In this paper, we explore how different forms of prototyping affect the innovation behavior of project teams. Prototyping is used to embody design hypotheses, which can then be quickly tested and refined. It is believed that this quick testing supports innovation, but we argue that only some forms of prototyping support innovation and others hamper it. Our research finds that it is predominantly low-fidelity prototyping that is likely to incite playfulness, which is a key antecedent to exploratory learning, the precursor to innovation. We use case studies as a first step in investigating how different forms of prototyping influence playfulness and subsequently, its effect on innovation. Our analysis of two software services projects lends support to the hypothesis that the extensive usage of IT-enabled prototypes hampers exploratory activities in contrast to low-fidelity paper prototypes. Overall this work suggests that prototype tool selection is an important element in fostering innovation.