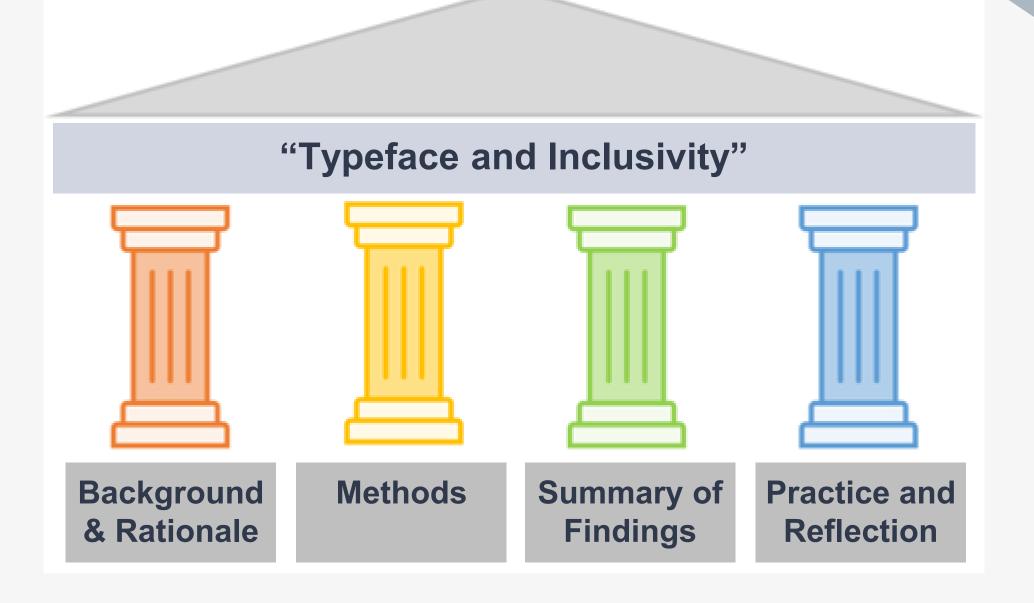# Lecture slide typeface and inclusivity
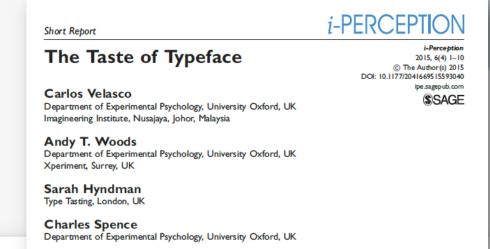
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Background and rationale: The psychology of curvature

- **The Curvature Effect**: Humans are sensitive to the physical properties of objects, such that curvilinear contours (as opposed to angular contours) trigger an emotionally positive response (e.g., Bar and Nesta, 2006).
- This curvature effect can be explained via the human **approach-avoidance spectrum** (e.g., Palumbo, Ruta, & Bertamini, 2015; Tawil, Elias, Ascone, & Kuhn, 2024). People associate friendliness and general approachability with rounded objects, whereas they associate threat and danger with angular objects. This means that one can expect viewing rounded objects to give a sense of inclusivity and safety, as has been demonstrated also by the fact that people wish to enter curvilinear spaces more than angular spaces (e.g., Vartanian et al., 2019).
- Recently studies have found further evidence of a similar **curvature effect in typefaces** (Velasco, Woods, Hyndman, & Spence, 2015).

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Xperiment, Surrey, UK

Sarah Hyndman
Type Tasting, London, UK

Charles Spence
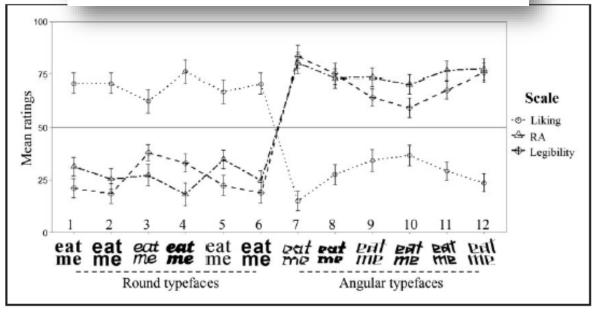Department of Experimental Psychology, University Oxford, UK

Figure 4. Mean ratings in the task presented in Experiment 2. Note that Typefaces 1 to 6 were generally liked and considered round and easy to read, whereas Typefaces 7 to 12 were generally liked less and considered more angular and less easy to read. RA = roundness/angularity.

