The Influence of Emotion-Regulation Training on Achievement Emotions:
Dyadic and Group Peer-to-Peer Tutoring Interventions in Secondary Education-Contexts

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Abstract

Self-regulation and emotion-regulation largely contribute to educational and professional achievement and social and emotional stability and thus eventually to well-being and mental health. Emotions in school-contexts, achievement as well as social emotions, and their effects on cognition, motivation, and social functioning as moderators of achievement and well-being, have been studied increasingly in pedagogic psychology in the last three decades (Pekrun & Linnebrink-Garcia, 2014). It has also been found that achievement emotions and self- and emotion-regulation correlate. A correlational study conducted by the author is presented in this work and confirms these findings. Positive achievement emotions significantly correlate positively with self-regulation, and negative achievement emotions significantly correlate negatively with self-regulation. These associations depend, among other factors, on the emotion-regulation strategies that are employed. Reappraisal has proven to be an adaptive strategy in view of the above-mentioned goals of achievement and well-being. The same is valid for peer-to-peer tutoring formats, especially in dyadic conditions. Their positive effects in cognitive, motivational, and social regards are largely documented, as well as the fact that the social benefits, especially the construct of social support, function as moderators of the overall positive effects of peer-to-peer tutoring. In view of these findings, and a rising awareness for the need of prevention and the promotion of health, increasingly mental health, in primary and secondary education (which manifests itself in the German federal states´ curricula´s leading perspectives and school quality programs) the centre of the present work is an interventional study training emotion-regulation in secondary education in peer-to-peer tutoring dyadic and group conditions. Tutors were recruited from grades 10 and 11 (M = 16.4 years) and tutees from grades 7 and 8 (M = 13.1 years). The study uses a 2 factorial within-subject pre-post design with the between-participants factor "training condition". The intervention is based on a semi-standardized training material developed by the author, with the help of which tutees employ cognitive reappraisal in school-context situations in which they identify a negative achievement emotion as impeding achievement or social aims and/or well-being. If-Then-Plans – Implementation Intentions with Mental Contrasting – were formed to be employed in the six weeks in between T1 and T2, the dependent variable being the manifestation of the negative achievement emotion chosen in tutees´ plans. The intervention is a quasi-experimental pre-post-test of change hypotheses. Results did not confirm hypotheses on a statistically significant level, and they are ambiguous in so far as not all of them take the hypothesized direction. The results for hypothesis 5 are significantly opposite of what was assumed. Hypotheses were that tutees would employ the emotion-regulation strategy of reappraisal more frequently at T2 than at T1 (1), and that this was associated with lower scores for negative achievement emotions at T2 than at T1 (2). Furthermore, we hypothesized that relations between scores for the employment of reappraisal between T1 and T2 were moderated by social support as tutees perceived themselves receiving from tutors, and tutors´ empathy (3). Next, we hypothesized a possible decline of values for negative achievement emotions from T1 to T2 independent of the employment of reappraisal, and this again to be moderated by social support and empathy (4). It was then hypothesized that in dyadic conditions the moderating effects of both were higher than in group conditions, firstly, related to values for the employment of reappraisal as assumed in hypothesis 1 (5), and secondly, to scores for negative achievement emotions as assumed in hypothesis 4 (6). Last, it was hypothesized that tutees would (increasingly) apply the emotion-regulation strategy they practiced with tutees by means of implicit learning, and this to result in higher scores for tutors´ employment of reappraisal at T2 compared to T1 (7). The findings indicate that, even if being below statistical

relevance, the intervention can be effective in contexts of secondary education. It is discussed how it could be adapted to be more effective, and how it could practically be implemented in every-day school environments with a special focus on the role of dyadic structures in peer-to-peer tutoring settings.

1 Introduction

1.1 An interdisciplinary diversion: Emotion-regulation in Irish literature

> *"Out of Ireland have we come,*
> *Great hatred, little room,*
> *Maimed us at the start.*
> *I carry from my mother´s womb*
> *A fanatic heart."*

Thus reads the last stanza of Irish Nobel Prize laureate William Butler Yeats´ "Remorse for Intemperate Speech" from "The Winding Stair and Other Poems" of 1932 (Yeats, 1992). The poem displays strong negative emotions ("[g]reat hatred") along with little capacity for regulation, as a "fanatic heart" "maim[s]" the speaker of the poem "at the start". Along with great hatred, there is constraint ("little room"), which might be read as referring to restricted capacities to regulate the hatred in terms of personal dispositions and external conditions. These go, as the lines portray, beyond the individual level: The Irish as a people, a nation, have that disposition ("Out of Ireland have we come"). Emotional dispositions - "fanatic heart[s]" are passed down intergenerationally, through "mother´s womb[s]".

This approach to interpreting the poem might come across as somewhat unexpected, seem disproportionate even, but it is not arbitrary, as the Irish literature of the time, the first generation of Irish anti-colonial literature in the so-called Celtic Renaissance, and beyond, is greatly concerned with a nation, culture and its people suppressed and deprived of their pride and dignity, their rights and identity in the course of British colonization, and the effects of it: Humiliation, but also anger, literary[2] and finally political engagement towards independence. In the case of Nobel Prize laureate W.B. Yeats, great hatred might have contributed to something good in the end, depending on the political perspective one takes, as his writing is

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[2] The reconstruction of a positive Irish national and cultural identity was a concern of the literature of the Celtic Renaissance. Along with it, the supposed results of British colonization and suppression were literary topoi. For more information, see Kiberd (1996).

considered an essential part of the Celtic Renaissance which had its share in paving the way towards Irish independence[3].

In other cases, great hatred and little room, or predominant negative emotionality and a lack of capacities for regulating them, do not only "maim [   ]" [people] at the start", but hinder them in their striving and well-being all along. This can concern individuals, or a group of people, that are socially and/or biologically negatively predisposed or are at some stage in their lives confronted with environmental conditions that are hindering, conditions which might equally apply to a region or nation, as seen above. Today, it is not Ireland - or if is, it is as it applies to the Irish people in the effects of the "aftermath" of colonization and decolonization – but it may be any place where the political situation is coined by suppression and discrimination. To what extent people are "maimed" by that is not (as one might learn from Yeats´ poem) a matter of fate or chance only. Individuals are also free, if to a debatable degree[4], to direct their course by – among many other factors - regulating their emotions, which brings us to the construct of self- and emotion-regulation. That these are significant ones, individually and on a much larger scale of social implications, is beautifully suggested in the poem at hand, I find. It shall be discussed on a less literary and emotional and more empirical basis in the following.

1.2 On direct ways: Emotions, emotion-regulation, and self-regulation in school contexts

How important it is for individuals to be able to regulate their emotions adaptively can be illustrated from two perspectives. On the one hand, emotion-regulation is an aspect of self-regulation. Self-regulation is defined as people´s capacity to direct their feeling, thought and action in view of goals they have set for themselves (Wirtz, 2014). Self-regulation in large measure contributes to academic and professional success, to emotional and social stability (Gawrilow et al., 2013) and eventually to general well-being and mental health. On the other hand, the significance of emotion-regulation in school-contexts results from the central role that emotions, especially social and achievement emotions, play in school contexts.

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[3] Kiberd (1996)

[4] This concerns the debate of how much we humans are determined by circumstances (of various kinds) or have a free will, and its extreme positions of absolute determinism and total freedom of will at either end, with its numerous compromising (neuro)biological, (neuro)psychological, philosophical, sociological, and theological positions that find themselves in between these extremes. The debate is connected to the present work in some respects, e.g., aspects of people´s personality that might be determined (by genetics or other factors) and processes of goal setting and goal striving, that partly happen automatically and outside people´s awareness. Unfortunately, including this theoretical field, interesting as it is, would go beyond the scope of this work.

1.2.1   Emotions in education

Emotions have different effects on the availability of cognitive resources and information processing. They relate to what kind of learning-strategies are employed by students as well as to their motivational states (Pekrun et al., 2002). These variables, in turn, mediate the effects that emotions have on achievement (Pekrun & Perry, 2014). Emotions are furthermore integral constituents of well-being, while well-being does not only relate to the absence of negative emotions (e.g. anxiety), but also to the presence of positive ones, such as happiness and joy (Frenzel et al., 2015). They are caused by different kinds of stimuli in the external environment and by how these are processed by an individual. The latter aspect is of special importance also in school contexts. According to the Control-Value Theory of Achievement Emotions (Pekrun & Perry, 2014), the main antecedents of achievement emotions are subjectively perceived control and value of achievement activities and outcomes, and the distinct proximal and distal antecedents of both. Emotions occur when a stimulus is goal-relevant to an individual. In school contexts, considerably many goals are social goals and/or achievement goals, consequently social and so-called achievement emotions are most frequent. Achievement emotions - a set of eight was found to occur most frequently in school contexts (Pekrun et al., 2002) – are those emotions that occur in connection with learning and achievement activities and outcomes. Learning activities, like exams and other test-situations, take place with reference to certain (curricular) standards and norms which students can reach to varying degrees or miss, for which reason learning emotions are categorized as achievement emotions as well (Frenzel et al., 2015). Success and failure as antonymic poles of achievement are critically important to students, as they determine future careers and (social, financial and health) perspectives so strongly, therefore achievement emotions are, besides being frequent, often intense (Pekrun & Perry, 2014), which emphasizes again how important it is for students to be able to regulate them adaptively. Before relating to the role of self - and emotion-regulation in school contexts, the constructs will briefly be allocated below. (A more detailed account is given in chapter 2.2.1.)

1.2.2   Self-regulation and emotion-regulation: Brief conceptual allocations

Emotion-regulation can be considered an aspect of self-regulation. Different theories (from different fields of psychology) posit different relations between basic components of self-regulation. Baddeley et al. (2012) allocate the regulation of respectively thought, feeling and behaviour on one level and, from the perspective of motivational psychology, define self-regulation as a process of goal setting and striving consisting of three components. These are, firstly, standards of thoughts, feelings, and behaviour that individuals represent, secondly, their motivation to reach and uphold them, and, thirdly, their effort to reduce discrepancies between standards and actual states if indicated, as for example in the face of obstacles.

Bridgett et al. (2015), from the perspective of temperamental psychology, differentiate between top-down and bottom-up self-regulation, defining the latter as reactive, automatic processes, whereas top-down self-regulation is associated with the inhibition of impulses and the conscious processing of information in view of long-term goals. Top-down self-regulation is subdivided into behavioural and emotional self-regulation and relies on processes of executive functioning and attentional control, often subsumed under effortful control (Bridgett et al., 2015). That emotion-regulation relies on the same cognitive and neural mechanism as regulating thoughts and behaviour is the reason for some authors (Heatherton & Wagner, 2014) to see more similarities than differences between emotion-regulation and the regulation of thought and behaviour. At the same time, differences between the two also justify considering emotion-regulation a separate domain. One of these differences is that the regulation of emotion can be seen as a precondition for the regulation of thought and action (Schweiger-Gallo et al., 2009). Some authors do not include immediate, impulsive (bottom-up) emotional reactions (and accordingly thoughts and actions) in the construct of self-regulation at all and use the term exclusively for what has been described above as top-down self-regulation (Eisenberg et al., 2016). Whatever the categorizations may be, quick, impulsive emotional reactions are distinguished from those responses to stimuli that are organized and controlled in view of long-term goal attainment.

In the work at hand, "self-regulation" is terminologically understood as including both top-down and bottom-up self-regulation. For the sake of clarity, an overview from chapter 2.2.1., in which the conceptual relations of self-regulation and emotion-regulation are discussed in greater detail, is presented below.

Figure 1

Concepts and terminology in the context of "self-regulation", excerpted from Baddeley et al. (2012), Bridgett et al. (2015), Eisenberg et al. (2016) and Gawrilow (2012)
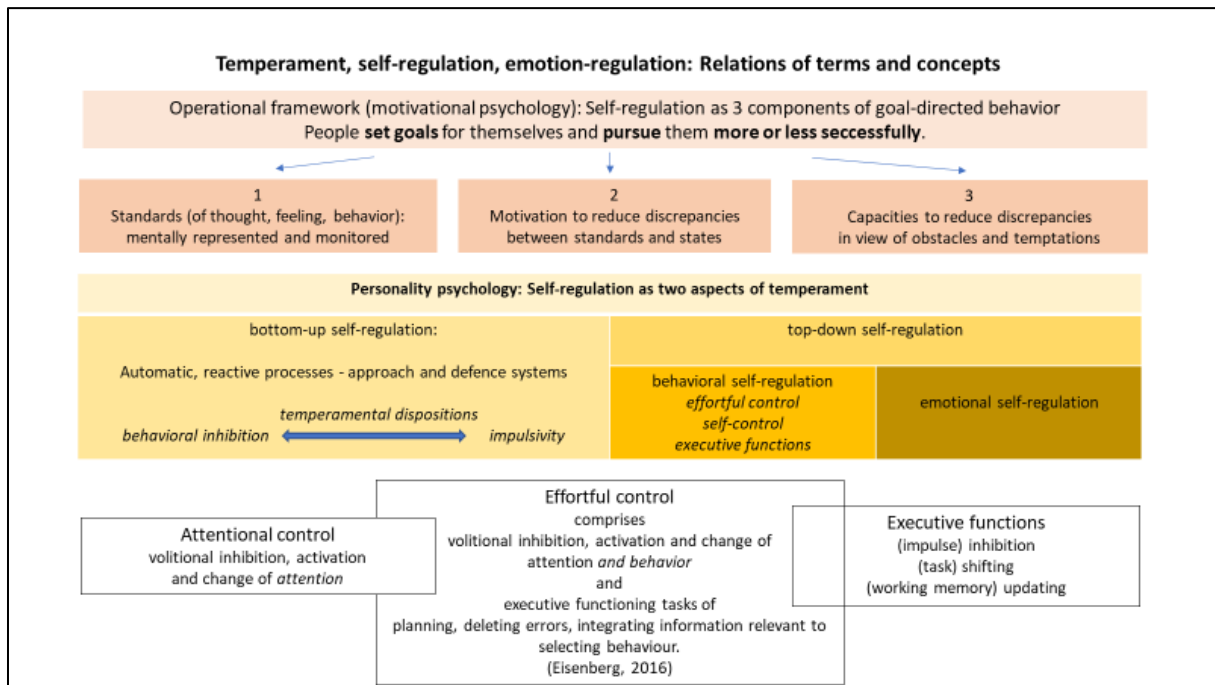
1.2.3 The role of self-regulation in Baden Württemberg curricula, educational contexts, mandates, and socialization functions

How much people´s capacities for top-down self-regulation correlate with success in life in various respects has been specified for educational contexts in the respective literature and research, whereby "educational contexts" in the work at hand refers to various aspects of institutionalized socialization in schools ranging from school´s social functions of academic and professional qualification and the allocation of individuals to social positions via different levels of qualification to the personal development of young people in the sense of fully developing their positive potential (Haug, 2000). The relation between the promotion of self-regulative capacities in education and different aspects of educational mandates will be discussed below.

As referred to above, besides its positive effects on social relations and general health and well-being, self-regulation in large measure contributes to academic and professional success (Gawrilow et al. 2013). In an overview over the effects of self-regulation, Schwarz et al. (2019) report that especially in education good self-regulative capacities are essential for successful goal striving and, along with intelligence, are strong predictors of achievement outcomes. Duckworth & Carlson (2013) found self-regulation to predict school success in the three

dimensions of (high) school completion, class-report grades, and standardized assessment. Diamond & Lee (2011) investigated the effects of training executive functions to improve self-regulative capacities in school children and found that children with deficits profited most from an early executive function training.

