Context

Lecture 3

Mobile Computing

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Sample Test Questions:

- You want to develop an app to help Alzheimers patients identify visitors. List 5 small c contextual factors you should consider.
- You have just created a translator that helps Canadian children learn to speak Russian when they watch programs imported from Russia. Your app is only downloaded 5 times in a year. Use the concept of Context (Big C) to explain why your application failed.

Why is this funny?

Relevant information:

- Going to the moon is expensive, infrequent, and difficult. It is only done for research and sample collecting.
- Every gram taken to the moon is accounted for due to cost.
- Astronauts' time is carefully scripted to maximise the time for doing research and data collection.

"The circumstances that form the setting for an event, statement, or idea, and in terms of which it can be fully understood."

- Oxford English Dictionary

"*The situation in which something happens: the group of conditions that exist where and when something happens*"

- Merriam-Webster Dictionary

Anything that helps us define and explain a situation;

or

Anything that helps us understand a situation;

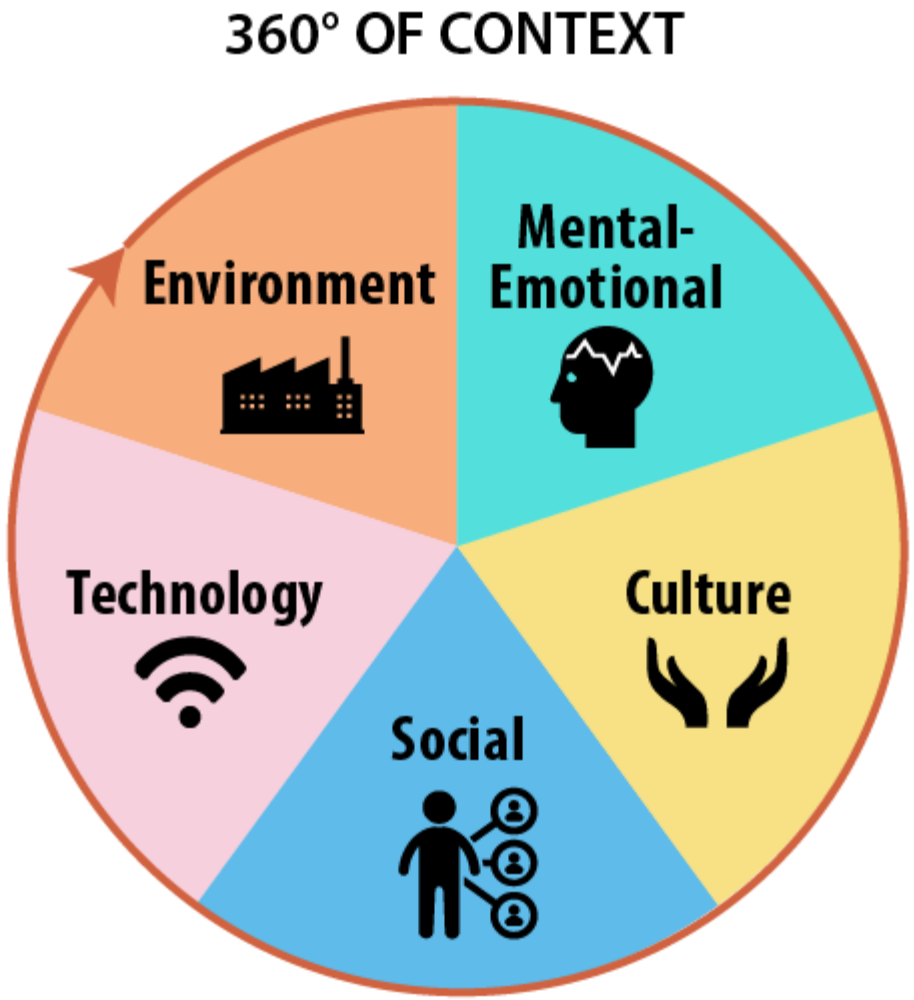
Often the most misunderstood concept – especially when it comes to designing applications or conducting research.

