

A Day in the Life

How People Use Consumer Electronic Devices in their Home

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Research Objectives

A novel ethnographic approach was used to gain a greater understanding of people's everyday activities and technology use in their homes

Research Questions:

- What activities do people do in their homes? How often?
- Which rooms? With whom? When during the day? With what devices?



Why this new
ethnographic
approach?

There are problems with simply *asking* people to report their behaviors

- People are unaware of many of their behaviors
- People forget what they have done and when trying to remember, end up re-constructing their memory of behaviors to make sense
- People fail to log their behaviors thoroughly because it takes extra effort
- The act of reporting behaviors makes people aware of them and can end up changing the behaviors going forward

Method

To overcome behavior reporting problems, a novel 3-phase data collection process was used

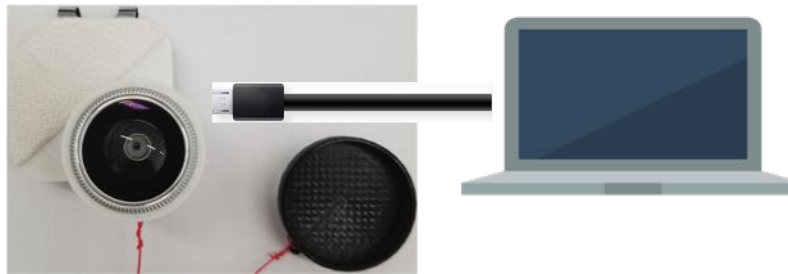
1

Participants wore a small life-logging camera with a fisheye lens attachment (180°) while, doing their normal activities. The camera took a photo every 15 seconds.



2

After wearing the camera, participants connected it to a laptop to automatically re-charge the camera battery and copy photos onto the laptop. The participants were able to review the photos and delete those deemed uncomfortable for sharing with Samsung prior to the researcher visit.



The participant turned the camera on and off by taking the lens cap off and putting it on




3

During the researcher's visits, the participant and researcher looked at each photo. The researcher noted participant's comments and

1. Activity(s)
2. Rooms
3. Presence of others
4. Devices being used



Method Each person participated in 7 sessions (one session per day)

Visit 1		Visit 2		Visit 3		Visit 4
1-hour In-home visit Introduction to study Journey Map Training	Photo logging day 1 Participant wore camera at home (researcher not present)	2-hour in-home visit to review and annotate photos from day 1	Photo logging day 2 Participant wore camera at home (researcher not present)	2-hour in-home visit to review and annotate photos from day 2	Photo logging day 3 Participant wore camera at home (researcher not present)	2-hour in-home visit to review and annotate photos from day 3 Wrap up study Compensation

Our 10 Households



Participant Profiles

1

typically works from home using her laptop and smartphone. Her dog keeps her company throughout the day.

2

works at a start-up. While away, she monitors her puppy using an indoor Nest camera and plays music on her Alexa Smart Speaker to keep him company.

3

reads the news every morning using his iPad. To unwind in the evenings, he watches movies or plays video games.

4

is a video game enthusiast who works in the Gaming industry and uses his tablet to play video games while he watches TV.

5

starts off her day by ordering Starbucks using her smartphone app. Her family enjoys quality time catching sports games or watching a movie on TV in the evening.

6

works full time and enjoys health challenges where she posts photos to Facebook using her mobile app. Her family enjoys quality time through watching movies together.

7

enjoys staying connected on social media using her smartphone. When she's not cooking, she enjoys doing art projects or watching a classic Disney movie with her kids.

8

competes with his wife in Fantasy Football, which he keeps track of using his tablet. He often multitasks by playing gambling apps on his tablet while watching TV.


9

commutes by motorcycle to work. He often multitasks between browsing online using his laptop and watching TV. He particularly likes keeping up-to-date on Reddit.

10

often multitasks between playing Poker on his smartphone while initiating "Counter Strike" to load on his computer monitor and listening to background TV.

Participant Summary Slide

Participant	Gender	Age	Household Composition	Type of Home					
1	F	50	Spouse, teen, dog	Detached single family home	2	2	2		
2	F	28	Parents, dog	Detached single family home	2	1	2		
3	M	34	Parents, cat	Detached single family home	2	1	1	1	1
4	M	39	Spouse	Detached single family home	2	1	1	1	
5	F	42	Spouse, teen, 2 dogs	Detached single family home	2	1			1
6	F	40	Spouse, teen, child, cat	Apartment	4	1	1	1	
7	F	32	Spouse, child, infant	Attached Townhome	2	1		1	1
8	M	45	Spouse	Detached single family home	2	1	1	1	
9	M	40	Spouse, 2 children, infant	Detached single family home	2	1	2		
10	M	30	2 roommates, dog	Detached single family home	1	1	1		1

Findings



20,587 annotated photos were collected

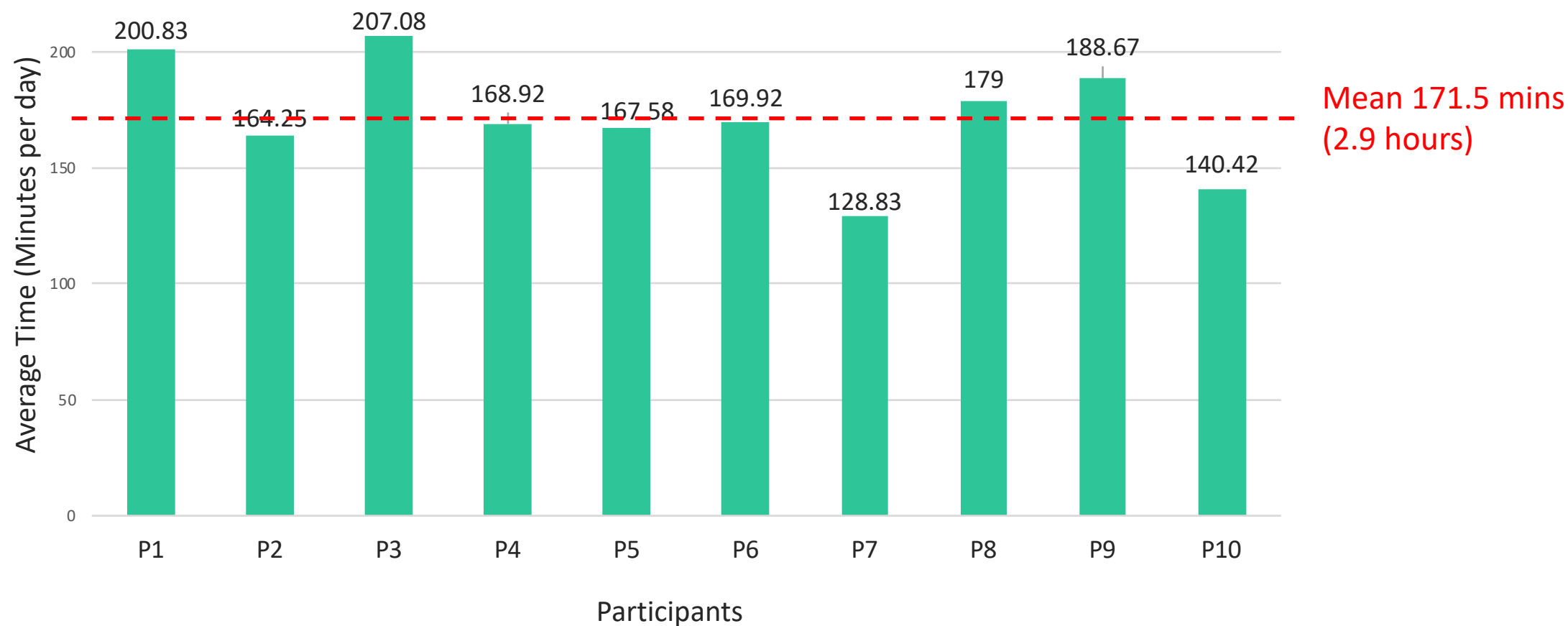
Representing *5,146.5 minutes (85.8 hours)*



171.5 minutes (2.9 hours) per participant per day

*Participants were requested to do **at least** 3 hour of photo logging per day -
- at least one hour in the morning and at least two hours in the evening.*

Each of the 10 participants contributed a roughly similar amount of photo logging data



Day in the Life What activities do people do?

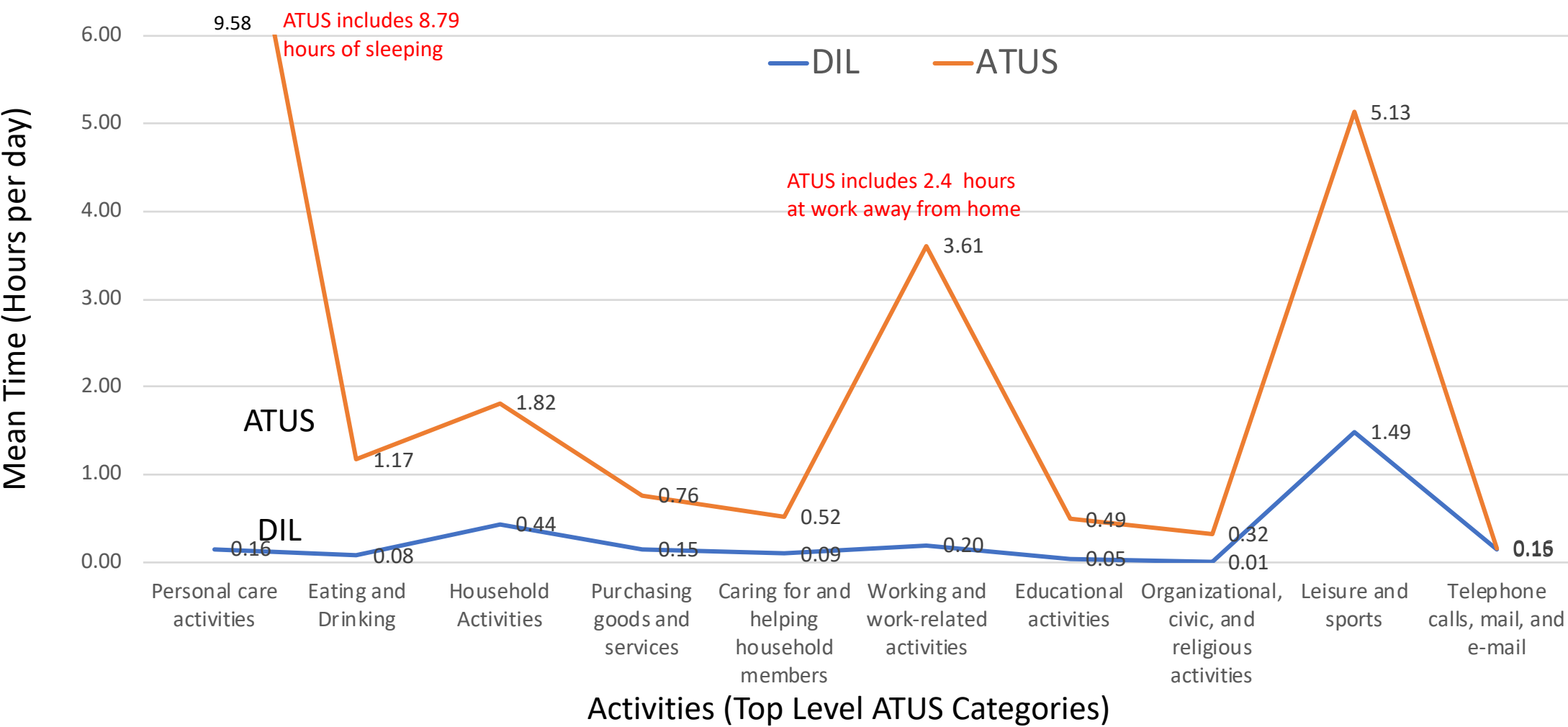
Is our 171.5 minutes per day a representative sample of the activities people do at home? Is it similar to the rest of the time people spend at home?



