Summary

High demands are a pervasive condition in many people’s professional, academic, and social lives. High demands occur, for instance, when people have many pressing affairs simultaneously on their mind. Because high demands can make people less successful at reaching their goals, it is important to understand how people can cope effectively with high demands. The present dissertation examines coping with high demands from an action control perspective (Kuhl, 1984, 2000). Action control refers to the mental processes that are involved in the formation, maintenance, and implementation of (or disengagement from) an intention. Such processes rely on a high-level working memory system that is partly located in the prefrontal cortex.

In the present dissertation, high demands refer to conditions that are characterized by sustained use of working memory. Sustained use of working memory can lead to a transient decline of its effectiveness. Because working memory effectiveness is a key function of action control, strong action control skills may be an important factor in coping with high demands. Accordingly, the present dissertation tested the hypothesis that individuals who are highly skilled at action control, or action-oriented individuals, cope more effectively with high demands than individuals who are less skilled at action control, or state-oriented individuals.

In three series of studies, I experimentally induced high versus low levels of demands or I measured participants’ level of demand in their real lives. Coping effectiveness among action-versus state-oriented individuals was measured across three major psychological domains including cognition, affect, and behavior. In a first line of research (Chapter 2), action- compared to state-oriented individuals were found to be better able at cognitive shielding as reflected by the efficiency with which people can make use of their working memory capacity under high demands. Specifically, action-oriented individuals displayed more efficient use of their working memory capacity in an “operation span task” (Study 2.1) and a “postponed intention task” (Study 2.2) under high compared to low demands. Among state-oriented individuals, I found the reversed pattern such
that high demands led to less efficient use of working memory than low demands. A second line of research (Chapter 3) revealed that action-oriented individuals are also better able at affective shielding as reflected by their positive affective reactions in response to subliminally primed negative affect in comparison with state-oriented individuals’ reactions (Study 3.1).

In a third and final line of research, action- compared to state-oriented individuals were also found to be better able at behavioral shielding (Chapter 4) as reflected by the ability to implement a difficult intention. Specifically, in a series of “Stroop color evaluation tasks”, action-oriented individuals were found to be better able to override a strong but inappropriate response tendency (Studies 4.1 – 4.4). Across all three lines of research, improved performance among action- compared to state-oriented individuals was found only under high but not under low demanding conditions indicating that action compared to state orientation reflects better coping abilities rather than better overall mental skills across conditions.

To integrate the findings, the present dissertation proposes the “updating model” of action control and coping with high demands (Chapter 5). Based on recent neuro-cognitive theories of working memory regulation (Braver & Cohen, 2000; Kuhl, 2000), the updating model suggests that high demands inhibit the neuro-cognitive pathway between working memory and behavioral output systems thereby rendering an updating of information between these two systems difficult. When updating fails, working memory utilization becomes less efficient, and intentions become less available to guide behavioral output. Furthermore, pathway inhibition is linked to decreased dopaminergic activity and reduced positive affect. Taken together, failure to update working memory is likely a reason for detrimental effects of high demands on different psychological domains including cognition, affect, and behavior.

The updating model further suggests that action compared to state orientation facilitates the updating function of working memory. A likely way how action orientation restores the updating function is by upregulating positive affect (cf. Koole & Jostmann, 2004). The empirical test of this
assumption provides an important task for future research on effective coping with high demands. Chapter 5 provides some ideas about how this task may be accomplished. In sum, the updating model integrates the findings of the present dissertation with contemporary theories of working memory regulation, and provides some promising perspectives for further research.