Context is …

For an item (e.g., an app, a mobile phone) context is:

- Who (is using it)
- Where (it is being used)
- How (it is being used)
- When (it is being used)

- It is the situation in which the use is occurring
- It is everything surrounding and affecting the use of the application.



Context and App Design

Knowing an app's context helps in its design and evaluation.

Key Idea: Applications need to be designed with the context in mind.

Why? Because ignoring context typically leads to applications being deleted and not used.

Two types of context:

1. **Big C context** considers the "what":
   - ➢user benefits and user mental model.
   - ➢enhances user experience.

2. **Small c context** considers the "where/how"
   - ➢mode, medium, and environment.

Application Failure

Number One Reason:

Wrong ideas or bad execution of the idea. (https://reinventely.com).

Most people are sure their app ideas are outstanding. *Most people are wrong*. Programmers don't understand the Big C context (user benefits and expectations).

It's easy to think that customers will love your app, but can you justify it? Did you:

- ✓research the market?
- ✓checkout our competitors and their apps?
- ✓define a target market/audience?
- ✓test the idea with your target audience?

Success comes from failing early and often.

Most Prominent Reasons for App Failure

(https://clearbridgemobile.com/reasons-why-apps-fail/)

1. **Poorly researched market and audience.** You didn't know what the users wanted. Failure to understand the Big C Context.
2. **Lack of originality.** You gave them what they wanted, but so did 10 million other developers. Another failure of not knowing the Big C Context.
3. **Not choosing a platform wisely.** Blackberry developers don't sell a lot of apps. You didn't understand the mode of small c context.
4. **Poor user experience.** You didn't know how the application was being used and you didn't understand how the users expect to use it. You failed to understand some element of the environment, medium, and mode (i.e., small c context).

Big C Context: The Benefits

- These are the **user-motivated aspects** of the application
  - Why use the app?
  - What benefits does it provide (over other apps)?
    - E.g. Microsoft Word app v. Google Docs app
  - What are the user-perceived benefits?
  - What is the purpose of the app?
    - E.g., entertain, inform, organize, productivity, communicate, etc.
  - What is the user's perception of the app?

Remember – **YOU ARE NOT THE USER AND CAN'T THINK LIKE ONE!**

Big C Context == The User Perspectives for Use

Think of 'Big C Context' as the *elevator pitch* for your application.

- You have 20-30 seconds to pitch your app to someone (the time of a short elevator ride).
- What do you tell your target audience?

Don’t think like you. Think like them.

Adding to Context
https://www.oreilly.com/library/view/mobile-design-and/9780596806231/ch04.html

- Big C Context is how the users will derive value from something they are currently doing, or in other words, the understanding of circumstance.
- It is the mental model they will establish to form understanding.
- We can use applications to inform and improve context.
- For example, standing in front of the remnants of the Berlin Wall and reading about the history on my phone is adding Context to my experience.
- It enhances my viewing of the Berlin Wall and awareness of my surroundings in a significant way.