The American Time Use Survey (ATUS) is a national survey (25,000 respondents per year) conducted by the US Department of Labor, to understand how people in the US spend their time. ATUS breaks down a 24 hour day into a hierarchy of activities and calculates the amount of time people estimate that they spend doing each activity. According to ATUS, people spend on average 9.8 waking hours at home per day.

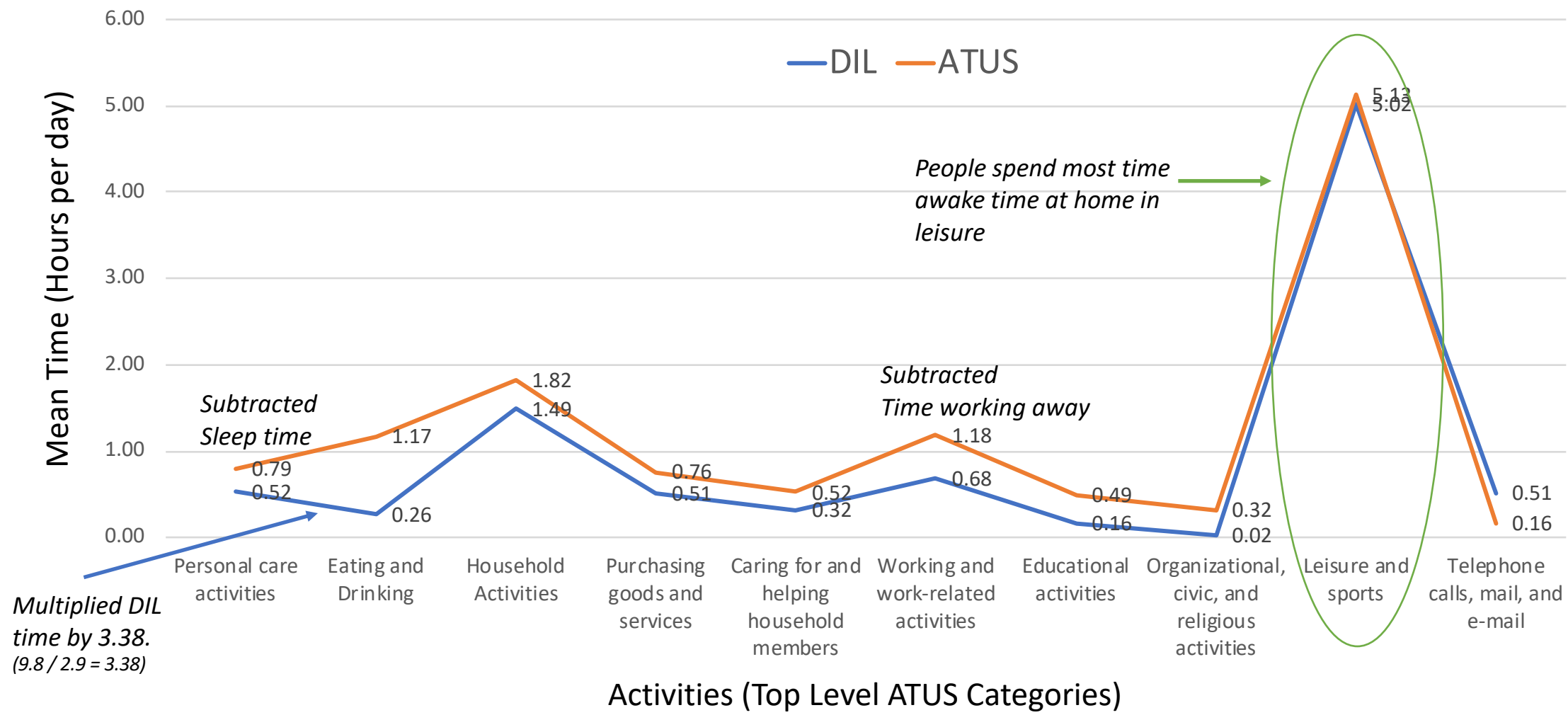
How well does our Day in the life (DIL) activities correspond to ATUS activities?

Comparing a Day-in-the-life day (2.9 hours) to an ATUS day (24 hours)

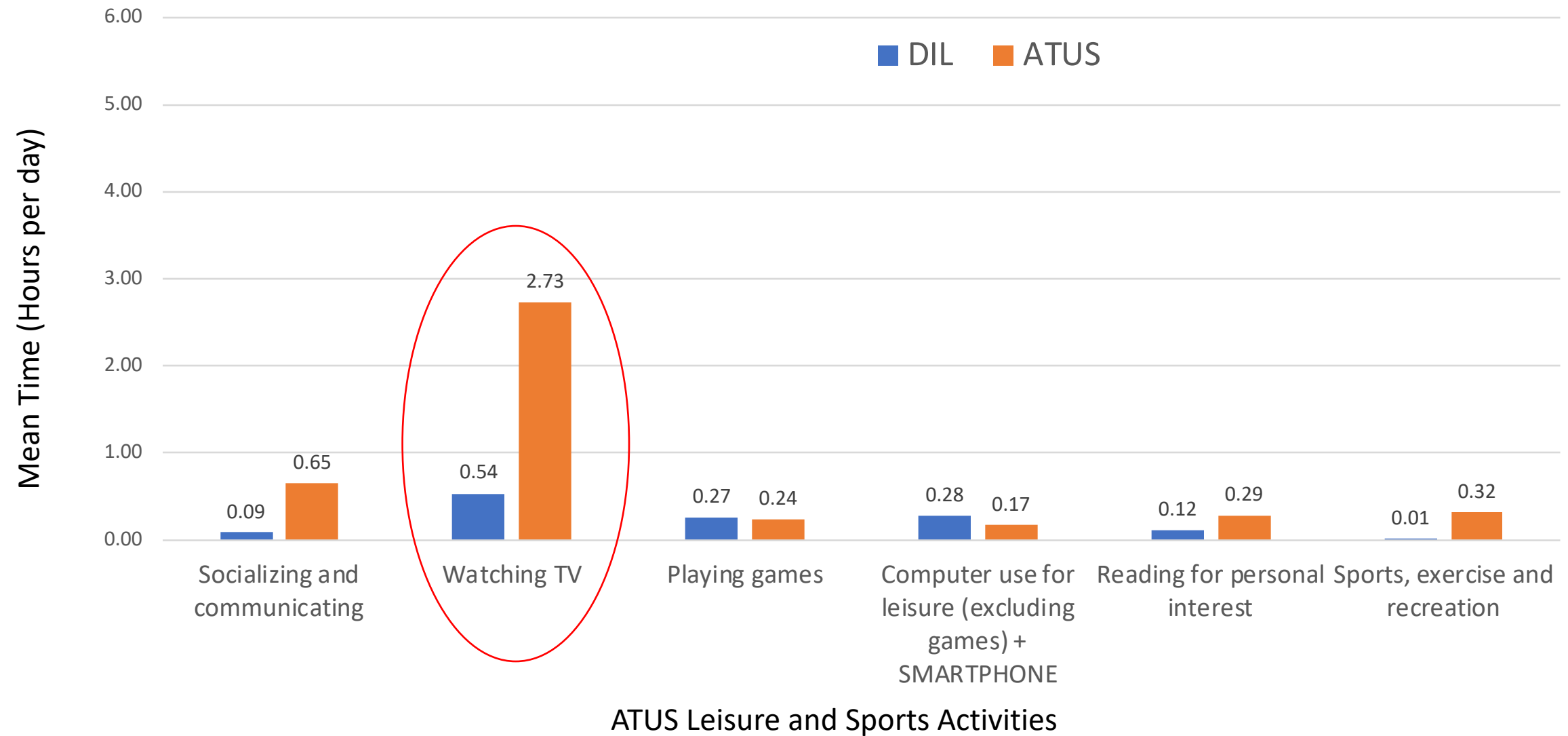


All human activity is partitioned into 11 top-level categories. ATUS category (0.21 hours) "Caring for and helping non-household members" was omitted for lack of Day-in-the-life data"

After subtracting out sleep time and time working away from home, and multiplying the DIL time by 3.38, the *pattern* of time spent in various activities for DIL is representative of ATUS



In both DIL and ATUS, TV-watching is the most common activity in the Leisure and Sports category



How often do people engage in multiple activities at the same time (multitask) at home?

ATUS

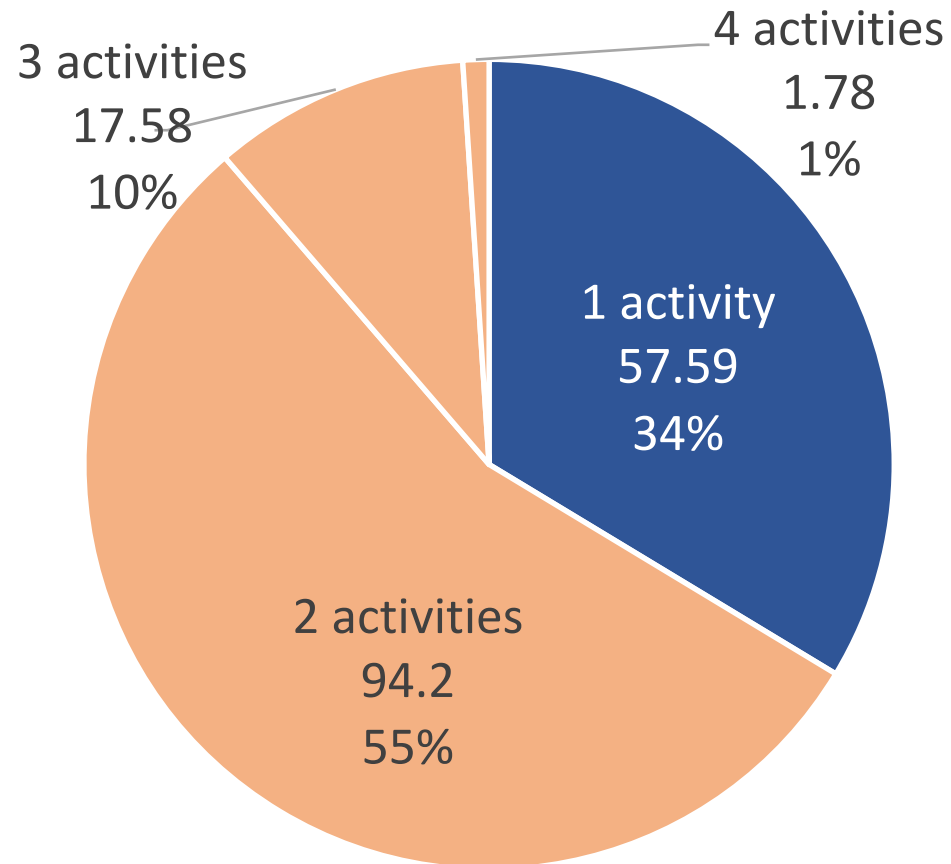
The American Time Use Survey (ATUS) does not report multitasking. Instead, if respondents mention doing more than one activity at the same time, they are asked to partition the time into separate estimates for each activity (as a “primary” activity)

DIL

In the DIL study, multitasking is analyzed separately. During the retrospective interviews, anytime a participant reported doing more than one activity at a time, they were asked to specify which activity was “primary” and which was “secondary”, etc. Thus, time was collected separately for primary, secondary and even tertiary activities.

