



Flow Centred Design

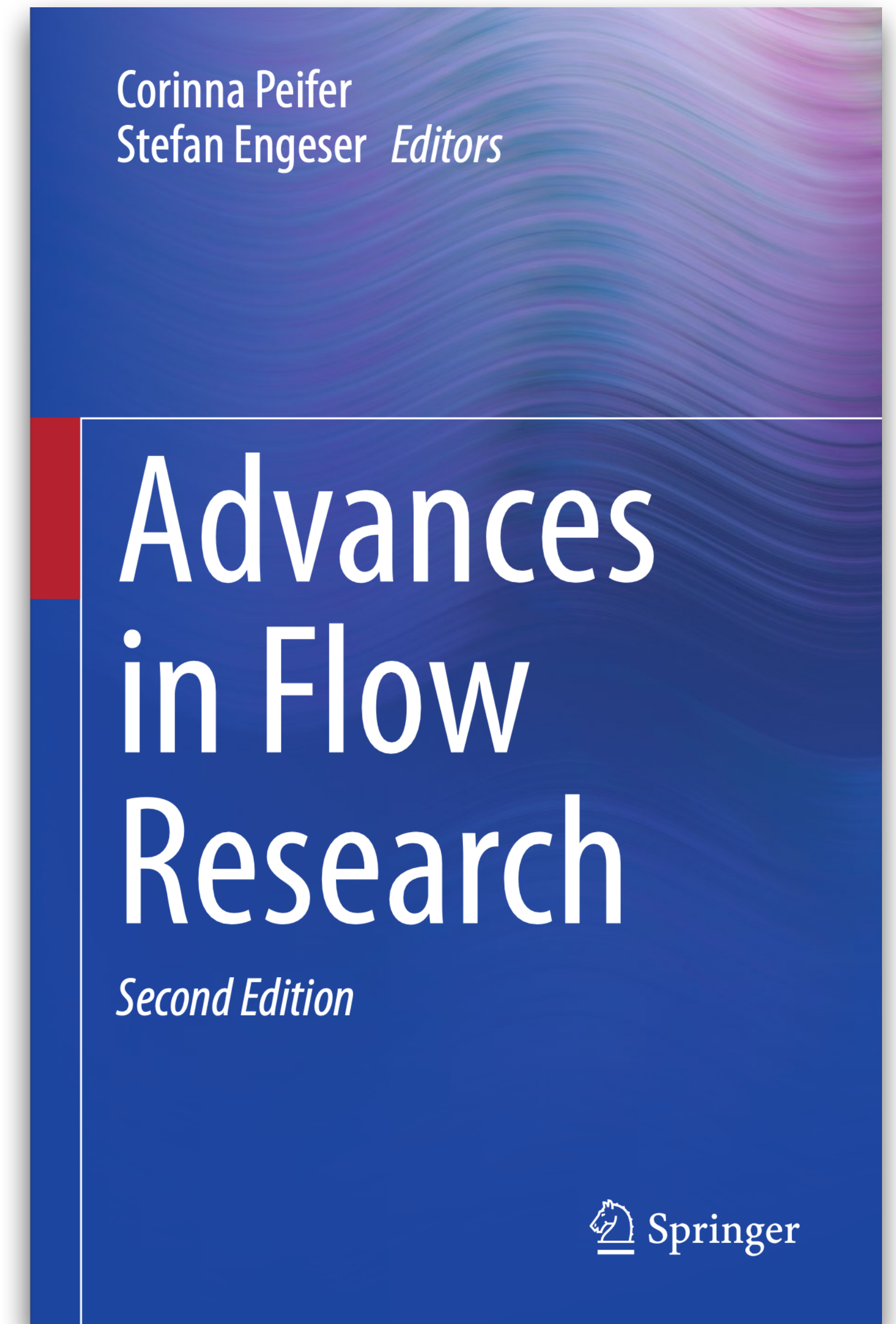
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Background for This Talk

- Advances in Flow Research from 2021
- Editors
 - Corinna Pfeifer, Professor of Work and Organisational Psychology, Lübeck
 - Stefan Engeser, Lecturer, Trier
- Citations without year refer to authors of a chapter of this book





What is Flow?