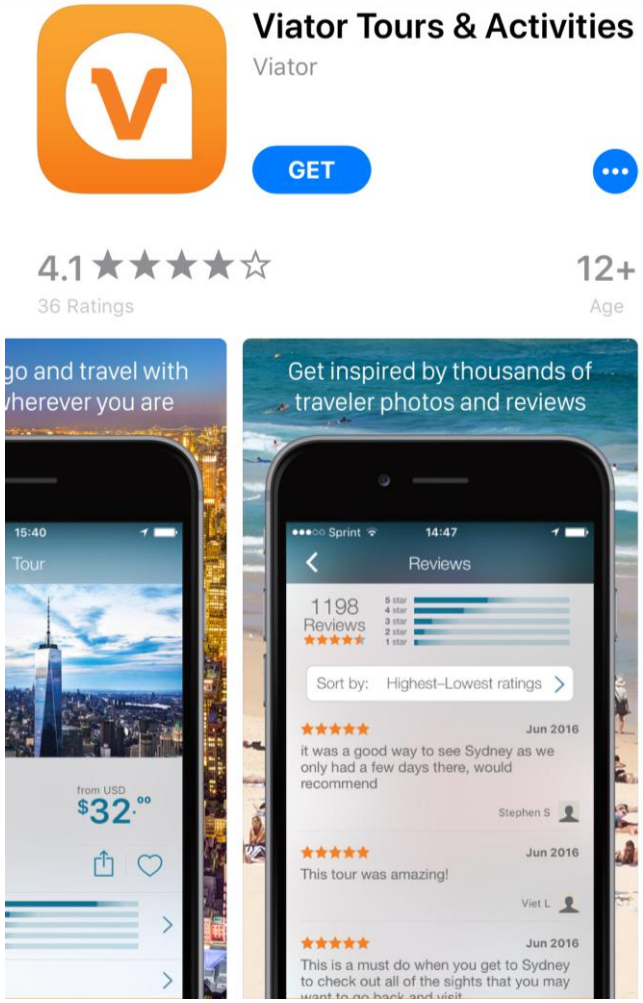
How does the App influence the

Context in which it is being used?

Big C Context: Example 1

Why use a travel guide app?

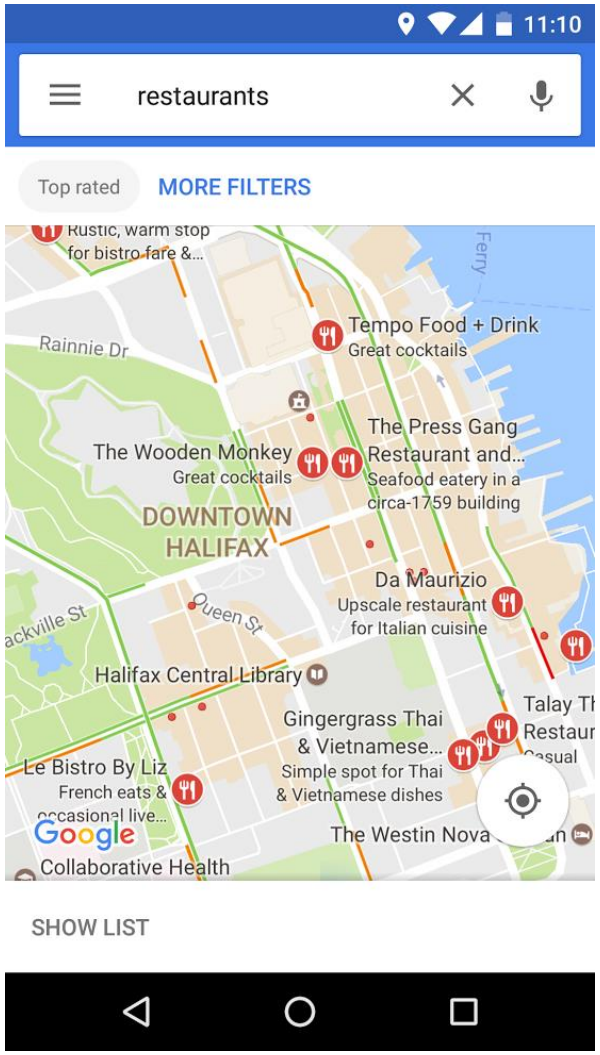
- Creates a richer and better experience for the traveler.
- Provides local information, context, history, translator, etc.
- The ***user feels more comfortable, less lost, and better prepared***.
- The app **informs** and **makes recommendations** to the user.
- The app replaces the traveler's tour guide or, could augment the services offered by a tour guide.



Big C Context: Example 2

Why use Google Maps?

- Connects the user's physical location with the virtual location on the map.
- Benefits include:
  - ***Allows the user a high-level view of where they currently are***.
  - Provides ***location specific directions*** with physically identifiable landmarks.
- The user feels they know where they are and how to get where they need to go.
- The app informs the user.
- Combines (and replaces) maps, schedules, and travel guides.



