An observational method for time use research:
Advantages, disadvantages and lessons learned from the Middletown Media Studies

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Abstract

Time diaries are an efficient and affordable data collection method; however, diaries may fail to capture the full richness of "the lived day," especially in the case of concurrent activities (multitasking) and episodes of short duration. In response to these limitations, the Center for Media Design at Ball State University developed and refined an observational or "shadowing" method for media-centric time use research. Designed to provide a detailed record of exposure to fifteen or more media across all locations throughout the day, the observational method also tracks life activities using a categorical system adapted from the American Time Use Survey. Trained observers use a "smart keyboard" and custom software to track participant location, media exposure and life activities in 10- or 15-second granularity. The observational method has been applied in the Middletown Media Studies, several proprietary studies and a pilot study for the Nielsen Council for Research Excellence. The method has proven effective in measuring concurrent exposure to two or more media (accounting for almost 1/3 of all time spent with media) and concurrency of media use with other life activities. In this paper we review methodological lessons ---including costs and benefits of the shadowing approach--from nearly 10,000 hours of observation in Muncie (the "Middletown" of sociological studies of American culture) and Indianapolis, Indiana, USA.

An observational method for time use research: Advantages, disadvantages, and lessons learned from the Middletown Media Studies

Time is a sort of river of passing events, and strong is its current; no sooner is a thing brought to sight than it is swept by and another takes its place, and this too will be swept away.

Marcus Aurelius, Meditations. iv. 43.

Most social scientists operate explicitly or implicitly from a variance-based logic of explanation, modeling the social world as entities with attributes; relationships between attributes determine social outcomes; chronological time is absent from such cause-effect logic or is reduced to an attribute of an entity such as duration or age (Abbot, 1984). Time use researchers, in contrast, must face the relentless river noted by Marcus Aurelius and operate from what Abbot calls a process-based logic of explanation, modeling the social world as events meaningfully ordered in sequences in which chronological time is a necessary component and in which the composition, duration and ordering of events shape outcomes. For variance explanations, the fundamental methodological challenges are to define relevant entities and attributes and to validly and reliably operationalize those definitions. The methodological challenges for process researchers are colligation of the continuous stream of social behavior (e.g., defining relevant events) and measurement (validly and reliably parsing and categorizing events). In time use research, colligation is typically served by defined categories of life activities. These may be exhaustive in their attempt to characterize all activities through the day, as in the ATUS categories, or limited and specialized, as in systems which identify only a subset of a day's activities related to a specific domain such as food or child-rearing. Colligation and measurement in time use research may take many forms but, arguably, the current dominant approach is the time diary in which participants record their

distribution of time use across daily activities according to categories provided by the researcher.

Social scientists, economists, demographers and policy makers are not the only consumers of time use research. The media industries are equally as interested in how people spend their time. Content providers, distribution channel owners and advertisers want to know how much people are watching, listening to, reading or browsing media content. The key questions addressed by audience measurement services have been "How many people are exposed to my content, and how much time are they spending with it?" While the media research community has little shared membership with the community of time use researchers represented in the International Association of Time Use Researchers, similar ecosystems of research costs and goals have led to convergence of measurement approaches. Much of what media practitioners and media scholars know of media-related behavior and time use comes from self-report, either in response to coincident or next-day telephone surveys (e.g., "Did you watch TV yesterday or not? If so, how much?") or in the form of media diaries, paper or electronic, in which participants log their own media use. Electronic monitoring is part of major "currency" measures used to establish pricing models for commercial television, radio and the Web (set-top meters and people meters in the case of TV, portable "personal people meters" for radio and TV, logging software for the Web). However, these measures are typically limited to a single platform and are often combined with survey and diary data.

Non-response problems in telephone surveys and rapid changes in the media industries, driven in part by capabilities of digital media, leave industry researchers increasingly dissatisfied with traditional measures. The mantra of the future media

environment is "the content you want, when you want it, where you want it." Traditional survey and diary-based commercial media research is inadequate for this future because it is "siloed," measuring a single medium at a time and is often limited to a single location such as the home. Such limited views of media time use no longer fully satisfy the needs of industry or media scholars facing the expansion of media devices and channels, fragmentation of audiences, transfer of control to the consumer, growth of mobile media and opportunities for media multitasking. The need for a cross-platform, cross-media view of media exposure is what drove development of the observational method used in the Middletown Media Studies (Papper, Holmes & Popovich, 2004; Papper, Holmes, Popovich & Bloxham, 2005). In this paper we describe the observational method as we have applied it for media research, its advantages and disadvantages, and lessons learned for its application to time use research. Given time and space constraints this can only be a broad review; we encourage interested readers to refer to the References page for published outputs and reports.

An Observational Method for Media and Time Use Research

The Center for Media Design at Ball State University has developed and refined an observational or "shadowing" method for media-oriented time use research. Designed to provide a detailed record of exposure to multiple media across all locations throughout a full day, the observational method also tracks life activities using a category system adapted from the American Time Use Survey. The observational method has been applied in the Middletown Media Studies, a pilot study for the Nielsen Council for Research Excellence, a small pilot study of teens' media exposure and several proprietary projects for commercial clients. From these studies we have generated nearly 10,000

hours of observation of participants' time use in Muncie (the "Middletown" of sociological studies of American culture; Lynd & Lynd, 1929, 1937) and Indianapolis, Indiana, USA. The method has proven effective in cross-platform/cross-location measurement

Development of the Method

Our first study, Middletown Media Studies I (MMSI; Papper et al., 2004), contrasted telephone survey, media diary and observation-based measurements of media use in "Middletown," a midwestern U.S. city of 85,000. The observation component of MMSI utilized a paper-and-pencil log of location and media exposure kept by trained observers shadowing participants throughout the day (two observers per participant with a midday shift change). The log resembled a traditional paper media diary but was expanded to include fifteen media. We did not log time use other than that spent with media. The survey, diary and observation studies had separate respondents; nevertheless, the differences in media time budgets across the three studies suggested important differences in the ability of the methods to capture actual behavior. While the methods yielded similar results for some media (such as the various print media), there were marked differences in media exposure for important electronic media (Figure 1).