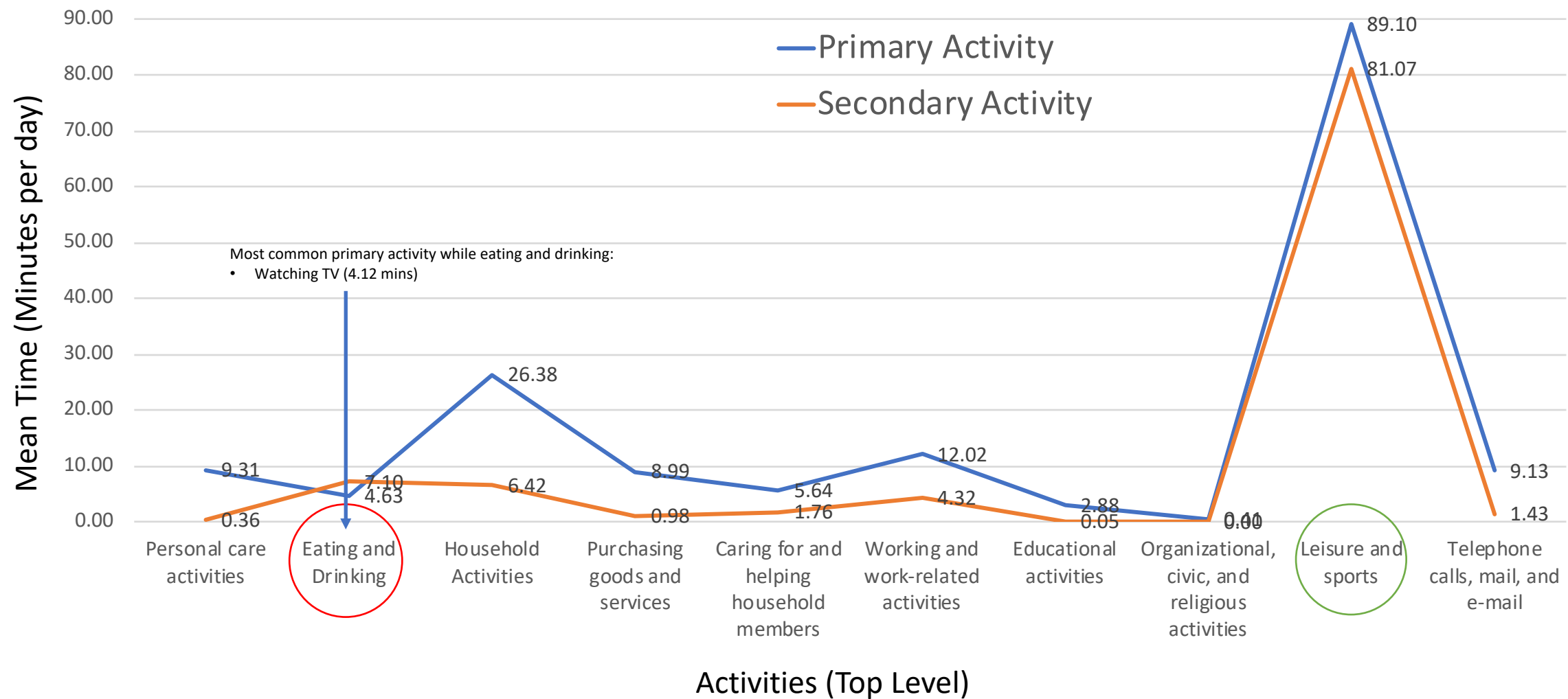


Participants spent 66% of their time engaged in multiple activities at a time (multitasking)

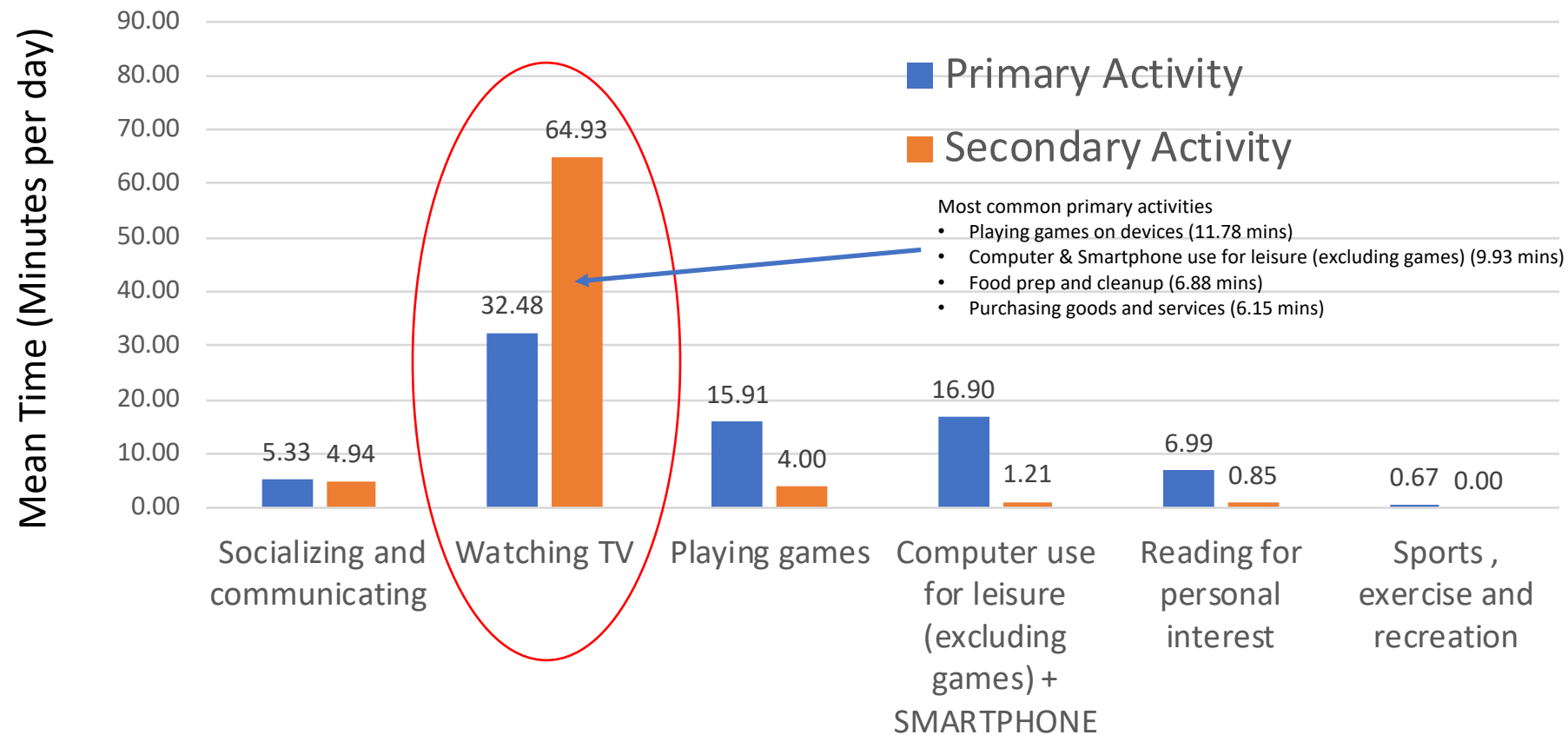


Mean Time (Minutes per day)

Eating and Drinking was the only top level activity that was usually secondary



Participants spent ***twice*** as much time with the TV on “in the background” as they did watching TV as the primary activity