(Engeser, Schiepe-Tiska, Corinna Peifer)



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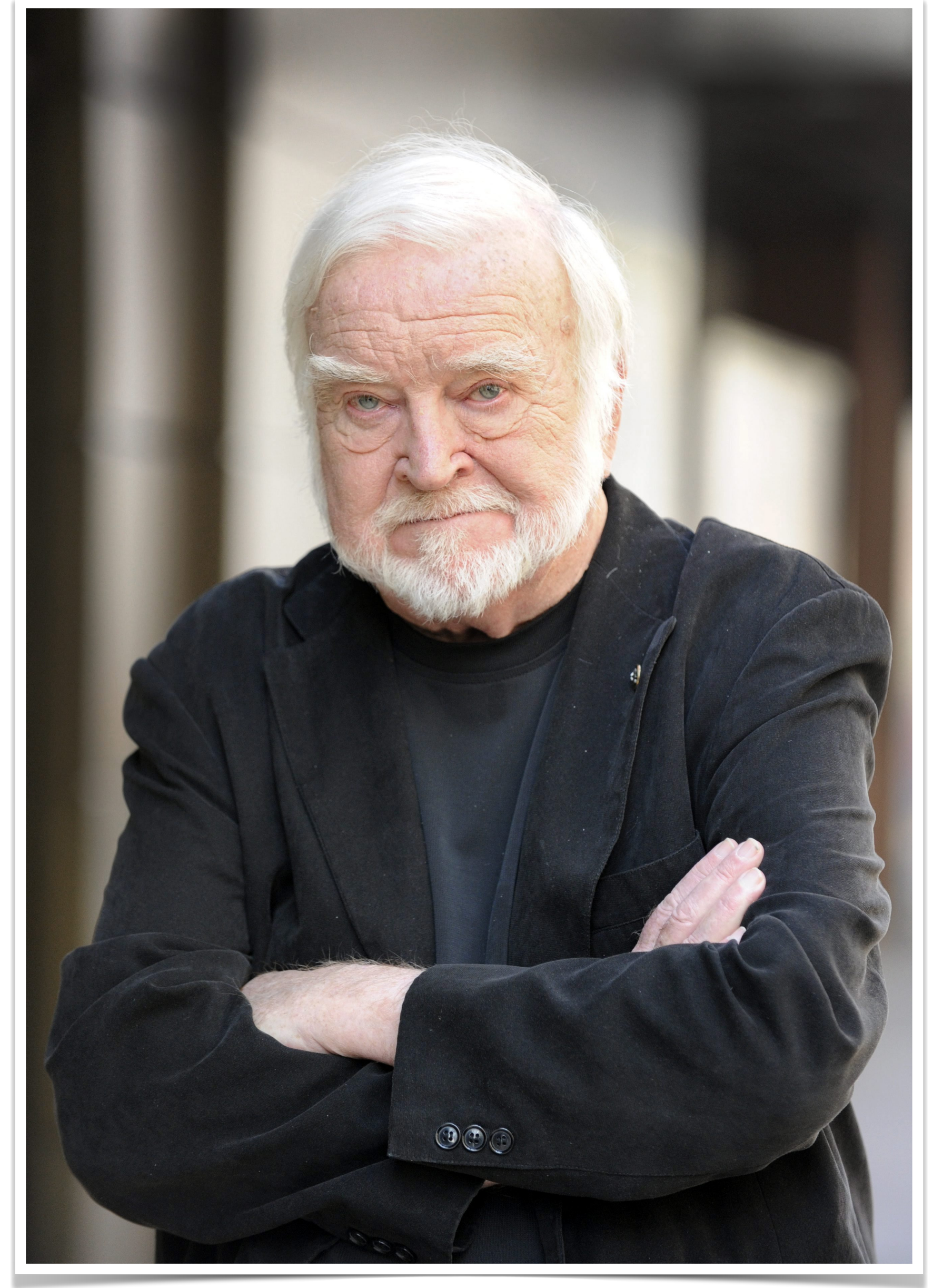






History

- The concept of **flow** has become a **widely known** experience since **Csikszentmihalyi** systematically described this “optimal experience” in his book “Beyond Boredom and Anxiety” in 1975
- He created a definition with six components of flow
 - Still in use almost 50 years later



Definition: Components of Flow

- **Merging of action and awareness:** a person is aware of his/her actions but not of the awareness itself
“You don’t see yourself as separate from what you are doing”
- **Centring of attention on a limited stimulus field:** high degree of concentration
“When the game is exciting, I don’t seem to hear anything-the world seems to be cut off from me and all there is to think about is my game”
- **Loss of self-consciousness:** considerations about self become irrelevant
“You yourself are in an ecstatic state to such a point that you feel as though you almost don’t exist. And it just flows out by itself”