Although the observation component of the study was limited to 101 participants (generating over 1200 hours of "day in the life" data at 1-minute granularity), media industry audiences were receptive to the rich view it provided of the place of media in the daily routines of the participants. We undertook Middletown Media Studies II (Papper et al., 2005) in response to industry encouragement and to address concerns about the small sample size and single-community focus of MMSI.
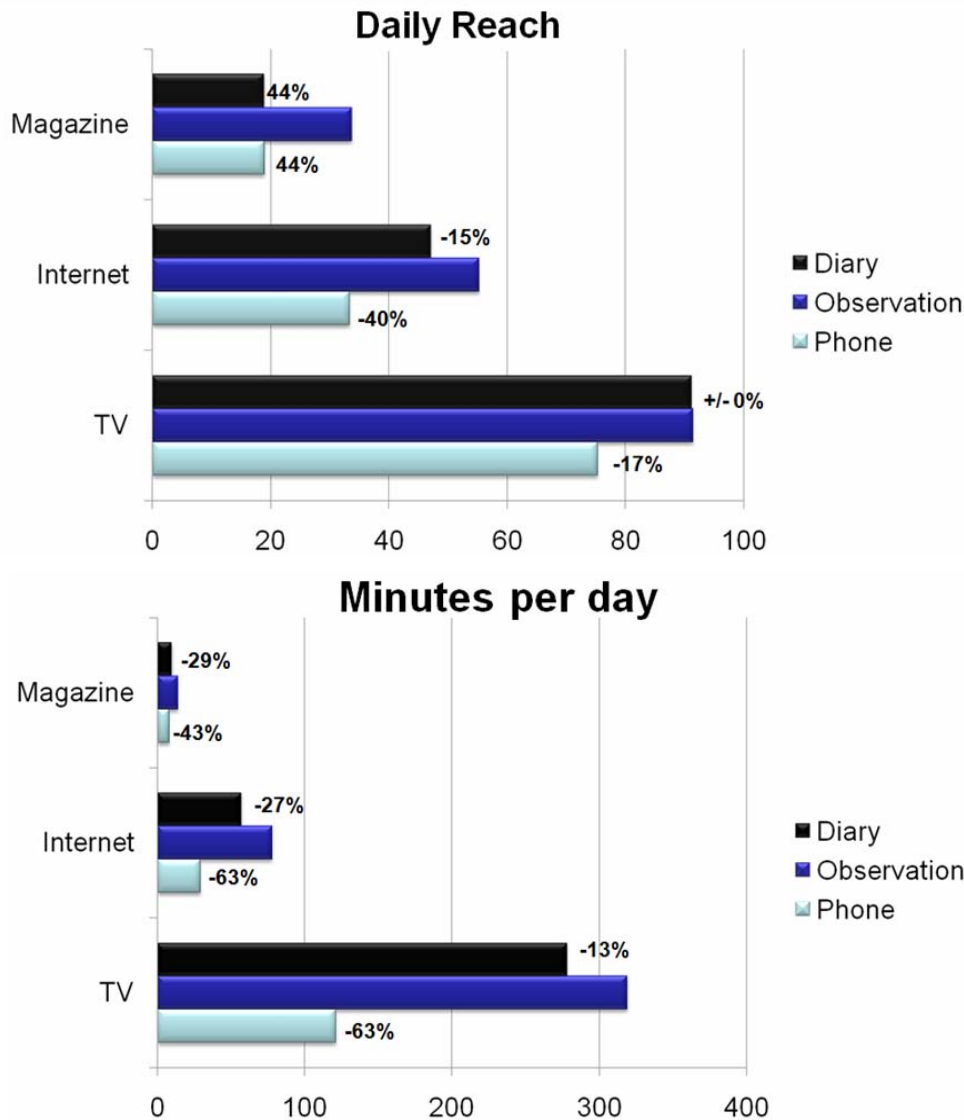
Figure 1. Method-based differences in reach and duration for selected media from MMSI.

Inspired by the example of a large observational study of police/civilian interaction (Sykes & Brent, 1983) we chose to abandon cumbersome and labor-intensive paper logs in favor of an electronic device carried by observers. This reduced the burden of the observation task and allowed us to broaden observation to include logging of life activities using a category system similar to the top-level categories of the ATUS (see the Appendix for an example from a more recent study). We also expanded the research to two locations, recruiting in "Middletown" again and in Indianapolis (the 25th largest

media market in the U.S.), and included a number of post-observation sociographic and psychographic instruments completed and returned by participants after the observation.

Our target sample size for MMSII was 400 adults, 200 in each community. We recruited 412, successfully observed 394. Observations started as soon after the participant got up in the morning and would allow the observer in, with a shift change at approximately 3 pm, and continued until as close to bedtime as the person would allow the observer to stay. Pre-observation activities and media exposure were reconstructed through short-term recall; the observer's first task upon arrival was to ask a set of questions about the morning up to the observer's arrival. Post-observation activities and media exposure were reconstructed through a follow-up telephone interview the next day.

With an average day length of approximately 12.5 hours, the study generated over 4000 hours of observation in 15-second granularity. We limited analyses to the 350 longest observed days. Figure 2 displays a "day in the life" map of locations, life activities and media exposure for one MMSII participant.

