

# Towards a Framework To Support Interactions with Personal Health Informatics through Intermediaries

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# Introduction



- Why personal informatics (PI)?
  - Support for a change in lifestyle.
  - Relieve a burden in healthcare systems.
  - Prevention of sickness that could affect productivity.
  - save tax payers' money.

# Introduction – 2

- A change lifestyle is not easy.
- PI could support cognitive behaviour therapy(CBT).
- PI in human-computer interaction (HCI).
- Existing user interface models don't cater for people who need to use technology through intermediaries.
- Frequent interactions with a PI are crucial for a positive change in behaviour.
  - Usage through intermediaries might discourage that.

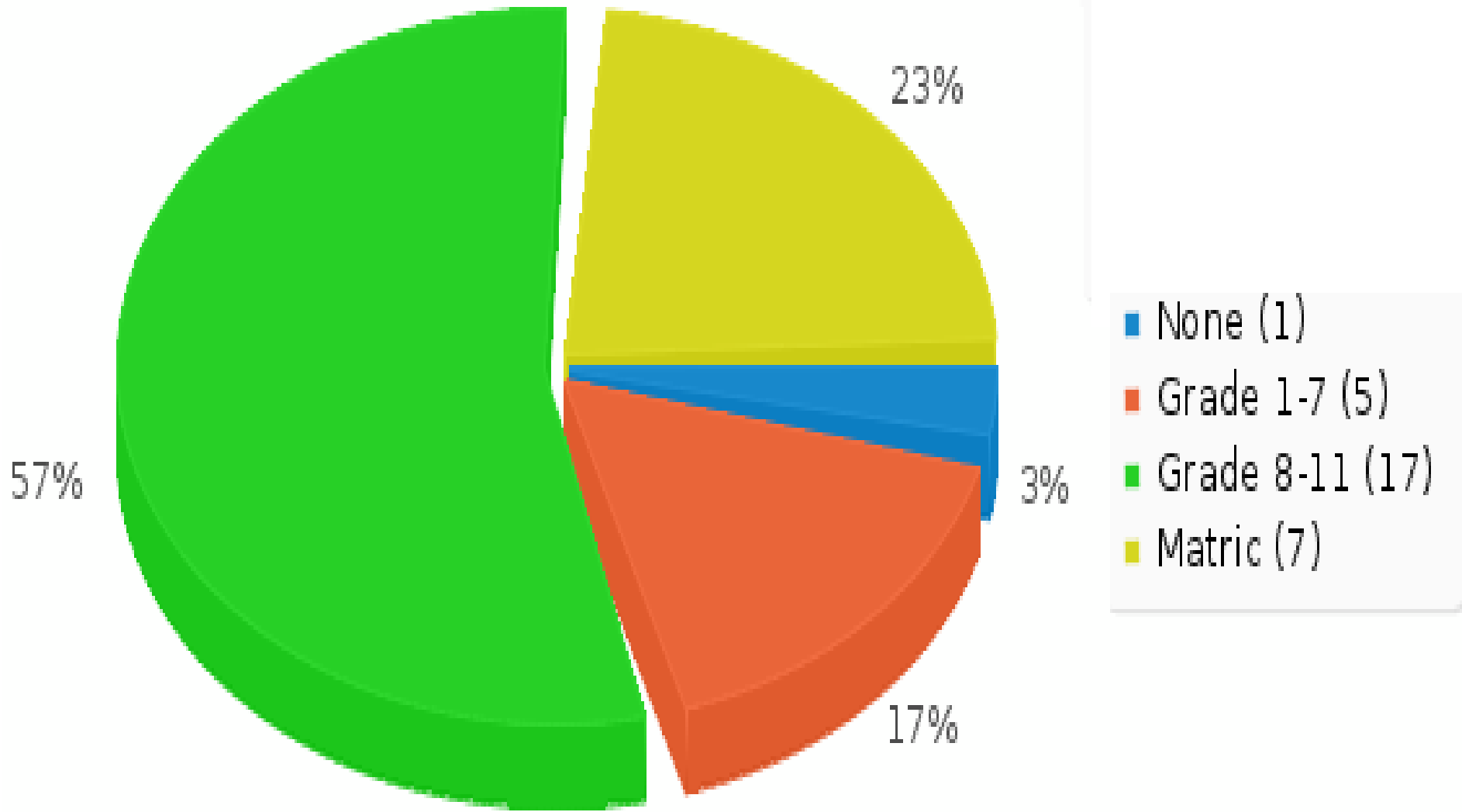
# Interviews

- Sample :30 participants.
- Objectives:
  - Types of phones, features that are mostly used.
  - Usage of cellphone features through intermediaries.
  - Usage of health apps.
  - Hypothesis construction.
  - Design decision.