Background and rationale: Three types of inclusivity in a classroom setting

- **Emotional inclusivity:** Feeling and perception of invitation and friendliness in the lecture slides
- **Informational inclusivity:** Legibility of the lecture slides across the general student body (previous experimental works by Tinker [1966] underscored the fact that not all fonts have equal legibility)
- **Pedagogic inclusivity (reduction of attainment gap):** Information retention effectiveness of the lecture slides across the general student body
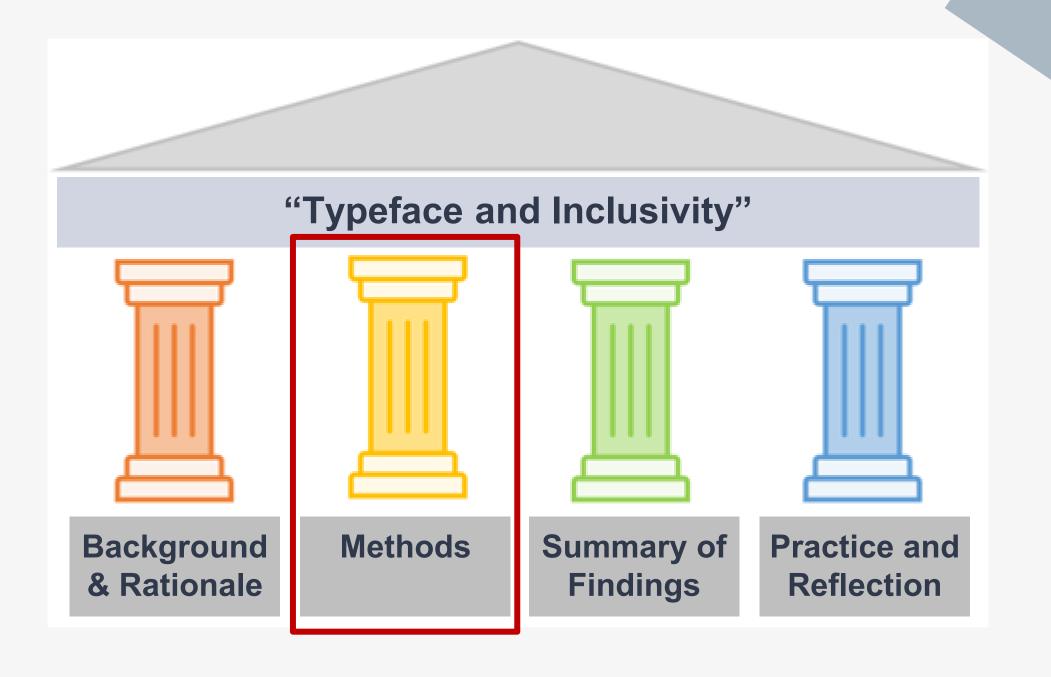
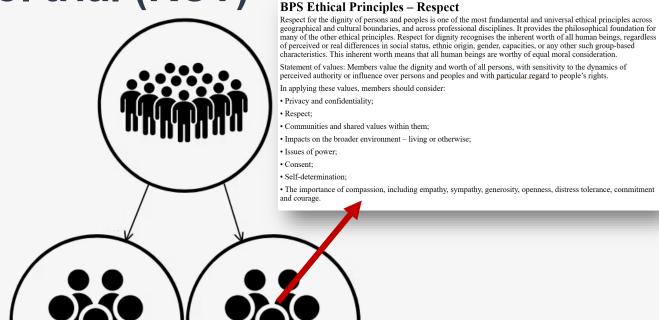# Background and rationale: Research question and approach

A psychological experiment on:
"How do two different typefaces differing in levels of curvature influence the experience of inclusivity in a classroom setting?"

"Typeface and Inclusivity"

Background & Rationale | Methods | Summary of Findings | Practice and Reflection

Methods: Randomised control trial (RCT)

- Participants (students of fashion psychology at LCF) were randomly allocated to one of two font conditions: **Arial** (curvilinear condition; $N = 7$) vs. **Times New Roman** (angular condition; $N = 10$).
- Each participant read four lecture slides about research ethics (taken from the publicly available British Psychological Society); the lecture slides were written in the allocated font condition.
- The rest of the study was identical across this experimental manipulation.

BPS Ethical Principles – Respect

Respect for the dignity of persons and peoples is one of the most fundamental and universal ethical principles across geographical and cultural boundaries, and across professional disciplines. It provides the philosophical foundation for many of the other ethical principles. Respect for dignity recognises the inherent worth of all human beings, regardless of perceived or real differences in social status, ethnic origin, gender, capacities, or any other such group-based characteristics. This inherent worth means that all human beings are worthy of equal moral consideration.