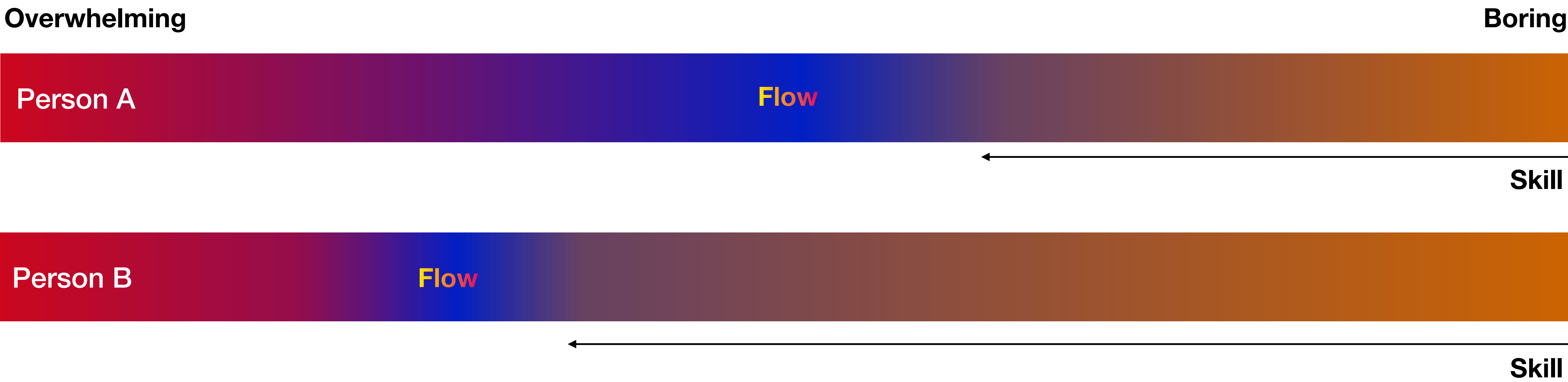
Definition: Components of Flow

- **The feeling of control** of one's action and the feeling of control over the demands of the environment
"I get a tyrannical sense of power. I feel immensely strong"
- **Coherent, non-contradictory demands** for action and clear, unambiguous feedback; goals and means of achieving them are logically ordered; action and reaction are automatic
"I think it's one of the few sorts of activities in which you don't feel you have all sorts of different kinds of demands, often contradicting, upon you"
- **Autotelic nature:** no need for external goals or rewards
"The act of writing justifies poetry. Climbing is the same: recognizing that you are a flow. The purpose of the ow is to keep on owing..."

Challenge & Skill Balance

- A condition for flow is the balance of challenge and skill
- Subjective
 - **Skill level** is different between individuals
 - **Balance point** is different between individuals
- Required for: **The feeling of control**

Challenge & Skill Balance - Sketch



Immediate Feedback

- Flow is more likely with immediate feedback
- Examples: Playing an instrument, playing a video game, sport
- -> Relevant for HCI: Responsiveness supports flow
- Required for: **Coherent, non-contradictory demands**

Advantages of Flow

- Person feels simultaneously cognitively efficient, motivated, and happy (Moneta & Csikszentmihalyi, 1996)
 - During flow we feel good, but happiness is perceived afterwards (Aellig 2004, Rheinberg & Engeser, 2018)
- Motivation, and performance enhancement (Barthelmäs & Keller)
 - In creative activities
 - At work
 - In Sports
- Contributes to developing skills and personal growth (Freire, Gissubel, Tavares, & Teixeira)

Dangers of Flow (Zimanyi & Schüler)

- Psychological addiction
 - Individuals report strong desire to experience flow again (Csikszentmihalyi & Rathunde, 1993)
 - Individuals develop a tolerance due to increased skill (Moneta, 2012)
- Impaired risk perception
 - “Why does the same individual that wears a seatbelt goes whitewater kayaking?”
 - Feeling of control and loss of self reflection create a false sense of security (Schüler and Pfenninger, 2011)
- antisocial contexts and flow during combat (a very dark rabbit hole)

Purpose of Flow

A flow experience is not just a hedonic feeling that enhances an individual's quality of life; it is also an optimal functional state that can lead to peak performance
(Z. Zimanyi and J. Schüler)



Flow Research

How to study it?



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Measurements

- Interviews (Today roughly 10% of Research)
- Questionnaires
 1. measuring all components of flow experience
 2. capturing some components
 3. ask for the experience of flow in a global manner (i.e., give a description of flow)
 4. infer to flow when conditions of flow according to a flow model are met



Relation to HCI

Designing for Flow



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10 Rules of Interface Design (DiS1)

1. Keep the interface simple
 2. Speak the users language
 3. Be consistent and predictable
 4. Provide feedback & be responsive
 5. Minimise memory load
 6. Avoid errors, help recover, offer undo
 7. Design clear exits and closed dialogs
 8. Include help and documentation
 9. Address diverse user needs
 10. Hire a graphic designer
- A. Merging of action and awareness
 - B. Centring of attention on a limited stimulus field
 - C. Loss of self-consciousness
 - D. The feeling of control
 - E. Coherent, non-contradictory demands
 - F. Autotelic nature

