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Vienna University of Technology

Including Gender Perspectives to improve Technological Research Quality

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How to include Gender Perspectives?

.... in Human Computer Interaction

.... in Route Planning Systems for Pedestrians

.... in Biomedical Research



With or without Gender expertise?



GENUINE

- Gender Inclusive Design in User Interface (UI) Development.
- Project duration: July 2011 - June 2013
- Project Goal:
 - development of a specification list for gender-inclusive UI development;
 - create a tool that supports gender-inclusive UI design and make it available to software-developers as an open source tool.

Project Team



David Raneburger
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Electrical Engineering



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Post Doc – Social
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PhD student –
Communication Studies



Jürgen Falb
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Brigitte Ratzer
Post doc –
Gender Expert



Central research question

Without Gender Expert

- Do men and women display differences when interacting with UIs ?

Gendered

- Do men and women display differences when interacting with UIs or are characteristics like age, education or previous experiences with ICTs of greater importance?



Theoretical suppositions

Without Gender Expert

Gendered

- Hypothesis from Evolutionary Psychology

- Women should have the tools for underestimation and thus show lower self-efficacy levels than men.
- Men should show higher levels of self-assessment regarding computer activities.
- Men and women should show different navigation styles and strategies when seeking for online information.



Theoretical suppositions

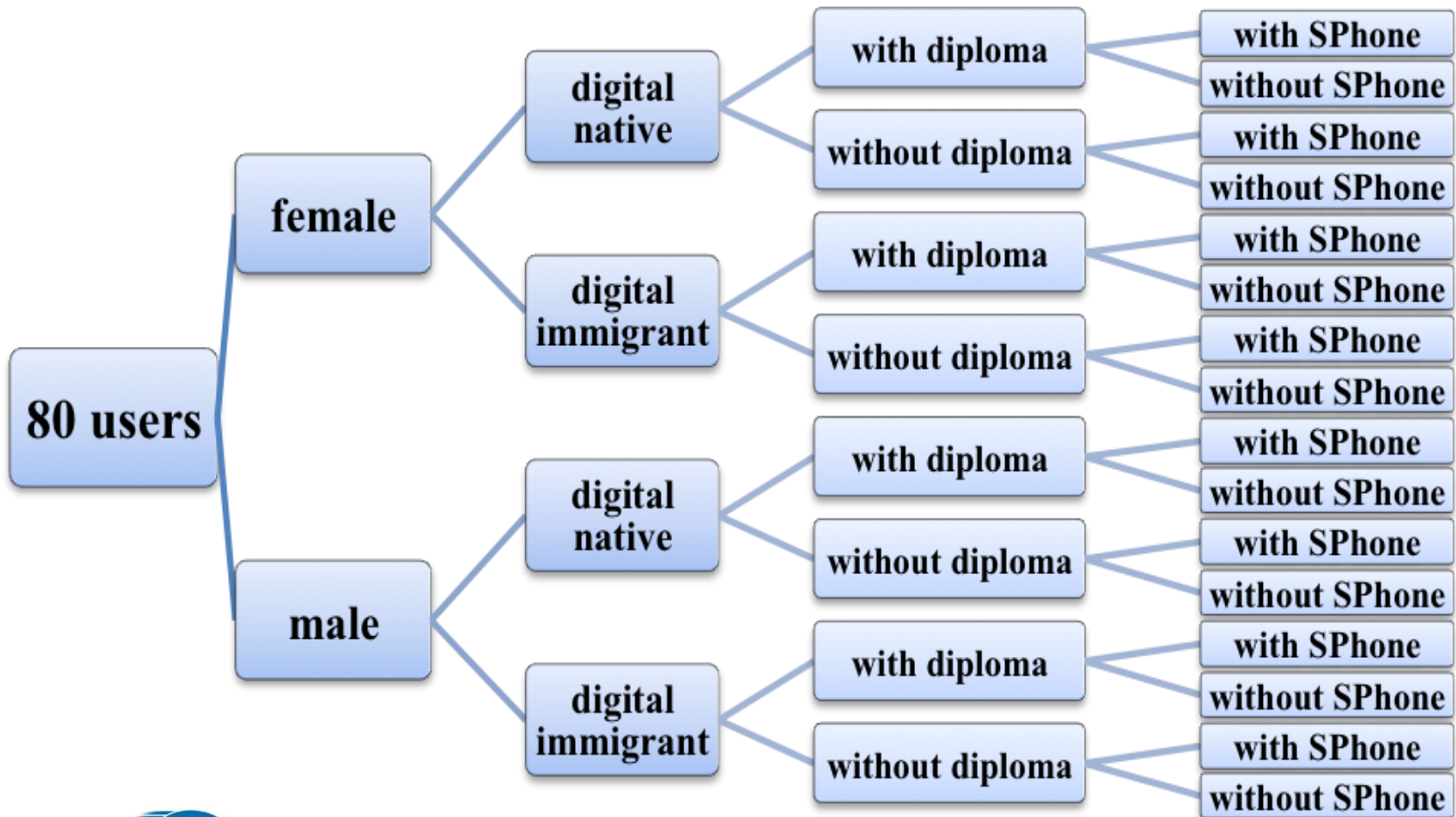
Without Gender Expert

- Hypothesis from Evolutionary Psychology

Gendered

- No ex ante hypothesis is generated

Usability Study: Sampling