Statement of values: Members value the dignity and worth of all persons, with sensitivity to the dynamics of perceived authority or influence over persons and peoples and with particular regard to people's rights.

In applying these values, members should consider:
• Privacy and confidentiality;
• Respect;
• Communities and shared values within them;
• Impacts on the broader environment – living or otherwise;
• Issues of power;
• Consent;
• Self-determination;
• The importance of compassion, including empathy, sympathy, generosity, openness, distress tolerance, commitment and courage.
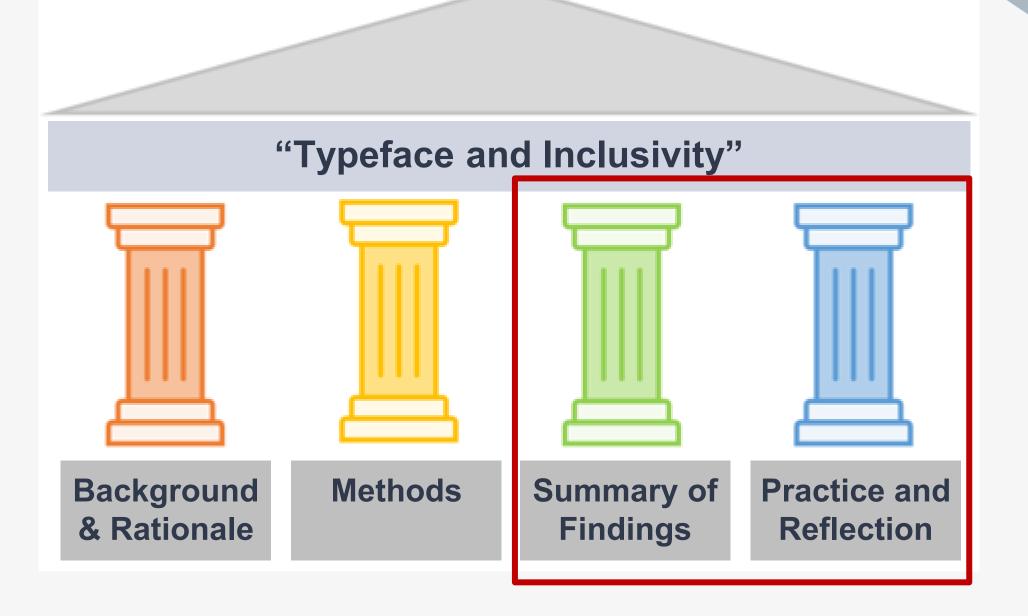
Methods: Randomised control trial (RCT)

- Afterwards, all participants rated their impressions of the slides on five scales.
- This was followed by 7 true/false questions about the slides

Now, please rate your impressions of the lecture slides, from a scale of 1 (Completely Disagree) to 7 (Completely Agree).

Do not spend too much time on each question (1-5 seconds per question). There are no right or wrong answers.
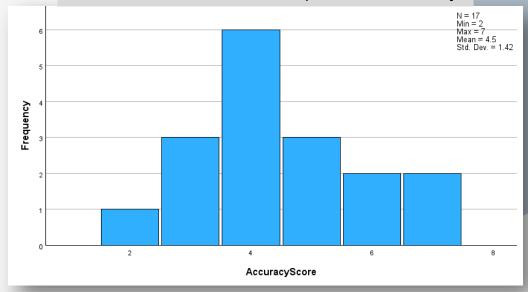
	(1) Completely Disagree	(2)	(3)	(4) Neither Agree Nor Disagree	(5)	(6)	(7) Completely Agree
The general tone of the slides was inviting and friendly	○	○	○	○	○	○	○
The writing in the slides was legible and easy to read	○	○	○	○	○	○	○
The slides were aesthetically pleasing to look at	○	○	○	○	○	○	○
The general tone of the slides felt inclusive	○	○	○	○	○	○	○
The font of the slides was appropriate	○	○	○	○	○	○	○

Summary of findings

- The data was statistically analysed using SPSS, looking out for statistically significant differences (via the Mann-Whitney test) between the two font conditions.
- The results indicated that font **did not have an impact** on (1) perceived friendliness, (2) legibility, (3) aesthetic quality, (4) sense of inclusivity, and (5) font appropriateness.
- However, participants in the Arial font condition (M = 5.43; SD = 1.27) outperformed those in the Times New Roman font condition (M = 3.80; SD = 1.14) on a statistically significant level, U = 11.50, p = .018. This means that **curvilinear fonts have a positive impact on how well the lecture slide information is retained.**