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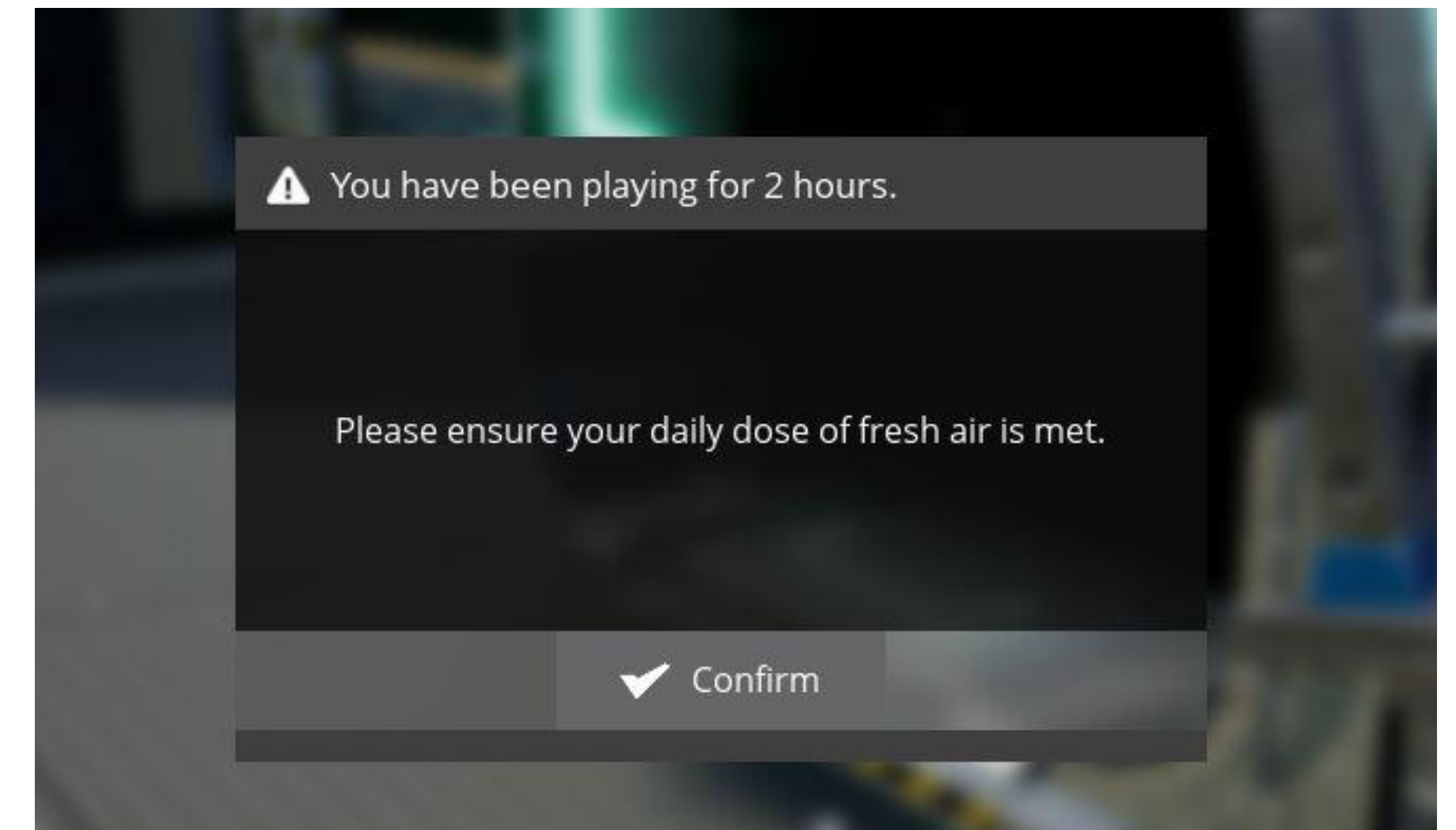
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Designing encouraging Flow

- For Education, Games, Productivity and Creativity
- Computers should be transparent, so that people can act through them without thinking (S. Triberti et al.)
- Interfaces that facilitate flow increase engagement in work-related human-computer interaction tasks (Webster et al 1993)

Designing breaking Flow

- As a business model, for example “freemium” versions
- Preventing risky behaviour or addiction
- Examples
 - Acoustic speed warnings in cars
 - Time based warnings in video games



Summary

- Flow has six components
- Flow requires an individual balance between skill and challenge
- Flow is a strong motor for fulfilment, improvement and personal growth
- Flow can kill
- Flow is an important aspect of HCI
- Interfaces can aim at encouraging or breaking flow, based on the goal