Editorial for Interactive Learning Environments 26:3

**Stop daydreaming, pay attention**.

There was a time when we would daydream by looking out of the window. Do we still? Or do we do our daydreaming now by looking through the screen window at the world outside? Device screens – cells, tablets, laptops. Same activity, same lack of purpose, same delightful way to pass the time. What is clearly different is the reach of what we can see through screens, the sheer endless novelty to be found online.

Of course, we also use our screens purposefully, for information search, professional tasks, knowledge work. But in between the purposeful activity is the lure of the surf, the butterfly hyperlinking and the appeal of novelty. Hardly surprising then that for learners, it can be difficult to pay attention. Whether in physical or virtual classrooms, the screen offers us the constant temptation of diversionary activity – virtual daydreaming.

We know from cognitive psychology that paying attention is an integral step in learning. Schmidt (1995:7), in the context of second language acquisition, argues that attention is crucial to learning whether or not this is supported by the intention to learn. Many psychologists suggest that there is no learning (declarative or procedural) without attention, arguing that attention is required for long-term memory storage to occur. There is a general consensus that the more we attend, the more we learn. Schmidt also points out the potential distinction between noticing and attending. Tomlin and Villa (1994) suggest that attention can be seen as three separate networks of alertness, orientation and detection, together opening the mind to be ready to deal with stimuli as a positive process, not just the state of being aware.

There are theorists who argue for unconscious or incidental learning, where the role of attention is minimized, Eysenck (1982:72), for example, suggests that what matters is not intentionality but how the task forces the material to be processed, offering experimental evidence with high and low incentives to learn.

Bandura's focus on attention lies at the heart of his Social Learning Theory (1971) where attention plays a foreground role in stimulating modelling, which is considered to be a prime source of learning behaviours: "a person cannot learn much by observation if he does not attend to, or recognize, the essential features of the model's behaviour." (p6). He points out the mediation of attention by interpersonal attraction (p7) which could be argued to be related to the noticing process. Turning our attention to learning from text, Suzanne Hidi and K.Ann Renninger (2006) discuss attention, along with goals and levels of learning, as being profoundly influenced by levels of interest. Their research is set in the context of academically unmotivated students and their notion of "situational interest" (p113) includes both focused attention and the "affective reaction stimulated in the moment by environmental stimuli…". It is this situational interest which in turn is said to influence cognitive performance. It is triggered by personal relevance, surprise, incongruity or intensity.

Perhaps these triggers then should be the way we foster attention to learning content. But this might argue that we become designers of "edutainment", constantly seeking to surprise and hook the learner into attending to our materials in order to achieve learning outcomes. Today's multi-tasking learners do not have to stir from their screens to find excitement in video, livestreaming tweets, breaking news and friends' picture messages. Should learning

designers be trying to compete with this hyper-attractive world, or should they focus on simple and engaging screen content and activities to encourage attention?
What we do know is that engaging in multiple online activities at the same time as trying to learn can decrease performance by dividing a limited capacity for attention, see for example Junco & Cotton 2012:512. There are many different experimental ways this can be demonstrated. But in the first article in this issue, Han takes these ideas further by introducing levels of cognitive load and finding that at medium levels of load, a second device used alongside a first screen can be beneficial to learner performance, attention and satisfaction.
We still have much to explore about the way multiple demands on our limited attention can affect interaction and learning, as the other articles in this issue amply demonstrate through the use of games, mobiles and microworlds. Personally, I sometimes find great satisfaction and opportunities for learning in diverting my attention from my screen-view of the world, sitting in a public place and watching others absorbed in their screen-worlds. I can stare at them for a considerable time, possibly day-dreaming, they pay me no attention.

Sue Greener
Co-editor

References

Bandura, A. (1971) Social Learning Theory. (1:46)New York: General Learning Press.
Eysenck, MW (1982). Attention and arousal. New York : Springer-Verlag
Hidi, S. & Renninger, K.A. (2006) The four-phase model of interest development, Educational Psychologist 41(2) 111-127
Junco, R. & Cotton, S.R. (2012) No A 4 U: The relationship between multitasking and academic performance. Computers in Education 59 (2012) 505–514
Schmidt, R. W. (1995). Consciousness and foreign language learning: A tutorial on the role of attention and awareness in learning. In R. Schmidt (Ed.), Attention and awareness in foreign language learning (pp. 1–63). Honolulu: University of Hawai'i Press.
Tomlin, R.S. & Villa, V. (1994) Attention in Cognitive Science and Second Language Acquisition. Studies in Second Language Acquisition. Cambridge University Press, 16(2) 183-203