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Device Impact on User Mobile Infotainment Access

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Mobile Device Use in Real Life - Motivation

❖ Advances in communication technology e.g. WiFi, 3G

❖ 75% of adults in the UK own a mobile phone

❖ £600M worth multimedia downloads in 2005

❖ 58,5 million PDA\Smartphone sales projected by 2008

❖ Ofcom: Mobile data communication in its infancy

❖ O_2 – NTL: Mobile TV evaluations in Oxford area

❖ Shorts TV: First ever TV channel for mobile phones

User Experiences of Information Access
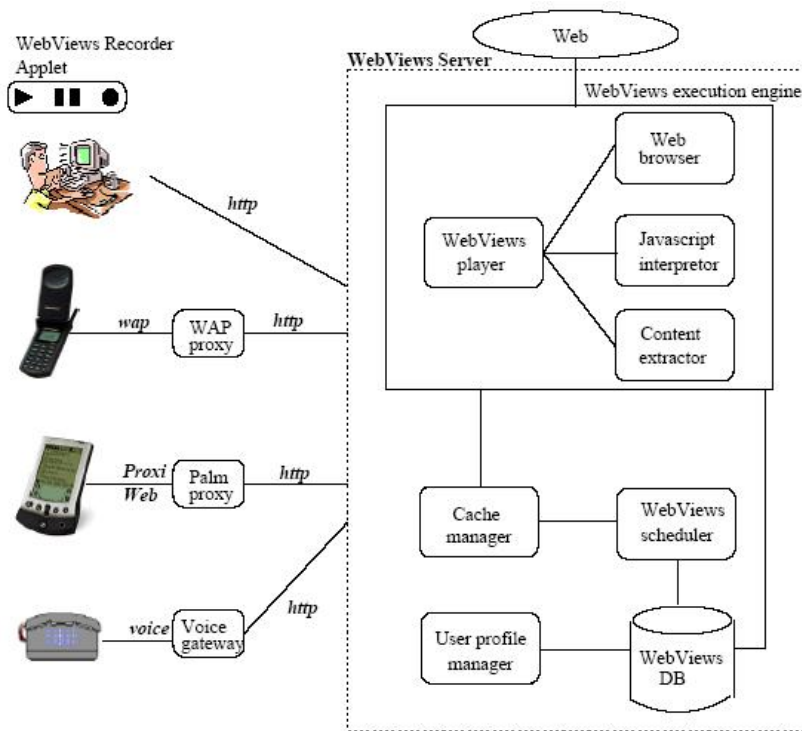
WebViews: System Architecture

❖ **Anderson et al.:**

Experiences with TabletPCs in classroom environments.

❖ **Freire et al. :**

Transcoding of web content for mobile devices

❖ **Jones et al. :**

Compared screen size impact on user experience

❖ **Buranatrived and Vickers:**

Application and Device effects on user experience

❖ **Gulliver et al.:**

Device effect on user perception of multimedia quality

Experimental Devices Selection

In the selection of each device its mobility and intrusiveness was considered

Device	Laptop	Eye Trek (Head-Mounted Display)	Personal Digital Assistant
Mobility	Limited, due to its large and heavy casing	Provides mobility, yet gives restricted vision and requires supporting equipment.	Causes no mobility restriction. Can be used on the go
Intrusiveness	Limited intrusiveness due to its screen, users have to position themselves to get the best angle	Slightly restricts the body movements due to the size of the equipment (Battery, control pack, glasses and processor)	No intrusiveness, due to the ergonomic design, size and weight of the latest personal digital assistants

Experimental Devices

Laptop

PDA

HMD

- ❖ Little mobility: Hewlett Packard Laptop with an 54Mbps Wireless Card

- ❖ Limited mobility: Olympus Eye-Trek FMD 200 Head Mounted Display

- ❖ High mobility: HP iPAQ 5450 PDA with integrated WiFi adapter

Experimental Set-up

On–the–street scenario

Coffee shop scenario

❖ Two scenario locations where identified for our experiments:

    ❖ On-the-street

    ❖ Coffee Shop

❖ Above locations were selected to evaluate environmental distractions:

    ❖ Bypassing shoppers

    ❖ Sun light level and reflections on the screen

    ❖ Noises of the people, cars and the underground trains

    ❖ Self-consciousness caused with the use of various information access devices in public

Experimental Set-up (cont.)

