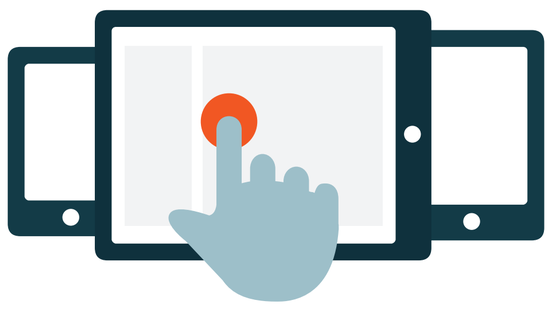

Towards supporting learnability of touch-screen mobile applications

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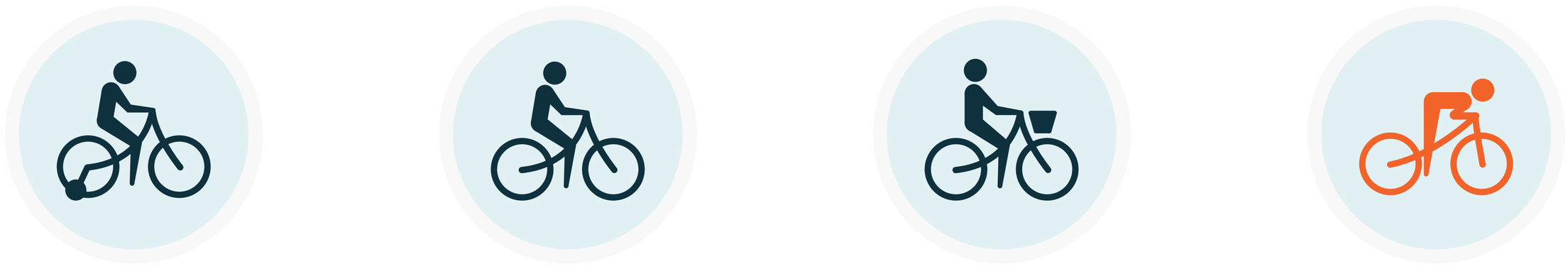
With the recent expansion of the mobile industry, applications for mobile devices are becoming more complex, empowering people to perform more advanced tasks. However, modern mobile user interfaces introduce several challenges, which affect learnability of mobile applications. For example:

- Small screens provide space for displaying high-priority functions and reduce discoverability of advanced features [4].
- Gestural UIs are engaging and intuitive for simple tasks but not for advanced operations [4].
- Sessions with mobile applications are short [1, 6] and variable in the context of use [6], which affect users' attention.
- Solely visual user interfaces without haptic feedback prevent activation of the muscle memory.

The process of learning

Learning is a long-term process. Individual's needs are changing over time. To achieve the highest levels of expertise, learners should be engaged in deliberate practice to continuously improve their performance. (via [5])

The initial phase → **The middle phase** → **The last phase** → **The expert approach**



- focus on understanding the activity and attaining momentary goals
- frequent, perceptually salient errors with immediate consequences
- help of parent, teacher, or friend

- gaining experience
- less frequent and serious mistakes
- level of concentration is reduced
- attaining an acceptable level of performance

- performance is not actively controlled
- most people do not perceive an urge for further improvements
- the same level of performance is maintained for months/years

- continuous learning
- individuals are not satisfied with acceptable level of performance
- deliberate practice: seeking challenges to achieve ever higher level of performance

The process of learning mobile applications

- first contact with application
- focus on understanding purpose of the application, accomplishing basic tasks
- ad-hoc feature exploration
- asking for help (experienced user/forum)

- practice and familiarization
- short sessions with the application, predictable usage patterns [2]
- ad-hoc problem solving
- fewer mistakes, faster task completion

- performance becomes autonomous, users focus on task instead of UI
- most users stop learning new strategies and start actively avoiding frustrating and unfamiliar situations

- finding more efficient ways
- learning shortcuts
- exploration of advanced features
- personalization of user interface
- systematic approach to problem-solving

PROBLEM 1

- **most users leave mobile applications in the initial phase [3] due to insufficient onboarding strategies**

PROBLEM 2

- **with practice, users become quicker but not more efficient**
- **problem-solving strategies differ among user groups [2]**

PROBLEM 3

- **users do not perceive an urge for further improvements, they tend to stick to familiar strategies**

PROBLEM 4

- **as individuals improve their performance, their needs evolve and the user interface should reflect these changes**

Research question: How can the process of learning mobile application user interfaces be continuously supported?

Objective

The objective of this research project is to investigate how people learn to use mobile applications, and determine how this process can be supported in different phases so that users quickly perceive the value of the application, accomplish basic tasks, and gradually learn new features in a natural way.

Methodology & expected results

The study will consist of observation of users in the process of learning mobile UIs. Patterns in behaviour will be investigated, in order to create learning profiles of representative user groups. Further profile examination should lead to the design of support mechanisms that will encourage various types of learners in the process of continuous learning of mobile applications.

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