MMSII was followed by several proprietary studies. Each study provided an opportunity for us to enhance the data collection software, observation management and database systems, observer training, data cleaning procedures and analyses. They allowed us to experiment with tailoring the method for specific purposes; for example, repeating observations of participants over time in a longitudinal study or focusing on life activities and media-related behavior around a single medium (television viewing at home) in 5-second granularity (Prieb, Holmes & Bloxham, 2006). More recently we have tested the method in a small pilot study with teenagers (Papper, Nyce, Holmes & Bloxham, 2007) nd in an unpublished pilot study of 50 participants in Indianapolis for The Neilsen
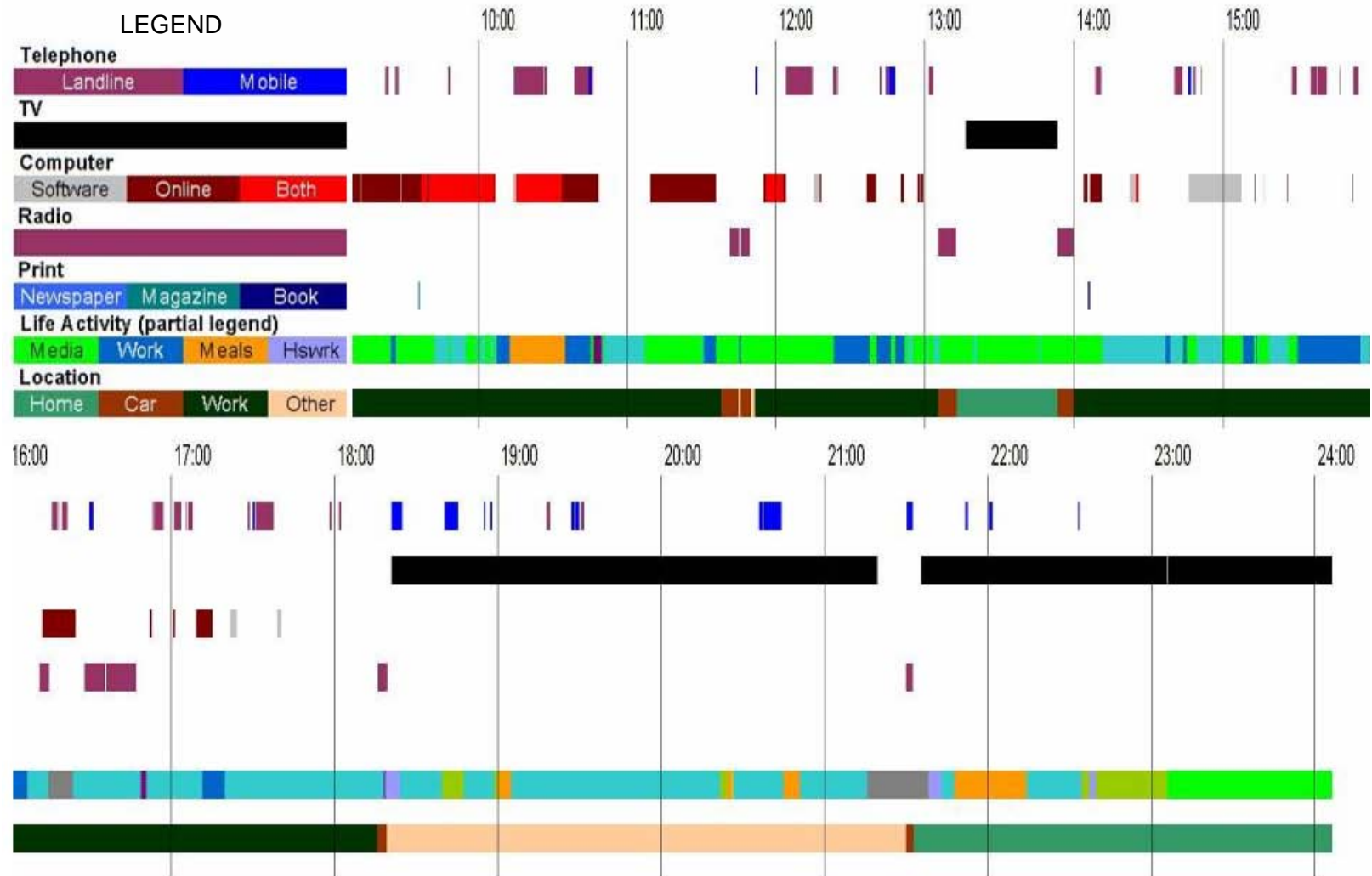
Figure 2. A day in the life of a 27-year-old female in Muncie, Indiana.

Company's Council for Research Excellence, Committee on Media Consumption and

Engagement (www.researchexcellence.com).

The Observation Tool

Observation-based studies of naturally-occurring behavior are a mainstay of

anthropological and sociological research, especially in the form of ethnography or

participant-observer studies. The observation method described here is more

appropriately called systematic naturalistic inquiry, as it does not seek to describe a

culture from the perspective of its participants but rather to apply a descriptive

framework predefined by the researchers. Traditional ethnography eschews

quantification; in contrast, our observational technique seeks to systematize observation

in a way which allows quantification. In this sense our approach is more akin to social

interaction analysis studies such as the research by Sykes and Brent (1983) and the

research tradition described by Bakeman and Gottmann (1997). Such systematization

requires a way to support time-stamped observer categorization of observed behavior. As

noted, we used paper logs in MMSI but found them to be burdensome, labor intensive

and error-prone in the process of re-entry of logged data into electronic files.

Sykes and Brent (1983) developed their own custom-designed hand-held

electronic device to support real-time categorization of police and civilian behavior; 25

years later we have the option of selecting from a wide range of commercially-available

mobile electronic devices. We settled on the Dana™ "smart keyboard" from Alphasmart

(Figure 3). This device offers several advantages: touch-screen and keyboard input, a

widely-supported operating system (the Palm™ OS), excellent battery life (up to 10

hours on a charge), support for flash memory cards and rugged construction.