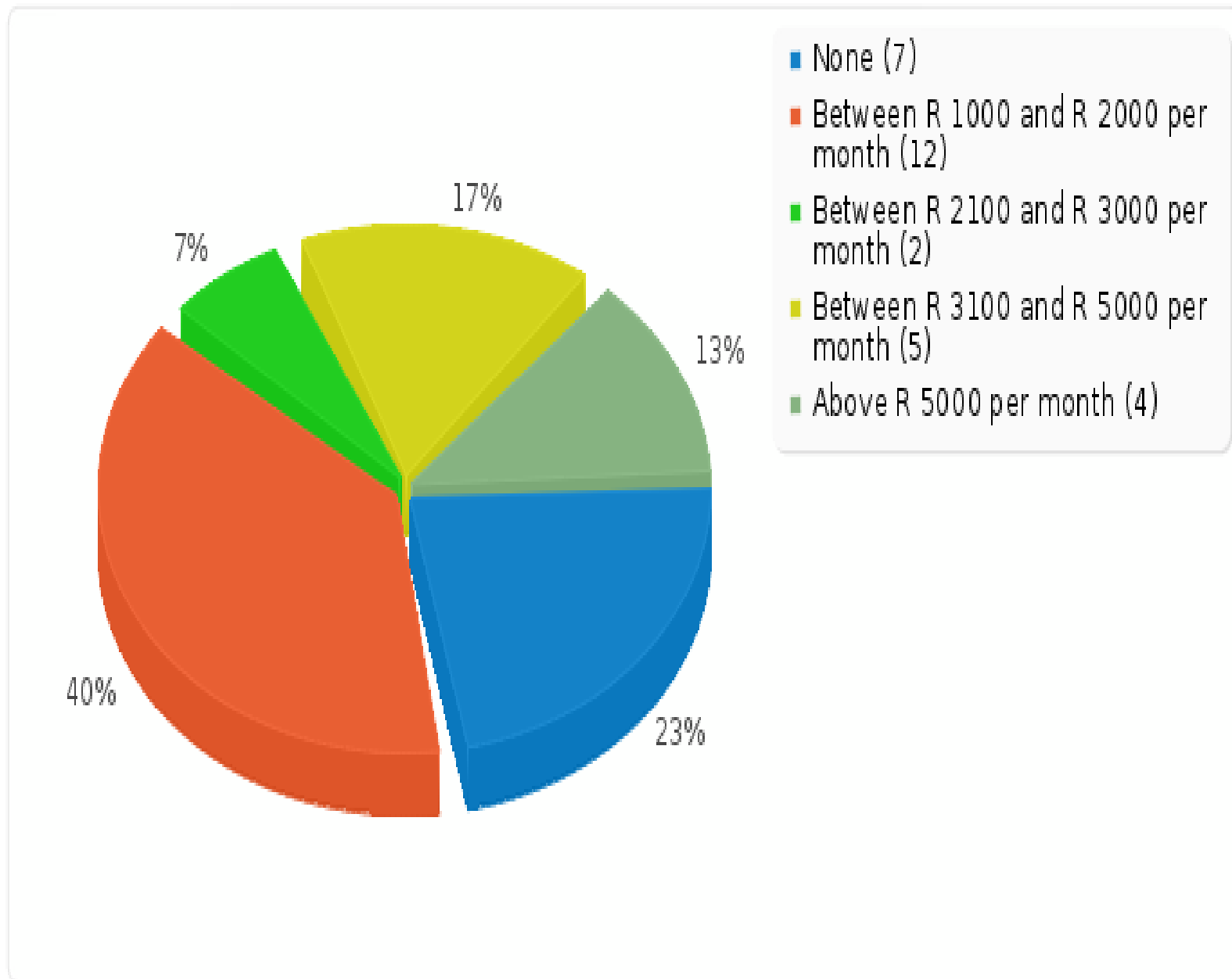
# Demographics

- More than 25 were above 40 years of age.
- Mean Age: 53 (SD 11) years.
- Some of them had low level of literacy.
- ZAR 0 < Income < ZAR 7000.