The significance of self-regulative capacities in education manifests itself in the new Baden-Württemberg curriculum of 2016. The promotion of self-regulation is attached to one of the three general leading perspectives of our schools´ educational mandate, "prevention and the promotion of health". This is attributed to the aim of strengthening personalities through the promotion of social competences and through health consciousness, for oneself and others. Self-regulation is also mentioned as a central capacity in subject-specific learning processes (Asmussen et al., 2016).

Hence it is connected to educational aims and perspectives on different levels. One is the right to personal development and self-realization referred to in the educational mandate of Baden-Württemberg (State Constitution Baden Württemberg, 1953). Article 12 of the state constitution continues with the educational aims of ethical and political responsibility, democratic convictions, and "professional and social probation". The Educational Act of BW more concretely states that beyond facilitating (subject-specific and interdisciplinary) declarative and procedural knowledge, school is ascribed the tasks of educating young people to promote peace and humanity, respect the dignity and convictions of others, be motivated for professional and social accomplishment, accept the rules and regulations of our liberal-democratic constitution, and act according to civic rights and obligations (State Constitution Baden Württemberg, 1953).

These educational aims that are explicated in the curriculum and educational mandates of Baden Württemberg from the perspective of sociology (investigating the tasks of schools as socialization institutes) are potentially conflicting. On the one hand, school has the social functions of firstly qualifying young people for the working world in conveying the required knowledge and skills. Secondly, different educational qualifications have a selective function in that they allocate young people to different social classes. Thirdly, socialization means the internalization of values and norms on which a society is founded. On the other hand, school has the task to support the personal development of young people, which is associated with self-determination and self-responsibility which are inherently connected to emancipating oneself from standards and norms upon which individuals are assessed and evaluated. Both socialization tasks of school - educating young people to become "functioning" members of society in the above explained sense - and supporting their personal development and self-realization - usually complement each other: Personalities do not develop through total adaptation of the roles and expectations of society, nor do they, as humans are social beings, develop totally independently of these. Haug (2000) explains that developing one´s personality and individuality are not separate qualifications beside others, but that both can be developed in an individual´s unique way of dealing with what society expects of them.

However, individual well-being and being (successfully prepared to be) a sustaining member of society do not necessarily co-exist. The achievement principle determining educational and partly also social aspects of school careers is found to be problematic. The conflict arising is illustrated in philosopher Hans Joas´ definition of human dignity.

> *"Human dignity is due to all humans without exception. It cannot be attained by achievement and cannot be forfeited on account of the loss of capacities for achievement [ ]." (Joas, 2013)*

School careers that are considered as negative can have negative effects on personal development, self-realization, and mental health. One reason for this might be that too often personal appreciation and respect *are* granted to people on account of achievement. If personal well-being and social "functioning" do not coincide, there might often be too little awareness of the first in school contexts (Haug, 2000). In that sense, it is desirable that the promotion of physical and mental well-being in school contexts would play a more significant role for its own sake and in the service of self-realization than it currently seems to do.

That stated, it must be acknowledged that there seems to be rising awareness for the role of emotional well-being and mental health in school contexts, not only the perspective of achievement aims and standards, but also in a more holistic approach seeing emotional well-being and mental health as ends in themselves as well as the connection between them and achievement working both ways, as Yvonne Gebauer, minister of education in North Rhine-Westphalia, states in a film sequence introducing the state´s educational program "Bildung und Gesundheit" (education and health): "If we have good education, then we need healthy children. And for good health we respectively need good education." (Qualitäts- und UnterstützungsAgentur - Landesinstitut für Schule NRW (QUA-LiS), 2019) The curricula and superordinate standards, topics and leading perspectives of school development and research as defined by the respective institutions of the individual federal states of Germany illustrate that development. In the work at hand, it will be explained how emotion-regulation, especially the employment of reappraisal as an emotion-regulation strategy, can positively affect emotional well-being and mental health. Likewise, correlations between peer-to-peer tutoring settings, especially in dyadic conditions, and firstly the effectivity of emotion-regulation training, and secondly well-being and mental health, are outlined. In both connections, the role of social support proves to be central. In this context, chapter 1.2.4. below follows two concerns, which are getting an overview of the role that the individual federal states´ ministries of education as well as school development and research ascribe to firstly the concept of emotional well-being and mental health, and secondly to the constructs associated with it as related to in the present work - emotion-regulation, individualized frames of interaction in school contexts and social support. To raise awareness of how to help students - and teachers - that are affected by psychological stress and mental health problems, seems crucial when wanting to account for rising numbers of those who are affected (Institut für Qualitätsentwicklung an Schulen Schleswig-Holstein (IQSH), 2021), and more so when

considering the effects of the Corona pandemic on mental health that have already become apparent (Schlack et al., 2020) and probably will continue to manifest themselves and become even more apparent.

If students are introduced to the role of emotions in education and to adaptive strategies for their regulation, this might help them to become aware of the importance of emotional well-being and mental health beyond achievement and socialization aims, provided they attain knowledge and expertise not only in view of long-term achievement goals, but additionally in view of emotions as an integral part of well-being and mental health. That concern is also advocated by pedagogic psychology and the circumstance referred to already in chapter 1.2.1., that emotions as basic constituents of people´s general well-being and mental health "irrespective of their effect on achievement [   ] deserve attention in pedagogic-psychological contexts." (Frenzel et al., 2015).

Yet, relating back to schools´ functions of socialization, and analogically to the fact that students´ personal development takes its course integrating social tasks and responsibilities placed on them, it must be stated that generally, self- and emotion regulative capacities support the attainment of all educational aims and mandates outlined above, regardless of whether the focus is set on the individuals´ role in sustaining society or on personal development as an intrinsic value. Individuals with high self-regulative capacity are not only better able to attain the educational aims explicated in the curricula. As they are more likely than those with low self-regulative capacity to be professionally and socially successful (Gawrilow et al., 2013), they are also more likely to be physically and mentally healthy. This reveals in the fact that positive (achievement) emotions generally correlate positively with high capacities of self- and emotion-regulation, which is connected to the circumstance that the effects of positive emotions on cognitive capacity and motivation as such are constitutive aspects of self-regulation (Pekrun & Perry, 2014). The correlations were confirmed in two smaller studies conducted by the author of this work in 2017 and 2018, before the interventional study at hand was implemented in 2019.

1.2.4 The role of emotional well-being, mental health and related constructs in the curricula and school developmental plans of the federal states of Germany

As stated above, this chapter is intended to provide an overview over the role that the individual federal states´ ministries of education as well as school development and research institutions ascribe to firstly the concept of emotional well-being and mental health, and secondly to the constructs associated with it as related to in the present work and intervention: Self- and emotion-regulation, individualized frames of interaction in school contexts (peer-to-peer teaching conditions, especially dyadic ones), and social support. The following text is structured according to selected federal states, not to individual constructs,

as theses interdepend and consequently are referred to in connection with one another. The visualization below is intended to give a brief orientation as to how the constructs are related with reference to emotional well-being and mental health as referred to in the work at hand. (For the sake of clarity, relations between the constructs are simplified (for example, the effects of peer-to-peer tutoring on other variables than social support and emotions are disregarded), with well-being and mental health as points of reference.)

Figure 2

Constructs associated with emotional well-being and mental health as related to in the present work and intervention
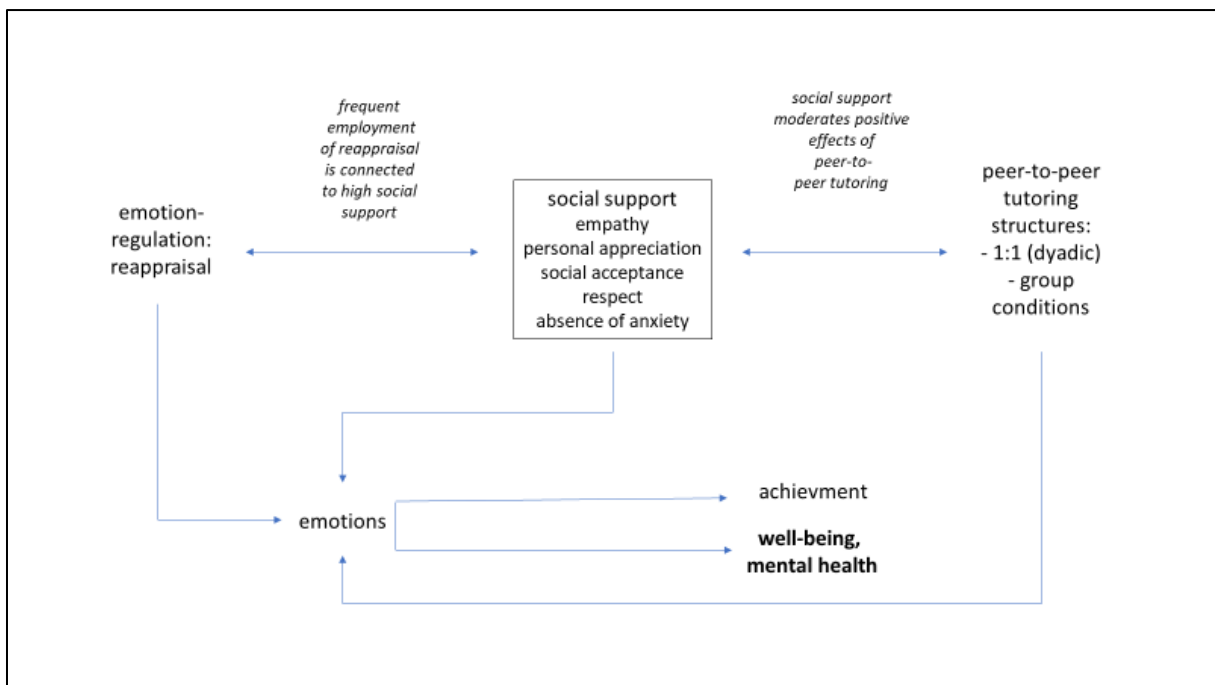
On a marginal, but not redundant note, this, as a part of the introduction, might be an appropriate section of the work for a premise: In the context of emotion-regulation in the following, relations between positive (achievement) emotions and positive achievement outcomes as well as emotional well-being will often be addressed, and indeed there is no question that positive emotions have their multifold positive effects. And even though positive effects of negative (achievement) emotions are less frequently addressed in the present work, there is no notion of "laughing ourselves sound" or something along these lines. It is certainly healthy and right, and will contribute to emotional well-being and mental health, if students express their anger at, for example, an encroaching teacher or fellow student. At the same time, is necessitates adaptive emotion-regulation to do it successfully. "Laughing ourselves sound" is also not the direction the many projects and initiatives for prevention and the

promotion of health in school contexts of the federal states of Germany take. The remark is not meant to be derisive, rather intended to draw attention to the fact that it is important to consider, when implementing measures for emotion-regulation training in schools, that happiness may not be mistaken for disregarding, ignoring, or even suppressing negative emotions and only focusing on positive ones.

Adaptive emotion-regulation of both positive and negative emotions is one factor that can promote emotional well-being (and likewise achievement). However, a keyword search for "self-regulation" and "emotion-regulation" in the metasearch engine of the German educational server (Deutscher Bildungsserver) (Leibnitz-Institut für Bildungsforschung und Bildungsinformation (DIPF), Steuergruppe des Deutschen Bildungsservers, 2021) and the data bases of the Standing Conference of the Ministers of Education and Cultural Affairs of the Federal States of Germany (Ständige Konferenz der Kultusminister der Bundesrepublik Deutschland (KMK), 2021b) that contain the curricula of the different states as well as their institutions for educational research and development (Ständige Konferenz der Kultusminister der Bundesrepublik Deutschland (KMK), 2021a) indeed identifies Baden Württemberg as the only federal state that explicitly mentions self-regulation in any form of interdisciplinary or superordinate leading perspectives or qualifications, namely in connection with the leading perspective of prevention and the promotion of health on the websites of the institute of educational research (Institut für Bildungsanalysen Baden-Württemberg (IBBW), 2021). If not explicitly mentioned, as a central construct in the context of subject-specific and interdisciplinary achievement, self- and emotion regulation are related to at various stages in the federal states´ subject-specific curricula, however, not as often as one might expect, and more often in the curricula of primary than in those of secondary education, as for example in the Bavarian curriculum for primary education in German (Staatsinstitut für Schul- und Bildungsforschung (ISB) München, 2013).

However, all federal states attach increasing importance to prevention and the promotion of health in education. The increasing significance of the topic is also expressed in a 2012 recommendation on prevention and the promotion of health of the federal states´ Standing Conference of the Ministers of Education and Cultural Affairs, which refers to individuals´ responsibility for their own and others´ physical and mental health (Ständige Konferenz der Kultusminister der Bundesrepublik Deutschland (KMK), 2012). The recommendation has been implemented in different ways in the individual federal states, with different priorities set, in the understanding as well as in the implementation of the constructs involved. In the following, it will exemplarily be referred to five federal states´ ministries of education and their school development and research institutes as well as their programs to give an account of the role they ascribe to emotional well-being and mental health and the constructs associated with it as related to in the present work and intervention: Self- and emotion-regulation, individualized frames of interaction in school contexts (peer-to-peer teaching conditions, especially dyadic ones), and social support with its subconstructs of empathy, personal appreciation, social acceptance, respect, and connected to these, the absence of anxiety. The

states that will be referred to besides Baden-Württemberg are North Rhine-Westphalia, Berlin/Brandenburg, that have a common institute for school development (Landesinstitut für Schule und Medien Berlin-Brandenburg (LISUM), 2021), Mecklenburg-Hither Pomerania, and Schleswig-Holstein.

The Baden-Württemberg institute for education analytics (Institut für Bildungsanalysen BW, IBBW) lists several areas for further development under the keyword of "prevention and health". One is called "zentrale Lern- und Handlungsfelder" (central fields of learning and acting) of which self-regulation is one, and it explicitly mentions the regulation of feeling, thought, and action in view of aims, as well as different strategies that need to be employed for goal pursuit. Of the five sub-constructs mentioned in these central fields of learning and acting, two directly relate to social support and are titled "building and maintaining contacts and relationships", and "communicating and acting appreciating others" (Institut für Bildungsanalysen Baden-Württemberg (IBBW), 2021).