Expected results

Without Gender Expert

	Men ♂	Women ♀
Feature A	X	
Feature B		X
Feature C		X
Feature D	X	
Feature E	X	
Feature F		X

Gendered

	♂	♀	<30	>40	Edu +	Edu -	Exp +	Exp -
A	x							
B			x			x		
C				x				
D		x						x
E		x	x					
F	x				x			



First Results

Guideline	male	female	young	old	experienced	in-experienced	educated	un-educated
Define the navigation clearly (provide wizard support).	x							x
Start with the essentials and end with the details.					x			
Place Menus on the left side of the UI.				x				
Place search fields/masks on top and/or in the middle of the UI.		x						
Place recurrent widgets consistently.							x	
Provide a navigation bar, especially on mobile devices.			x		x			
Use intuitive and consistent wording.		x		x				
Less is more.		x					x	
Tailor the UI to the used device (e.g., desktop, tablet, or smartphone).		x					x	
Avoid scrolling on desktop UIs.				x				x
Make clear which input is processed with which action.		x						
Make page loading times for Web-pages as short as possible, especially on mobile devices.			x				x	
The first impression of a UI is important.		x						
Experienced men like map widgets for geographical data visualization.	x				x			
Educated users like text search fields.							x	
Uneducated users do not care so much about icon design.								x
Experienced users do not care so much whether (calender) widgets work correctly or not.					x			



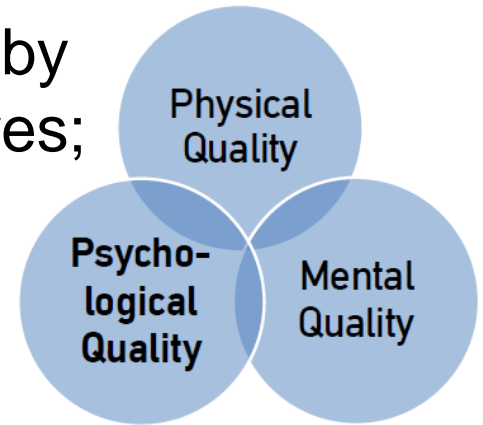
Routenplanung
FEMroute
OpenStreetMap Gender

salzburg|research

FEMroute

Goals

1. Improving route planning for pedestrians by considering more than geometrical features;
2. Gender-sensitive research approach



Research Questions

1. Which criteria are relevant to route choice?
2. Are aggregated route profiles sufficient to consider gender-relevant needs?

Gender and Mobility

Women

- ... make more, but shorter trips;
- ... with more complex travel patterns,
- ... use public transport more often,
- ... make more serve-passenger trips, etc.

