

Media Multi-Tasking in Early Childhood

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Most of the discussion concerning media multi-tasking focuses on older children and adolescents, insofar as they are relatively sophisticated users of game consoles, computers, hand-held games, texting devices, and others. Cumulatively, they are also heavy media users, often with several media in use simultaneously.

There has been much less discussion of the precursors of media multitasking in infancy and early childhood. That is the focus of this memo.

- As a general background point, it should be noted that most of the brain systems underlying the deployment of attention are highly immature at birth and undergo massive development and organization during the first few years of life. The neural systems and associated attention skills undergo prolonged development. There is evidence that this development is not purely maturational, but is substantially influenced by children's social and physical environment, experiences, and education.
- Because infants pay little obvious attention to most television content or to any other electronic medium, it is likely that parents believe that watching TV, listening to music or talk radio, or using other media has no impact on their child.
 - A consequence is that heavy media-use households probably do not modify their media use habits in deference to the infant. If anything, media use may increase if a parent has maternity or paternity leave in order to care for the infant. Activities such as nursing may well go on in front of the TV or accompanied by music media.
 - From very early ages, therefore, many infants must distinguish between highly important and relevant real-life situations and the attention-getting dynamic audiovisual, but largely irrelevant, stimuli presented by household media.
 - While this situation has been around at least since the advent of radio, over time, media have become more prevalent and more salient in the household, culminating in large format HD video with surround sound.
- In a study published in *Child Development*, we found that background, adult television disrupted toy play by toddlers from 12 to 36 months of age. Play episodes were shorter and attention during play was less focused. The adult TV program elicited many very brief looks at the TV by the toddler. The more looks at the TV, the more play was disrupted.
- Adult-directed media that are in the background the very young child are in the foreground for the adult. After all, the media are there because an older person

chose it. Adults, including parents, become attentionally engaged with these media.

- In a study that is in press in *Child Development*, we found that when an adult-chosen program was on TV, parents were substantially less engaged with their toddlers. They interacted about 80% as much as when the TV was not on, and their interactions tended to be of a more passive nature.
- Starting at about 2 years of age children begin to substantially understand and learn from programming that is produced for them. Many preschool child TV viewers watch TV in their own bedrooms or in a playroom where toys are present. They also may watch with older or younger siblings. From these early ages children commonly watch TV while they play with toys or engage in social interactions. This is the earliest form of media multitasking (if toys can be considered a type of medium). In laboratory studies, preschool children, while they are playing with toys, look at and away from the TV about 150 times an hour (studies from our laboratory).
 - By age 5 years, this multi-tasking becomes fairly sophisticated in nature. In particular, children learn to monitor the TV audio for features that can cue them when to pay full attention to the program. In several studies, the sophistication is manifested by equivalent levels of program comprehension whether or not the toys are present despite substantially different levels of looking at the TV. In other words, children learn when and how to look at the TV while they are engaged in another activity.
- It is likely that these early media multi-tasking strategies form the early skill basis for attention deployment during later forms of media multitasking.
- However, given that children have different experiences with background media exposure and with multi-tasking during foreground media use, it not now known whether and how these experiences are related to later media multi-tasking or how they are related to later cognitive and attention skills more generally.