North Rhine-Westphalia´s institute for school development (Qualitäts- und UnterstützungsAgentur – Landesinstitut für Schule (QUA-LiS) NRW) titles the equivalent leading perspective "Erziehung und Prävention" (education and prevention). "Gesundheitsförderung" (the promotion of health) is one of the "Handlungsfelder" (fields of action) attached to it. The belonging text differentiates between physiological and mental health and relates to various programs that are implemented on a voluntary, but often large basis. For example, 300 schools took part in the "Landesprogramm Bildung und Gesundheit" in 2019 (Qualitäts- und UnterstützungsAgentur - Landesinstitut für Schule (QUA-LiS) NRW, 2021). The image film for that program contains scenes from a 2019 conference and from interviews that were given on that occasion. They draw attention to the fact that health is "more than the absence of sickness and diseases" (Qualitäts- und UnterstützungsAgentur – Landesinstitut für Schule (QUA-LiS) NRW, 2019), and that is it important to consider mental health in addition to physical health. "I believe that a happy childhood is possible only if one is healthy, I believe that a successful career is only possible if one is healthy." (Qualitäts- und UnterstützungsAgentur – Landesinstitut für Schule (QUA-LiS), 2019) says Karl-Josef Laumann, minster of Labor, Health, and Social Affairs. Interestingly, health is related to happiness here, and is presented as a justified concern on the same level and independent of achievement. Moreover, implementation examples from schools are referred to. While illustrating how the students of the respective two schools were integrated in implementing the program, a focus is set on the need of considering the individual conditions the children come with, their environments (Qualitäts- und UnterstützungsAgentur - Landesinstitut für Schule (QUA-LiS) NRW, 2019). Connected to (mental) health, the construct of social support and all subconstructs of it are mentioned in North Rhine-Westphalia´s "Referenzrahmen Schulqualität" (reference frame for school quality). They are listed in one of the content areas and dimensions of the frame – dimension 2.10 - "learning atmosphere and motivation" in the category of "learning and teaching" (Ministerium für Schule und Weiterbildung des Landes Nordrhein-Westfalen, 2015). That "learning and teaching take place in a positive atmosphere"

is specified by "interactions characterized by [ ] respect, [ ] and personal appreciation", and by an "anxiety-free atmosphere". Teachers are supposed to take care to prevent students from being socially excluded. Moreover, philosopher Hans Joas´ quotation referred to above in chapter 5.2.3. is taken up here in its very essence in the request that low-performing students "experience personal appreciation in class". The same is claimed for high-performing students, and that they should be taken seriously. The request is made again in the category of "motivation" in that students are supposed to be "taken seriously independent of achievement processes and outcomes" (Ministerium für Schule und Weiterbildung des Landes Nordrhein-Westfalen, 2015).

Berlin/Brandenburg classify the promotion of health as a superordinate topic in the interdisciplinary development of competences. It is referred to in "part B" of the Brandenburg curriculum ("interdisciplinary development of competences") (Landesinstitut für Schule und Medien Berlin-Brandenburg, 2021), and defined as an "interplay of physical, mental, and social factors". Specifications are made in an orientation and reference frame ("Orientierungs- und Handlungsrahmen für das übergreifende Thema Gesundheitsförderung") (Landesinstitut für Schule und Medien Berlin-Brandenburg, 2021), which refers to the WHO definition of health of 1997 (World Health Organisation (WHO), 1997) that includes the social aspect of health in addition to the physical and mental one.

Mecklenburg-Hither Pomerania´s educational server lists "health and sports" as one keyword under "school and tuition". A link from "health and sports" leads to "students´ health" and from there to the "prevention of psychological stress" (Mecklenburg-Vorpommern. Ministerium für Bildung, Wissenschaft und Kultur, 2021). Here, different prevention programs are referred to. Some of them are school development modules, and some have been developed for classroom use. "Mind Matters" is one that contains both. It is a program that has been developed to be employed on a nationwide basis by Leuphana University of Lüneburg. The program´s aim is to contribute to improving school quality by promoting students´ mental health. Its modules draw on both emotion-regulation training and social support, even though the two terms are not explicitly mentioned. The one module for primary education has been developed to support social and emotional competences, which includes the introduction and training of emotion-regulation strategies. One of the six modules for secondary education is intended to help students to handle loss and grief, which likewise is connected to emotion-regulation competencies. Another secondary education module is titled "finding and keeping friends and belonging" (Mecklenburg-Vorpommern. Ministerium für Bildung, Wissenschaft und Kultur., 2021). Social support is marked as a protective factor in the context of resilience here, while it can likewise be seen as connected to mental health by its association with emotion-regulation, especially the employment of reappraisal, and peer-to-peer tutoring structures and their positive effects on emotions, as outlined in the present work, and the differentiation is indeed a matter of perspective only, as adaptive strategies of emotion-regulation are another protective factor for the development of resilience (Koch, 2019).

Schleswig-Holstein is another federal state that relates to "Mind Matters" in the context of "mental and somatic health", which keyword is found under "prevention" on the website of the state´s institute for quality development (Institut für Qualitätsentwicklung an Schulen Schleswig-Holstein, 2021). It is related here to "increasing numbers of mental illnesses", leaving it open whether students or both students and teachers are meant.

1.2.5 State of research and research questions

Complementary to avoiding unnecessary[5] negative emotions by shaping social and learning environments respectively (for example, by adapting expectations to students´ capacities, being transparent regarding teaching aims and processes, giving sufficient and clear feedback and supporting cooperation instead of competition in classes), the promotion of knowledge about self-regulation and the training of self-regulative capacities should be a central concern in school contexts, following from what is outlined above. The literature of pedagogic psychology suggests that students should be informed about what role emotions play in school contexts, and they should learn that they can be regulated, rather than feeling that they are at their mercy. It suggests introducing adaptive emotion-regulation strategies to students and explicitly names reappraisal as an example (Frenzel et al., 2015). Reappraisal is the emotion-regulation strategy that is introduced to students in the intervention at hand. It is considered a strategy that is generally adaptive in view of long-term goals, with positive implications for cognition, social interaction, and well-being (Gross, 2002; Gross & John, 2003b; Nett et al., 2010).

Jacobs and Gross (2014) furthermore state, that interventions to train students´ emotion-regulation capacities should aim at making them feel socially connected. This is an aspect that plays a major role in the present intervention, as research has found social support to be the mediator of positive effects in two regards. Firstly, it is one of the positive effects of the method of peer-to-peer tutoring which is the social form in which the training-sessions in the present intervention are conducted. An increase in perceived social support results from closer social relationships that develop in peer-to-peer tutoring (compared to traditional students-teacher interaction) (Krautter et al., 2014). The other positive effects of peer-to-peer tutoring are found on cognitive achievement and motivation. There is also evidence that the positive effects in social learning and increased social support, as well as the empathy which tutees perceive themselves receiving from tutors, contribute to explaining the other and overall positive effects of peer tutoring (Johnson & Bailey, 1974; Krautter et al., 2014; Schwarz, 2016). Secondly, as addressed above, frequent employment of reappraisal is connected to increased social support. Gross (2014) claims that increased awareness of the importance of

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[5] Negative emotions, as referred to above, are not always detrimental, and part of life with the respective adaptive functions.

emotion and emotion-regulation should result in interventions that may especially target individuals with a higher risk for adverse achievement outcomes and impaired mental health. He furthermore suggests, among other measures, the developing of instructional materials, which was done for the intervention at hand.

In this material, so-called Implementation Intentions in the form of If-Then-Plans are formed by students. Implementation Intentions refer to the volitional aspects of various phases in the process of goal striving that have been identified in motivational psychology, namely the phase in which commitment to a selected goal, the intention to pursue it, is implemented, i.e., materializes in successful thought and action to do so (Achtziger & Gollwitzer, 2006). If-Then-Plans have proven to be far more effective tools for self-regulation in the process of goal striving than merely forming goal-intentions (Gollwitzer & Sheeran, 2006). As their name reveals, the plans have two components, an If- and a Then-component. The If-component specifies a situation that is considered suited for implementing the thoughts or actions which are planned for goal attainment. The Then-component specifies these thoughts or actions. Both components are connected to one another through highly activated mental representations, which makes situations specified in the If-components easily accessible and thoughts or actions identified in the Then-components are initiated without the effort of conscious deliberation once the situation occurs. This process is called Strategic Automation (Gollwitzer & Sheeran, 2006). A technique to set realistic goals and likewise make Implementation Intentions still more effective is Mental Contrasting, in which individuals, in the present study the tutees, are asked to consider positive aspects of future states of goals attainment as well as obstacles that might stand in the way of it (Oettingen & Gollwitzer, 2002).

Compared to interventions to train emotion-regulation, relatively many interventional measures to train behavioural self-regulation have been conducted in contexts of secondary education so far, whereby different aspects of the complex and multidimensional construct of self-regulation and self-regulated learning[6] have been addressed, as for example the self-regulated planning, monitoring and evaluation of learning and achievement goals and achievement processes (Benick et al., 2019) the training of executive functioning (Duckworth & Carlson, 2013), and training self-regulation with Implementation Intentions. (Schwarz & Gawrilow, 2019; Schwarz et al., 2019). A manual for training self-regulation with students with ADHS (via forming If-Then-Plans with Mental Contrasting) (Gawrilow et al., 2013) is one of the two materials on which the material for the present intervention is based. In school-contexts, moreover, some of the multimodal interventions developed for children with ADHS contain elements of cognitive therapy in the form of training self-regulation (Döpfner et al., 2019; Lauth & Schlottke, 2019). The regulation of thought and action is also targeted in studies that address a specific component that is relevant for motivational processes in self-regulation. Perry et al. (2010), for example, conducted a study with undergraduate students in which

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[6] Conceptual allocations are referred to in chapter 6.2.1.

students practiced applying controllable attributions rather than uncontrollable ones to explain achievement outcomes. Gaspard et al. (2019) report interventions that aim at increasing the awareness of value appraisals for school and achievement outcomes and target respective appraisals of the value of learning and achievement activities and outcomes (in specific subjects) (Gaspard et al., 2019).

These interventions could be seen in the context of emotion-regulation in education as well, as they aim at reappraising proximal antecedents of control and value which are central antecedents of emotions in education, and these in turn, as referred to above, have major effects on the cognition, motivation, and social interactions of students (Pekrun & Perry, 2014). Another study that compares the effects of different strategies of emotion-regulation (suppression and reappraisal) on attentional control for anxiety is a laboratory study in the field of clinical psychology (Cisler et al., 2010). As this one, other interventional measures to train emotion-regulative capacities largely come from areas of (adult) clinical psychology and psychotherapy (Grafton & McLeod, 2014; Mennin & Fresco, 2014; Neacsiu et al., 2014). The same applies to the second of the manuals on which the development of the training material for the present study is based (Barnow et al., 2016). Despite its psychotherapeutical background, the corresponding material proved most suited to be adapted for the purposes of the study at hand, as it is less extensive than the ones cited above, in terms of modality and duration of application as well as comprehensibility.

There are, to the best of my knowledge, only two studies of training emotion-regulation with Implementation Intentions. These are laboratory studies. One investigated the effects of employing different emotion-regulation strategies to control disgust and fear by one antecedent- and one response-focused strategy. Results confirmed greater effects for Implementation Intentions than for mere goal intentions (Schweiger-Gallo et al., 2009). The other refers to the automatic control of negative emotions by employing reappraisal and reports similar results (Christou-Champi et al., 2015). Compared to these studies, the present one is far more complex. This is not only due to the fact that it is a real-life application, but also results from its broad conception: Different constructs that play a role in the process of forming If-Then-Plans for reappraisal (the antecedents of (achievement) emotions, e.g.) are not narrowed and predefined as objects of reappraisal (as, for example, self-concepts of ability), but it is left to tutees to identify those constructs they consider most significant. The individualized approach of the present intervention entails that the described breadth applies to other constructs that underly the process of forming If-Then-Plans for reappraisal.

In the discussion of their papers, Schweiger-Gallo et al. (2009) note that they consider the results of their study to be transferable to other frequent emotions as anger, for example. Likewise, Gollwitzer and Sheeran (2006) suggest that If-Then-Plans might be applicable to social emotions as well as to other kinds of emotions, as achievement emotions. This is addressed in the contexts of their idea to formulate less specific Then-parts in Implementation Intentions in which this component does not specify a particular (behavioural or cognitive)

response, but a more general one that influences more general constructs, as for example motivation relevant beliefs (Gollwitzer & Sheeran, 2006). Reappraising the antecedents of (achievement) emotions in school contexts refers to exactly this, as for example reappraising control as internal vs. external will have positive effects on motivation among other variables (as outlined above), as negative emotions are regulated adaptively.

Gollwitzer and Sheeran (2006) moreover mention that few If-Then-Plan studies have been applications, and accounting for the years that have passed by since then, this is still, if to a lesser extent, the case. They recommend conducting studies in secondary education to add findings from this field to results of that from university education.

From the background of the reported state of research, the following research questions derive:

Can students be supported in regulating the negative effects of a negative (achievement) emotion - and, through a process of generalization, other achievement emotions - they have identified as impeding the attainment of well-being and social and/or achievement goals that are important to them, in that they:

- Achieve knowledge on the causes and effects of (achievement) emotions and different strategies of emotion-regulation,
- are introduced to cognitive reappraisal as an adaptive emotion-regulation strategy in situations in which the identified emotion typically occurs,
- form and apply If-Then-Plans which combine an individually formulated process of reappraisal referring to individually crucial variables that influence control and value of achievement activities and outcomes or social outcomes in the identified situations?

Is this effect moderated by the social support and empathy that tutees perceive themselves receiving from tutors in the peer-to-peer tutoring structures in which the intervention is conducted?

Can tutors profit from the intervention as well by means of implicit learning and in that they apply reappraisal more often than before the intervention as well?

To introduce emotion-regulation trainings in school contexts, programs are required that can be integrated into school routines. How this could be done will be suggested in this paper, with a brief preview at this introductory stage.

1.2.6   Implementation options for dyadic emotion regulation trainings in school contexts

Implementation suggestions need to consider the conditions that every-day school contexts and routines set. Of the certainly more options to account for them, one will be suggested and

discussed in this paper. It is more than an abstract and theoretical option in that it refers to concrete structures that already exist, yet it is generalizable in so far as many schools have these structures, if in varying forms. The idea is that emotion-regulation training could be integrated in programs and measures of individual promotion to support both high-performing and low-performing students. From theoretical as well as practical perspectives on this approach, dyadic training structures appear as a potentially efficient and feasible option. Theoretical aspects relate to findings that have been already discussed above on the effects of peer-to-peer tutoring structures in pedagogic psychology and to findings on dyadic behaviour change interventions from applied psychology. In both fields of research, the moderating role of social support for the effects of the respective technique is reported to be central. As outlined in chapter 2.5.2.2., peer-to-peer tutoring has positive effects on cognition, motivation, and social functioning, which is assumed to lead to more effective If-Then-Plans to be constructed for emotion-regulation in the present intervention, which in turn should be connected to more positive (achievement) emotions and well-being. Peer-to-peer tutoring is moreover supposed to have direct positive effects on (achievement) emotions and well-being, as is outlined in chapter 2.5.2.3. Chapter 2.5.4. relates to considerations as to presumably higher effects of dyadic conditions compared to group conditions in peer-to-peer tutoring structures in the intervention at hand. In line with these reports, the field of dyadic interventions for behaviour change – while it is relatively young, and research has not yet come to unambiguous results - finds evidence that dyadic interventions can also be more efficient than individual intervention conditions (Scholz et al., in press). The authors´ review of different techniques of dyadic behaviour change interventions includes references to mechanism that are assumed to underlie the functioning of these interventions. As in the research on peer-to-peer tutoring, the construct that is most frequently associated with the effects of the interventions is social support (Scholz et al., in press). As for the intervention at hand, the presumed higher effects of dyadic compared to group conditions are presumed to be connected to the supposed higher effectiveness of social support in dyadic conditions (comp. chapter 2.5.4.). Moreover, the positive effects of reappraisal, the emotion-regulation strategy that tutees are trained to employ in the present intervention, are connected to social support, as (frequent) use of reappraisal is associated with greater liking, closer social relationships, and consequently more social support (comp. chapter 2.2.3.4.). Again, with social support taking greater effect in dyadic structures compared to group and individual intervention conditions, and being connected to the employment of reappraisal, it appears to be a conclusive option to organize emotion-regulation training in dyadic structures. The positive correlations of the employment of reappraisal (comp. chapter 2.2.3.2.) and of social support as moderating the effects of peer-to-peer tutoring (comp. chapter 2.5.2.) with positive (achievement) emotions and well-being especially in dyadic conditions can moreover be useful in supporting prevention and the promotion of health which are two of the federal states´ guiding principles of school curricula as well as school development and research. North Rhine-Westphalia in a an advertising report on their initiative "Bildung und Gesundheit" (education and the promotion of health) sets a focus on the need of considering the individual

conditions the children come with, their environments (Qualitäts- und UnterstützungsAgentur - Landesinstitut für Schule (QUA-LiS) NRW, 2019). This request can best be followed in setting up dyadic conditions in training emotion-regulation. Finally, one more reason speaks for dyadic conditions in the implementation of emotion-regulation interventions in school-contexts, and this is practicability. As referred to above in this subchapter, structures for measures of individual promotion in most schools are there. Dyadic measures of a new kind are, from organizational aspects, a lot easier to implement in such structures, than group conditions or class-structures. In the concrete suggestions made in chapter 5.6. of this paper, it will be shown how emotion-regulation interventions could be included in an existing measure named "students as tutors" in which (elder) students support (younger) ones in subject-specific concerns, but also in aspects as self-organization and planning. "Students as tutors" is one of the measures of individual promotion in the school in which the two studies presented here were conducted.