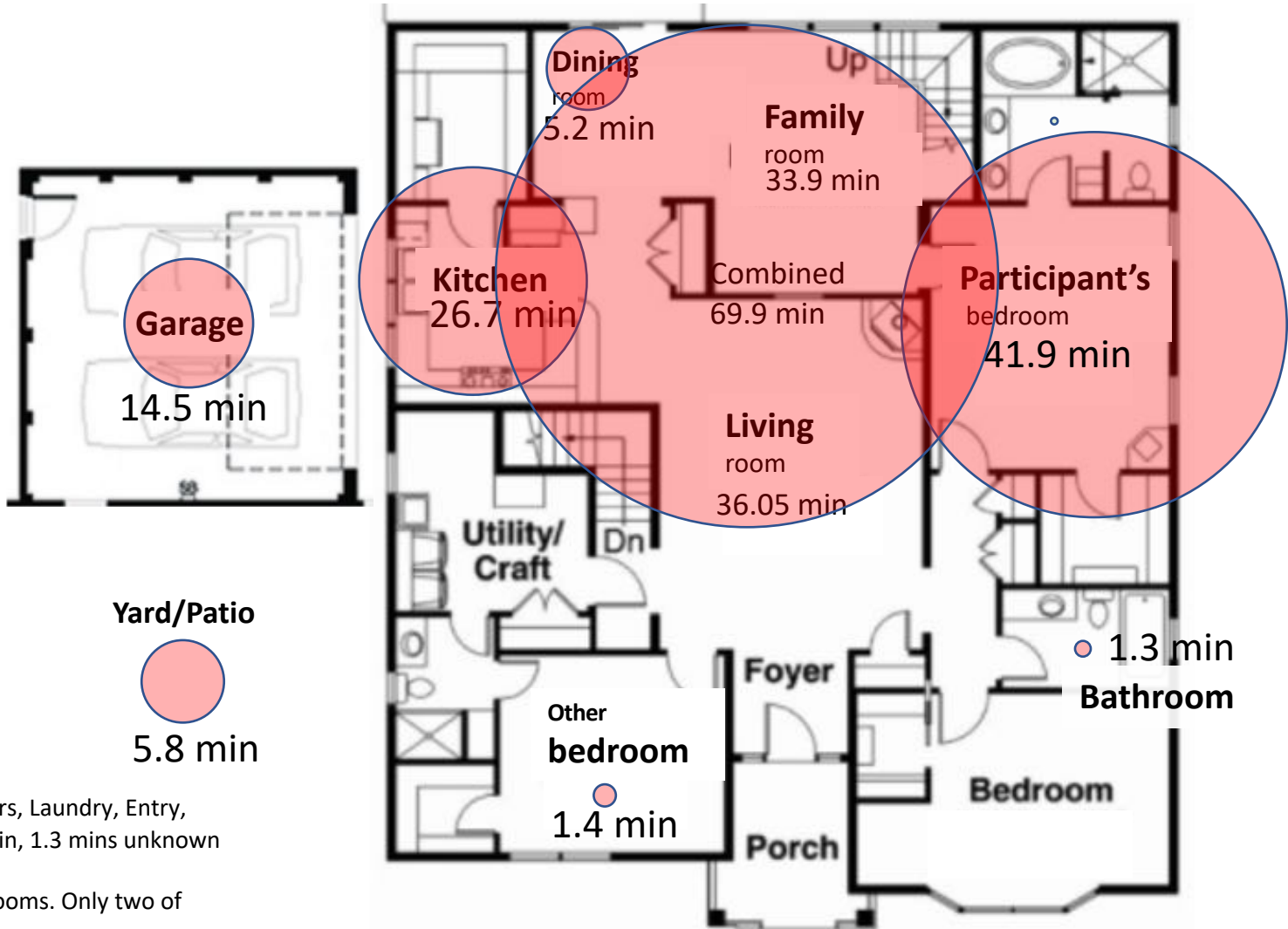


Leisure and Sports Activities

Day in the Life Rooms

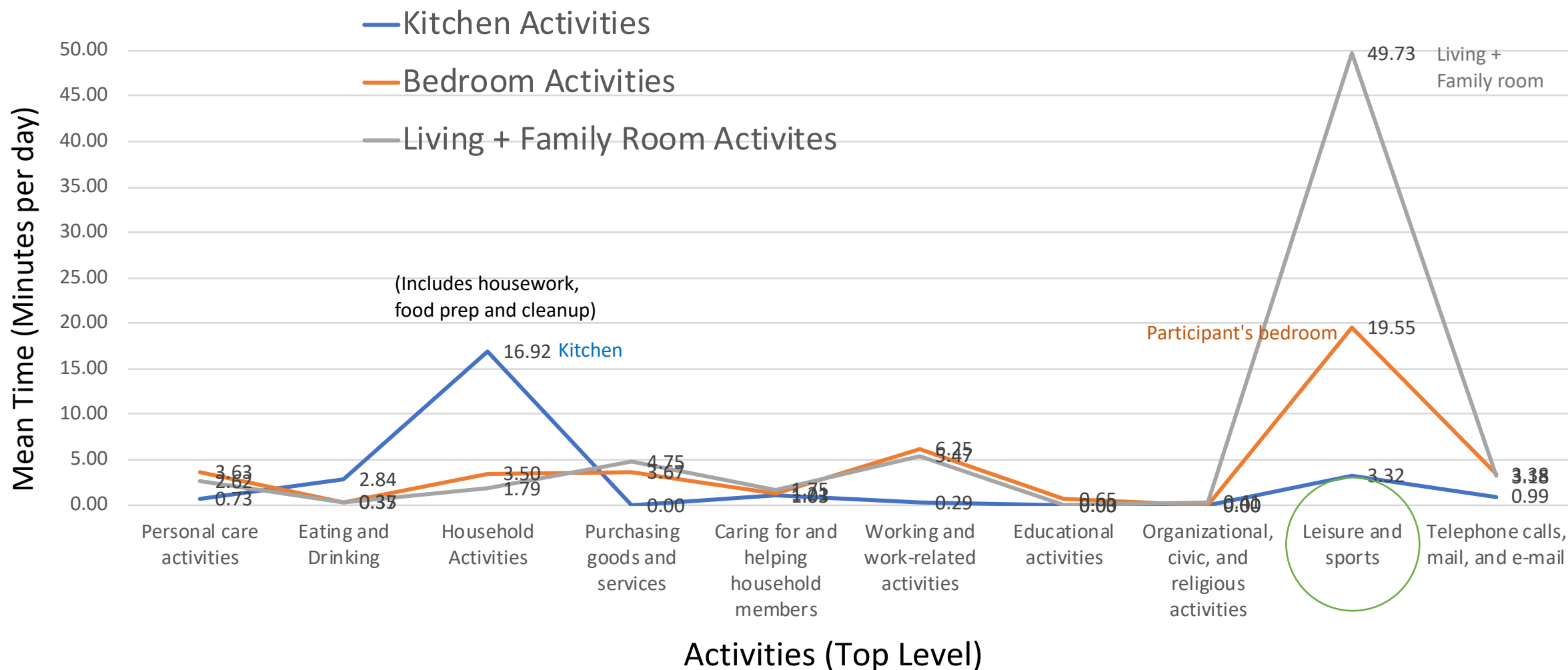
ATUS survey does not report on time spent in various rooms

Participants spent more of their daily awake time at home in the living room (¹or family room) than any other room, but also spent a lot of time in their bedroom



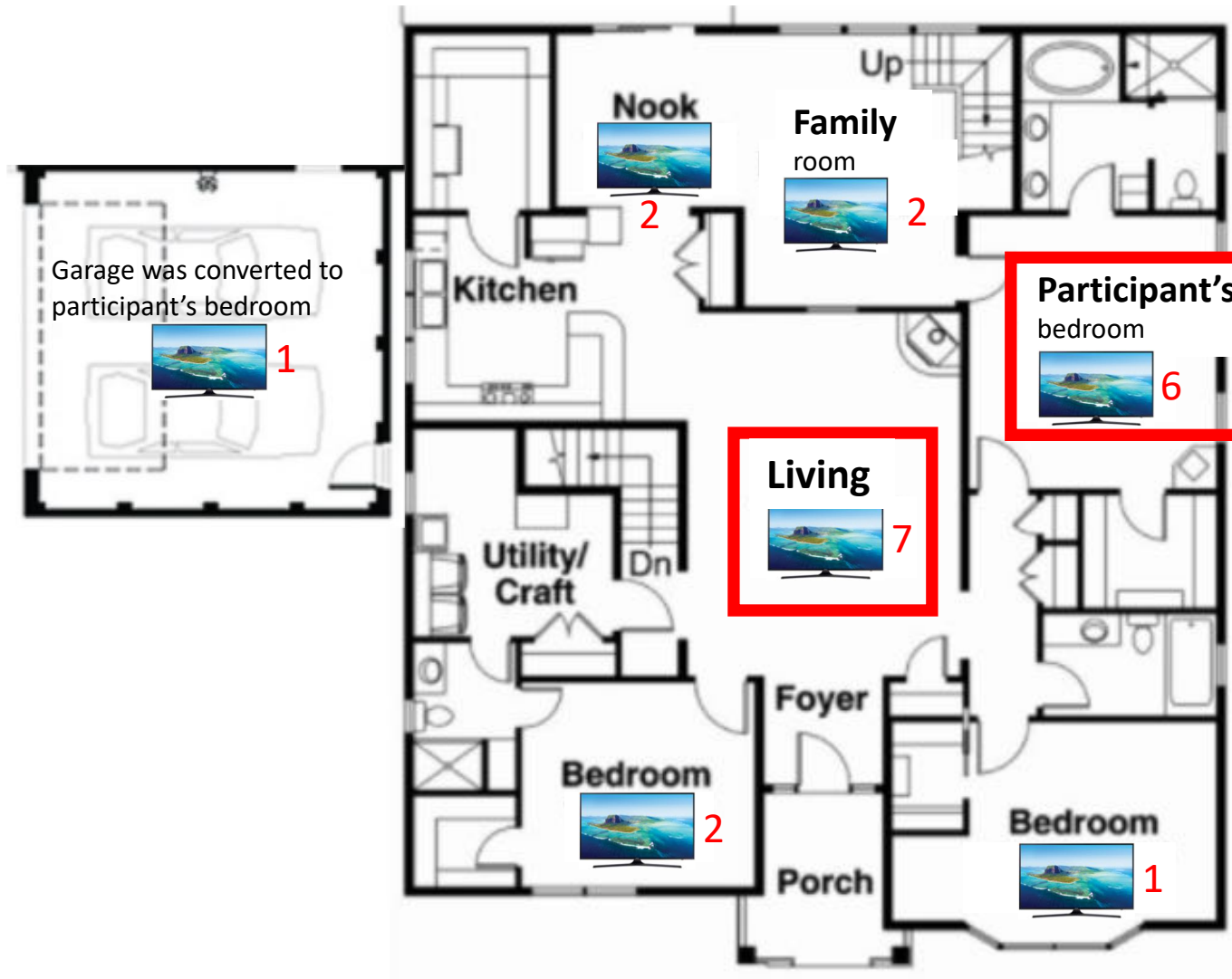
¹Only three households had family rooms. Only two of the family rooms had TVs

Household activities were almost always in the kitchen, while leisure activities (including TV watching) usually occurred in the living room (¹or family room) and participant's bedroom



