### 7.3 Valorization Addendum

The dissertation covers a topic that is highly relevant for both individuals and society yet has been understudied to date. Policies based on human capital theory mainly aim to reduce the impact of the family on education decisions and outcomes by eliminating credit constraints (Björklund and Kjell, 2011). Deficits in the personality traits emotional stability and conscientiousness related to pessimistic expectations, a higher stress-reactivity and a reduced problem-solving ability in unavoidable challenging situations as well as possible adverse consequences for mental health, education achievement and other important socioeconomic outcomes throughout life are still mostly neglected in many schools and assumed to be mainly the responsibility of the parents.

However, studies show that the child’s level of emotional stability is both genetically and culturally highly influenced by the social environment and primarily the family. Thus, neuroticism is considered as 50% to 60% heritable, but can also develop based on continuous exposure to anxiety and stress (Cuijpers et al., 2010; Roberts, 2009). Similar findings also exists regarding the personality trait conscientiousness (Luciano et al., 2006; Eisenberg et al., 2014).

This makes it likely that the parents themselves either exhibit high neuroticism or low conscientiousness and are less likely to be able to support their children to compensate inherited and acquired personality deficits. Accordingly, the probable distress, problematic problem-solving strategies and the higher probability of experiencing failure in challenging situations in various life spheres is likely to remain untouched until it becomes obvious due to behavior and mental health problems or early school drop out.

Supporting particularly at-risk pupils by adjusting negative beliefs and expectations as well as fostering problem-solving skills might be a promising means to boost education outcomes and reduce mental health problems in adolescence and adult age. School interventions addressing the individual development, but also the environmental conditions might help to decrease mental and financial costs, improve life chances of particularly disadvantaged children and decrease intergenerational inequality. Cost-benefit studies based on existing school interventions suggest that the individual and social non-pecuniary and monetary benefits of such interventions throughout life are likely to exceed their costs. Therefore, policy-makers should in-
creasingly become aware of these opportunities and use them to expand the common policy option of reducing credit constraints for education.

Psychological and economic studies provide insights into existing programs that aim to foster the individual development and support both parents or teachers in providing a more constructive and encouraging environment. In the following, some strategies that have the potential to break the destructive circle of self-fulfilling prophecies are exemplarily introduced.

Several studies show that the treatment of pessimistic beliefs and expectations is promising to boost mental health, but also other socioeconomic outcomes such as educational achievement. “Beck saw successful treatments as changes of the negative cognitive set (e.g., “I am an ineffective and helpless person”) to a more positive set (Beck, 1974). He argued that the primary task [...] is to change the negative expectational scheme of the depressed patient to a more optimistic one. To reach this goal, it has to be explained to the patient where he is beginning to misinterpret reality. In a second step, the patient’s thinking, i.e. his conceptions, can be modified by learning alternative and more positive conceptions” (Henkel et al., 2002, p. 246).19 This is in line with studies for nonclinical individuals. Reivich et al. (2013) review the Penn Resiliency Program (PRP) as an example of cognitive-behavioral school interventions and suggest that mental health problems such as depression and anxiety can be reduced by promoting accurate cognitive styles. Seligman (2006) provides techniques to challenge the individual negative explanatory style in negative life events, gives advice how to specifically enhance optimism in school and presents empirical evidence about the positive association between optimism and socioeconomic success in life.

Hopper and McHugh (2013) show that the college students’ task performance in a learned helplessness situation is significantly better when using cognitive defusion techniques in comparison with a control group. Cognitive defusion is related to acceptance and commitment therapy (ACT, Hayes et al., 1999). “ACT clinicians encourage clients to defuse from their negative content by viewing their thoughts as just thoughts rather than considering them to have literal meaning (Healy et al., 2008)” (Hopper and McHugh, 2013, p. 210). Other related studies suggest that

19 This in line with several studies. See for instance Scott et al. (2000), Teasdale et al. (2000), Jarrett et al. (2001) and Paykel (2001).
defusion techniques are efficient in dealing with unwanted pessimistic thoughts and they reduce the believability of negative statements as well as the associated level of distress (e.g., Masuda et al., 2004, 2009; Deacon et al., 2011).

Paunesku et al. (2015) conducted a program intending to boost student’s persistence in academic challenges. “The growth mindset intervention counteracts the fixed mindset [...]”, which is the belief that intelligence is a fixed entity that cannot be changed with experience and learning. The program teaches scientific facts about the malleability of the brain, to show how intelligence can be developed. It then uses writing assignments to help students internalize the messages (Claro et al., 2016, p. 375). They find that the intervention significantly boosts the grades among students at risk of high school drop-out. Claro et al. (2016) show that the growth mindset intervention is particularly beneficial for students from disadvantaged backgrounds.

Last but not least, Chaplin et al. (2006) designed a cognitive-behavioral and social problem-solving intervention to reduce and prevent depressive symptoms among girls. They find significantly positive effects that might arise due to the participant’s social interaction, emerging friendships and exchange about destructive thoughts, problems and ways how to overcome them.

An overview and discussion about strategies targeting educational achievement or mental health outcomes in school is provided by Hosman et al. (2005), Gillham et al. (2006), Horowitz and Garber (2006), Young et al. (2006), Cardemil et al. (2007), Horowitz et al. (2007), Dignath and Büttner (2008), Hattie (2009), Stice et al. (2009), Weare and Nind (2011), Corrieri et al. (2014), Kautz et al. (2014), Carta et al. (2015) and Trier Damagaard and Skyt Nielsen (2017). The outcomes of these studies vary and depend on various factors such as type of intervention, target group, age of participants or duration and intensity of treatment. More research needs to be done to improve their effectiveness and efficiency.

Such interventions might not only be useful for individuals at risk, but also help to increase resilience in children and adolescence more generally. However, Horowitz and Garber (2006) and Stice et al. (2009) argue that larger effects result from programs that target high-risk individuals rather than universal programs. “Theoretically, the distress that characterizes high-risk individuals motivates these participants to engage more effectively in the prevention program [...]” (Stice et al., 2009, p. 11). Moreover, also the duration and timing of programs is important. First, personality psychologists argue that long-run exposure at the state level is a requirement for a
personality trait change (Roberts, 2009). Second, there is evidence that personality traits are malleable particularly in early age (Cunha et al., 2010). However, Stice et al. (2009) argue that successfully teaching the relevant concepts and skills requires a certain level of mental maturity. Therefore, adolescence seems to be the ideal time for successful intervention.

Finally, programs in school are particularly promising, because they guarantee high and longer run coverage as well as lower costs, because different public services can be combined. Carta et al. (2015) emphasize that “schools are a location where young people spend most of their daytime and socialize, schools are easily accessible to families, schools can provide non-stigmatizing health actions, and schools can provide appropriate and timely links with the community” (p. 17, see also World Health Organization, 2004).

Future research can build on (1) the economic framework and the descriptive analyses provided in the dissertation and (2) existing interventions to perform random control trails, test the theoretical framework causally and develop effective and efficient school programs. Thereby, it needs to be taken into account that transferring research-oriented studies into school practice is not without problems. Teachers might not understand all features of the intervention or differing school environments do not necessarily fit the study design (Borghans, Schils and de Wolf, 2016). Therefore, careful interdisciplinary guidance of the development, empirical analysis and implementation of school programs is essential.