The practicability of implementing measures to train emotion-regulation in schools refers to another aim of this work. It is providing a frame of relevant knowledge and first approaches to its implementation for the teaching staff at schools of secondary education. This is one of the reasons why it is referred to theoretical foundations and to the interventional material in greater detail. The work is thought to possibly serve as an orientation for schools with an interest to implement emotion-regulation training. In this context, it must also be considered that interested people might read only parts of the text, which brings about that at (few) central contents are repetitive. Above all, this is the case for relations between theoretical backgrounds for the study´s design and their manifestation in the interventional material, which is considered from a theoretical perspective, with illustrations from the material, in chapter 2.2, and from practical perspectives, sometimes drawing on the theory, in chapter 2.4. From the perspective of the study´s broad conceptions, the contents are taken up again in chapter 5 of the work.

1.2.7   Further introductory aspects

School is, of course, one environment in which self-regulative capacities can be developed and promoted, other environments are family, peer-groups and whatever more social contexts students have. But as adolescence is one of the two major phases in the development of self-regulation (Bridgett et al., 2015), and since school is one of the socialization contexts in which young people spend most of their time, and as it is especially important for children in adverse rearing conditions that they get support from somewhere outside their families, it is obvious that more measures to train self-regulation should be developed for secondary education contexts, not only to support every individual to develop their full potential, but also to make up for unequal opportunities (State Constitution Baden-Württemberg, 1953).

I am aware of the circumstance, that the role of teachers in training emotion-regulation comes short in the present intervention, as well as in the theoretical contexts outlined. This is not because they could not possibly have a role, but because in the intervention at hand, they do not have it, or only marginally, as they contribute to determining learning and teaching environments (through setting achievement goals, motivating students or demotivating them, being transparent about teaching aims and procedures, being part of creating a supportive or competitive atmosphere in the classroom, for example). This might be different when measures to train emotion-regulation are adapted to school-routines, as suggested here (and referred to in detail in chapter 5.6.).

Another aspect disregarded almost completely, for reasons of capacities, is teachers´ health. To briefly touch upon the topic: An article of a German medical journal (*Deutsches Ärzteblatt international*) reports that teachers are diagnosed with mental and psychosomatic disorders more often than the general population, while no differences are found as regards health-conscious behaviour and cardiovascular risk factors. Likewise, teachers more often report to suffer from symptoms of exhaustion and burnout (Scheuch et al., 2015). Interventional programs can be found in school developmental programs, as for example "10Plus" in Baden Württemberg, which is a program for teachers that have practiced their profession for ten years or more. The program focuses on improving teaching quality through various measures (Institut für Schulqualität und Lehrerbildung (ZSL) Baden-Württemberg, 2021). Academic research identifies self-regulative capacities as one important factor of prevention. One interesting work here is a doctoral thesis in which a prevention program for teachers is developed that focuses on professionally relevant strengths (Schaefer, 2012).

2   Theoretical contexts and frameworks

In the following, it will be outlined what is understood by emotions in general and emotions in educational contexts. The latter, and primarily eight so-called achievement emotions (Pekrun et al., 2002) - a more closely defined construct of emotions in achievement contexts that will be explained below - are in the center of the work and studies at hand. It will be outlined how they emerge, how they are conceptualized, and what their antecedents are in academic and school-contexts. Taxonomies along different parameters as goal setting and goal striving will be presented and what effects different positive and negative achievement emotions have on cognition, motivation, learning strategies, and self-regulation. A pilot-study conducted by the author as an item of preparatory work for the interventional study at hand investigated the correlations between achievement emotions and self-regulation and will be referred to as well. General findings that apply to all achievement emotions will reported and additionally findings concerning the two most frequent ones - anxiety (Pekrun et al., 2002) and academic boredom (Nett et al., 2011; Pekrun et al., 2002).

Following, the *Process Model of Emotion Regulation* (Gross, 2014) and different emotion-regulation strategies will be presented with a focus on their moderating role as regards the effect of achievement emotions and their outcomes on cognition, motivation, self-regulation, and social aspects. In that context, relations between temperamental dispositions and self-regulation will briefly be topicalized. Reasons for choosing cognitive reappraisal as the emotion-regulation strategy for the intervention at hand will be explained.

In a next chapter, self- and emotion-regulation will be considered from the perspective of goal psychology, with reference to conceptions of goal setting and striving, and motivational and volitional phases as depicted in the *Rubicon Model of Action Phases* (Achtziger & Gollwitzer, 2006). A strategy for effective goal striving - *Implementation Intentions with Mental Contrasting* (MCII), will be explained and different areas for its positive effects will be referred to.

Following, it will be outlined how the theoretical contexts from above were implemented in the intervention at hand, concretely referring to determinants in preparing If- and Then-parts of *If-Then-Plans* the students were asked to formulate in the intervention.

The next chapter discusses the social form of the interventional setting at hand and outlines the positive effects of peer-to-peer tutoring on cognitive, motivational, and social aspects, as mediated by social support and tutors´ empathy.

Subsequently, considerations for the development of the interventional material are addressed (as far as they are not addressed in the preceding chapters), and hypotheses of the study are presented. Then, the applied research method is described. After the presentation of results, aspects of the intervention are discussed.

2.1 Emotions in achievement contexts and achievement emotions: Functions, conceptions, taxonomies, antecedents, effects on learning and achievement, and implications for emotion-regulation

There are different theoretical approaches to the question of what emotions are, what functions they have, how they emerge and can be organized in taxonomies, and how they relate to other concepts that are relevant in achievement-contexts (as for example self-efficacy, attributions, and goals and standards that are set by curricula, teachers, and students themselves). The different theoretical approaches have different implications for emotion-regulation. Several relevant more general aspects will be addressed in the following, while the frame of reference for theoretical considerations is emotion and emotion-regulation in achievement contexts and more specifically secondary education in which the studies at hand were conducted.

Within this frame of reference, a distinction is made between emotions in achievement contexts and so-called achievement emotions. As will be outlined below, different object-foci of emotions distinguish between different kinds of emotions. One type especially relevant in achievement contexts are achievement emotions that were reported most often by students in a series of qualitative studies about emotions experienced in academic settings (Pekrun et al., 2002). Achievement emotions are defined as being directly connected to achievement activities and/or outcomes and as being primarily caused by control- and value-appraisals of achievement relevant stimuli (Pekrun & Perry, 2014). 5 of these *achievement emotions* are central to the work at hand. Their conception are the reference frame for theoretical considerations that underly the two studies that are presented here and the construction of the material for the interventional study at hand: For identifying an emotion that tutees frequently feel (to impede the attainment of an individually significant aim) in school contexts, students are asked to select among the five negative achievement emotions - *anger*, *anxiety*, *boredom*, *hopelessness* and *shame* – of the *Achievement Emotions Questionnaire* (AEQ) – a multidimensional self-report instrument to assess achievement emotions (Pekrun et al., 2005).

2.1.1 Functions of (*achievement*) emotions

A general function of emotions is that of producing adaptive behaviour to environmental demands and to personal goals (Pekrun & Perry, 2014). Yet, emotions can be adaptive or maladaptive. Enjoyment, for example, can motivate students to define new goals for themselves, and anxiety, depending on its intensity, can either effect an increased attentional focus on a task at hand, or reduce attention capacities and consequently underachievement (Zeidner, 2014). Personal goals are not always and only long-term goals that represent standards people have set for themselves in all possible contexts, as in educational contexts. Producing adaptive behaviour can also be hedonistically motivated, in terms of seeking pleasant emotional states and avoiding unpleasant ones, wholly or predominantly unaware of long-terms goals and aspirations. More often different long-term goals and short-term needs are relevant to an individual concurrently, with various corresponding emotions, and to which priority is or are given depends on numerous factors, one of which is the emotion itself that emerges. Unpleasant states connected with social emotions with negative valence that are evolutionarily deeply rooted, generally effect high emotional arousal, as social rejection for example effects anxiety, and the immediate impulse to rid oneself of this highly aversive emotional state is more likely to direct attention away from long-term goals than other emotions as boredom. If some more than others, generally negative emotions increase the strength of an impulse and make people turn more easily to immediate gratification (instead of gratification-delay in view of long-term goals) and as such have the potential to impair emotion- and self-regulation understood as directing feeling, thought and behaviour towards

long-term goals as is outlined above (Heatherton & Wagner, 2014). For instance, the pride a student would feel due to having attained a good result would focus attention on the exam she was just handed back (an achievement outcome), if the envious seatmate did not sneeringly show signs of rejection (a social "outcome") and spoil pride and happiness through the upcoming fear of being held up to ridicule. Emotion-regulation in the different courses it might take in this case (expressive suppression of fear and anger, or offering the seatmate to help him prepare for the next exam, for example) would be motivated by the immediate need to regain social acceptance, and be defined as "need-oriented" by some researchers delimitating it from "goal oriented" (Koole & Aldao, 2016). It is the distinction that in other theoretical approaches to self-regulation and related constructs, is made between quick and impulsive responses belonging to "bottom-up self-regulation" and processes that involve the long-term planning of goals and inhibiting impulses ("top-down self-regulation") (Bridgett et al., 2015). Koole and Aldao (2016) refer to an understanding of emotion-regulation they call "person-oriented", representing the integration of "inner needs and autobiographical experiences" and long-terms goals. I understand this approach in such a way that temperamental dispositions together with the individual processing of experiences that people make result in the fact that specific situations very differently trigger needs to seek pleasant emotional states and avoid painful ones which then compete with people´s long-term goals. It can be resumed that the function of emotions in achievement contexts can take different forms of producing adaptive behaviour in view of different aims - goals and needs - an individual strives to attain to.

Achievement emotions, as stated above, are defined as emotions related to achievement activities and outcomes (Pekrun et al., 2005). Regulation of achievement emotions is understood in relation to goals and standards connected to achievement activities and outcomes (Frenzel et al., 2015; Pekrun et al., 2002). While selected achievement emotions are the central object of investigation of the work at hand, it must be underlined that it is only theoretically possible to separate them from other kinds of emotions that play a role in school contexts. In many achievement situations it would hardly be possible to separate achievement goals from social goals, as illustrated in the example above.

Hence, different processes and forms of emotion regulation are employed simultaneously and intertwine. A section from the material which tutors work on with tutees to form If-Then-Plans with Implementation Intentions in the study at hand illustrates that: Students are asked to choose from negative achievement emotions to identify how the emotion might impede them in attaining targeted educational or school-related aims. Yet, it is not possible for a student who perceives that it is anger that often is an obstacle to attaining long-term achievement-related aims, to clearly separate the anger coming from his bad exam results from the anger at his classmate who does much better with much less effort, which would be another example of a social emotion coming up in an achievement context. It might well be an adaptive strategy to combine the immediate regulation of short-terms goals in the service of attaining long-term ones, as the student might reappraise his own situation as being much less under

pressure from his parents, so turning his anger into a combination of (prevailing) disappointment and compassion for the classmate´s situation, which enables him to focus on the review of the exam in order to understand the mistakes he has made and do better next time.

Awareness of the fact that different kinds of emotions with different regulatory processes emerge in achievement contexts accounts for what Heatherton and Wagner (2014) call "person-oriented emotion-regulation", and I see it mirrored in two points of reference in the introduction of this work. Educational mandates aim at educational success, personal development and self-realization as means to the end of an individual´s contribution to a functioning society on the one hand. On the other hand, personal well-being and mental health are ends in themselves. Often, as referred to above, these aims do not run contradictory, but coincide and serve one another: Individuals with high capacity for self-regulation will generally be more successful in all senses of the term than those with low capacity for it, and physical and mental health are at the same time a necessary condition and a consequence of academic achievement and professional and social success. At the same time, well-being (as a precondition for long-term success) can also require meeting the need of attaining to short-term goals and impulses as they spring from the individual´s concrete living-circumstances. A possibly slightly extreme, but realistic example can illustrate pedagogic implications of these considerations: It might be more adaptive for a student to be sometimes late for the first lesson because she submits to the short-term impulse of not meeting an abusive sibling or parent when getting ready for school. For a teacher knowing or sensing that, it would be important to account for "person-oriented emotion regulation", which could here take the form of rather turning a blind eye on the delay (being aware that this would not suffice to help the student) than insisting on the - at first sight more adaptive – self-regulative behaviour of being on time and not missing parts of the lessons to be prepared for oncoming exams.

2.1.2   Conceptions of (achievement) emotions

It is commonly agreed in research on the fact that conceptually emotions are episodes, triggered by a stimulus (conscious or unconscious to the individual) and that they are "event-focused" meaning they refer to an event that is identifiable and relatively short-lived, as opposed to related concepts like "mood", which is of longer duration and often obscure in that there is no graspable cause of being in a "bad mood", for example. An overview as regards differentiations and allocations of "emotion" and related terms can be found in Shuman and Scherer (2014). Emotions are considered multifaceted phenomena, including affective, cognitive, physiological, motivational, and expressive components. These components have different functions (Gross, 2014; Shuman & Scherer, 2014). Taken the example of anxiety, the

affective component monitors some sort of subjective feeling (uneasiness e.g.), the motivational component effects tendencies to act (approach or withdrawal), the cognitive component appraises the object or event eliciting fear (as relevant and beyond control, e.g.), the physiological component sustains the anxiety that is felt (in changes in pulse and heartrate, e.g.) and the expressive component (in a tense facial expression, e.g.) communicates to others that fear is perceived.