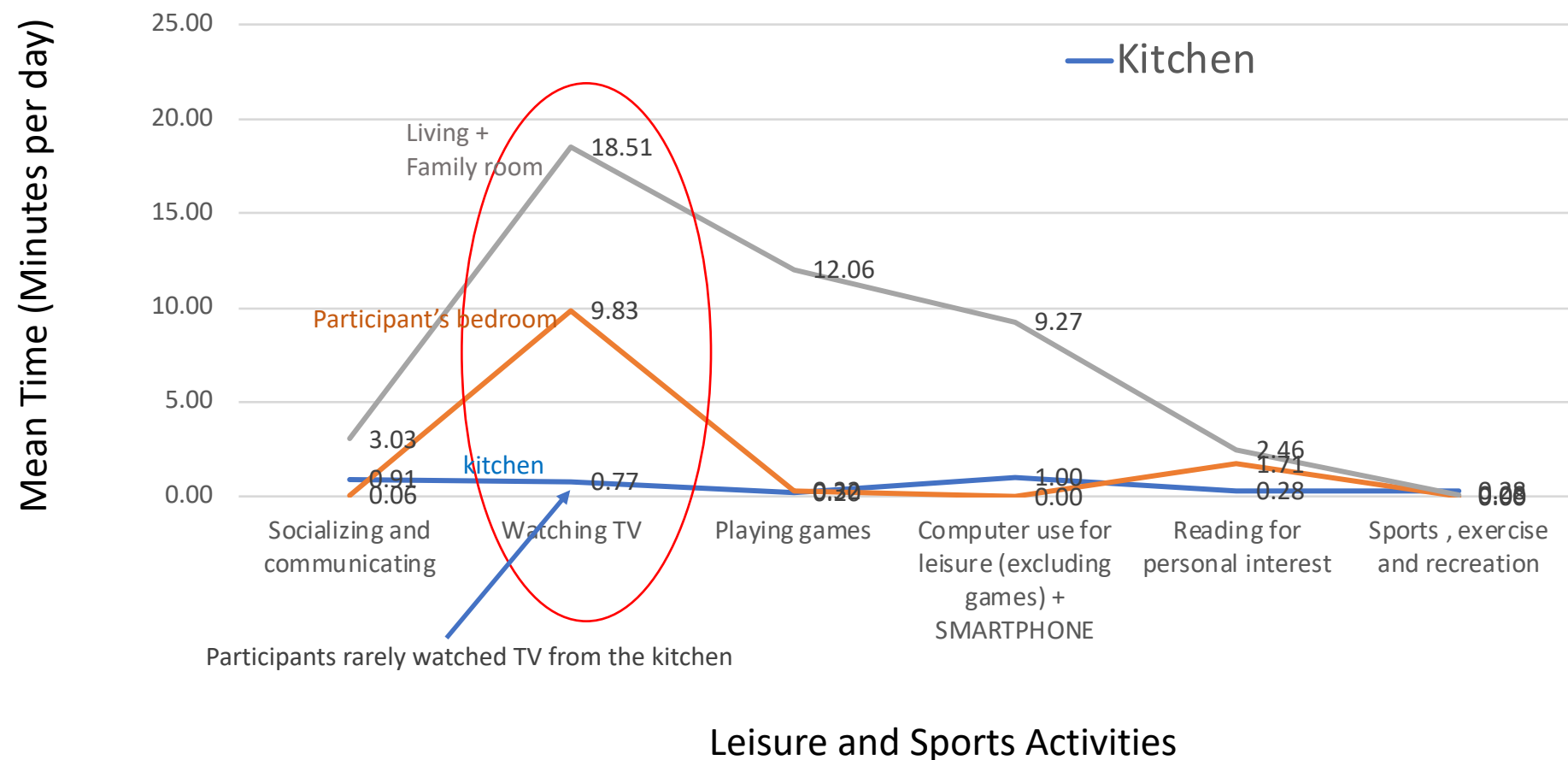
¹Only three households had family rooms. Only two of the family rooms had TVs.

Most participant's TVs were located in their living room and bedroom



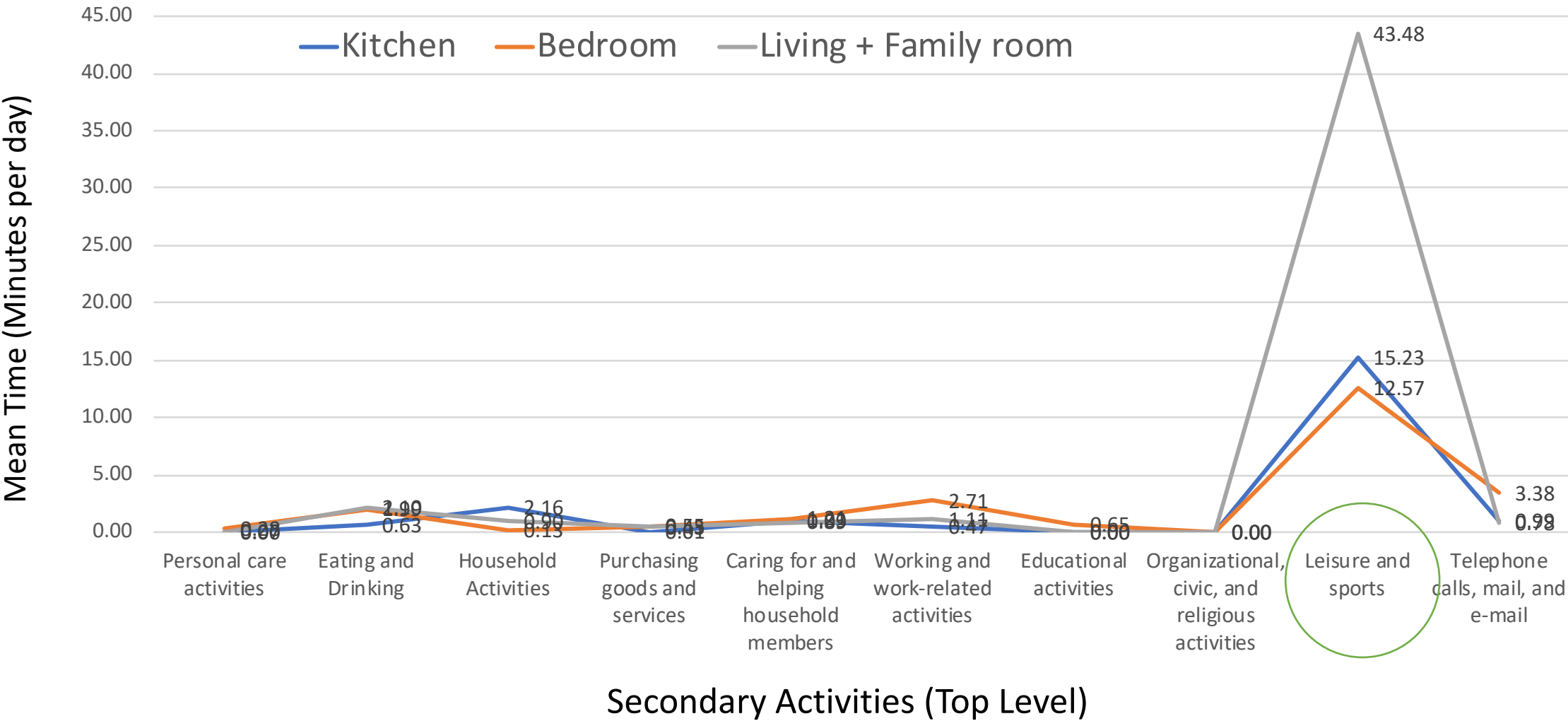
¹Only three households had family rooms. Only two of the family rooms had TVs.

Most TV watching, as a primary activity, was in the participant's living room (¹or family room) and bedroom

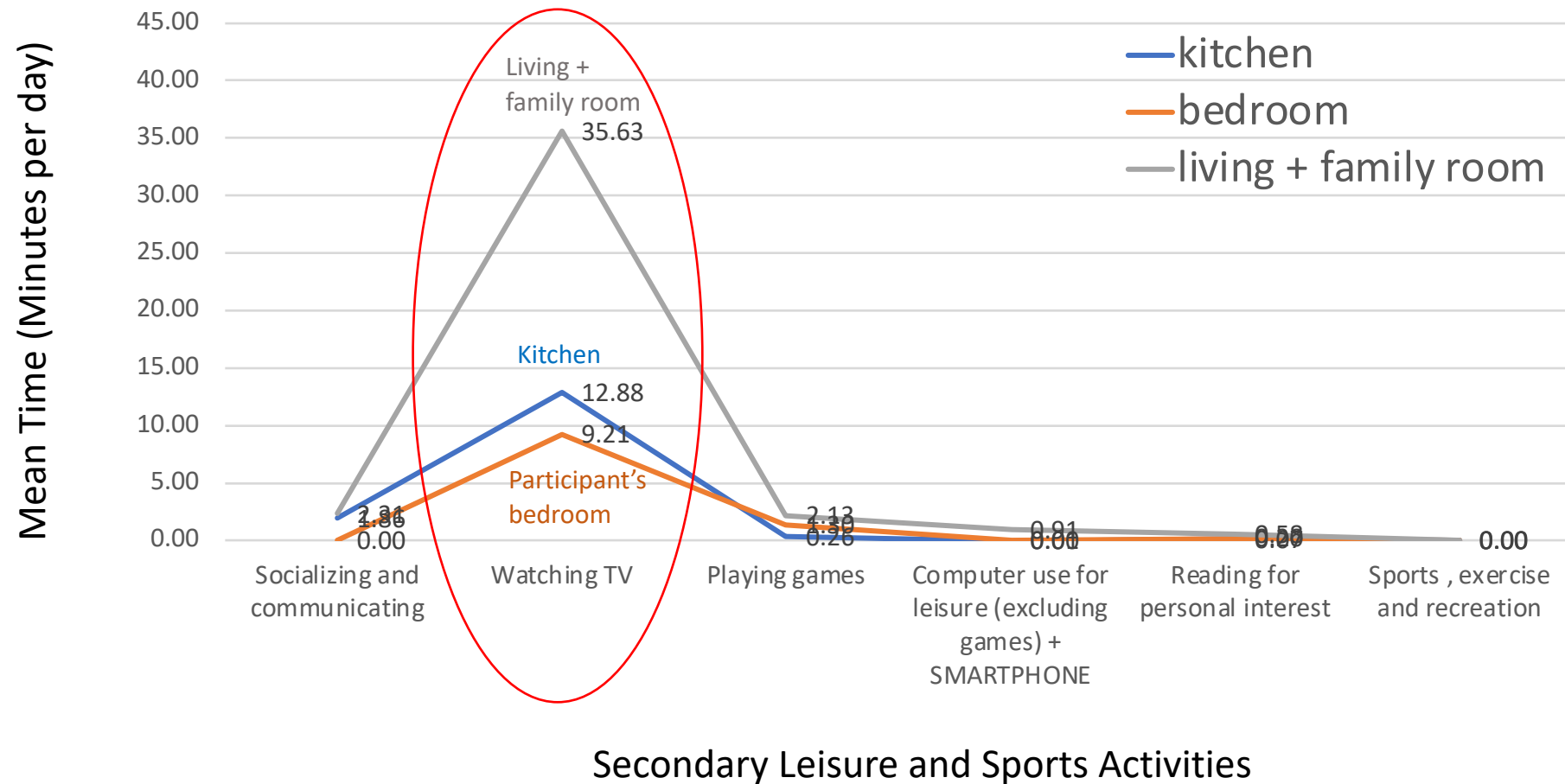


¹Only three households had family rooms. Only two of the family rooms had TVs

The only substantial amount of time spent doing secondary activities was in the Leisure and Sports category which included background TV watching