Google Maps

Perceived v. Actual Context

- Big C Context is how users actually perceive the application.
- Developers think they understand users, but typically they don’t.
- For example, users blame any/all/every delay on “network lag”
- Often, we fail to do sufficient market research and don’t fully understand our target audience.
- Often, we do (market) research and validate weak, poor, or incorrect hypothesis.
- Before we can seek answers, we need to know what questions to ask.


Don’t Ask People
What They Want,
Watch What They Do

Small c Context: The context of use

- **Environment**: Where/When is the app being used?
- **Medium**: What device(s) is the app being used on?
  What technology is needed?
- **Mode**: What is the user's state of mind? How does the user feel?

The Environmental Context

- Environment: ***the user's physical location***.
  - Where is the user located?
    - Are they in a:
      car, public transit (bus/subway), plane?
    - Are they at:
      home, work, park, theatre?
  - What is the user doing?
    - Are they:
      driving, jogging, walking?
  - The environment matters less for some apps than for others.
  - Ask yourself: *can you expect the same level of interaction ability from someone who's driving a car and someone who's a passenger on the bus?*

The Medium Context (the technology to support use)

The device and its features.

- Screen size (phone, ‘Plus’ screens, tablet, watch)
- Device features
- Graphics vs. text
- Video, audio, haptics
- Touch screen v. physical keys or buttons
- Network connectivity and modes
  - satellite, cellular, wifi, Bluetooth, NFC, GPS, USB
  - Network type – not all phones work with all providers!
  - Roaming restrictions

The Mode Context

- ***What is the user's state of mind?***
  - Are they busy, distracted, or preoccupied?
  - Are they relaxed, bored, stressed?
  - Do they have time or are rushed?
  - Are they trying to make a decision, looking for things to do, or searching?
- Consider the user's emotional state, cognitive load, and their impact on the user's current ability to use the app.
- User values may be different (e.g., they consider data to be too expensive to use).

- These factors may be related to the environment and medium contexts.

Big C Context v. Mode Context

- What is the difference between user's mental model (an element of "Big C Context") and the Mode Context?
  1. Big C: Why use the app? What benefit does one get? Is this useful to me? What is it adding to my current situation?
  2. Mode (small c): What is going through my mind when I'm using the app? Am I anxious, busy, distracted? How do I feel?

Thus, (as developers) must ask:

✓ Do we understand how this application is going to be used?

✓ What improves the experience of using the app?

✓ Are we catering and satisfying the user's needs?

✓ Does the user actually need this app?

Small c Context

- **Environment**: Where is the app being used?
  - Subways can be crowded, non-private, loud.
- **Medium**: What technological factors impact the use of the app?
  - Connectivity may not exist underground, no recharging possible.
- **Mode**: What is the user's state of mind?
  - Easily distracted, not there for a long time, may feel vulnerable.

Observations on Small c Context

- Users don’t tend to care about small ***c*** context; it is more of a developer concern.
- Most small C issues are “behind the scenes” considerations.
- For the most part, developing an app requires considerable understanding of social behavior and psychology.
- The user doesn’t care how you ensure that they like the app, they just care that they like it (and want to use it).

Aside:

- The end does not justify the means – ethics and professionalism are never optional. Don’t resort to tricks and deception to get an app adopted.