The various theories about the nature of emotions are in many aspects not mutually exclusive but view emotions and related aspects from different angles and are thus complementary. Ekman (1992) argues for a categorial approach and a small number of basic emotions (scorn, disgust, contempt, joy, grief, anxiety, surprise) that have evolutionarily developed and that emerge, across cultures, in specific types of situations. According to appraisal theories, different emotions occur due to typical appraisals that individuals make. Appraisals are made when something (an event, a thought, an item of memory, e.g.) is perceived as relevant to an individual´s goals and needs (Pekrun et al., 2006). Other than in basic emotion theories, individual components of an emotion can change independent of others, caused by how we appraise the individual component (Shuman & Scherer, 2014). Referring to the example of anxiety in education above, in a fear-eliciting situation motivation might tend towards running away. Yet, running away from an exam-situation for example, is not an adaptive strategy, and the individual stays within the situation, even though physical arousal and the estimated value of the situation are high, with low perceived control. There are more theoretical approaches to the status and relation of individual components of an emotion, as psychological constructionist theories (Russell, 2003) and dynamical systems approaches (Camras & Witherington, 2005), but other than the appraisal and categorial theories no account is taken of them here, as their basic assumptions are not essential in the context of the intervention at hand. If, according to the former, emotions occur as "evolutionary programmed" reactions to typical stimuli, the process contains a great share of automaticity. Emotion-regulation in school contexts could consequently take the form of changing the stimuli students are exposed to or control reactions in the form of emotional or behavioural suppression for example. These theories, however, leave little room for altering the trajectory of the process of emotion-regulation, as emotions are considered a basic evolutionary program (Shuman & Scherer, 2014). In contrast, assuming that emotions are episodes that arise on the grounds of appraisals students make, that trajectory might be changed by changing appraisals, which can be the case at different stages of the Modal Model of Emotion. The model posits four distinguishable steps in "person-situation-transactions" (Gross, 2014). The first appraisal happens when an individual considers a stimulus as personally relevant in a given situation (an oncoming exam in English, e.g.). The stimulus is given attention against the background of its relevance for attaining a personal goal (getting good marks in English, e.g.). The next step is considering what the situation means in view of that goal (e.g., a threat, if capacities are considered too low to attain the goal). These appraisals result in physiological reactions (reduced attentional capacities, e.g.) and eventually also behavioural ones (reporting sick on

the day of the exam, e.g.). If appraisals are changed, for example by revaluing an exam as a challenge instead of a threat, making oneself aware of having prepared well, responses on other component-levels will change (lower physical arousal with increased attentional capacities on the neurobiological level and attending the exam instead of reporting sick on the behavioural level, e.g.). The Process Model of Emotion also accounts for the fact that responses have the potential to change the situation that originally gave rise to the emotion (J. Gross, 2014). In school contexts, a student who is worried and fears failure in an oncoming exam, might show her anxiety and talk to a teacher who makes transparent again what is expected. Preparation now seems manageable, and the student is hopeful instead of anxious.

Emotions further have an object-focus, as for example the weather, or the beloved partner. In educational contexts, research has identified four different object-foci of emotions. Achievement emotions are directly connected to achievement activities (studying in class or at home e.g.) and outcomes, which can be categorized into success and failure. Achievement is presumably the most frequent context of experiencing emotions in school-contexts, as most activities and outcomes are evaluated with reference to standards students are supposed to reach (Frenzel et al., 2015). Yet, as mentioned above, there are other kinds of emotions that are relevant. One kind are *topic emotions*. These refer to a specific topic that is dealt with, for example when a student empathizes with the fate of Jane Eyre in an English lesson, hoping and fearing for her. Epistemic emotions are induced by various types of cognitive processes (curiosity due to an unexpected beginning of a short story, e.g.). For the intervention at hand, social emotions beside achievement emotions play an important role in achievement contexts and often cooccur, as already outlined in connection with the function of emotion and its implications for emotion-regulation. This was considered in the formations of If-Then-Plans in two regards. One is that even though students are asked to choose among a given set of achievement emotions that occur frequently in school contexts (Pekrun et al., 2002) as the "target emotion" for reappraisal, social emotions are expected to play a great role in the specific situations in which the chosen emotions occur. Social emotions as anger for example (at a classmate who studies much less and gets better marks, e.g.) are likely to frequently occur and it is not always possible to draw a clear line between the achievement and the social aspect of the emotion, as the example in figure 3 shows. It is taken from the tutors´ version of the training material which includes an introduction to the form and effects of (achievement) emotions in school-contexts.

Figure 3

Excerpt from p. 3 of the interventional material. Tutors´ version for 1:1 condition: Introduction of the form and effects of (achievement) emotions

Emotionen haben verschiedene **Bestandteile**. In der Zeichnung unten ist das für die Emotion „Ärger" veranschaulicht. Nehmen wir folgende Situation an:

Du hast zusammen mit deinem Sitznachbarn für eine Arbeit in Englisch gelernt. Nun bekommt ihr sie zurück: Dein Nachbar hat eine bessere Note als du. Er zeigt dir seine Arbeit.

Deine *Gedanken und Bewertungen* dazu könnten sein: „Blöd, wir haben doch gleichviel Arbeit investiert. Warum ist er/sie nun besser?" Vielleicht spürst du, wie du vor Ärger tief Luft holen musst (*körperliches Erleben*), und du sagst dem Nebensitzer laut und deutlich die Meinung (*Handlung*), z.B.: „Wie schön für dich. Lass´ mich in Ruhe."

Additionally, concrete reappraisals formulated in the plans are also expected to include or even ground on social emotions connected to for example the friendship between two students that could provide support in a difficult situation. For an overview over object-foci of emotions see (Shuman & Scherer, 2014). The other context in which social emotions play a major role in the intervention is the peer-to-peer tutoring arrangement, in which social support and empathy are found to function as moderators of its overall positive effects on cognition, motivation, and social functioning. (Comp. chapter 2.5.)

2.1.3   Taxonomies of (achievement) emotions

Different theoretical conceptions of emotions suggest different taxonomies. In basic emotions theories, categorial approaches arrange discrete emotions in relation to each other, e. g. in pairs of opposites (as joy and sadness) and within these basic emotion categories, different levels of intensity are distinguished (Shuman & Scherer, 2014). Dimensional approaches classify emotions along dimensions, for example valence and arousal (Russell, 1980). For an overview see Shuman & Scherer (2014).

For achievement emotions, (Pekrun & Perry, 2014) propose a three-dimensional taxonomy that besides their object-focus which differentiates between activity versus outcome emotions arranges emotions according to their valence (positive vs. negative) and their degree of activation. Physiologically, achievement emotions can be positively activating (as *enjoyment*) or negatively activating (as *anger*), furthermore positively deactivating (as *relief*) or negatively deactivating (as *boredom*). These categories of valence and activation are consistent with more general taxonomies of emotions as referred to above. The object-focus dimension further distinguishes outcome emotions that are prospective (*hope* that one has prepared well enough to get good marks in an exam, e.g.) from outcome emotions that are retrospective (*pride* an account of having done well in an exam, e.g.)

The table below is adapted from Pekrun et.al. (2014) and arranges achievement emotions which research has found to be common in academic settings (Pekrun et al., 2002). The emotions printed in red are measured in the Achievement Emotions Questionnaire (AEQ), a multidimensional self-report instrument developed by Pekrun et al. (2005). Those printed in bold red are the ones that students are presented in the material developed for the interventional study at hand. Identifying an emotion that tutees frequently feel to impede the attainment of an individually significant aim in school contexts, they are asked to select among *anger*, *anxiety*, *boredom*, *hopelessness,* and *shame*. The AEQ consists of three subscales which relate to attending class, studying, and taking tests and exams. Only the class-related emotion-scales were employed in the study at hand. Studying and taking tests were not considered for reasons that are outlined further below in chapter 5.3.1.

Table 1

A three-dimensional taxonomy of achievement emotions. Adapted from (Pekrun & Perry, 2014)

	Positive (pleasant)		Negative (unpleasant)	
Object-focus	**Activating**	**Deactivating**	**Activating**	**Deactivating**
Activity	Enjoyment	Relaxation	**Anger**	**Boredom** Frustration
Outcome Prospective	Hope	Relief[7]	**Anxiety**	**Hopelessness** Joy
Outcome Retrospective	Joy Pride	Contentment Relief	**Anger** **Shame**	Sadness Disappointment

[7] Relief is an emotion from the subscale *test-related emotions*, in which boredom does not occur.

2.1.4   Antecedents of (achievement) emotions

As emotions in achievement contexts have considerable influence on the well-being and achievement of students, one obvious question to ask is what causes them, especially what causes negative achievement emotions that, in the intervention at hand, are identified by tutees to impede the attainment of an achievement or class-context goal and that, consequently, should, by means of reappraisal, decrease in valence, or even change into a positive (achievement) emotion. Before discussing the antecedents of achievement emotions in greater detail, a few more general aspects concerning the intervention at hand will be considered. The first once more relates to the difficult delimitation of social and achievement emotions.

Emotions in achievement contexts can be caused by any stimulus that appears relevant to a goal or need a student has. They do not only refer to achievement activities or outcomes that are commonly connected to (often conscious) achievement goals and standards students have set for themselves, as for example attaining good grades for the presentation of a group-work. Motivation to approach an achievement goal can be countered by social goals, for example, ranging from conscious goals to motivational dispositions, i.e., rather person-oriented and implicit motives that are habitually connected to an affective constitutive element (Heckhausen & Heckhausen, 2006). Concretely, a student in an achievement situation in which a group must choose one group-member to present the results of an item of group-work might have two parallelly active social goals. One is the explicit motive to support a shy friend by making him present results of group-works more often. Additionally, she might have the habitual tendency to avoid conflict and thus act as a mediator whenever conflicts arise. When conflict comes up, negative emotions as feelings of discomfort, even anxiety (depending on the experiences of the individual regarding interpersonal conflicts), arise. The other aim is getting good grades for herself, and for that, presenting results herself. When having the impression that she does not support her friend sufficiently, feelings of guilt might emerge. Again, these social emotions would not easily be separated from achievement emotions, if one imagines the following situation: The student aims for good results in the respective subject and would like to present the results of an item of group-work herself. While also aiming to support her shy friend, another more confident student has the same goal of attaining good results and pursues it rather dominantly. The student withdraws. The more implicit social goal to avoid conflict would be successfully pursued, but the social goal of supporting the friend would no more be pursued than the achievement goal of getting good grades for the presentation of results, which would possibly be the cause for the achievement emotions of hopelessness, maybe even anger, and the social emotion of guilt and disappointment due to not having managed to support the fried. More precisely, not having attained two goals – helping the friend (a social goal) and presenting the group-work results (an achievement goal) would cause feeling guilty (a social emotion) and hopeless (an achievement emotion), and possibly anger (with a social component (at herself for not having

taken the chance for the friend) and an achievement component (for not having taken the chance for herself). Both kinds of emotions in the hypothetical situation would be caused by the dominance of the social goal of avoiding conflict, which is a habitual goal that the student however could become aware of when for example talking to someone about the situation, as is the case in the intervention at hand. Briefly speaking, in a complex situation (having to choose a student for presenting results for which grades are given) a stimulus (the demeanor of the dominant student), that is relevant to a social goal (avoiding conflict), effects another social emotion (guilt) *and* achievement emotions (hopelessness, anger). Consequently, for emotion-regulation, it would be most effective to apply cognitive reappraisal to the situational aspect of the feared conflict, and not to control and value of the achievement activity or outcome, or even both. Reappraisal here might take the form of *If I want to present my work and someone tries to push me aside, I tell myself that I will not let him and that the stress the other person causes is only as big as I allow it to affect me*. The example illustrates the complexity of goal structures in achievement contexts, especially when emotions of different kinds are caused by competing goals of different sorts. As pointed out before, the material developed for the intervention at hand tries to account for this form of complexity that is typical in school and educational contexts: Apart from the section that explains the Modal Model of Emotion (Gross, 2014) social emotions are referred to in the part that explains the emotion-regulation strategy of reappraisal to the tutees, here focusing on a social emotion a student theoretically experiences, elicited by a certain teacher behaviour.

Figure 4

P. 10 of the interventional material. Tutors´ version for 1:1 condition: Introduction of reappraisal as a cognitive process

Bevor wir den Plan schreiben können, brauchen wir noch einen Zwischenschritt:

In dem geht es darum: **Wie** kannst du „dein" Gefühl so steuern, dass es dich weniger stört und deinen schulischen Zielen nicht mehr im Weg ist?

Dazu hat ein schlauer Mensch – Epiktet – gesagt:

Es sind nicht die Dinge selbst, die uns beunruhigen, sondern die Vorstellungen und Meinungen von den Dingen.

Ein Beispiel: Der Lehrer schaut zu dir herüber, einige Sekunden lang, während einer Stillarbeitsphase.

1: Du könntest denken: „Wieso guckt der/die mich so lange an? Will der/die mich kontrollieren?"

Welches Gefühl könnte mit diesem Gedanken verbunden sein? _____

2: Du könntest dir auch eine andere Vorstellung, eine andere Meinung zum Handeln des Lehrers bilden, z.B.: „Er/Sie möchte sehen, ob ich zurechtkomme mit den Aufgaben, er/sie möchte mich unterstützen"

Welches Gefühl könnte mit dem Gedanken verbunden sein? _____

Was meinst du, wie deine Reaktion wohl wäre? (Tutee äußert sich ggf.)

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Social emotions arise in any situation that has social components, which is almost every situation in school contexts. It would reach beyond the scope of this paper to attempt to give a full account of either social emotions or their antecedents. One finding from the literature is important to mention, however. It is that negative social emotions are especially induced by reduced self-esteem and fear of social exclusion (Koole & Aldao, 2016). Situations with a potential threat to self-esteem are such in which individuals differ in the circumstance that one, or few, are actors, and all other participants are passive observers. Actors, for example students who perform in front of the class, are implicitly or explicitly evaluated, and might fear failure (Schwarzer, 1981).

Antecedents of achievement emotions are defined more narrowly. As (Frenzel et al., 2015) state, there are only few situations in which all individuals react similarly. Such would be fear of heights, or negative feedback concerning the self by others. Apart from these evolutionarily relevant situations it is not mainly the situation itself that causes emotions but how an individual appraises the situation. According to Pekrun´s and Perry´s *Control-Value Theory of Achievement Emotions* (Pekrun & Perry, 2014) achievement emotions are to a large extent induced by appraisals of control and value concerning achievement activities and outcomes both retrospective and prospective. Emotions emerge when students feel in control or out of control of achievement activities or outcomes, and when they consider these as important. Appraisals of control and value can ground on generalized subjective attributional styles, and thus be person specific. They can also be situation specific. Mostly, both trait and state factors interplay (Frenzel et al., 2015). If appraisals of control and value – and other distal antecedents that influence control and value appraisals – can cause negative emotions, it is obvious that these can be reduced in valence or changed into positive emotions by reappraisal of control and value and constructs that influence them. This is one of the reasons for choosing reappraisal as the emotion-regulation strategy that was introduced to the tutees in constructing If-Then-Plans.

Other theoretical approaches to antecedents of emotions are valid for achievement emotions as well. In their *Model of Behavioural Self-regulation*, (Carver & Scheier, 2011) suggest that goal-directed acting is the result of feedback-control processes. People strive to conform to (hierarchically arranged) standards they have set for themselves. When they feel discrepancies between current states and these standards, they endeavor to close the gap. The authors suggest a second feedback-loop that concerns emotions: If one is ahead of a set behavioural standard, positive emotions result and at the same time indicate that perceived discrepancies are being reduced, and vice versa. If an individual is behind a set standard, negative emotions are caused, indicating insufficient progress (Carver & Scheier, 2011). The Control-Value Theory includes goal-congruence as an antecedent of achievement emotions, while offering a more differentiated view. So is not having (sufficiently) approached or withdrawn from a goal not the primary and not a sufficient cause for the emergence of a negative achievement emotion. It comes up when an individual additionally to being aware of

a lack of progress in pursuing a goal feels to be out of control of taking respective measures to do so.