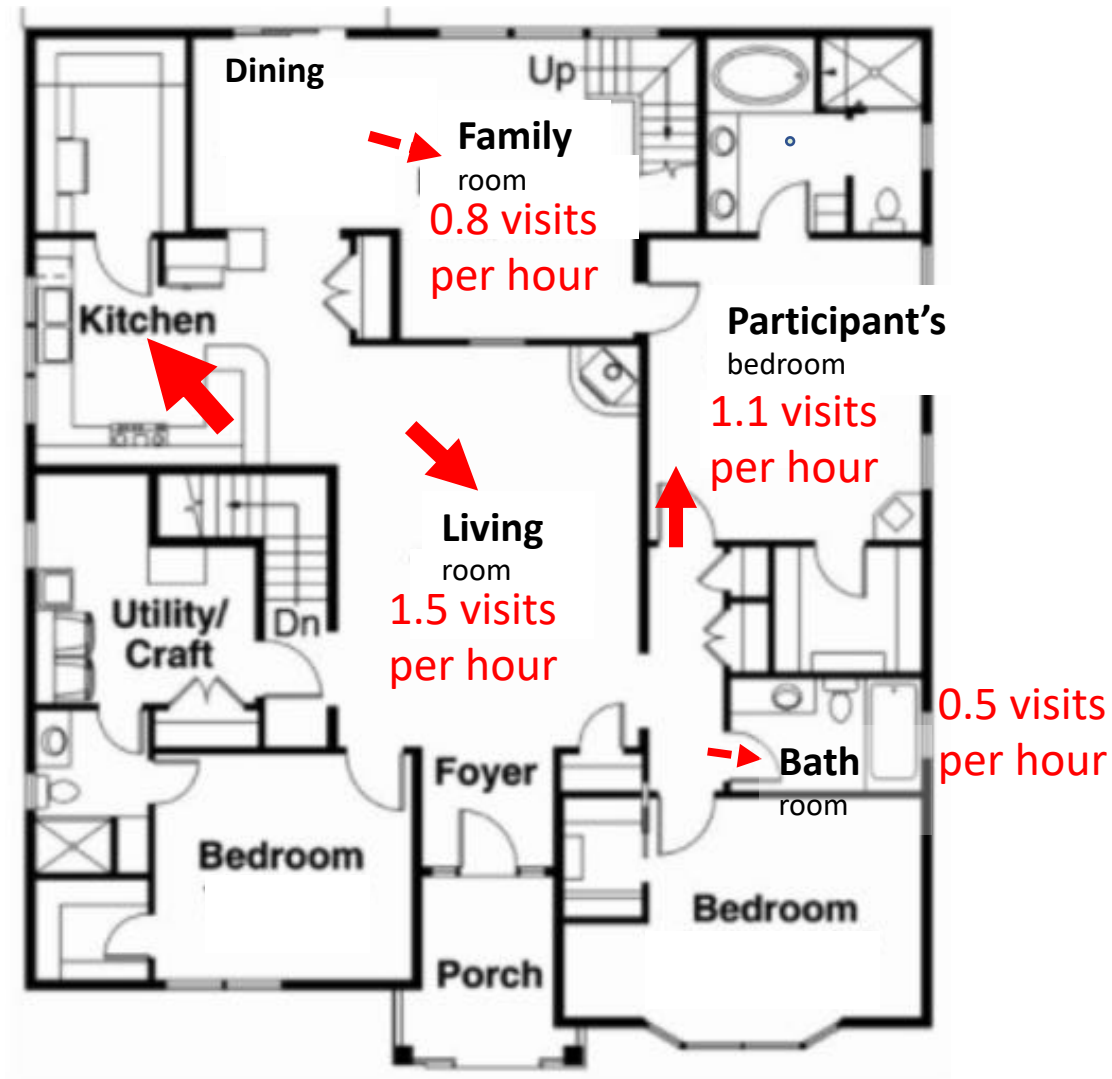
Background (secondary) TV watching occurred in the living room (¹or family room), kitchen and participant's bedroom



¹Only three households had family rooms. Only two of the family rooms had TVs

Overall, participants walked from one room to another 12.5 times per hour (every 4.8 minutes)

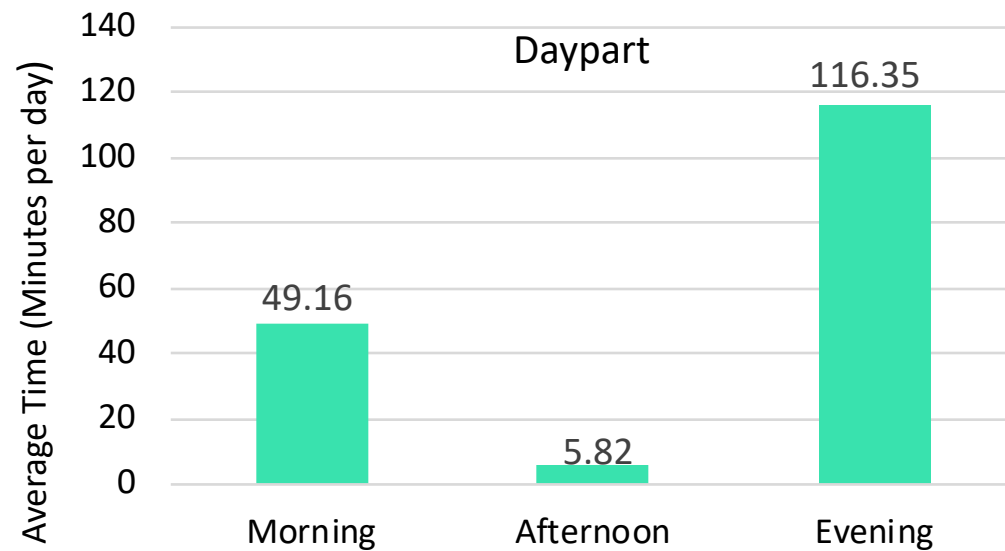
The kitchen was the most frequently visited room at 3.1 visits per hour