Custom data-logging software *(The Media Collector)* was developed by the CMD for MMSII and improved in subsequent studies (Figure 4). The software offers the observer touch-screen input; location, life activity, and media exposure entries are selected from on-screen buttons and

Figure 3. The Dana™ smart keyboard from Alphasmart.

drop-down menus. Comments and clarifications can be entered into text boxes. For example, if an observer makes a data entry error (such as forgetting to note a change in location when it happened) the necessary correction can be pointed out in a comment field. The correction is then applied during the data cleaning process.
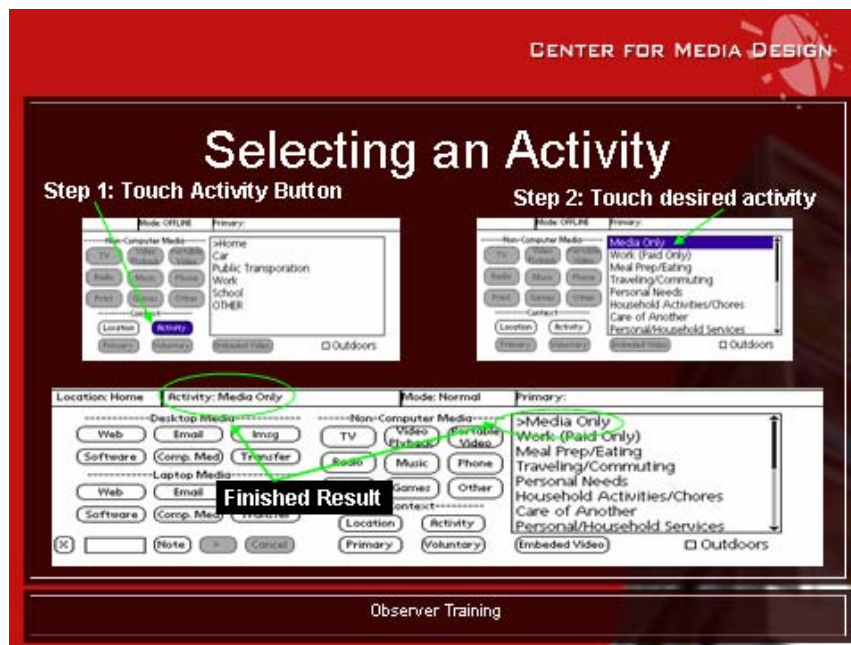

Figure 4. *The Media Collector* screen shots used in observer training.

Some categories may be programmed to require a comment entry; for example, selection of "Other" as the location would require the observer to input a location description. At a predetermined interval (typically every ten or fifteen seconds) the current "observation state" summarizing location, life activity and media exposure is time-stamped and written to a data file stored on the Dana's flash drive.

The Research Process

The Dana™ smart keyboard and Media Collector software provide the core tools for systematic observation and recording of time use in the field; however, they represent only a small portion of the infrastructure and effort needed to execute the observational method. The steps (after study goals and parameters have been established) are described in roughly chronological order below.

Developing the observational categories. Relevant categories for location, life activities, and media exposure are typically developed in consultation with a client (see Appendix). A common challenge in this step is to keep the category systems from expanding beyond the bounds of the cognitive limitations of the human observer and the screen size constraints of the Dana™ device.

Programming *The Media Collector* software. While the foundation code remains the same across studies, minor changes are needed to reflect revised category systems and to incorporate any other study-specific changes to the interface.

Recruiting and training observers. Two observation sessions are required for each observed day. For example, a 400-participant sample requires 800 observation sessions. Even at an average 15 to 20 sessions per observer, 40 to 70 observers would be required. We rely heavily on graduate and upper-division undergraduate students from

academic disciplines with field research traditions, such as sociology and anthropology. In large studies we employ full-time observers rather than relying upon the student pool. Observer training has affective, cognitive and behavioral components. Training is performed by project managers, typically for 6 to 12 observers at a time, and is supported by a multimedia training tool. Observers are familiarized with the value of the research; their duties and responsibilities; guidelines for maintaining personal safety; operation of the Dana™ device and *Media Collector* software and application of the location, life activity and media category systems.

Recruiting participants. Observation is more burdensome to participants than is a telephone survey, focus group or mailed survey; therefore random-digit dialing is not typically an efficient recruitment strategy. We have used random-digit dialing, snowball sampling, purposive sampling and sampling from known cooperators in previous media research. The desired sample profile and selection filters are designed to address client needs; for example, the CRE pilot included Spanish-speaking participants and "hi tech" participants (defined by a set of device ownership and media service subscription criteria).

Scheduling and execution of observations and follow-up interviews. There are considerable challenges in coordinating observation schedules as we match observers and participants on gender and race and seek to distribute observations across days of the week. We seldom achieved more than 10 complete observed days on any single day during data collection for MMSII; a sample of 400 persons may take six to eight weeks. Participant illness, family emergencies, unplanned trips, and changes in observer availability result in rescheduling of approximately 10% of the observations.

Data cleaning and processing. The volume of data is considerable and requires labor-intensive cleaning and processing; for example, MMSII generated approximately 1.2 million raw data records in over 800 separate files. For each case, data files from the two observation sessions must be joined, merged with pre-observation and post-observation reconstruction data, cleaned of known errors noted during the observation and checked for inconsistencies. Trained data cleaners work with observers to resolve any issues surfaced in the data cleaning.