Information Oriented Tasks

T1: Connect to the Internet using the device provided.
T2: Go to   website and search for shopping centres in the area.
T3: Open a shopping centre's web page and find its interior map and identify the sports shops within.
T4: Find the cheapest price for   from the local shops.
T5: Search on the Internet and compare the online prices with the prices in hand.
T6: Send the cheapest price available to a friend via email

Entertainment Oriented Tasks

T1: Logon to   web site.
T2: Tap on the appropriate button on the website and start listening to the stream.
T3: Listen to the online radio.
T4: Note down the singer and the title of the song that is currently playing.
T5: Use the details to search for the album cover on a music market web site
T6: After finding the album cover, download the image file to the mobile device for future use in the music store.

Experimental Process

❖ Two main group of tasks: Information-oriented and Entertainment-oriented

❖ Information-oriented tasks

    ❖ *Involves online search, map reading, price comparison and on-the-move messaging*

❖ Entertainment-oriented tasks

    ❖ *Involves mobile-friendly website browsing, on-the-move radio streaming and web search*

Information	Entertainment
Q1: It is easy to logon to the Internet.	**Q1:**It is easy to navigate through the website.
Q2: It easy to navigate through search results on the device.	**Q2:**It is easy to listen to online radio.
Q3: It is easy to find sports shops in the malls near to you.	**Q3:**It is easy to identify the track that is playing.
Q4: It is easy to read maps on my device.	**Q4:**It is easy to interact with the device.
Q5: It easy to find online prices of the product and make a comparison.	**Q5:**It is easy to do searches on the Web.
Q6: It is easy to send e-mails.	**Q6:**It is easy to access information and save it on my device.
Q7:I am comfortable using the device in a public place	**Q7:**I am comfortable using the device in a public place

Evaluation

❖ Made of 2 phases: Pilot Study, Main Evaluation

❖ Pilot Study: 3 Participants per device

❖ Main Evaluation: 36 Participants (11 female and 25 male)

❖ Participant age range: 18-32

❖ Each participant provided with 1-page task description and 2-page feedback questionnaire

❖ Evaluation took place at High Street and the Chimes shopping mall in Uxbridge, Middlesex

Results – Device Type

Information-related Tasks

Entertanment-related tasks
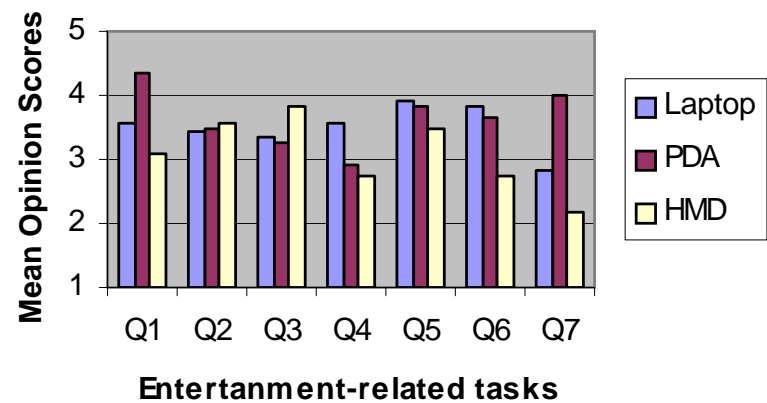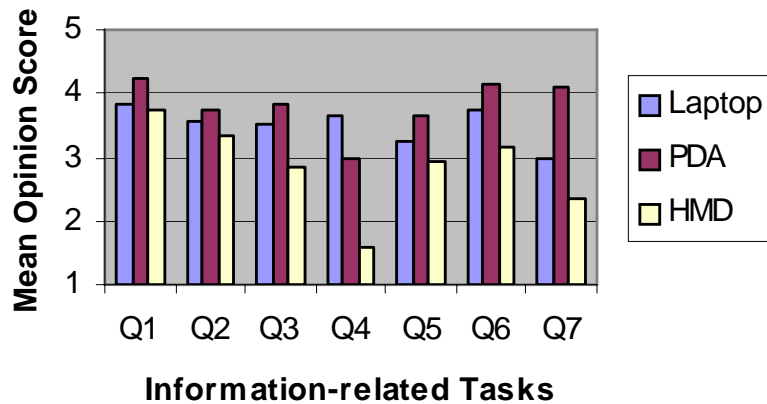
❖ Information Related Tasks