However: these differences disappear, when socioeconomic factors are taken into account (Nobis & Lenz 2004)

Division of labor, household duties and child care are the influencing factor on differences in mobility patterns, rather than the biological sex

Gender-sensitive approach

- Using a gender-sensitive research approach to ensure, that different mobility needs caused by differences in mobility behavior are considered
- Qualitative research methods
- Direct involvement of potential users
- No homogenous test groups, but users with different ages, employment status and family obligations
- The methodology was developed in consultation with trained gender experts

Generating Routes



Lessons Learned: Gender-sensitive approach

- No significant results regarding the gender aspect
 - More differentiation, more homogeneous test groups would be needed.
 - In general: Considering gender helps to gain a better understanding of contexts of use
- Better adaption to the needs of the future users

Knee & Hip-Joint Endoprotheses

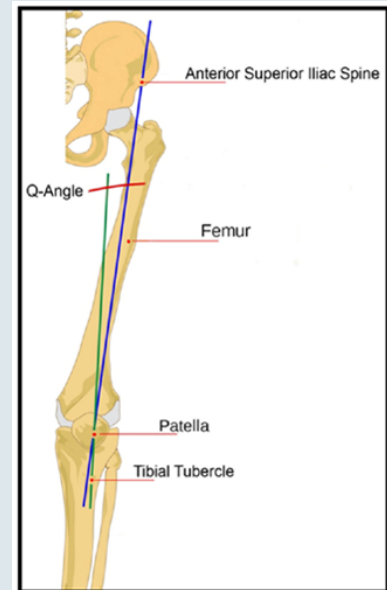


Figure 1: The Q-angle is formed between the line from the center of the patella to the anterior superior iliac spine and the line from the tibial tubercle to the center of the patella; on average, the Q-angle is greater in women.

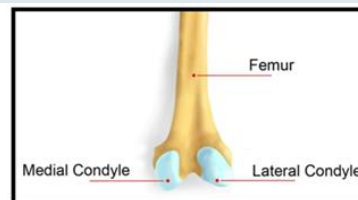


Figure 2: The human femur has two projections, or condyles, on its lower extremity; the anterior condyle is usually less prominent in women. In TKA, condyles are replaced with synthetic materials.

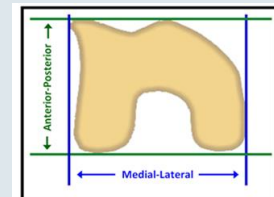


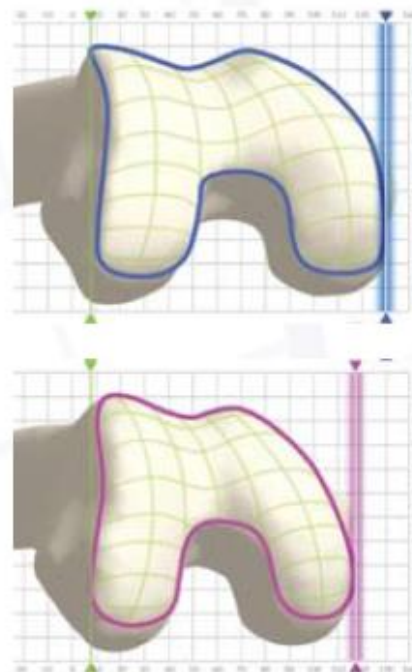
Figure 3: This cross-section of the human femur shows the medial-lateral and anterior-posterior dimensions; the anterior-posterior dimension may be smaller in women.