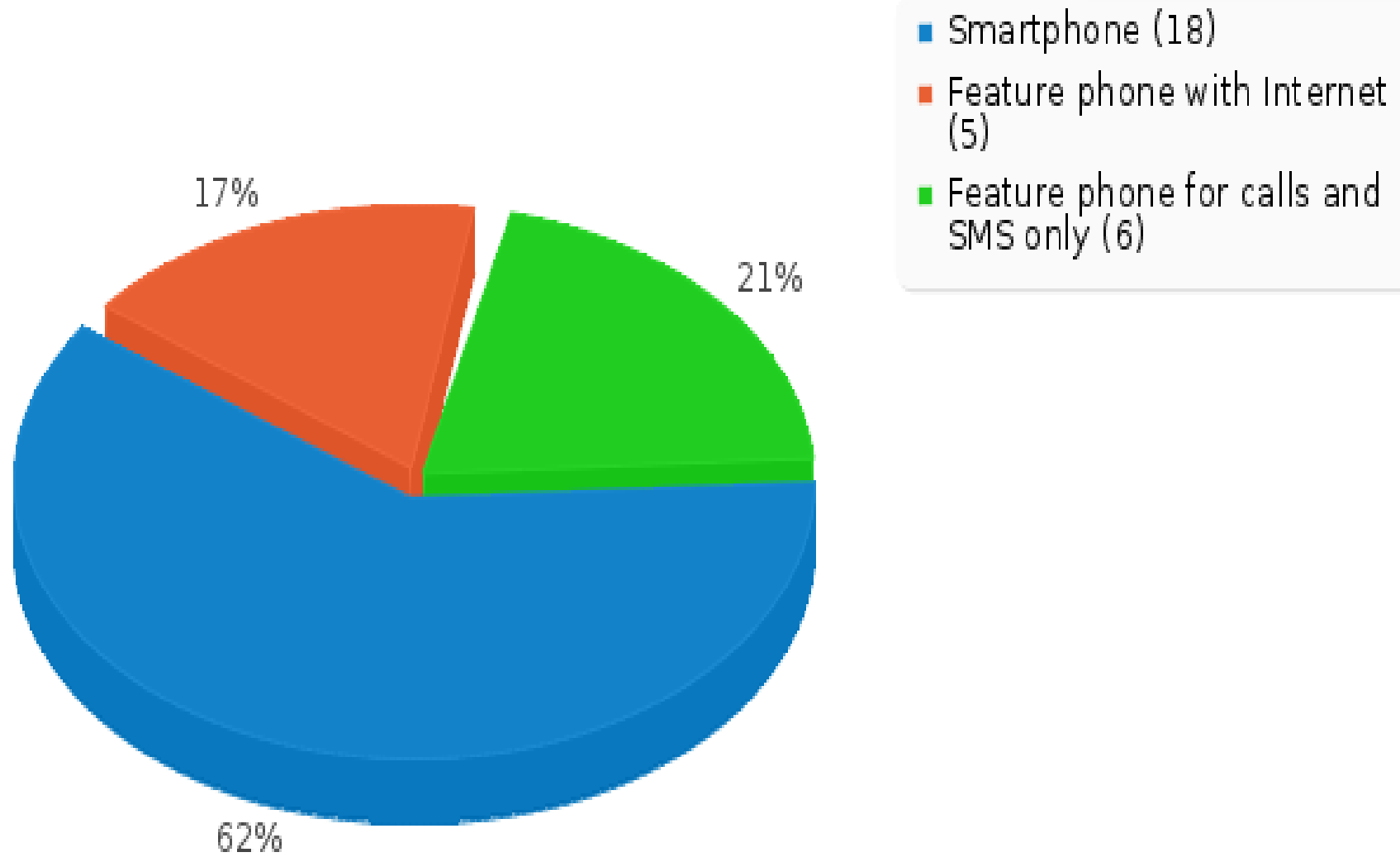
# Education level



# Income level

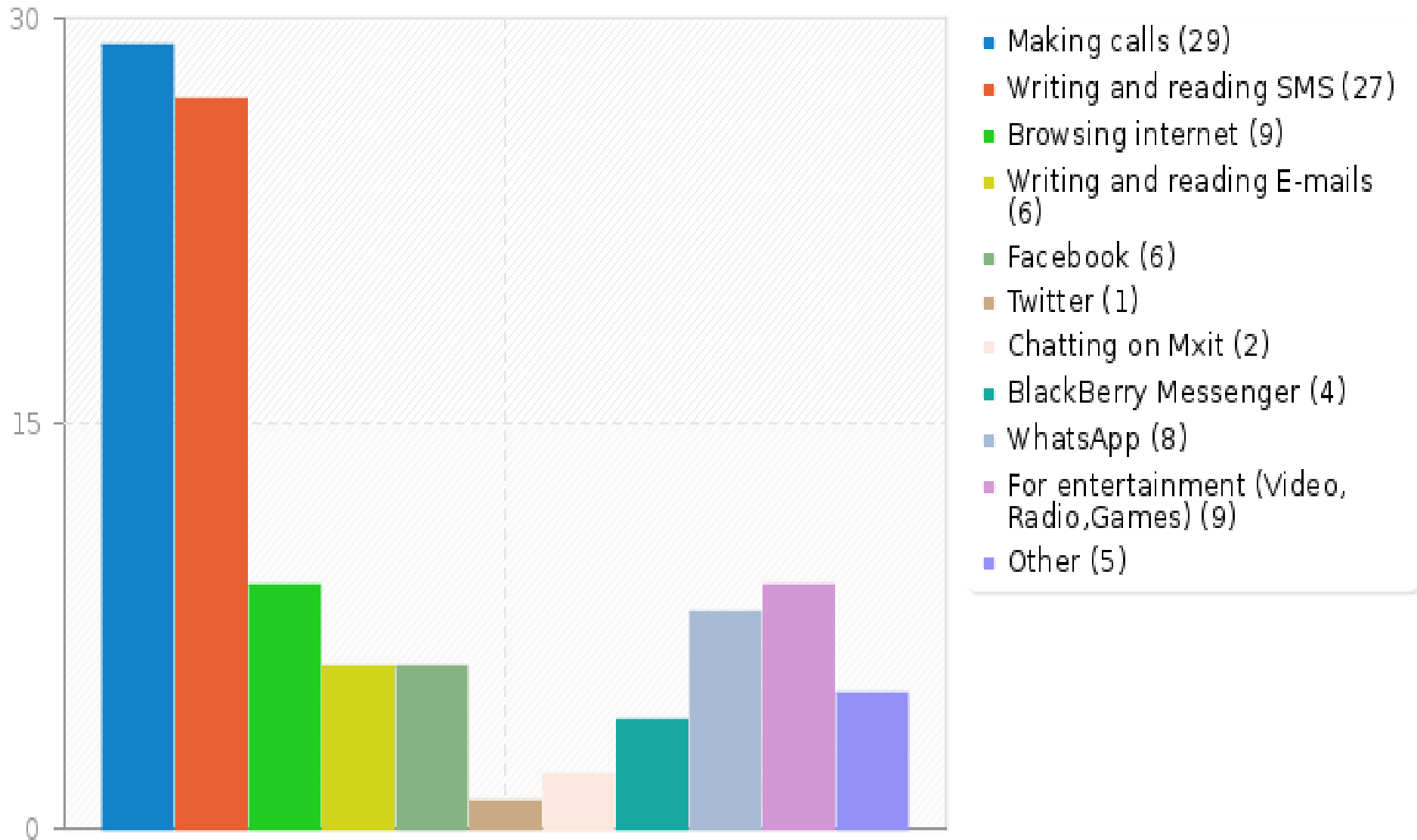


# Findings





# Findings – 2



# Summary of findings

- Usage: SMS and calls >90%.
- Low utilization of smartphones.
- Only one individual used Facebook to share health tips and cooking recipes with friends.
- No utilization of wellness apps.
- Usage through intermediaries was reported in between five to ten individuals i.e. on SMS.

# Summary of findings – 2

- One individual was being helped by her son to search for health information on the Internet through a mobile device.
- Another individual only requested her son to search for certain health information using a computer.

# Discussion and Conclusion

- Personal Informatics could be less appealing to this group.
- There are skilled users within communities and they could potentially become intermediaries.
- Intermediation → ***Trust, Social Rapport, Motivation, Availability of Intermediaries.***
- Preference to intermediaries is given to family members and close friends.