Day in the Life Daypart

ATUS survey does not report on activities by daypart

Most of the photo-logging in the DIL study was during the evening

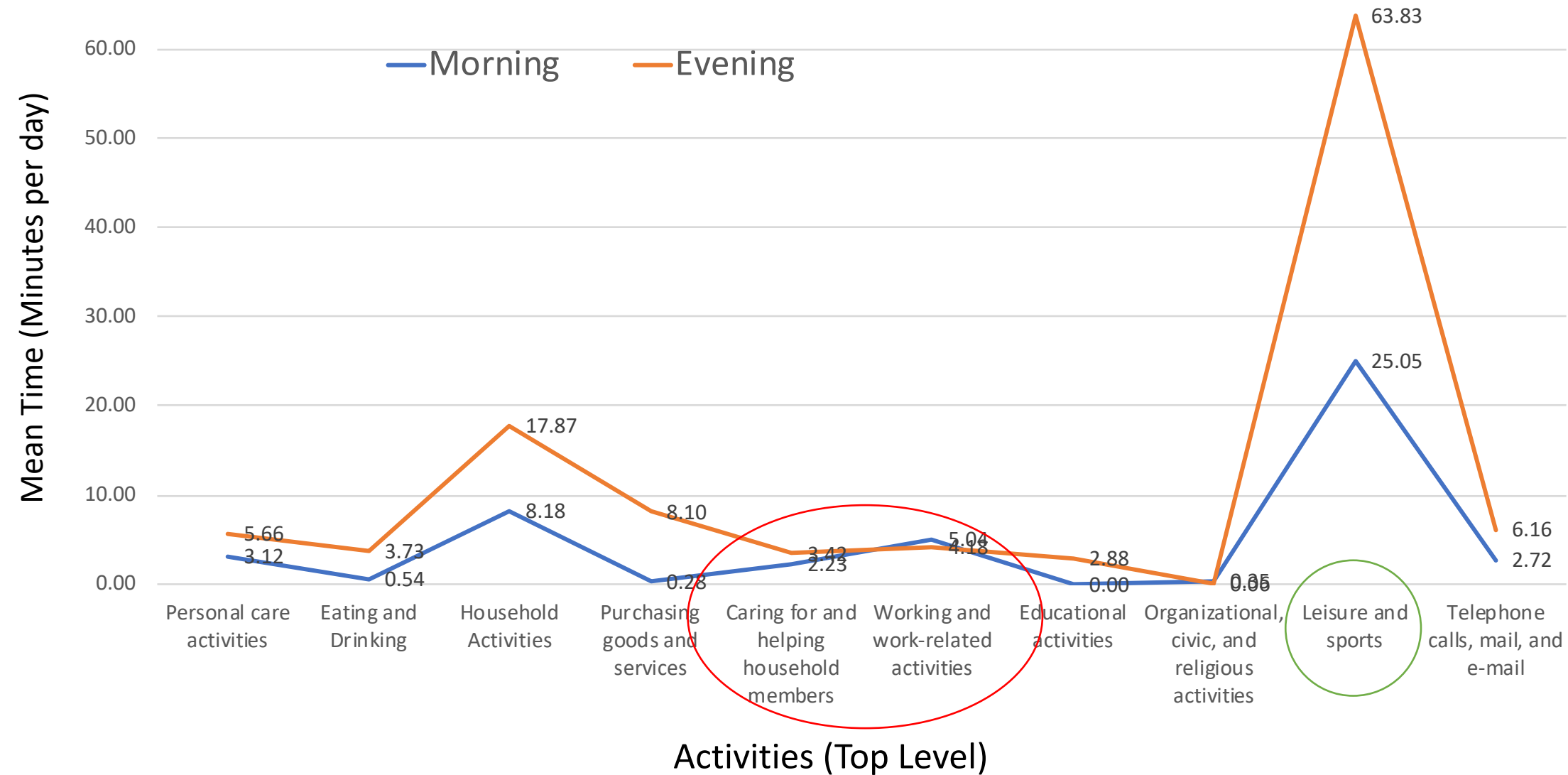


Only one participant did photo logging in the afternoon

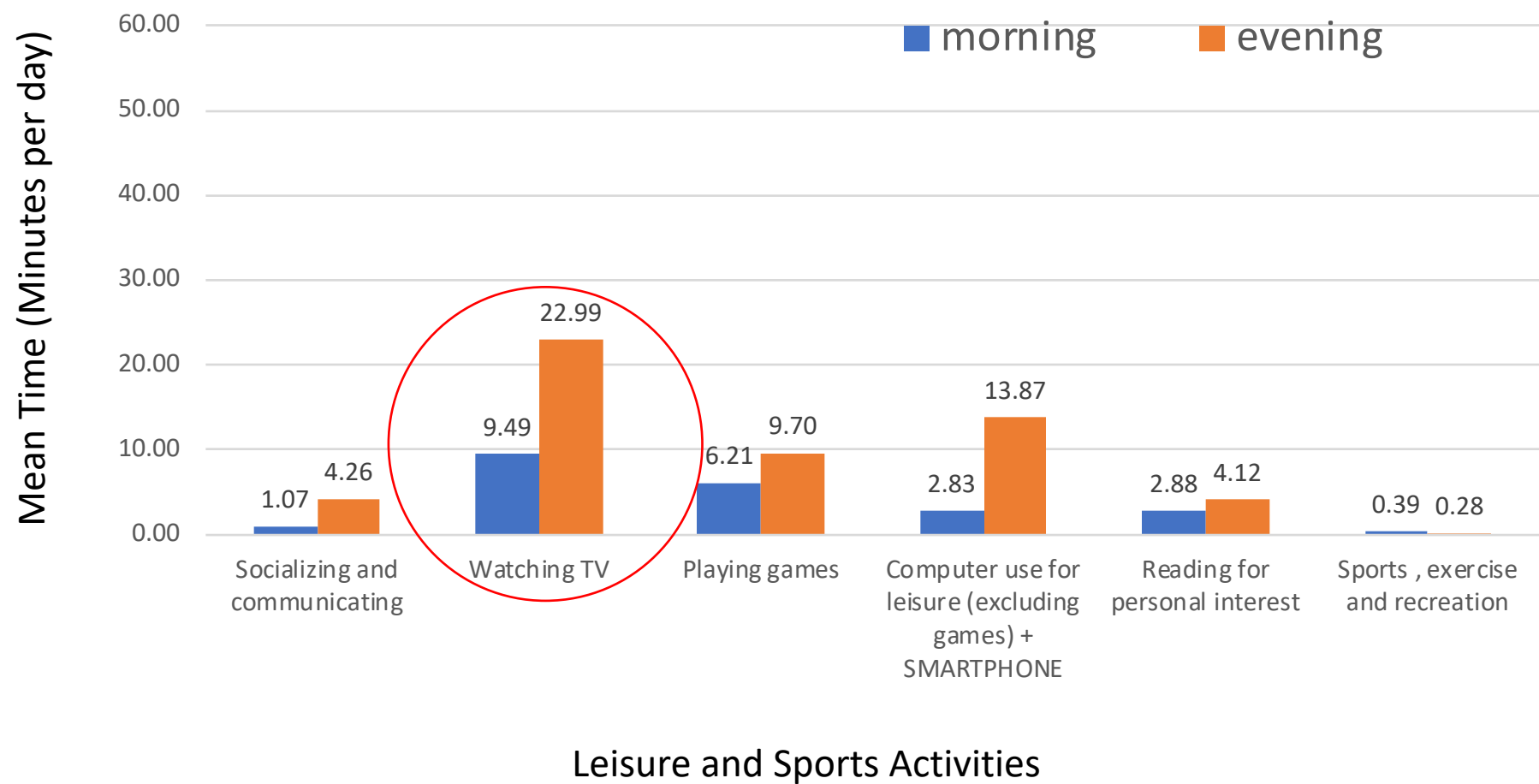
Participants were requested to do **at least** 1 hour of photo logging in the morning and **at least** 2 hours in the evening.



The pattern of time spent in activities in the morning and evening were similar except that care- and work-related activities tended to occur more in the morning in comparison to other morning activities



TV watching was the most common activity in both morning and evening

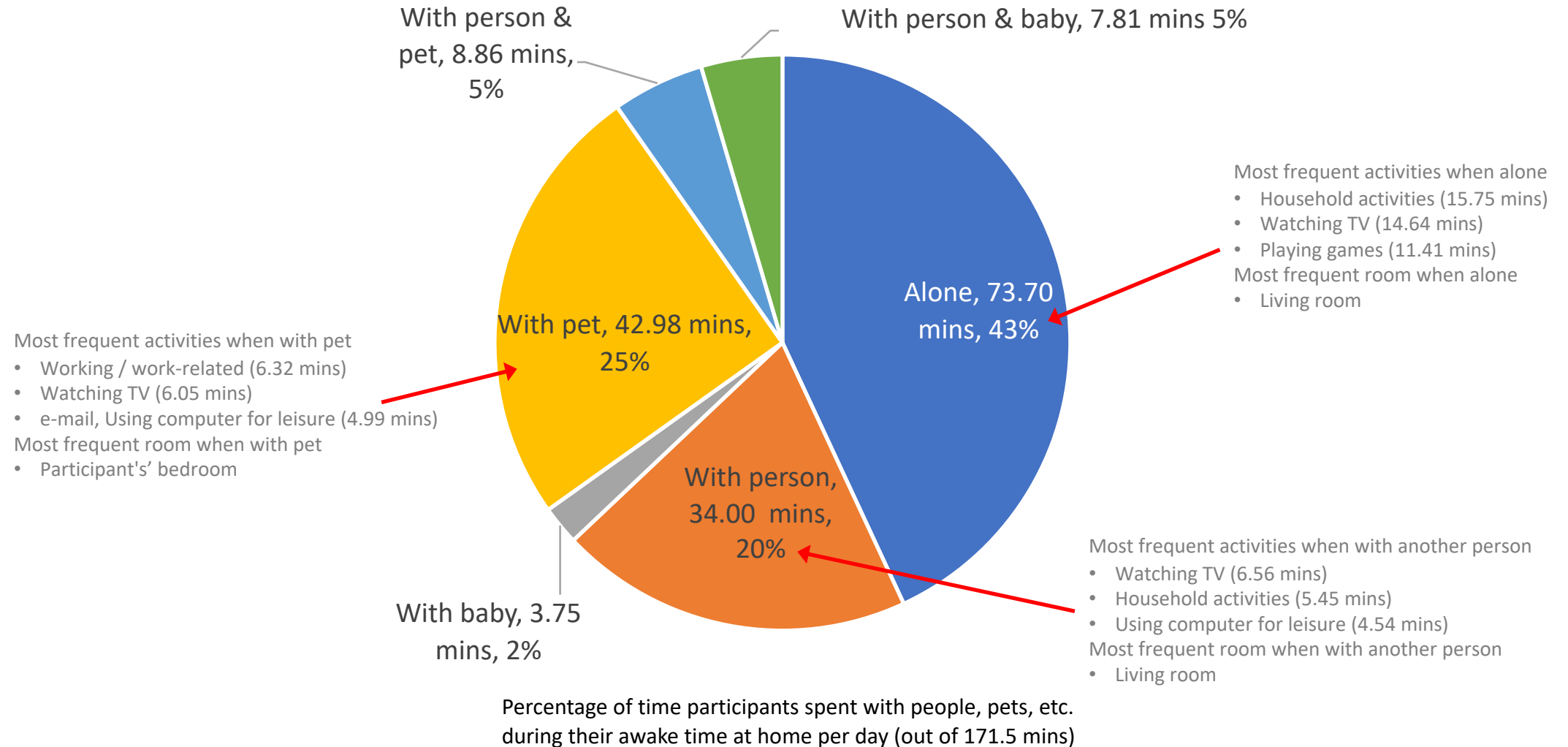


Participants were slightly more active in the morning than the evening, walking between rooms more frequently




Day in the Life Socializing

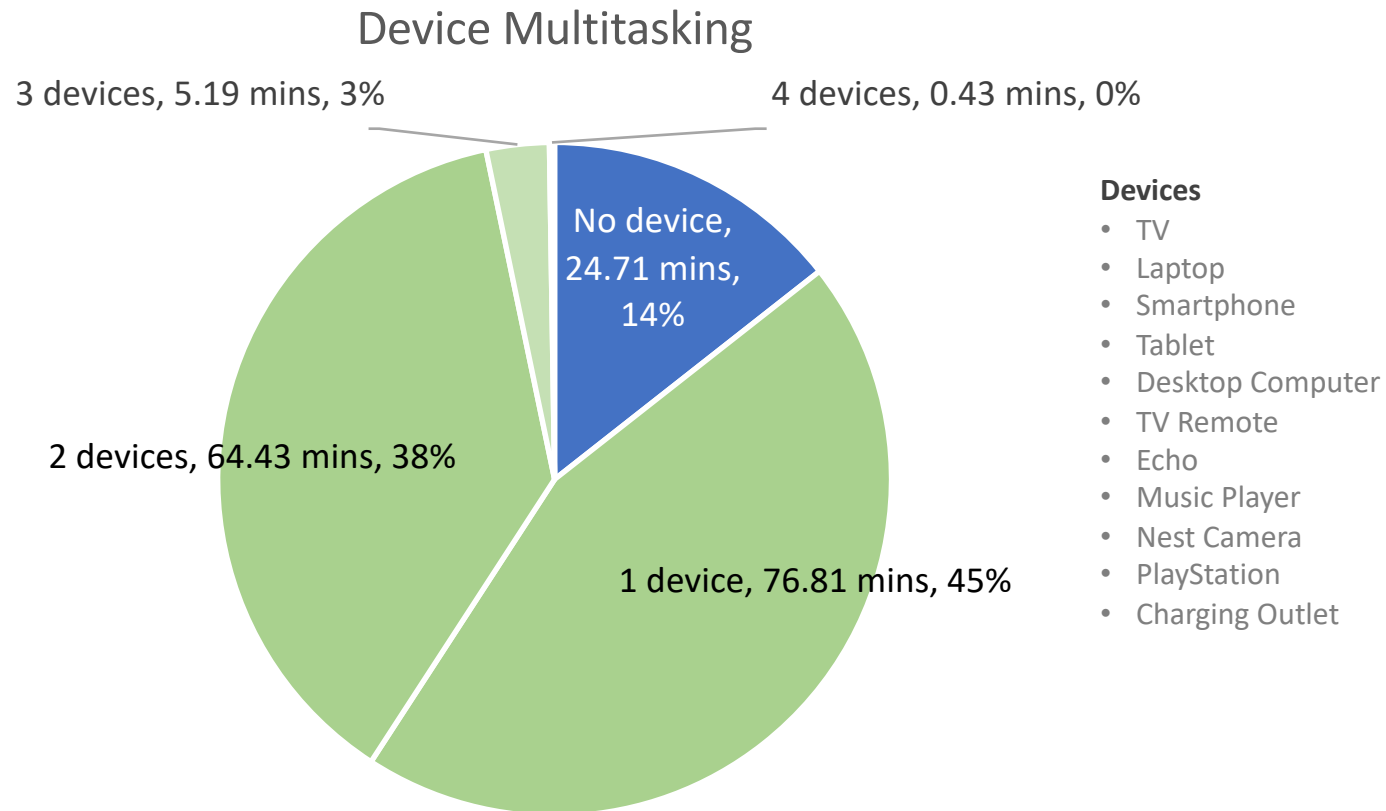
Participants spent nearly as much time with pets (30%) as with people (32%) in their household