Analysis. The data are immensely rich but the sample sizes tend to be relatively small; we have found much of the research's value to be in simple descriptive analyses at the aggregate levels of media reach (percentage of persons using the media on the day of observation) and duration (per-user average minutes for a medium either). Outputs such as a reach/duration scatterplot (Figure 5) allow easy distinction between high reach/high duration media and low reach/high duration media such as video games. Subgroup comparisons can quickly divide a sample of several hundred persons into unacceptably small cell sizes. Some group comparisons based on traditional demographics (e.g., age range and/or gender splits) are typically performed. In addition to aggregate analysis, the data can be treated with more process-oriented techniques; as the data can be characterized as sequences of discrete events, the family of sequence comparison techniques known as optimal matching, sequence alignment or string edit methods can be applied.
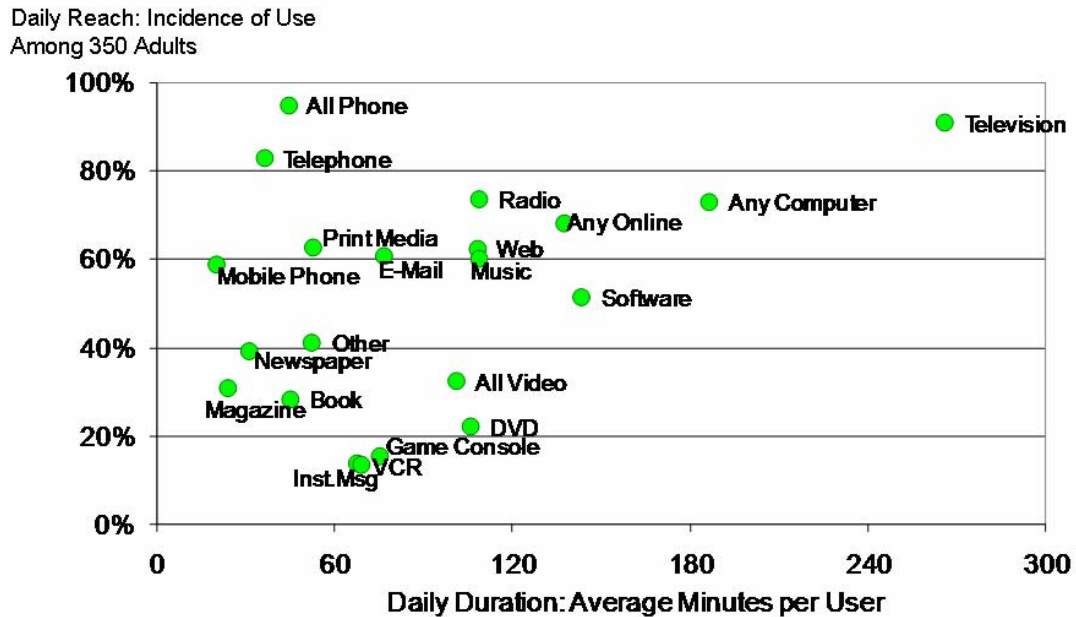
Figure 5. Media reach and duration results for MMSII.

Figure 6 displays a simple aggregate time budget result from MMSII: the distribution of media exposure time across media. Because we also track life activities, we are able to separate "media only" time from "media with other life activities. Observers note which medium appears to have primary attention when participants are exposed to two or more media concurrently,. The combination of "media only/media with other life activity" states with "sole medium/primary medium/secondary medium" states allows us to identify six modes of media exposure, from "sole medium, no other life activity" to "secondary medium, with other life activity." These represent a continuum of potential competition for attention and are the basis for our "Six Degrees of Engagement" model. Figure 7 shows the distribution of exposure across the levels of engagement; note how for most media a large share of exposure is concurrent with non-media activities.
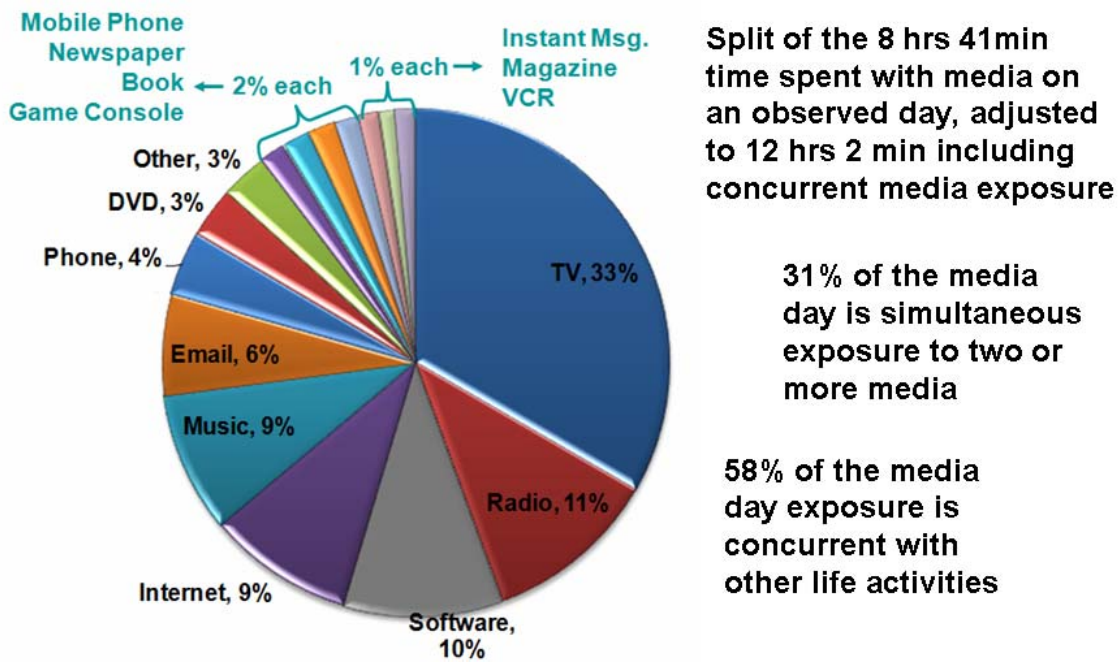
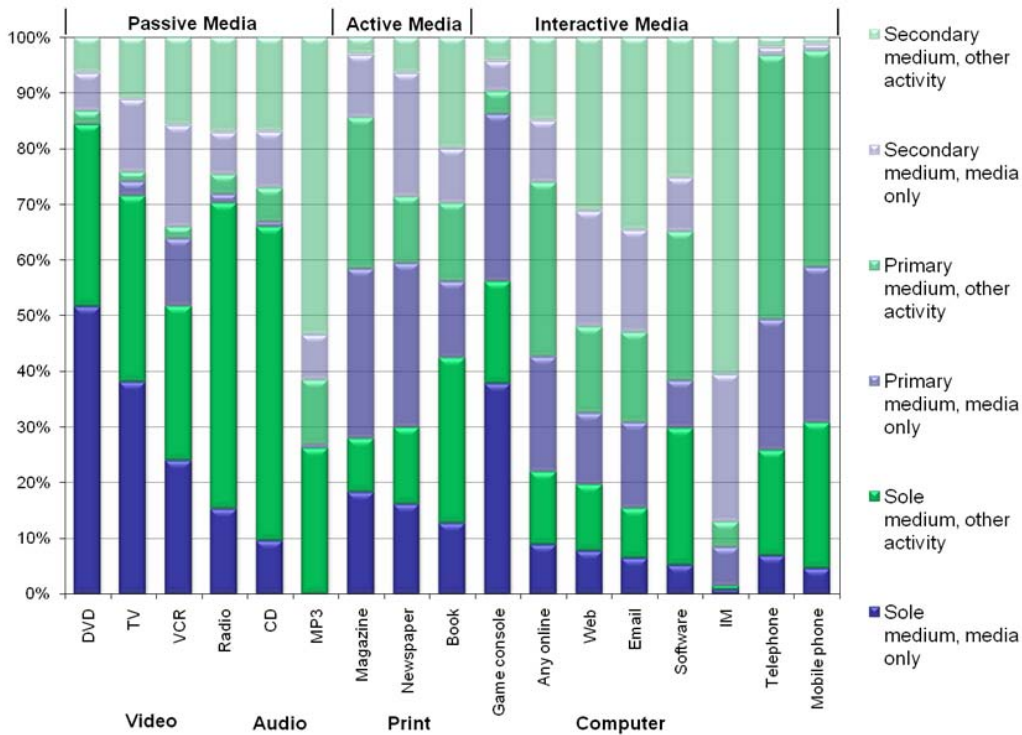Figure 6. Distribution of media exposure across media from MMSII (Papper et al., 2005).