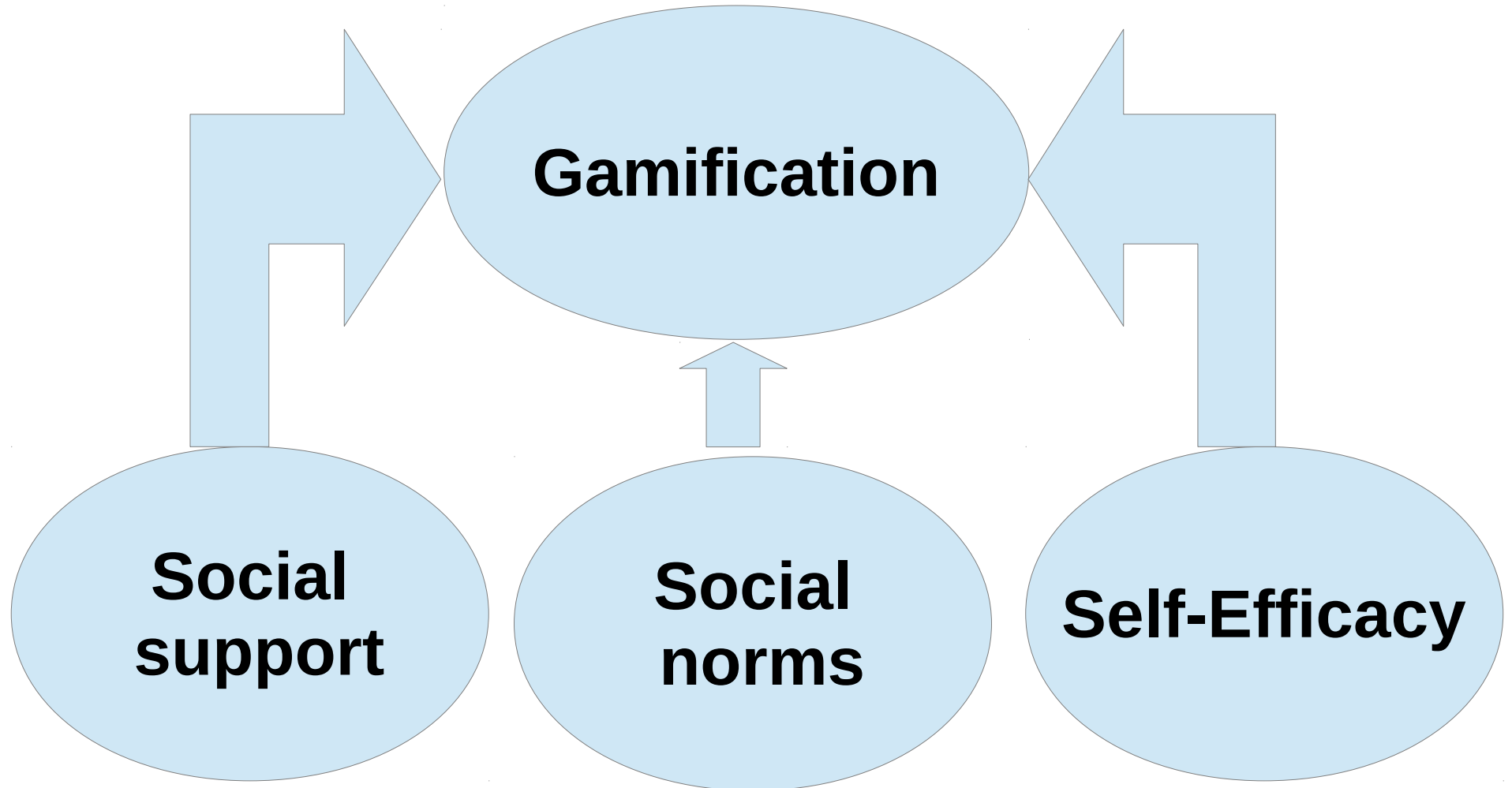
# Main Research Question

- ***Can we encourage intermediated interactions with a personal informatics?***
- A system is going to be built based on a gamification framework.

# Sub-Questions

- ***Can gamification increase usage and motivation to use of intermediaries?***
- ***How will beneficiaries perceive the usefulness of our system?.***
- ***How would trust issues affect our system?***

# Theoretical Framework



- **Self-efficacy** → A measure of belief on one's own ability to accomplish tasks and reach goals.
- **Self norms** → A group's belief of how everyone in the group is expected to behave.
- **Social support** → A perception of being cared by others through a supportive social network.



# Research Design

- **Experimental Research:**

- Methods: Use of experiments. Two experimental conditions. Capture usage through system logs.

- Experimental design: Within-group design.

- Sample size: 15 intermediaries (students).

- Duration: 3 weeks on each experimental condition.