Distribution of the true/false questions accuracy

N = 17
Min = 2
Max = 7
Mean = 4.5
Std. Dev. = 1.42

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.[a,b]	Decision
1	The distribution of InvitingFriendlyTone is the same across categories of FontCondition_1Arial2TNR.	Independent-Samples Mann-Whitney U Test	.601[c]	Retain the null hypothesis.
2	The distribution of LegibleWriting is the same across categories of FontCondition_1Arial2TNR.	Independent-Samples Mann-Whitney U Test	.813[c]	Retain the null hypothesis.
3	The distribution of AestheticallyPleasing is the same across categories of FontCondition_1Arial2TNR.	Independent-Samples Mann-Whitney U Test	.813[c]	Retain the null hypothesis.
4	The distribution of InclusiveTone is the same across categories of FontCondition_1Arial2TNR.	Independent-Samples Mann-Whitney U Test	.270[c]	Retain the null hypothesis.
5	The distribution of FontAppropriate is the same across categories of FontCondition_1Arial2TNR.	Independent-Samples Mann-Whitney U Test	.813[c]	Retain the null hypothesis.
6	The distribution of AccuracyScore is the same across categories of FontCondition_1Arial2TNR.	Independent-Samples Mann-Whitney U Test	.019[c]	Reject the null hypothesis.

a. The significance level is .050.

b. Asymptotic significance is displayed.
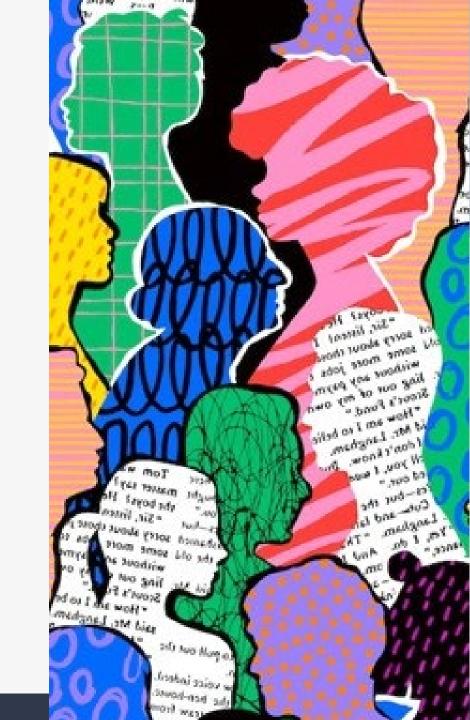
c. Exact significance is displayed for this test.

Output summary of inferential statistics

Practice and reflection

- While having a curvilinear font (e.g., Arial) does not impact perceived legibility and perceived inclusivity, it can impact how well students can perform in classrooms.
- This can be used as a way to elevate the classroom experience and thereby reduce the attainment gap at UAL.
- When given a choice between curvilinear vs. angular fonts, classes may benefit from the use of curvilinear fonts.

Limitations
- Only two fonts were looked at. Also, only 17 psychology students took part. These provide serious limits of generalisability. Therefore, further studies will need to collect more data across a larger number of students and font types.
- Given that the study was a survey, this artificial setting does not replicate the classroom experience. This limits the transferability (i.e., ecological validity) of the present findings into real-life applications.

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Bar, M. and Neta, M. (2006) 'Humans prefer curved visual objects', *Psychological Science*, 17(8), pp. 645–648.
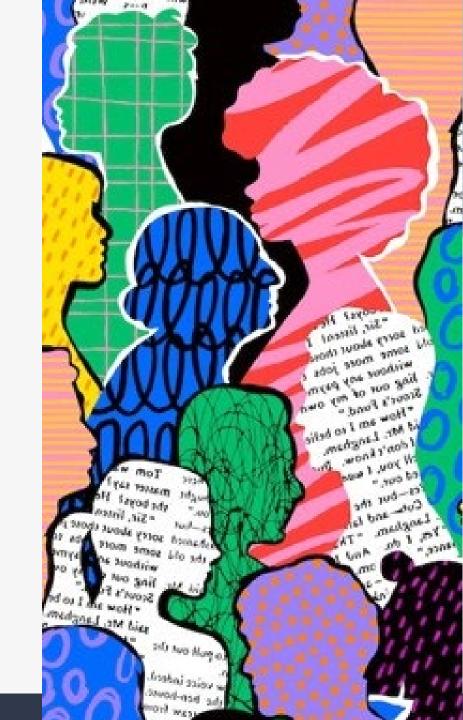
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Thank you!

Any questions?

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