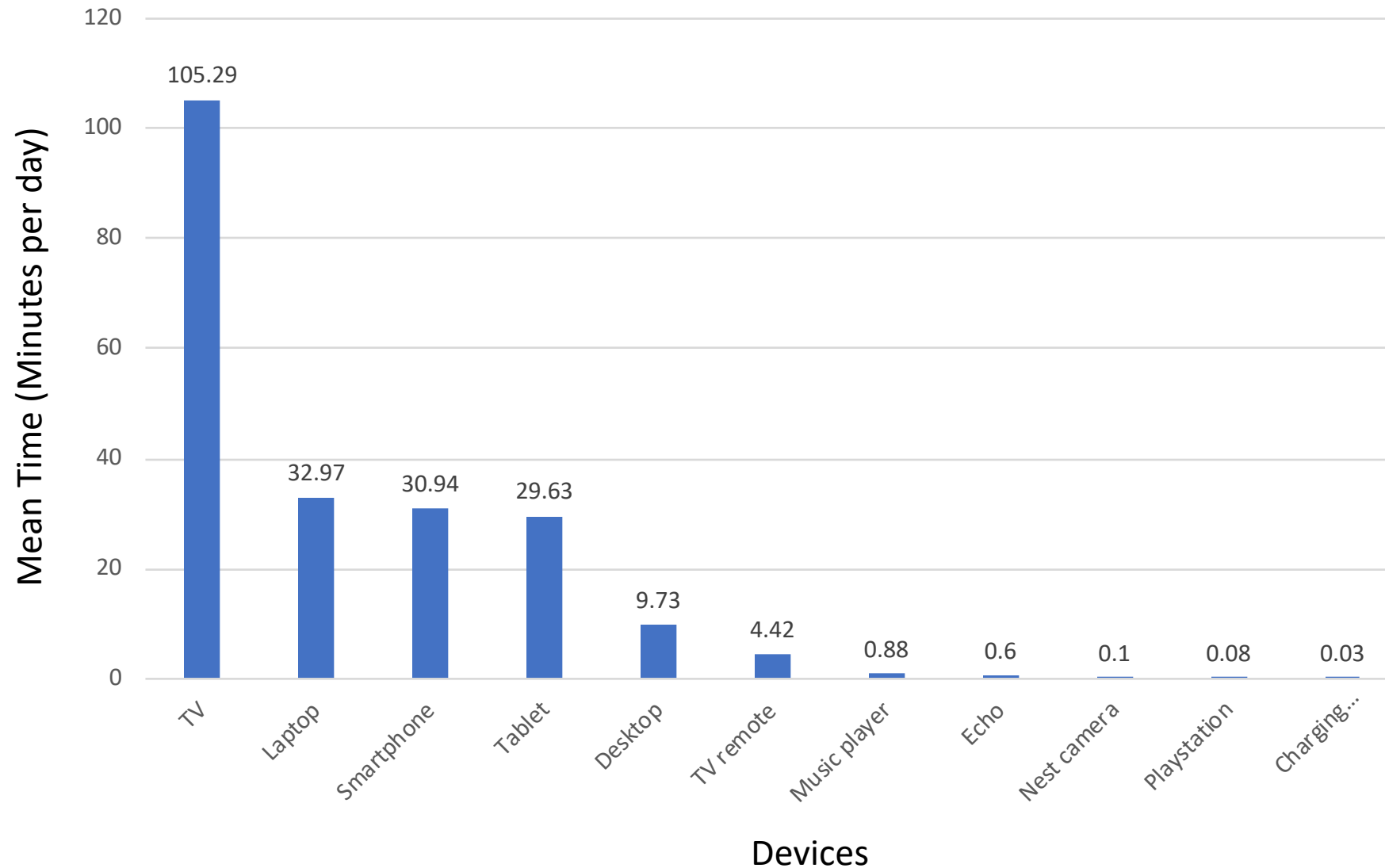
Day in the Life Devices

ATUS survey does not report on device use

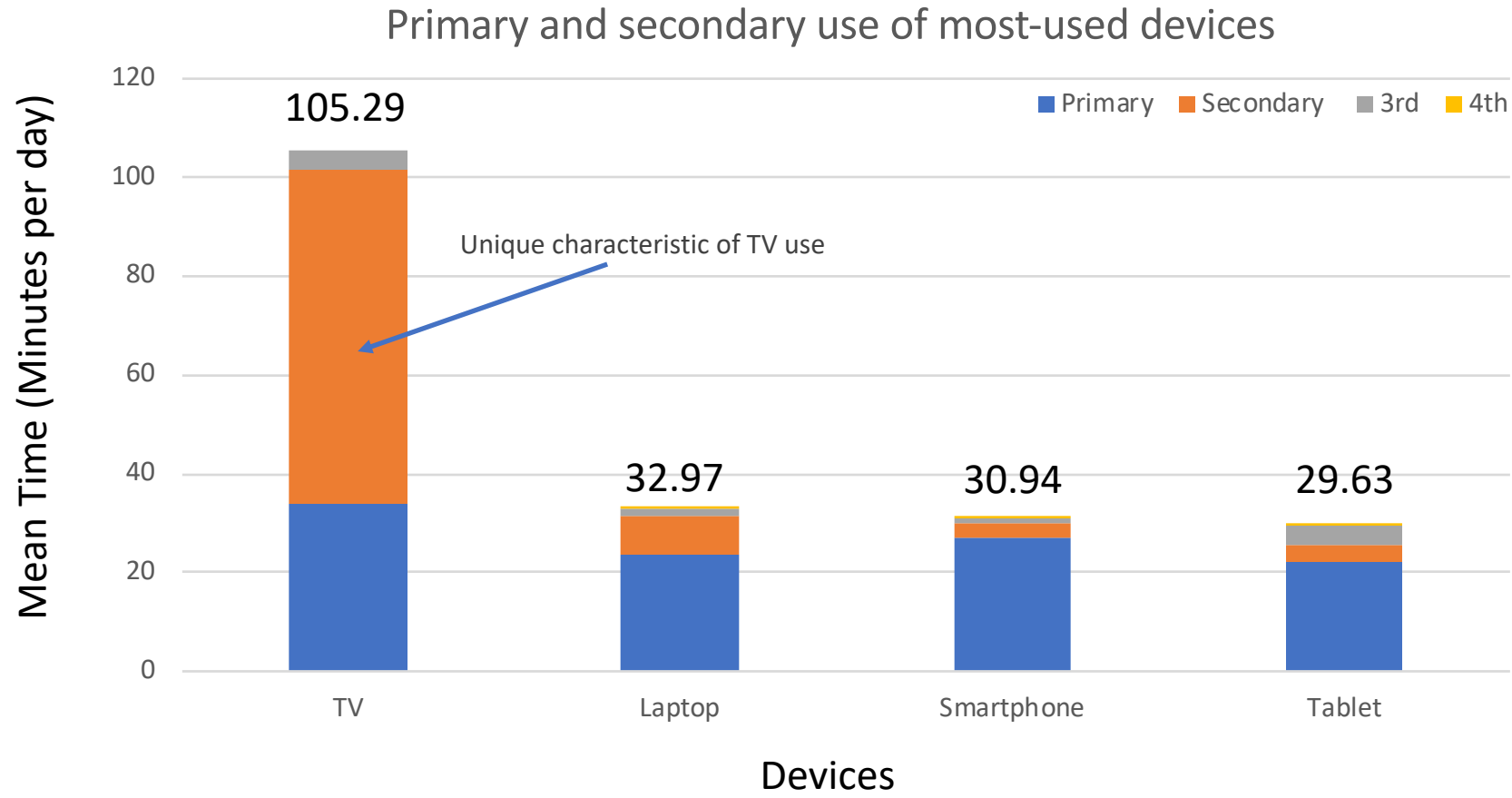
Participants spent nearly all of their awake time at home using one or more devices (86%) 



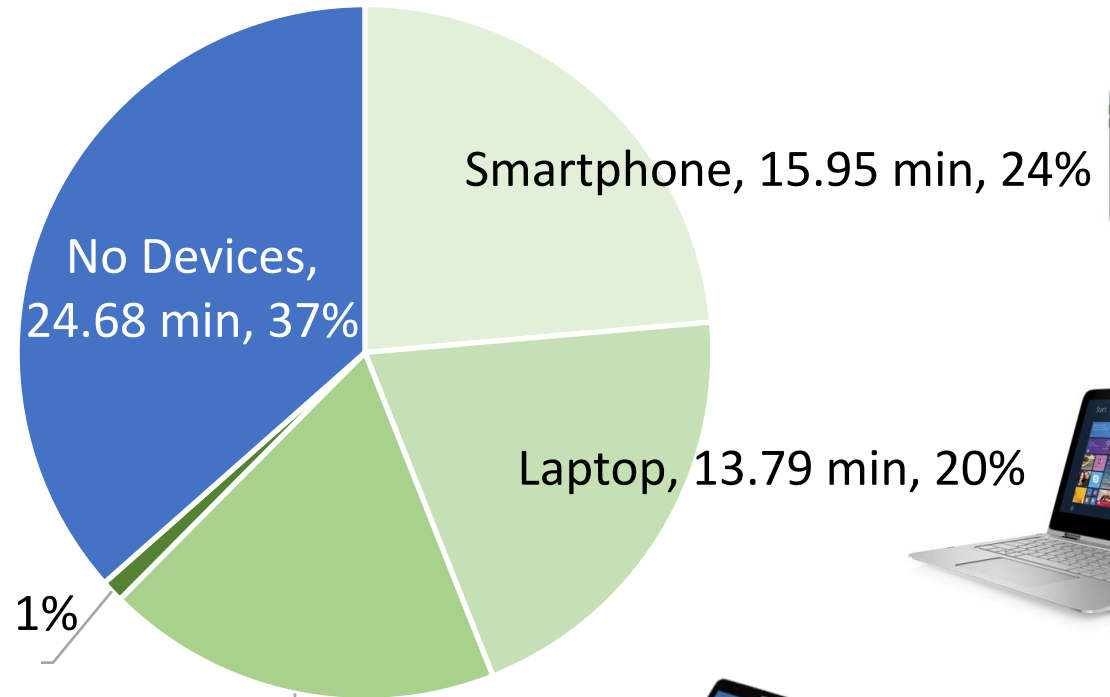
TV was by far the most time-consuming device in the home (61% of the time)



TV use was typically a secondary activity, whereas the use of other devices was typically a primary activity



While watching TV in the background (secondary activity), participants were typically using another device (as the primary activity)



Devices used while TV was a secondary activity

Summary

Overall Activities

- The most common awake-time activities at home were leisure activities
- **During most of their awake-time at home (66%) participants engaged in multiple activities at the same time (multi-tasking)**
- The pattern of activities in the morning and evening was similar except for more “work-related and care-related” activities in the morning
- Eating and drinking was usually a secondary activity

Rooms

- **After the living room (or family room), participants spent more awake-time in their bedroom than in any other room**
- Most “household activities” occurred in the kitchen (primarily food prep and cleanup)
- On average, participants switched rooms every 5 minutes

Socializing

- **At home, participants spent nearly as much time with their pets (30%) as with people (32%)**

Devices & TV

- **Participants spent 86% of their awake-time at home using one or more devices**
- Participants spent more time using the TV (105.3 minutes, 61% of their time) than any other device
- **Participants spent twice as much time watching TV as a secondary activity compared to watching TV as a primary activity**
- The use of a smartphone, tablet or laptop was typically a primary activity
- TV watching as a primary activity occurred mostly in the participant’s living room (or family room) and bedroom
- TV watching as a background (secondary) activity occurred mostly in the living room (or family room), kitchen and participant’s bedroom

Thank You!