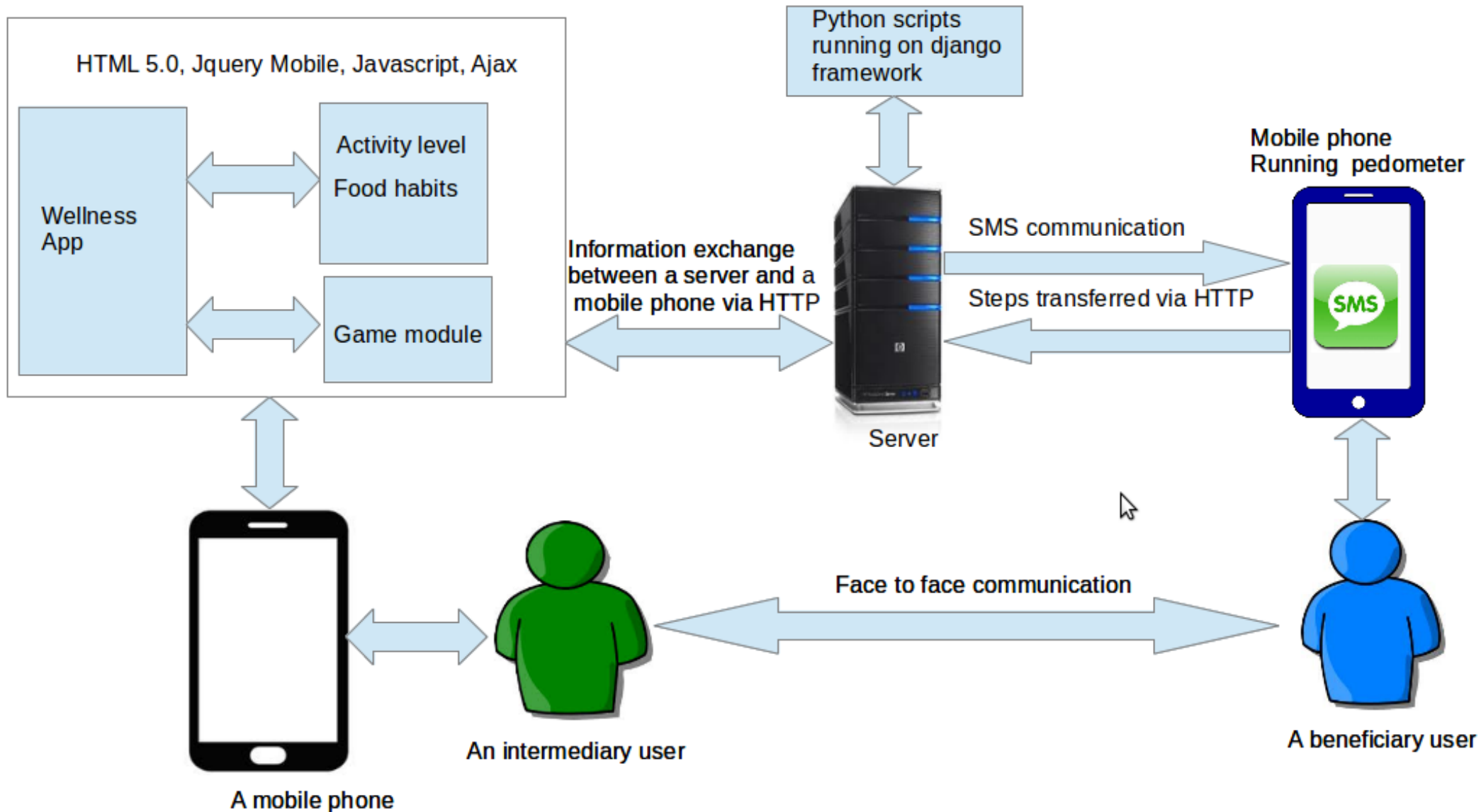
- Data analysis: statistical tests using student t-test.