Subjective control in achievement situations refers to the perceived causal influences on activities and their results. Different constellations of control- and value-appraisals cause different achievement emotions. Table 2 below gives an overview. Prospective causal attributions can be internal and flexible, as in *If I study hard enough, I will manage the exam.* They can be internal and stable, as in *I am good at languages, I will manage the test*. An external flexible causal attribution would be *If the teacher makes the text easy, I will succeed.*, and an external and stable one *The teacher is nasty, he always makes the tests too difficult, I will fail* (Pekrun & Perry, 2014). As in prospective control appraisals, a given cause is linked to future effects, action-control expectancies involve Bandura´s concept of self-efficacy (Bandura, 1997). Likewise, causal attributions can be retrospective ("I failed because I did not study hard enough.") and current ("I do not know the formula for this task, I cannot solve it.") Value manifests itself in the question of how significant the achievement activity or outcome is for the student. The table below illustrates different constellations of control- and value appraisals and corresponding achievement emotions. It is a complemented version of the adapted table above.

Table 2

A three-dimensional taxonomy of achievement emotions and manifestations of control and value. Adapted from (Pekrun & Perry, 2014)

Object-focus	Positive (pleasant)		Negative (unpleasant)	
	Activating	**Deactivating**	**Activating**	**Deactivating**
Activity	Enjoyment high control high positive value	Relaxation	**Anger** failure: external attribution (low control) (high) negative value	**Boredom** high or low control low positive or negative value
				Frustration
Outcome Prospective	Hope uncertain control, focus on success	Relief[8]	**Anxiety** uncertain control, focus on failure high value	**Hopelessness** lack of control
				Joy high perceived control
Outcome Retrospective	Joy control independent: No further cognitions after success	Contentment	**Anger**	Sadness control independent: No further cognitions after success
	Pride success: Internal attribution (control)	Relief anticipated failure (lack of control) does not occur	**Shame** failure: Internal attribution (control)	Disappointment anticipated success, (control) does not occur
				Gratitude success: External attribution (control)

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[8] Relief is an emotion from the subscale *test-related emotions*, in which boredom does not occur.

Feeling that one is "at the mercy" of one´s own possibly not sufficient (*anxiety*) or lack of (*hopelessness*, *shame*) capacity to achieve goal-standards, whether they are set by the individual itself, by parents, teachers, classmates, or curricula, are (as addressed in the introductory part of this work already) not only unpleasant and aversive emotional states that can have negative impact on the well-being of individuals if they occur regularly. They also impair achievement success through several mediators, which will be referred to in detail below. Because the impact of negative (achievement) emotions is so manifold in school-contexts, it is crucial that measures of intervention are most effective. Reappraisal as an emotion-regulation strategy does not only directly relate to control and value-appraisals. It indirectly also affects more distal antecedents in the model of the Control-Value Theory of Achievement Emotions. This includes, for example, goal structures: An anxious student who is not sure whether she can manage an important test can, with the help of her tutor, make herself aware of the fact that she has studied intensely and should be well prepared for the test. Subjectively perceived uncertain control can change into confidence, and perceived control of the situation. *Anxiety* would ideally yield to *hope* in terms of achievement emotions. Resulting from these attributional changes, a performance avoidance-goal would alter into a performance approach-goal with the focus of attention turning away from the negative value of failure outcomes to the positive value of success. This change, in turn, would foster hope with it positive effects on achievement outcomes (Pekrun et al., 2006).

It must be considered, of course, that attributions are not only induced by situational factors. Attributional patterns are also part of people´s dispositions and as such relatively stable. Yet, the situational influence should not be underestimated. Nett et al. (2011) explored students´ use of emotion-regulation strategies related to boredom and found that which of two investigated strategies (emotional suppression and cognitive reappraisal) were employed by students was to a greater extent explained by situational than by dispositional factors. For boredom in the classroom, that means that teachers can change much by making lessons more interesting. It would not be valid to generalize these results to the employment of attributional strategies that cause control-appraisals, but they might lead to believe that situational factors have noteworthy influence. In other words, the support tutors give tutees might be a situational factor that helps them to apply new and more adaptive attributions than they habitually applied before.

Figure 5 below is adapted from Pekrun and Perry (2014) and gives an overview over distal and proximal antecedents of achievement emotions and what effects they have on achievement activities and outcomes. Other than in laboratory experimental settings, focusing on one negative achievement emotion in complex real-life situations, as is done in the intervention at hand, does not mean that there is one single or obvious antecedent for this emotion[9].

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[9] In an interventional study that investigated the effectiveness of the automation of emotion-regulation, one sort of stimulus effecting negative emotions were pictures of injuries or mutilations of human bodies (Christou-Champiet al. (2015); Schweiger-Gallo et al. (2009).

Taking the anxious student form above as an example again, he and his tutor, while working on the intervention-material, might find high goal expectations (good grades in mathematics) that his parents have set for him, and increasing doubt whether he is able to reach up to these standards. The parents´ expectations might even turn out to be unrealistic, for they exceed the capacities of the student. This in turn, among other factors, has led to a negative self-concept of ability for mathematics. Speaking more generally, constellations and manifestations of causes for the negative achievements emotion that tutees choose in the intervention at hand are complex and various and will change from tutee to tutee. Communicating with one another and constructing If-Then-Plans, tutors and tutees will sort out together which antecedent/s is/are central and can be reappraised most effectively in the given situation. (If the standards are set by the students himself, it might be effective to try and readjust it, if the parents have set it, it might be more effective to reappraise the value of the one exam that is ahead for end-term results.) The complexity and diversity of individual situations as to the (different sorts of) emotions and antecedents involved led to the decision not to restrict the emotion-regulation strategy of reappraisal to control and value of achievement activities and outcomes in the given intervention, as might be an obvious approach at first consideration. This aspect will be discussed in greater detail in chapters 2.6. and 5.3.1. of this work.

To add one more important aspect to these considerations, some causes of negative achievement emotions and their effects might not be connected to the strategy of reappraisal at all in If-Then-Plans. The decline of negative scores in the negative achievement emotion identified by the tutee might rather be associated with changes in motivation that result from the interaction between tutors and tutees and the positive motivational effects of peer-to-peer tutoring. Talking to a tutee about which aims are important and why, perceiving social support and empathy while not fearing to being evaluated by a teacher might be connected to changes in motivation, cognition, the applications of learning-strategies and self-regulation. These effects of peer-to-peer tutoring are explained in detail in chapter 2.5. of this paper. The influence they exert could be allocated at two stages of the components of the Control-Value Theory, which is visualized in the figure below, and it is expressed in hypotheses 3 and 4 of the study at hand, while hypothesis 2 relates to the effects of the employment of reappraisal on the antecedents of (achievement) emotions as explained above. In the model of the Control-Value Theory, proximal and distal antecedents of achievement emotions that could be targeted by reappraisal can be found under "environment" and "appraisal". Those antecedents that are (also) directly affected by peer-to-peer tutoring (comp. chapter 2.4.2. in detail) are marked in red.

Figure 5

Basic propositions of the Control-Value Theory of Achievement Emotions and Effects of Peer-to-Peer Tutoring. Adapted from Pekrun and Perry (2014)
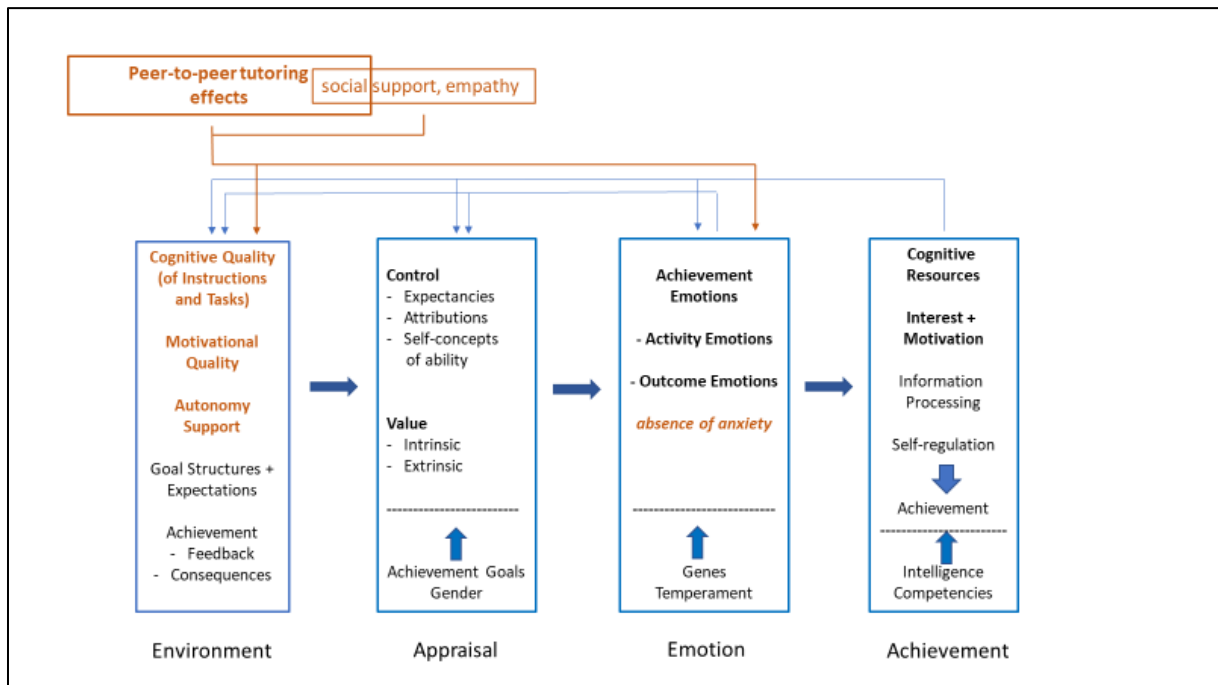
Hypotheses 1 and 2 of the study are – corresponding to the discussion above – formulated in such a way that they do not predefine single antecedents of achievement emotions to be aspects of reference for reappraisal, taking account for the fact that this is expected to vary individually, from tutee to tutee in the interaction with tutors.

Another central antecedent of achievement emotion that we considered a possible target of reappraisal in the intervention at hand are achievement goals. Research has found that achievement goals and achievement emotions correlate in distinct ways (Pekrun et al., 2006) and that achievement emotions function as mediators of relations between achievement goals and achievement outcomes (Pekrun et al., 2009). The table below, adapted from (Pekrun et al., 2009), shows these correlations. Achievement goals are categorized into approach vs. avoidance goals and mastery vs. performance goals.

Table 3

Correlations between achievement goals and achievement emotions. Adapted from (Pekrun et al., 2006)

Achievement goals predict *achievement emotions*

	mastery	performance
Approach	Focus on activity. Perceived controllability and positive value of activity	Focus on outcome. Perceived controllability and positive value of outcome
	- *foster positive activity emotions →* **enjoyment** - *reduce negative activity emotions →* **boredom**, **anger**	- *foster positive outcome emotions →* **hope**, **pride**
Avoidance		Focus on outcome. Perceived lack of control, negative value of outcome
	→ anxiety, anger, sadness[10]	- *foster negative outcome emotions →* **anxiety**, **shame**, **hopelessness**

Achievement goals are found to regulate thought and action related to achievement activities and outcomes, in that they, according to the Control-Value Theory, cause appraisals of control and value, with resulting achievement emotions that have, in turn, strong effects on achievement outcomes (Pekrun et al., 2006). As the components of the theory affect each other reciprocally, achievement emotions - and their effects on achievement - can be antecedents of achievement goals (Pekrun & Perry, 2014), which finding is in line with the *Asymmetric Bidirectional Model of Achievement Goals and Affect* by Linnebrink and Pintrich (Linnenbrink-Garcia & Barger, 2014). It proposes what can also be seen in the table above: Positive (achievement) emotions predict approach-goals, while negative ones predict avoidance goals, which can be explained on the grounds of Carver´s and Scheier´s *Control-Process Model of Self-Regulation*: According to this model, emotions experienced during goal-pursuit depend on its direction (approach vs. avoidance) and its rate of progress. For approach-goals, when one approaches a goal sufficiently (fast), one is elated, when not,

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[10] In the two studies about correlations between achievement goals and achievement emotions conducted by Pekrun et al. (2006), mastery-avoidance goals were not considered, as they do not occur as frequently as the three other goal-structure types which the authors focus on. However, Linnebrink-Garcia and Barger (2014) refer to a review of existing literature on the relation between emotions and achievement goals conducted in 2002 which found these three achievement emotions.

sadness emerges. For avoidance-goals, withdrawing fast enough causes relief, and withdrawing too slowly causes anxiety (Linnenbrink-Garcia & Barger, 2014). Coming back to the concepts of mastery and performance - abstractly phrased, "mastery" in achievement contexts relates to developing one´s competence, whereas performance relates to demonstrating one´s competence. Correspondingly, mastery-approach goals are associated with gaining or enhancing one´s competency, and mastery avoidance goals with avoiding losing it, in other words, not reaching up to one´s potential. Performance-approach goals are connected to demonstrating one´s competence, and performance-avoidance goals to avoiding to demonstrate one´s incompetency (Linnenbrink-Garcia & Barger, 2014).

The structure of goals and standards that students set for themselves essentially determine if an achievement outcome is appraised as success or failure. If goals are demanding but realistic, independent of whether they are defined by the student or other people or instances, self-concepts of ability will be influenced positively, and high control is perceived, which leads to positive (achievement) emotions. If goals are set too high, the impact of failure is strengthened, which leads to negative (achievement) emotions. Empirical studies show that high degrees of competition in a class correlate positively with anxiety among the students (Frenzel et al., 2015). Following from that, the authors point out that cooperative goal-structures, in which individual success is connected to the success of others, should be favoured in classrooms.

The outlined importance of achievement goal structures and their correlations with achievement emotions was given due consideration in the development of the material for the intervention at hand. As tutees are asked to identify goals that are important to them (and the attainment of which "their" chosen negative achievement emotion impedes), tutors have an important role in helping them to formulate adequate goals, or reconsider and adapt goals that students formulate. Tutors gained relatively detailed knowledge of goal-characteristics in the training sessions preparing them for the intervention, and the additional material for tutors includes information on SMART goal-criteria and the variables mentioned above (mastery vs. performance and approach vs. avoidance goals). Additionally, the material includes information on possible reference norms and their effects: Referring to individual reference norms is often more adaptive than referring to social norms, i.e., comparing one´s achievement outcomes with those of others.

Figure 6

From p. 2f from the additional material for tutors: Achievement goals and goal-structures

Ziele können darauf ausgerichtet sein, etwas anzustreben („approach") oder etwas zu vermeiden („avoidance"). Eine weitere Unterscheidung betrifft das Bestreben, nach außen hin Kompetenz zu vermitteln - der Fokus liegt darauf, sich mit anderen zu vergleichen – („performance") oder die eigene Kompetenz zu erweitern - der Fokus liegt auf einem selbst – („mastery").

Annäherungsziele („approach-goals") sind eher mit positiven Emotionen (z.B. Freude) verbunden, Vermeidungsziele („avoidance-goals") eher mit negativen (v.a. Angst).

„Mastery-goals", also das Bestreben, sich an sich selbst zu messen, sind eher mit positiven Emotionen verbunden als „performance-goals", also das Bestreben, die eigene Leistung in Konkurrenz zu anderen zu sehen.

