

What Inspires Leisure Time Invention?

Lee N. Davis

Associate Professor, Department of Innovation and Organizational Economics,
Copenhagen Business School, Kilevej 14a, DK-2000 Frederiksberg, lda.ino@cbs.dk

Jerome Davis

Full Professor, Canada Research Chair in Oil and Gas Policy, Department of Political
Science, Dalhousie University, 6135 University Ave., Halifax, Nova Scotia, Canada
B3H 4H6, Jerome.Davis@Dal.Ca

Karin Hoisl

Post-Doc, Institute for Innovation Research, Technology Management, and
Entrepreneurship (INNO-tec), Munich School of Management, Ludwig-Maximilians
University Munich, Kaulbachstr. 45, D-80539 Munich, hoisl@bwl.uni-muenchen.de

ABSTARCT

This paper seeks to understand the intriguing but only sparsely explored phenomenon of “leisure time invention,” where the main underlying idea for the new product or process occurs when the inventor is away from the workplace. We add to previous research by focussing on the inventive creativity of the individual researcher, and reassessing the image of researchers inventing during unpaid time – who have often been dispatched as “hobbyists”. Based on the responses from a survey of 3,000 German inventors, we test hypotheses on the conditions under which leisure time invention is likely to arise. We find that the incidence of leisure time invention is positively related to exposure to a variety of knowledge inputs – but, surprisingly, not to the inventor’s qualitative productivity. Leisure time inventions are more frequently observed in conceptual-based technologies than in science-based technologies, in smaller R&D projects, and in externally financed R&D projects. The inventors are also more likely to be older, less well-educated, and self-employed.

SUMMARY

When industrial R&D personnel sharpen their pencils and turn out the lab lights prior to setting off for home, to what extent do they pigeon-hole their creative work, and abandon workplace thinking, to concentrate on the other obligations and pleasures of leisure time? The fundamental insight leading to a successful invention can be made during (paid) work time, or (unpaid) leisure time. Leisure time inventors are often dispatched as hobbyists, and their inventions disparaged as marginal improvements of low economic value (e.g. Dahlin et al., 2004; Rosenberg, 1994). Yet well-known instances of leisure time inventions include the Wright brothers’ “flying machine” (e.g. Heinsohn, 2007), Fry and Silver’s invention of Post-It Notes at 3M (e.g. Reid and De Brentani, 2004), the first Apple computer (Åstebro, 2003), and Bednorz

and Müller's Nobel prize-winning discoveries in superconductivity (Emanuelson, 1999). All these inventions eventually led to multi-billion dollar businesses.

As Shalley et al. (2004) point out, to better understand the antecedents of creativity, it is beneficial to expand the range of personal and contextual factors investigated. This study explores the conditions under which leisure time invention is likely to arise. We differentiate between "leisure time invention," and "work time invention," according to the time at which the *main underlying idea* for the invention occurred. The resulting invention may – or may not – be related to the inventor's work time activities. Possibly it was further developed in the inventor's leisure time, but it may also have been developed during work time, or a combination of the two. Our analytical focus is thus at the level of the individual invention.

To our knowledge, this is the first empirical survey of the determinants of what inspires leisure time invention. Thus far, there has only been some suggestive work on the jointness between leisure time and work time invention (Davis and Davis, 2008). Our paper differs from most studies on corporate inventiveness, which focus on organizational design to improve worker creativity and performance (for example, Elsbach and Hargadon, 2006, Hargadon, 1999; Hargadon and Sutton, 1997; Weick, 1979, Hackman et al., 1975). Some scholars analyze creativity and the lone inventor (see for example Dahlin et al, 2004; Fleming, 2006). Economists have examined unpaid work (subsistence production, housework, work in the informal sector of the economy, and volunteer work, e.g. Beneria, 1999), but none include inventive activity in their analyses.

Based on the responses from a survey of 3,000 German inventors, we test hypotheses on the conditions under which leisure time invention is likely to arise. We find that the incidence of leisure time invention is positively related to exposure to a variety of knowledge inputs – but, surprisingly, not to the inventor's qualitative productivity. Leisure time inventions are more frequently observed in conceptual-based technologies than in science-based technologies, in smaller R&D projects, and in externally financed R&D projects. The inventors are also more likely to be older, less well-educated, and self-employed.