# Research Design – 2

- **Survey research:**

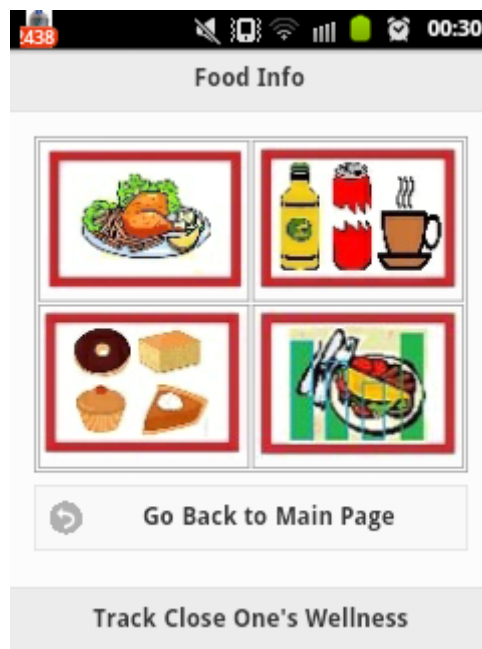
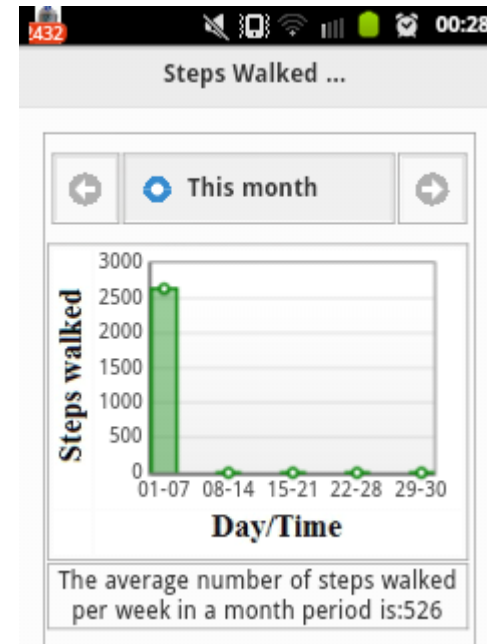
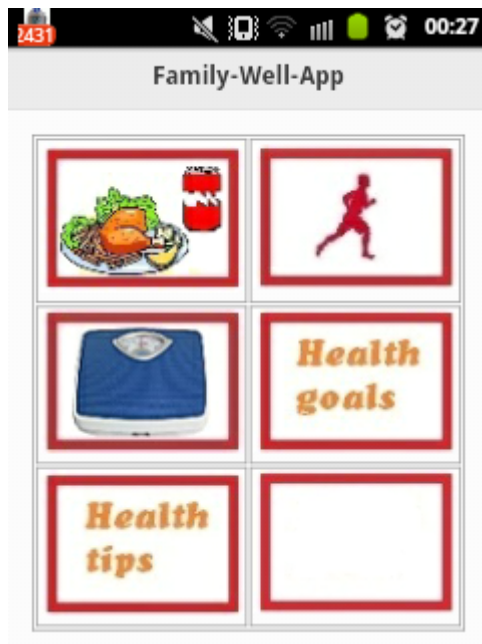
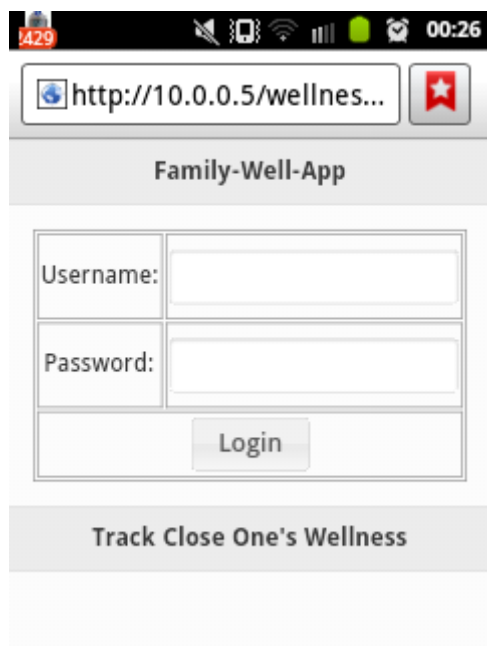
- Methods: A motivation to use questionnaire, user's satisfaction questionnaire for beneficiaries.
- Sample size: 15 intermediaries, 15 beneficiaries.
- Duration: at the end.
- Data analysis: Statistical tests using student t-test, regression analysis.

# Information flow



# An algorithm for Awarding Points

- For each user click award points.
- For each goal achieved award bonus points.
  - ***Compute the points to be awarded.***
    - The higher the goal the higher the points.
  - ***Compute the average points to be awarded to the all group.***
  - ***Normalize individual points based on on the ratio between average and points scored in 1.***



Food Group	Portion Size
Fruits and Vegetables	None
Starch: Rice, bread, pap, pasta, potatoes, etc.	None
Protein Food i.e. meat, fish, beans, etc	None
Food in high sugar or fat	None
Dairy food	None
Date eaten:	<input type="text"/>

End