Also: Darauf achten, dass die Formulierung von schulischen Zielen oder eine Strategie der Neubewertung
- den Vergleich mit anderen nicht zu sehr in den Fokus setzt, v.a. wenn man das Gefühl hat, der Tutee setzt sich ohnehin unter Druck.
- nicht auf Vermeidung (von Misserfolg) abzielt, sondern darauf, etwas im positiven Sinn zu erreichen (nicht: „…möchte ich mich nicht mehr blamieren.", sondern: „…möchte ich zeigen können, was ich kann.").

2.1.5   Effects of (achievement) emotions on learning and achievement

2.1.5.1   Achievement emotions of the AEQ

As seen in various contexts above, emotions play a central role in the explanation of students´ reaction to challenges and demands in education: "Emotions are considered as being relevant for the initiation, maintenance or reduction of effort in learning and achievement situations and therefore as central predictors of students´ achievement performance." (Frenzel et al., 2015)

In an overview, different achievement emotions at first have different effects on the availability of cognitive resources. Negative emotions, in general, entail that attention is directed away from a task at hand (in class-, learning- and test situations), whereas positive emotions generally are presumed to help focus attention on given tasks. At second, emotions relate to what kind of learning-strategies are employed by students. Positive emotions all in all lead to more flexible and elaborate strategies, negative emotions to more rigid and repetitive ones that aim at the reproduction of contents more than at understanding them. At third, positive (and activating) emotions in the main are related to increased intrinsic and extrinsic motivation compared to negative (and deactivating) emotions (Frenzel et al., 2015). At fourth, research has identified correlations between achievement emotions and self-regulated learning vs. externally regulated learning (Pekrun et al., 2002; Pekrun & Perry, 2014). These four variables are found to function as mediators of the effects of achievement

emotions on academic achievement (Pekrun & Perry, 2014). Achievement emotions also correlate with self-regulation. The mentioned effects of achievement emotions will be explained in greater detail below. At this stage, it is important to draw attention to the fact that self-regulated learning and self-regulation are not the same. The first is understood as the opposite of externally regulated learning. Students who perceive their learning as self-regulated, report that they set learning and achievement goals themselves, decide on the material, time and strategies used for learning, and monitor and evaluate achievement processes and outcomes themselves. Students who perceive their learning as externally controlled, pursue goals that are set by others (as parents and teachers), and tend to rely on external guidance in planning and realizing learning processes. (Frenzel et al., 2015; Pekrun et al., 2002). Self-regulation, as explained in the introduction of this paper, is goal directed behaviour which includes the setting of standards (of thought, feeling and behaviour), the motivation to reduce discrepancies between these standards and state-of-affairs, and capacities to act accordingly (Baddeley et al., 2012). This includes controlling immediate impulses in view of the long(er)-term goals people have (Gawrilow, 2012).

Again, when discussing the effects of (achievement) emotions on achievement outcomes, it is important to be aware of social emotions that play a role in the processes involved. In that context, the role of social support and empathy has already been addressed in chapter 2.1.4. and visualized in Pekrun and Perry´s (2014) model of the basic proponents of the Control-Value Theory of Achievement Emotions. An example serves to illustrate this: A tutee is hopeless in view of an oncoming sports lesson in which he will be marked for artistic gymnastics. Together with his tutor he might find he can reappraise the situation as being a chance to focus on individual standards in that area of sports in which he has never done quite well (mastery), instead of focusing on the results in terms of grades (performance) and be frustrated. Due to that, hopelessness might decrease or even change into hope. Another scenario shows the significance of social support: The tutor comforts the tutee and shows empathy, telling him that she herself used to be graded for that discipline and never did well. The tutee, still hopeless in view of achievement outcomes as results are concerned, feels better yet. Doing badly is perceived as less shameful, he knows someone who failed and still has the recognition of his peers. The negative valence of hopelessness decreases, with its negative effects, and he performs better than he would have without the help of his tutor. In this scenario, the effects of peer-to-peer tutoring would not play on emotions related primarily to an achievement outcome, but to emotions concerning the social standing of the tutee. That stated, it is obvious again that delimitations of social and achievement matters are difficult: It is to be expected that achievement outcomes are, to some extent, evaluated in comparison to how others have done in most cases. The size of that extent varies, due to for example the type of goals students set for themselves (mastery vs. performance-goals). It is often the case that emotions that occur in school situations are not so much either achievement or social emotions, but both, and that perspectives can focus on one or the other aspect in the process of reappraising situations.

The following discussion centers on achievement emotions as identified by Pekrun et. al. (2002a) and measured in the Achievement Emotions Questionnaire (Pekrun et al., 2005) with more detailed reference to anxiety and academic boredom. Anxiety is an achievement emotion the effects of which are especially relevant in school contexts, as it frequently occurs among students and is one cause for sometimes considerable underachievement and personal distress. Consequently there is a wide range of literature available on the effects of anxiety (Ansari & Derakshan, 2001; Cisler et al., 2010; Eysenck et al., 2007; Zeidner, 2014) and according interventional measures in teaching contexts (Kern-Felgner, 2000; Zeidner, 2014). Pekrun et.al. (2002a) found that anxiety was reported most often, accounting for 15% to 25% of all emotions reported in their studies. Academic boredom is another commonly experienced emotion in educational settings (Goetz & Hall, 2014; Nett et al., 2011). Goetz and Hall (2014) report results indicating that boredom is as frequently and even more intensely experienced by students of grades 8 and 11 than anxiety across selected subjects from natural and social sciences, music, and native language classes. This evidence led us to assuming that tutees will choose these two achievement emotions more frequently than the other three when asked to select among the five negative achievement emotions that are suggested in the interventional material. This proved to be true only for boredom, not at all for anxiety. Of 76 tutees that took part in the study, 74 handed in their plans. In 68 of these, one achievement emotion emerging in a typical (achievement) situation to which reappraisal as an emotion-regulation strategy was employed could be clearly identified. In the remaining six plans, there was no clear reference to *one* chosen emotion, instead, two or even three emotions were addressed with unclear references in the employment of reappraisal.

In the 74 plans of the students who handed in their material, we found the following distribution of achievement emotions identified for making If-Then-Plans:

Table 4

Frequency distribution of identified negative achievement emotions in students´ If-Then-Plans in study 2

Achievement emotion identified for making If-Then-Plans	Numbers
Anxiety	3
Anger	5
Boredom	50
Hopelessness	6
Shame	4
More than one emotion	*6*

It is striking how often boredom was identified. As these results go even beyond the findings of the literature (Frenzel et al. 2015; Goetz & Hall, 2014; Nett et al., 2011; Pekrun et al., 2002; Pekrun et al., 2009; Zeidner, 2014) we presumed that there must be reasons for that which have to do with the conditions of the study at hand. These considerations will be made in detail in chapter 5.4.

As stated above, achievement emotions affect cognitive functioning, motivation, self-regulated learning, and self-regulation, and mediated by all these, performance attainment. The effects will be laid out for anxiety and boredom in greater detail than the general effects found for achievement emotions. As effects on cognition are concerned, positive as well as negative emotions use cognitive resources. Negative emotions, however, effect that attention is directed away from given tasks, and towards the, for example, anger-eliciting stimulus. A student, for example, might be annoyed by the fact that he currently must attend a German lesson, instead of preparing for the mathematic exam on the next day. His mind is on the exam, and on how he loses time to prepare for it, not on the content of the German lesson he is physically present in. As opposed to that, positive emotions that focus attention on a given task, correlate positively with increased concentration and improved performance (Frenzel et al., 2015). Similar relations as for attention-regulation hold for working-memory capacities. If emotions as enjoyment focus on current achievement activities, working memory capacities are not lost, as is the case when a student is ashamed of "only" 13 credits she was handed back in the German exam, knowing her parents expect even better results of her, and thinking her teacher does, too. Pondering about not meeting the standards, and how her parents will probably react, and observing the teacher striving and fearing to see signs of disappointment draws from working-memory resources. Positive achievement emotions are moreover generally associated with higher working memory capacities than negative ones. Negative emotions likewise are associated with rigid and narrow ways of processing information. Angry, anxious, bored, hopeless, or ashamed students report bottom-up approaches of information

processing that are analytical and item-specific and generally focused on single items or features of contents or tasks than on relations between them. Top-down approaches to information processing are connected to positive emotions. A student who enjoys learning and is hopeful and maybe proud of achievement outcomes, more often considers larger, superordinate topics connected, and uses heuristic and flexible approaches to problem solving. Tendentially, positive emotions provide the conditions for solving problems rather than working on tasks, for which the solution process is clear (Bovet, 2000b).

Likewise, learning strategies that are flexible and create so called fluid knowledge (that can be applied in unfamiliar contexts because contents or processes have been studied in such a way that transfer of knowledge is possible) are fostered by positive achievement emotions, while negative achievement emotions are more associated with learning strategies that focus on the repetition and memorizing of content, which leads to so-called crystalline knowledge that students can reproduce in the context of given tasks, but not beyond (Bovet, 2000b).

The effects of achievement emotions on motivation are such that positive emotions support the motivation to carry on with a given achievement activity in the process of it (enjoyment), or prospectively, as is the case with hope, when perceived control of the activity or outcome is high. Pride fosters carrying on with achievement activities because of positive outcomes which confirm that control is high. Negative emotions, however, tend to deactivate pursuing achievement activities and taking an effort in view of outcomes, because perceived control is low (hopelessness), or the value of an activity is perceived as low, as can be the case with boredom. For anxiety and shame, the situation is more complex. The emotions are negative, intrinsic motivation tends to avoiding achievement activities and outcomes that trigger these emotions, but research has found that extrinsic motivation to avoid failure is often increased (Pekrun & Perry, 2014).

Pekrun and Perry (2014) summarize the effects that achievement emotions have on the mediators discussed above, and thus on performance outcomes, in an overview sorted by the eight emotions of the AEQ (Pekrun et al., 2005).

Table 5

Overview over effects of achievement emotions and mediators on performance. Adapted from Pekrun and Perry (2014)

Effects on achievement mediated by	Attentional focus and WMC[11] on achievement activity/outcome	Motivation directed towards achievement activity/outcome	Flexible and adaptive learning strategies	Self-regulated learning	Performance outcomes
Positive AE[12]					
Activating with activity-focus: **enjoyment**	+	+	+	+	overall positive
Activating with outcome-focus: **hope**, **pride**	+ Possible for **pride**: Too much of it might take focus away from tasks	+	+	+	Overall positive, variable in aspects
Negative AE					
Activating: **anger**, **anxiety**, **shame**	-	- Possible for **anxiety** and **shame**: Increase of extrinsic motivation to avoid failure	-	-	Overall negative, variable in aspects
Deactivating: **hopeless-ness**, **boredom**	-	- Possible for **boredom**: might lead to effort to change tasks and learning-environment	-	-	Overall negative, variable in aspects

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[11] Working Memory Capacities
[12] Achievement Emotions

2.1.5.1.1 Boredom

Academic boredom is, as referred to above, reported to be as common or even more frequently experienced than anxiety in school-contexts (Pekrun et al., 2002). It only more recently has attained attention in pedagogic-psychological research, which beside its high incidence is due to the specific outcomes that are associated with boredom. It is positively related to school absenteeism, even drop-out rates, and deviant behaviour in secondary education (Nett et al., 2011). Relations between academic boredom in school-settings and its causes and outcomes are complex and not as homogenous as for other achievement emotions. Antecedents of boredom are, according to the Control-Value Theory of Achievement Emotions, low value of achievement situations or outcomes. As regards control, findings are interesting, as it can be perceived as either very high or very low. Boredom is characterized as a deactivating emotion with negative valence, while on the dimension of arousal, findings are ambiguous. Some studies report low, others high values of arousal. Various explanations are offered, one of them is that different types of academic boredom exist. Boredom correlates positively with performance-avoidance goals and negatively with mastery goals, which shows that it would be wrong to equal the emotion with a lack of interest. Students who perceive boredom report a wish to escape boring activities or lessons (Frenzel et al. 2015). Besides the motivational effects of academic boredom, it has negative effects on performance outcomes via redirecting attention away from achievement activities to those that seem more interesting. Surely every teacher knows students playing battleships or writing letters to each other in his/her more boring lessons. Equally, the effects of boredom on self-regulated learning and the employment of learning strategies are negative (Nett et al., 2011). As there is little or no interests in what is taught, little effort is invested in processing information. Complex and flexible learning strategies would require high cognitive resources, and self-regulated learning taking the effort of overseeing the learning process, making plans, formulating learning goals and reviewing parts of the process regularly. All in all, the effects of academic boredom on achievement outcomes are negative, in both demanding and less complex learning environments. However, as can be seen in table 5, boredom might also have the effect that students look for more creative ways to deal with contents, for example by means of finding more complex approaches or perspectives to topics independently of how they are presented in class (Nett et al., 2010). Causes of boredom furthermore can be differentiated into situation specific and disposition specific ones. Situational factors that cause boredom in students (and teachers) are methodic and didactic arrangements that lack stimulation, or in which stimulation is not age-appropriate or does not match performance levels of (most) students in a class. Research, however, has found that students who are exposed to such learning environments react differently. Some sustain interest in teaching contents, others get distracted and focus attention on something else. Reasons for these differences ground on dispositional factors of people to a certain extent. Nett et. al. (2010), in a study exploring different strategies that students use for regulating boredom, found three

distinct trait coping profiles (based on the coping dimensions of approach vs. avoidance and cognitive vs. behavioural coping). *Reappraisers* who regulated boredom employing cognitive approach strategies (through reappraising the value of a boring lesson by calling to mind that the subject is important, for example) could be distinguished from *Criticizers* who regulated boredom employing behavioural approach strategies (as telling the teacher that her lessons are boring, suggesting one might play a quiz instead of repeating last lesson´s contents by interrogating the students monotonously). The third coping profile of *Evaders* was characterized by avoidance strategies of regulating boredom, either by doing or by thinking something unrelated to boring lesson-contents (Nett et al., 2011). Interestingly, these coping profiles also proved to correlate with personality trait-dimensions from the *Neo-Five Factors Inventory* (NEO FFI) (Costa & McCrae, 1985). Comparing the three profiles it was found that Reappraisers scored higher in the dimension of *Conscientiousness* and lower in the dimension of *Extraversion* than *Evaders*. Reappraisers were also found to score higher in the dimension of *Agreeableness* than Evaders. No significant differences were reported for the comparison of Criticizers and the other two profiles (Nett et al., 2011). Another correlation Nett et. al. found in their study is that between coping profiles and the frequency with which boredom is experienced by students. Reappraisers reported to experience boredom significantly less often than Evaders, which proved to be the case for trait as well as for state-measures. Even though cognitive approach strategies, and especially reappraisal, are the most effective ones, cognitive avoidance strategies are most frequently employed when students experience boredom in school contexts (Goetz & Hall, 2014).

The findings outlined above are also important in pedagogic regards. That the employment of adaptive emotion-regulation strategies (as cognitive reappraisal is reported to be for boredom) not only depends on situational factors, but also on personality traits of students, needs to be considered in pedagogic contexts in which this might become relevant. One possible context is making students aware of the importance of emotions and emotion-regulation in education, conveying knowledge about it and possibly even practicing the employment of effective strategies. Students and teachers then need to be aware that they come with different preconditions, start from different grounds. If they were not, and all students (and teachers) were expected to adapt new strategies equally successfully, training emotion-regulation might cause frustration and overstrain rather than it would help. This is discussed in greater detail in chapter 2.1.8.