Figure 7. Distribution of media exposure across six levels of engagement.

Lessons Learned

Our literature review in preparation for MMSI revealed few prior observational studies of media use; those we could find were not recent and were limited to very small samples, to small portions of the day, or to a single medium (Papper et al., 2004). The lack of a corpus of observation-based, full-day, cross-location, multiple-media research reflects how daunting such research endeavors can be. Systematic, field-based, naturalistic inquiry into time use is expensive, labor-intensive, difficult and time consuming. Our experience is that despite these barriers it is a feasible method. It is unlikely this form of observational research will become more common; it simply cannot match the price structures and sample sizes of diary and survey research. It does, however, provide a rich and detailed description of people's daily routines unavailable from other methods and should be considered a viable research alternative. We encourage researchers evaluating the method to consider the advantages and disadvantages we have experienced over four years of working with observational methods.

Advantages

The primary advantage of the observational approach is the nature of the data generated. It is rich and detailed data (as demonstrated in Figure 2). Unlike most research examining media time budgets, it is consumer-centric rather than location or platform-centric. The range of locations, activities and media tracked is broader and more comprehensive than can be expected in a self-report diary. The data are also "observer-privileged" rather than "subject-privileged" – that is, observers are trained in the category definitions, so the behavioral record is framed in the meaning system of the researcher, not the meanings of the participants. For example, exposure to TV is consistently defined

and logged by observers, whereas in self-report diaries what one person considers "watching TV" may be different from another's definition ("I wasn't watching, it was just on"). Ethnographers may decry this departure from the participant's own definitions, but systematization into observer-privileged categories allows the quantification of description.

The data are also of fine granularity. The MMSI results (Papper et al., 2004) suggest participants may fail to record some types of media exposures in their dairies; in particular, short-term exposures to media (such as telephone calls or brief use of TV) and "background" media such as radio or music. Short episodes are not lost to an observational approach using a 10 second or 15 second granularity; background exposures are noted by observers even if not consciously noticed by participants. This will be an increasingly important advantage as consumer attention is divided among more and more choices, more mobile platforms, and more concurrent media exposure.

The level of detail afforded by the method serves qualitative and quantitative analysis. The data can be used to generate timelines which can be read and interpreted to explore the relationships between location, life activities and media. In Figure 1, for example, it is clear that land line telephone use is associated with work for this participant; after work hours her phone use shifts almost entirely to the mobile phone. The map can be read as a narrative of the flow of the participant's day; but because the data are structured and time-stamped in consistent time intervals, we can also generate quantitative time budget aggregate measures, as displayed in Figure 6.

We also see the incorporation of media as a stream of behavior parallel to other life activities as a unique advantage of the method. Large portions of our participants'

days consist either of media use as the sole activity or of media use concurrent with a non-media activity – to treat life activities as distinct from media, with media use as simply one category of activity, neglects the central role of media daily routines. Life activities shape media use, and vice versa. Examining both at the same level of granularity allows exploration of this interdependence (as demonstrated in Figure 7). The importance of attention to media, at least in studies of time use in the U.S., is underscored by Figure 8. Each thumbnail image maps exposure to a particular medium or set of media for all fifteen participants from our pilot study of teenagers (Papper, Holmes & Nyce, 2007).

