How do the affordances of tools, spaces and relationships impact multitasking?

Like any cognitive activity, multitasking is embedded in a context and tied to social relationships and the affordances of tools. As such, some tools or contexts impact multitasking more than others.

Tools. The iPhone has emerged as one of the most effective multitasking tools of late. In fact, with features such as playing music while checking your email, it's explicitly designed to support doing more than one thing at once. It also connects tasks across applications, from email to the browser to a YouTube video, it feels seamless despite these shifts. Though iPhones mostly belong to adults, our research shows parents often share them with their children. In interviews and observations with children as young as 3, we see them using the device in much the same way as adults – engaging in and switching activity constantly. Most notably, they fluidly alternate from 'lean back' activities (watching videos) to 'lean forward' play (interactive games). They understand the flexibility of the platform. The affordances of the device – portability, a quick 'eject' button and easy access to diverse applications – enable effortless multitasking.

Social Relationships. The other aspect of context I'd like to better understand is how relationships impact multitasking. Parents I've interviewed feel their children take on different identities as they move through their day and as such, express different skill sets. How does multitasking vary pending on when a child is in her role as big-sister at home, versus athlete being coached after-school, versus friend out at the café texting with classmates versus daughter doing her homework after dinner?

Parents are unsure of the value of multitasking – is it something to be embraced? Tolerated? Nurtured? Shunned?

Parents seek guidance in this media-rich landscape. To many parents, multitasking amongst children feels unnatural and unhealthy largely because it's a deterrent to focused activity. Where is the value? The undertone of the following quotes suggests parents are uncertain if multitasking is a skill that benefits their kids and comes naturally or if it is a by-product of an oversaturated media landscape. In other words, is it a core competency to be nurtured or a survival mechanism due to too much information? Perhaps it's a little of both.

"I'm not in a rush for my kids to become savvy. I read that kids that grow up immersed in new media will have an advantage in the future business

world, but I'm really not that concerned that taking it slowly will put them at an insurmountable disadvantage." *Father of an 8, 5 and 4-yr-old*

"I think multitasking will be the generation gap that separates me from my kids, much in the way learning to program the VCR separated me from my parents." *Father of a 9-year-old.*

"Multitasking is a lie and I don't believe kids are better at it than adults. They may actually be worse, from my observations." *Stay-at-home father of a 12 and 15-yr-old*

"Aren't kids multitasking because they're over-tasked to begin with?" *Mother of 10-yr-old*

"I don't know whether we are just 'old-style' parents and 'depriving' him of the scatterbrain-inducing experience of multitasking... So far, he's quite happy being totally absorbed in one activity at a time." *Father of a 7-yr-old*

"My 3rd grader regularly takes a book everywhere, including in front of the TV. We're used to it." *Mother of a 9-yr-old*

Given these viewpoints, how might we design media-rich educational experiences that parents can feel good about? One possibility is to design multi-modal educational environments and experiences. For example, build pacing into an experience that enables multitasking at times and focused attention at others. Design media to support multitasking, but don't multi-task the learner. Provide feedback makes transparent the value of multitasking to both parents and kids.

Models of multitasking
I am curious about the development of models that can help guide our understanding of this phenomenon and, ultimately, inform the design of artifacts and experiences.

- How does multitasking differ in virtual spaces and the real world? Do kids multitask differently within media worlds versus across physical objects and spaces?
- When it comes to multitasking, what is the relationship between passive inputs (music, TV) and active outputs (speaking, writing)?
- When does multitasking generate flow and when does it overwhelm? While multitasking is often thought of as a survival skill in an over-tasked situation, some designed experiences utilize multitasking as the core activity because it can be stimulating and energizing; a Flow experience. For example, World of Warcraft continues to thrive in large part because of its layers of multitasking. A single moment of play often involves strategizing, communicating and executing.