Zimmer® Gender Solutions TM NexGen® High-Flex Knee

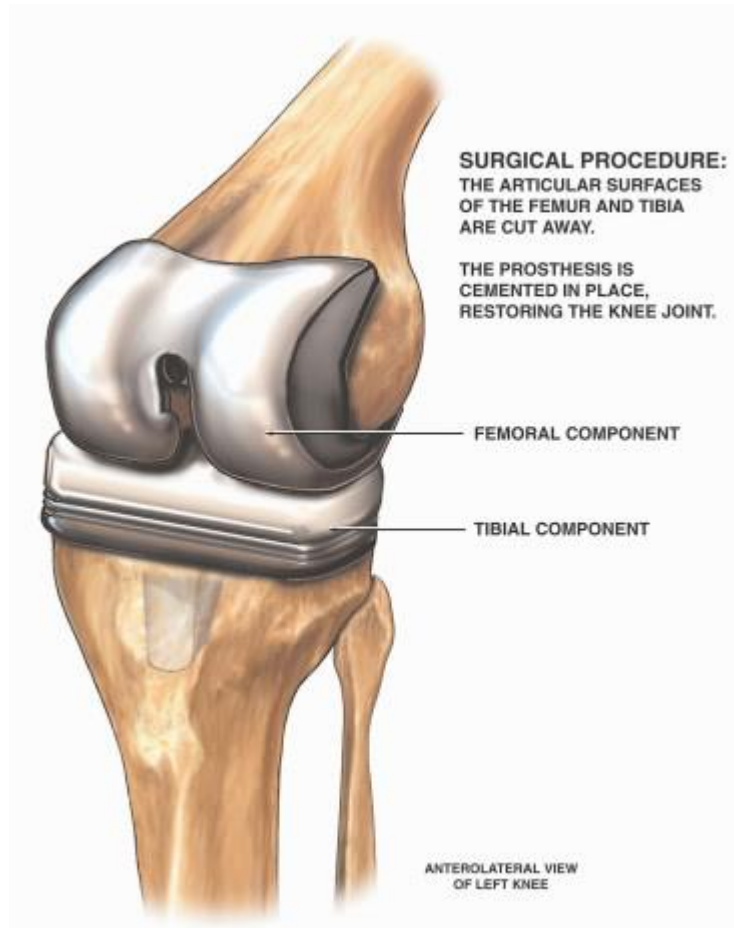
Why a woman's knee?

A growing body of research has led to breakthroughs in distinctive female and male diagnoses and treatments — for conditions ranging from heart disease to rheumatoid arthritis. The need to account for gender-specific solutions in orthopaedics is apparent.

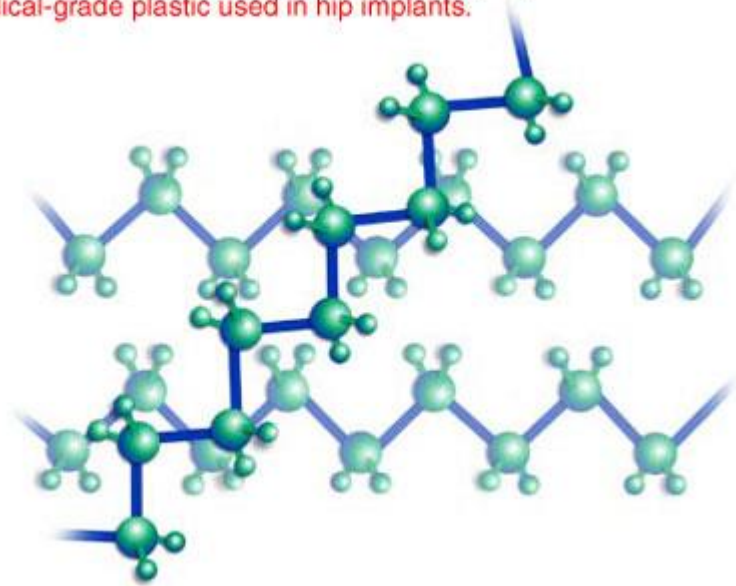
- Orthopaedic surgeons have reported anatomical differences in women's and men's knees for years.^{1,2,3,4,5,6,7,8}
- Orthopaedic surgeons often have to consider intraoperative adjustments during knee surgery to accommodate women's anatomical differences.⁴
- Women account for nearly two-thirds of knee arthroplasties performed annually in the U.S.^{9,10}
- Women are three times more likely than men to forego knee arthroplasty.¹¹



Corrosion of Slide Surface



Representation of the chemical structure of polyethylene,
the medical-grade plastic used in hip implants.



How to determine the Quality of Research?

Quality in Research

- Does the product succeed in business ?
- Does the product meet ecological standards?
- User-orientation: for whom is this research beneficial – who is/remains excluded?
- Problem-orientation: In which world do we live? – What do we need?
- Design-orientation: In which world do we want to live? – What do we need therefore?



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Thank you for your attention!

How does gender enter research and innovation?