Our observational studies are designed to describe behavior; however, the method can be further enriched by addition of economic, sociographic and psychographic measures. In MMSII we inventoried our participants' media devices and services, surveyed their media uses and gratifications, appraised their levels of community involvement, profiled their personalities with the widely-used Big 5 personality inventory, and used GIS analysis to link them to the economic profiles of their U.S. census block clusters. These companion data sets greatly expanded the number and range of analyses we could perform.
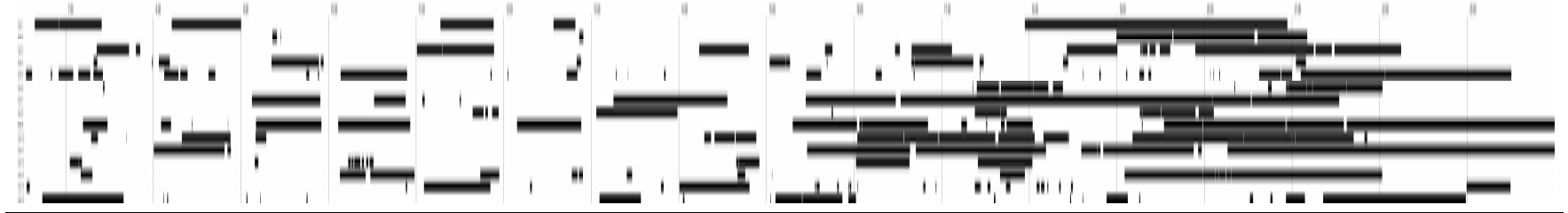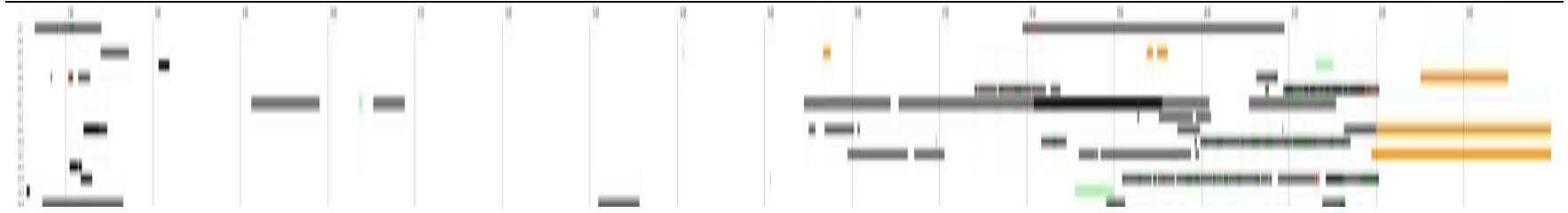
Any media

Any screen-based media (i.e., TV, video, computer, console game, cell phone)

Television

Note: Each horizontal row represents one participant's exposure to the indicated medium. Color changes within a given medium indicate different platform or genre categories within that medium.

Figure 8. Composite timeline thumbnail images for selected media for all participants in the teens pilot study (Papper et al., 2007).

Print (note the preponderance of print media during the school day, 8:00 a.m. to 3:00 p.m.)

Computer

Music (note the heavy presence of music after school to early evening)

Note: Each horizontal row represents one participant's exposure to the indicated medium. Color changes within a given medium indicate different platform or genre categories within that medium.
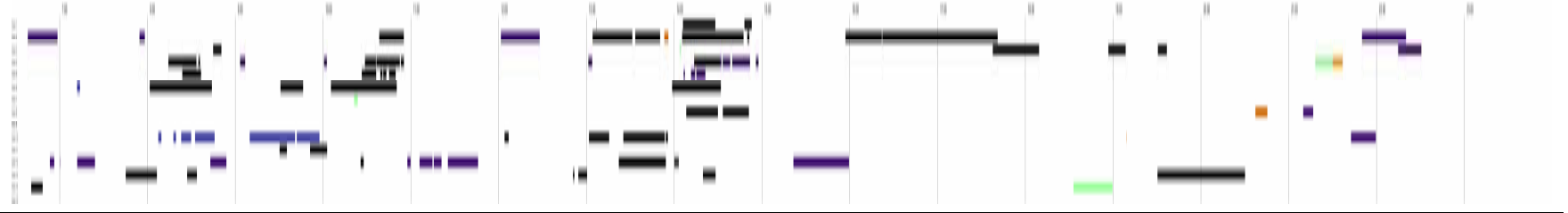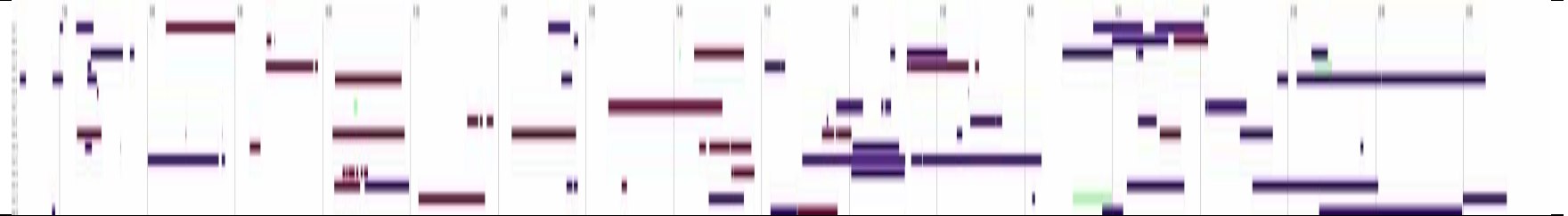
Figure 8 (continued). Composite timeline thumbnail images for selected media for all participants in the teens pilot study.

Disadvantages

Observational research is expensive. Participant incentives range upward from US $100; equipment, software, training, observer and staff salaries and other costs are considerable. The cost differential between survey research and observational research can result in "sticker shock." The total direct and indirect cost per participant, even in the advantageous cost structure of a public university, can easily exceed $1000. In return for such large costs, research sponsors often want to be confidently able to generalize from the results. Two potential barriers to the generalizability of observational research are sometimes raised: the observer effect and the representativeness of the sample.

All research methods alter the system of behavior they measure; self-report methods, for example, do not measure behavior but rather self-perceptions of behavior and may trigger various self-report biases. It may be impossible for a participant to log behavior as it happens (a behavior which itself could alter subsequent behavior); recall measures are necessarily inexact and limited (could you confidently report how many phone calls you made yesterday, and for how long?). Similar objections can be raised to observation, especially due to the potential influence of the presence of an observer. Such influence cannot be denied: In nearly 10,000 hours of observation, we have yet to record a single instance of exposure to print, video or Web pornography. How lasting and how strong the observer effect may be is unknown. We have anecdotal testimony from participants that they ignored observers and went about their days; post-observation interviews do not reveal any reported distortions or peculiarities arising from observation. There is no gold standard against which to gauge the observer's impact, for no other method yet provides a similarly rich and comprehensive data set. We do, however, have

several reasons to believe the observer effect is not a fundamental threat to the validity of the data.

