Abstract: Previous research indicates that students’ adaptation to task complexity in the planning stages of self-regulated learning are related to their epistemological beliefs (Stahl, Pieschl, & Bromme, 2006), but it is an open issue if students enact similar strategies in subsequent stages. Based on the COPES-model (Winne & Hadwin, 1998) the impact of epistemological beliefs on learning is tested here experimentally. In this study, students (21 humanities students, 14 biology students) had to solve five tasks of different complexity (Anderson et al., 2001) with a hypertext on “genetic fingerprinting”. Results indicate that students adapted their concurrent thoughts and concurrent actions to task complexity in this enactment stage. An epistemological sensitisation was administered that elicited more “sophisticated” beliefs and caused more elaborate learning processes. For example, students with this sensitisation employed more metacognitive planning, especially for more complex tasks. Additionally, effects of prior domain knowledge were investigated.