  ❖ Device type does not have significant impact

  ❖ HMD, however, scored the lowest of all three devices

  ❖ The tasks the most effected with the use of HMD device type was reading maps

  ❖ HMD was also the device that caused most self-consciousness

❖ Entertainment Related Tasks

  ❖ Device type significant factor for while browsing mobile-friendly website

  ❖ HMD was again the device that caused unease in public

Results – Location

Information-related

Entertainment-related Tasks
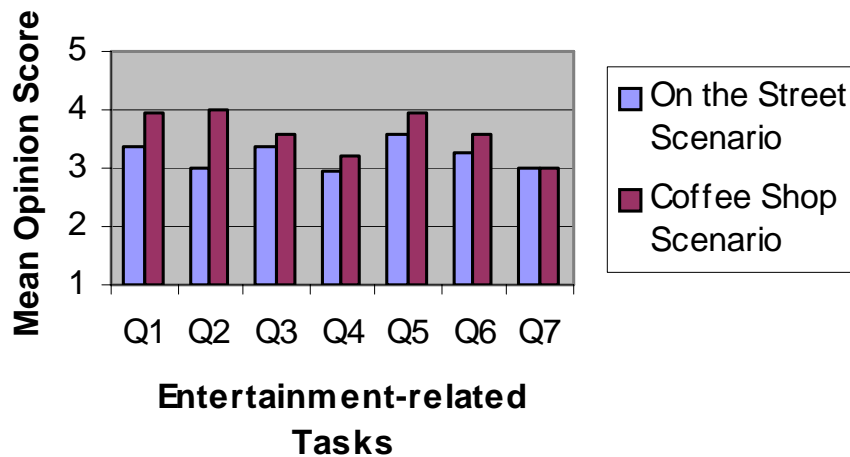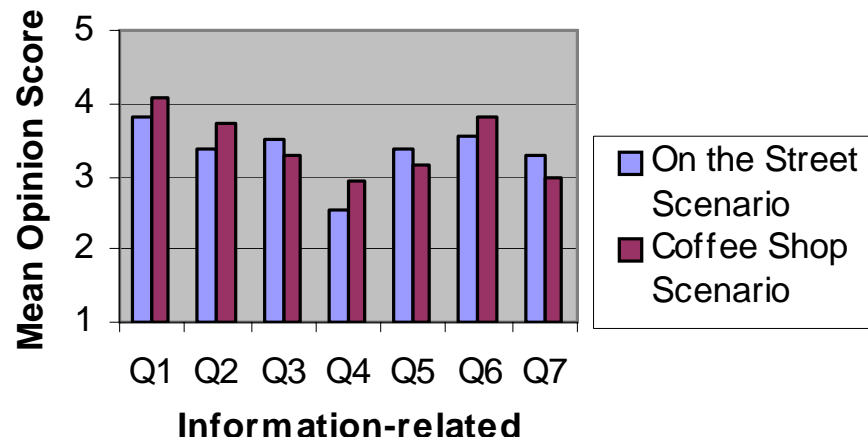
❖ **Information Related Tasks**

    ❖ Location does not have significant impact

    ❖ Contrary to our expectation, web content assimilation is not affected by location

❖ **Entertainment Related Tasks**

    ❖ Location has significant impact

    ❖ Navigation is found to be harder

    ❖ Easy of listening to online content is also affected by location

Conclusions and Future Work

❖ Device type do not have a significant impact on user information experience

❖ Findings also highlight that users engaging in accessing content for information purposes are more tolerant to environmental factors and distraction   However, wearable devices cause self-consciousness

❖ However, wearable devices cause self-consciousness

❖ Future work… Combine & Tailor

Thank You

Questions?