First, the results across our studies show face validity. The individual and composite pictures of activity and media use are internally consistent and coherent. Second, there are suggestions of convergent validity. In cases where other measures are available for comparison (as in TV and radio), our results tend to match Nielsen's TV use measures when adjusted for our cross-location measurement (Papper et al., 2005); similarly, our radio exposure results are congruent with Arbitron's "personal people meter" radio measures. Third, not all media use and life activities are volitional; non-volitional activities such as work, eating or child care are less likely to be influenced by an observer's presence. Lastly, much of a day may be spent with other people in any case; the observer's presence is often not the difference between being alone and being observed, it is the difference between being with familiar others and being with those others plus a (relative) stranger.

Researchers accustomed to evaluating research according to whether it is based on a large, high-cooperation random sample will balk at the sample profiles of observational research. The high costs per participant keep sample sizes relatively small (we have yet to find any studies similar in size to MMSII) and the obtrusiveness of the method means cooperation rates are well below the 20% to 30% expected in media research for "currency" measures. The potential for sampling bias is apparent. We have confronted several sampling challenges in our studies. Certain populations are difficult to recruit (we have found those without high school diplomas to be the most difficult). In the U.S., it is more difficult to recruit for Sunday observations. Those who work in

sensitive or dangerous work environments (legal offices, medical facilities, foundries, etc.) will tend to accept only for non-work days or will decline to participate. We also have to assume our participants may, on average, be more outgoing and sociable than the norm – the shy person or recluse is unlikely to welcome a full day of shadowing. We have addressed most of these concerns through purposive or stratified sampling; however, recruitment challenges still drive up costs and extend the time needed for recruitment.

The difficulty of quantifying observer reliability is another disadvantage of large observational studies. Many interaction analysis studies of the type described by Bakeman and Gottman (1997) rely upon a small number of observers to categorize all of the data. In these cases well-established measures guidelines for acceptable inter-coder reliability are available, and the reliability measures are easily computed by having two observers simultaneously code the behavior as it happens or code a video record after the fact. Observation in the field precludes simultaneous coding as a reliability check; in any case, only a small number of observers could be tested against each other. Instead of a comprehensive reliability test, we test observer reliability against a canonical coding of a training video. While the test video is carefully designed to include a wide variety of coding choices, it can never capture the complexity of a full day of behavior. The appraisal of observer reliability therefore remains a challenge for us. There is some reassurance, however, in the fact that most observer judgments are relatively objective. Location, life activities and media exposure are defined in behavioral rather than subjective terms. While we remain concerned about demonstrating inter-coder reliability among thirty to fifty observers, we still see some advantage in the use of trained

observers; in contrast, in self-report diary studies the number of (untrained) observers is equal to the sample size.

A final potential disadvantage has yet to be tested. Thus far our studies have been confined to communities in Indiana in the Midwestern United States. Residents in this area can be characterized as relatively receptive to research (due to the large number of universities) and non-litigious (the issue of liability for possible injury in the home or workplace is seldom raised). Cultural differences may make the method unsuitable, in its current form, in markedly different cultures with different expectations of privacy, face, class and sociability, or with different levels of litigiousness.

Conclusion

We have provided a brief introduction to an observational method for the naturalistic study of how people spend their time in life activities and in exposure to media. The method is conceptually simple but complex in execution; the data generated are incredibly rich but come at a considerable cost. As with any form of research, the advantages and strengths are offset by a number of disadvantages and weaknesses; but though all research requires compromise, this does not mean all research is *compromised*. Access to a variety of methods and data types insures the vitality of an area of study. Observational research cannot and should not be seen as an infallible solution to the challenges of time use research; however, it should be seen as a viable method which provides another point of reference in the constellation of evidence from which we generate our understandings of how people use their time.

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Appendix: Example Media Collector Category System

Locations

1. Home
2. Car
3. Public trans (e.g., bus, train)
4. Work
5. School
6. Other

Life Activities

1. Media only
2. Work
3. Meal prep/eating
4. Traveling or commuting
5. Personal needs
6. Household activities or chores
7. Care of another
8. Personal/household services (e.g., haircut, dentist, lawn services, medical)
9. Shopping
10. Education
11. Religion (includes church organizations)
12. Organizations (Civic, govt., community)
13. Social activities (Socializing)
14. Exercise/sports/hobbies
15. Other

TV

1. News program
2. Sports program
3. Entertainment/info program
4. Ad/Program promotion
5. Surfing
6. Navigation (e.g., program guide)

Video Playback

1. Videotape
2. DVD
3. Tivo/DVR
4. Other

Radio

1. ON

Web

1. Search (Yahoo, Google, Ask, etc.)
2. Social network (Myspace, etc.)
3. Online gaming
4. Media source browsing (YouTube, iTunes, etc.)
5. Other

Email

1. ON

Instant Msg

1. ON

Software

1. Office/writing/work
2. Offline PC Game
3. Online PC Game (non-web)
4. Media (photo/imaging/video/sound/etc.)
5. Other (Programming, CAD)

Computer Media

1. CD on Computer (includes SACD)
2. DVD on Computer (includes music DVD)
3. Digital Music Stored (on hard drive)
4. Digital Music Streaming (real-time)
5. Digital Video Stored
6. Digital Video Streaming
7. Other

Phone

1. Landline
2. Mobile Talk (includes push-to-talk and searching contact directory)
3. Mobile Texting/SMS
4. Mobile Camera
5. Mobile Video
6. Mobile Audio (MP3)
7. Mobile Games (any built-in game)
8. Mobile Web (includes online game)
9. Other

Portable Video

1. Portable DVD
2. Non-DVD (Video iPod, PSP UMD, PDA, etc.)
3. Other

Music

1. Portable Music (iPod, Walkman, Other MP3)
2. Home/Office Stereo (includes boomboxes)
3. Other (e.g., music in retail setting)

Print

1. Newspaper
2. Magazine
3. Book
4. Other

Games

1. Console Online
2. Console Offline
3. Portable (PSP, Gameboy, etc)
4. Other video game (arcade, DVD extra, etc)

Digital Transfer

1. Download audio
2. Download video
3. Upload audio
4. Upload video

[device to device or device to computer]

Other

1. Cinema
2. Other (walkie talkie or other 2-way radio, etc.)