Fundamental Questions to Ask

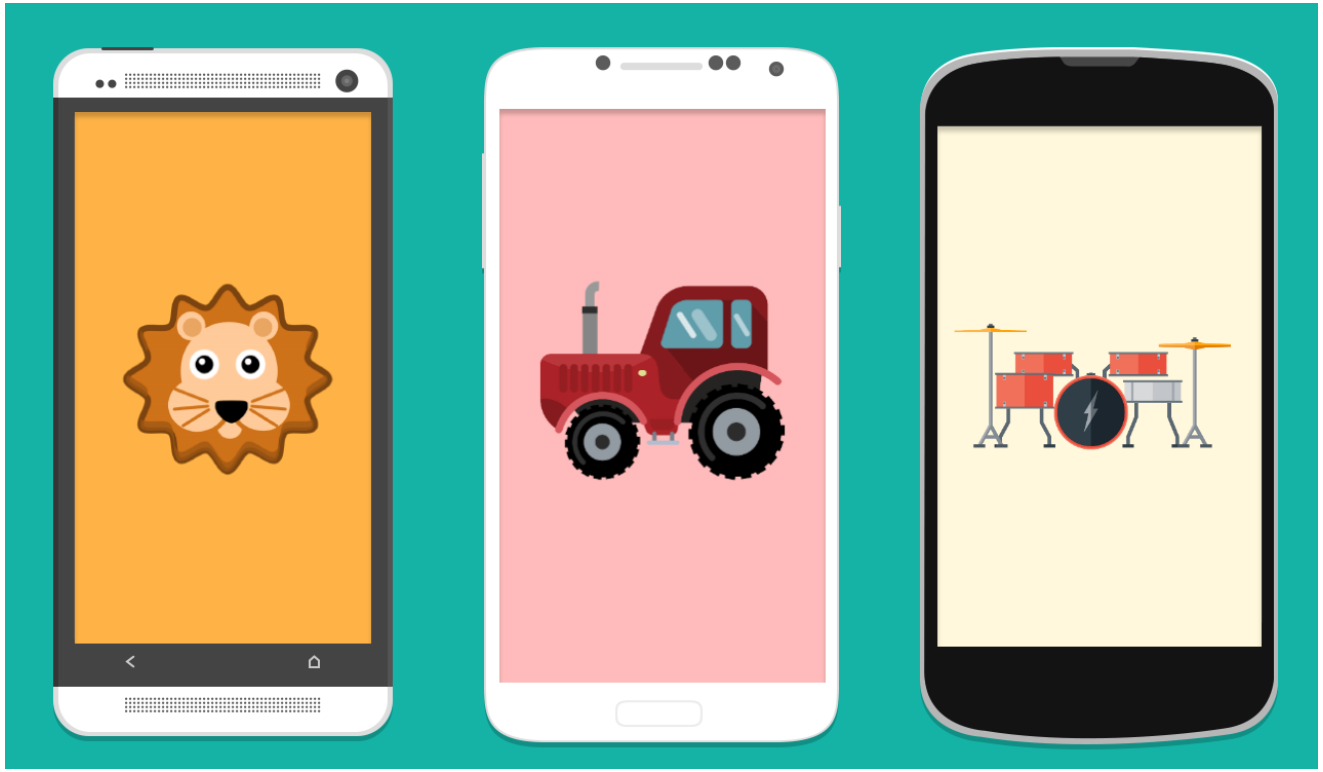
- **Who** are the users?
- **What** is happening?
- **When** will they interact?
- **Where** are they?
- **Why** will they use your app?
- **How** are they using their mobile device?

Context

- You are creating a GPS application for cyclists.
- Why must it be different from a GPS for motorists?
- What is the Environment, Medium, and Mode?
- Does this even make sense? Would a cyclist use a GPS? How would they use it?

What contextual factors are important here?

With *Sounds for Toddlers* your child can learn the sounds of various things like animals, vehicles (car, ship, plane), musical instruments and tools. Intuitive gesture control make for simple handling; so there's more time for the fun and learning. *Sounds for Toddlers* is an educational game for children 2 and older.



The Unknown

- Contextual problems are almost always caused by what we don’t know. We can deal with the known, but we can’t address what we don’t even know exists.

Big “C” Context v. small “c” context

Big “C” Context is relevant to …

- Users

Small “c” context is relevant to ...

- Developers

Good design …

- is **User-centric**. C*onsider user perspectives, aspects that are relevant to the user, and develop an “experience” for users.*

Context is WHY you need a target audience!

Summary

Context is very important for the application to be useful to the user.

Know who your users are. You need to identify the **target audience** and market before you can satisfy them.

Consider user perspectives when designing the application, or even better, get users involved in the design process to get early feedback.

"Fail early; fail often."

Ensure you design for the target audience, not just a single person or focus group.

Differentiate big 'C' vs. small 'c' context.

Understand the impact of environment, mode, and medium.


THE END