The findings about the effectiveness of reappraisal for coping with boredom contributed to the decision to choose reappraisal as the emotion-regulation strategy that is introduced to tutees in the present intervention, especially as boredom as the achievement emotion to impede the attainment of students´ goals was expected to be chosen often in tutees´ If-Then-Plans. It will be referred to that in greater detail below, also for anxiety, for the regulation of which research has also found reappraisal to play a central role.

2.1.5.1.2 Anxiety

Anxiety is an emotion that is especially relevant in school contexts. Long before other achievement emotions it received much attention in pedagogic psychological research. Its prevalence is high with rates of 25 - 40% suggested for test anxiety (Zeidner, 2014) Pekrun et.al. (2002a) found that anxiety accounted for 15 to 25% of all emotions reported in their studies. Zeidner (2014) phrases the consequences of anxiety in education for individuals, the society, and teachers in striking words:

> *"Clearly, many students have the potential to do well in educational settings but perform poorly because of their debilitating levels of anxiety [ ]. The loss to society of the full contribution of potentially capable students [ ] constitutes an important problem for educational practitioners."*

Anxiety often leads to underachievement and failure at school (and beyond in professional contexts), causes distress to students and endangers mental and physical health (Zeidner, 2014). Anxiety in education is evoked in social and achievement contexts, when situations are appraised as relevant (as for example an incident of social evaluation, or an oncoming exam). It arises when a student perceives a situation as a threat rather than a challenge, because he subjectively doubts having enough resources to meet requirements (for example, not making a fool of himself when taking on the role of Major Crampas talking to *Effi Briest* in a role play) or cannot reach up to expected standard (as passing the exam). The described cognitive component of anxiety is connected to (strong) negative affect and high levels of physical arousal as well as a motivation to withdraw from the situation (Schwarzer, 1981). Trait and state anxiety are distinguished, with trait anxiety being defined as a relatively stable personality trait that refers to interpersonal differences in perceiving demanding situations as threatening. State anxiety refers to a concrete situation of limited duration that is perceived as stressful and uncontrollable in terms of a perceived lack of resources to handle it successfully. State and trait anxiety interplay when a student has a habitual tendency to perceive a certain type of situation as a threat (which can be those of social exposition as giving presentations in front of the class, or evaluative situations concerning achievement as taking exams), and that situation occurs (Zeidner, 2014). Antecedents of achievement anxiety according to the Control-Value Theory of Achievement Emotions are in line with the appraisals described above. Uncertain control of an achievement activities or outcomes, while the student focuses on failure rather than success (which would cause *hope*), with high value perceived for the activities or outcomes, are predictors of anxiety. Accordingly, anxious students tend to set avoidance-performance goals for themselves rather than approach-performance or mastery goals. When preparing for an English exam, for example, such a goal could be phrased as *I hope I will not disappoint my parents and do worse than 10 credits.*, while a performance-approach goal might read: *I intend to make at least 10 credits*.

What is stated for boredom in the respective section above is even more valid for anxiety. Students and teachers need to be aware of different preconditions they come with to prevent frustration when attempting to regulate anxiety (as in the intervention at hand, in the typical situations in which it emerges and for which tutees construct If-Then-Plans). Zeidner (2014) recounts biology, the family environment and socialization as important determinants of anxiety. Genetic predispositions are reported to account for approximately 50% of interpersonal differences in anxiety. What is interesting is that early attachment - (maternal) responsivity and resulting patterns of attachment - are also predictors of anxiety, with ambivalent attachment having stronger effects than avoidant attachment (Gloger-Tippelt & Hofman, 1997). Mary Ainsworth´s *Attachment Theory* (Bretherton, 1992) is mentioned as a topic in the 2016 Baden-Württemberg curriculum for psychology, and interdisciplinary projects with the subject of biology, for example, on genetics, the role of emotions and emotion-regulation and attachment theory are well imaginable and would probably interest students very much.

Concerning the decision to refer to social as well as achievement aspects of emotions in the intervention and the corresponding material, Zeidner (2014) emphasizes the importance of social concerns as proximal antecedents of anxiety in school environments. When teachers in class-report conferences suggest that the results of a particular student were most likely much better if that student did not purposely underachieve in order to not be bullied in a class that is largely not performance oriented, this is another example of how strongly the effects of social and achievement aspects and belonging emotions interact, and how consequently it would not be sensible to plan an intervention that considers only one of the two.

The effects of anxiety on motivation are ambiguous, as intrinsic motivation is decreased, but possibly extrinsic motivation to avoid failure is increased. Learning strategies are rigid, inflexible and students with anxiety tend to disregard more complex relations and contexts of topics they learn, i.e. they tend to employ bottom-up instead of top-down approaches when working with a text or task (Pekrun & Perry, 2014). This is owed to the effects of anxiety on cognition, which are numerous and extensive. An anxious student is focused on and worried about failure and its possible consequences, which takes up working-memory capacities, which are not available for achievement tasks. Along with working-memory deficits, the impairment of attention and attention regulation are effects of anxiety which lead to difficulties in encoding, storing, processing, retrieving, and producing information. Zeidner (2014) gives a detailed overview over these effects. These will be discussed below in greater detail with reference to findings of the attentional control theory, as these also concern correlations between anxiety and self-regulation (Eysenck et al., 2007).

Next, findings about the relations between anxiety and emotion-regulation will be discussed, because - as has already been found for coping with boredom - cognitive reappraisal as an emotion-regulation strategy plays a significant role in the effects of anxiety on achievement outcomes (Cisler et al., 2010), which was another factor contributing to the decision to choose

reappraisal as the emotion-regulation strategy that is introduced to tutees in the intervention at hand. This was the case especially, because we expected anxiety, corresponding to the frequency with which research documents it to occur in school-contexts, to be chosen frequently by tutees when constructing If-Then-Plans – which was not the case after all. Reasons for that will be discussed below. Coming back to the role of reappraisal in anxiety, Cisler et. al. (2010) hypothesized that emotion-regulation strategies can decrease or increase anxiety beyond variance explained by trait variables and found their hypothesis confirmed. Comparing two distinct emotion-regulation strategies they chose one response-focused strategy, and one appraisal-focused strategy. The effects of behavioural suppression on selected components of anxiety were compared to those of cognitive reappraisal on cognitive-behavioural levels and on neural levels of analysis. For the cognitive-behavioural level it was found that behavioural suppression did not reduce negative affect but rather tended to increase sympathetic arousal. For reappraisal, the opposite was found. Negative affect was reduced, and sympathetic arousal decreased. On the neural level of analysis, reappraisal correlated with greater activity of the prefrontal cortex (PFC, a frontal lobe brain area in charge of planning and monitoring behaviour) and less amygdala (an evolutionarily older brain region connected to basic emotions) activity compared to behavioural suppression (Cisler et al., 2010). With relation to pathalogical froms of anxiety, the authors state that emotion-regulation explains gradual variance in the symptoms of anxiety disorders. This is not a field of research that concerns the core of educational contexts, but the results reported about the effects of (behavioural) suppression compared to cognitive reappraisal are conform with the effects other researchers report for different strategies of emotion-regulation on the mediators of achievement outcomes, which will be referred to below in chapter 2.2.3. of this paper.

Another approach to explaining the effects on anxiety on cognitive performance is Eysenck´s and Calvo´s *Attentional Control Theory* (Eysenck et al., 2007). Basic findings derived from it are that anxiety impairs efficient functioning of the "goal-directed attentional system" which represents top-down processing of information and the executive functions of shifting and inhibtion. Moreover, anxiety is found to increase the power of the "stimulus driven goal-directed system", in orther words that part of self-regulation that is referred to as reactive self-regulatuion, or bottom-up self-regulation by some researchers (Bridgett et al., 2015), and by others is not included in the construct at all. (Eisenberg et al., 2016) Thirdly, it is confirmed that anxiety focuses attention increasingly on threat-related stimuli. (Rather than a problem to be solved or an exam to be written, anxiety focuses the attention on the potential and expected threat to the self in the case of failure that is perceived as likely, for example). These findings are also conform with the effects that neagtive achievement emotions have on cognitive performance as already recounted in this chapter. The reason to refer to them again is that Eysenck et. al. investigated executive funtions in the contect of cognitive perfomance. Apart from shifting and inhibition they investigated the effects of anxiety on working-memory capacities and the "central executive" which is stated to control cognitive processes in a goal-

driven manner, i.e. in the perspective of long-term goals. Apart from finding that different executive functions are impaired to different extents, the theory differentiates beween effectiveness, which is the quality of task-performance, and efficiency, which is the relation between task-performace and resources spent. The described negative effects of anxiety on executive functioning can, especially in simpler task-contexts, be compensated for by increased usage of processing ressources. (Eysenck et al., 2007) From a pedagogic perspective, this means that it is essential to be aware that anxious students have to invest much greater effort for the same (achievement) results than nonanxious students under the condition of equal cognitive capacities.

2.1.6   Achievement emotions and self-regulation

From what has been recounted above about the constructs that play a role in the relation between (achievement) emotions in school-contexts and achievement outcomes, it is obvious that some of these concern the constitutive elements of the construct of self-regulation. Consequently, correlations between self-regulation and achievement emotions are to be expected, and from the effects of positive and negative achievement emotions on the mediators of achievement outcomes (cognitivion, motivation, self-regulated learning) it is equally obvious that negative achievement emotions can be expected to correlate negatively with high self-regulative capacities, and vice versa:

In the process of controlling feelings in view of (achievement) goals one has set, and in pursuing them successfully, attentional control and executive functions play a central role. This is discussed in the literature on (the training of) executive functioning and school success (Diamond & Lee, 2011; Duckworth & Carlson, 2013). The effects of achievement emotions on cognitive capacities and specifically attentional control and executive functioning obviously foster or impede the process of self-regulation. The motivation to reduce discrepancies between current states and (achievment) goals is another element of self-regulation (Baddeley et al., 2012), and negative achievement emotions are found to generelly reduce the motivation to pursue achievement activities (that lead to attaining achievement goals).

Additional findings that are relevant in the context of this paper (i.e., about constructs and conditions that are relevant for planning the intervention at hand) specify the correlations between achievement emotions and self-regulation. Anxiety seems to impair self-regulation not only on state, but also on trait-level. Ansari and Derakshan (2011), who investigated the neural correlates of the impaired executive function of inhibition in anxiety, also found that trait anxiety interferes with the efficient employment of top-down processing structures that are needed for the suppression of impulses. (Ansari & Derakshan, 2011) Bridgett et.al. (2015) suggest that "those with anxiety may have difficulties with top-down self-regulation" and suppose that its intergenerational transmission is mediated by the temperamental aspect of

behavioural inhibtion/fear. Heatherton and Wagner (2014) state that negative emotions in general impair self-regulation by several mechanisms, which are discussed without specifications for individual emotions. All findings can be related to educational contexts. The authors outline that negative emotions are found to increase the strengh of temptations (and by that make gratification delay more difficult). They reduce monitoring capacities referring to the progress that is made in goal-striving because negative emotions consume goal-irrelevant cognitive capacities. Additionally, a vicious circle is started in so far as emotion-regulation is found to deplete self-regulatory resources which are needed for subsequent tasks, and through the depletion of self-regulative capacities and the lack of success in working on these subsequent tasks, negative emotions and the strength of impulses are intensified again. (Heatherton & Wagner, 2014)

2.1.7   Study 1: Correlations between achievement emotions and self-regulation

Correlations between achievement emotions and self-regulation were further investigated in two correlational studies at a Stuttgart grammar school. These two correlational studies were conducted in 2017 and 2018 in two, respectively three psychology-courses in grade 11 and 12. They confirm the findings about the connections between achievement emotions and self-regulation recounted above, and show both the correlations between individual achievement emotions from the Achievement Emotions Questionnaire (Pekrun et al., 2005) and self-regulation, and those between individual achievement emotions.

Concretely, the following bivariant correlations were hypothesized and tested:

Hypothesis 1

A correlation between scores for individual achievement emotions and scores for self-regulation exists.

Hypothesis 2

The correlation is positive between scores for the positive achievement emotions of enjoyment*,* hope *and* pride*. The higher students score for these positive achievement emotions, the higher they score for self-regulation.*

Hypothesis 3

The correlation is negative between scores for the negative achievement emotions of anger*,* anxiety*,* boredom*,* hopelessness*, and* shame*. The higher students score for these negative achievement emotions, the lower they score for self-regulation.*

2.1.7.1 Method

As to *participant characteristics*, all participants of the study were students at the same Stuttgart grammar school at which the interventional study that is presented in this work was conducted. Study 1 was conducted twice, once in July of 2017, and a second time in March of 2018. In 2017, 34 students of three psychology courses of grades 11 and 12 (16 males and 18 females) took part. In 2018, 30 students of two psychology courses of grades 11 and 12 (15 male and 15 females) took part. Data were not collected as regards the age of participants. Generally, students of grades 11 and 12 are in between 16 and 17 years old. Participants were mostly German, few have a different or multiethnic background, but all speak German as at least one of their native languages. Consequently, we expected no difficulties in understanding the contents of the two questionnaires that participants filled in.

Sampling procedures were simple. All students of the concerned courses were invited to take part in the study that was conducted within the 90 minutes of a regular double lesson in both 2017 and 2018. At the same time, these conditions for organizational concerns, were restrictive in that only the students of these courses were invited to take part. Students who did not participate were given tasks relating to the contents of the previous psychology-lessons. Before the studies were conducted, a teaching unit of two double lesson (180 minutes) (comp. appendix A1) on emotions in achievement contexts and self-regulation was conducted to introduce the students into the topic and provide a context for the study. The scientific background of the studies, its aims and procedure, were further presented in a letter of invitation (comp. appendix A2) that was addressed to the students and their parents. In June 2018, results as to the correlations of achievement emotions and self-regulation were presented to the participants in written formats together with individual feedbacks relating to their scores for the individual achievement emotions and for self-regulation. The latter were presented in the form of percentile ranks, which we thought would make it easier for students than mean values to relate their own values to others. The students were also offered to meet and discuss general and their individual results, which 24 of the 30 students of the 2018 sample did. In cooperation with the subject of mathematics we added an excursus to the feedback (folder), in which we explained basic statistical concepts as standard distribution, standard value and -deviation, correlation, statistical significance and its testing, and especially null hypothesis significance testing. The material is attached in appendices A5 and A6. The thought behind it was that illustrating the practical application and utility of theoretical concepts might not only motivate students of both subjects for these two subjects, but also show students and teachers that practical research conducted in schools can have synergetic effects aside being valuable of its own.

Concerning *sample size, power, and precision*, data were analyzed for both samples individually (N=34 and N=30) and additionally for both together in 2018 (N=64). The number

of participants (N=64) lies within the range of what we had hoped for. With response rates around 10% on average for interventional studies in schools, those for the present study are comparatively high, with 34 of 53 students (64,2%) in the 3 courses of 2017 and 30 of 35 students (85,7%) in the two courses of 2018, which makes an average of 75,0%. Still, the sample is relatively small, but both the two individual samples and the joint one, meet the conditions of the theorem defining limit values for participants (n≥30). Thus, all three samples fulfill statistically required conditions for sample size. As for precision, reliabilities were calculated for all measures and are reported below in the following subchapter. Hypotheses were tested by means of null hypothesis significance testing.

The *Measures* applied were paper-and-pencil versions of two questionnaires:

Self-regulation was measured by the German adaptation of the *Brief Self Control Scale* (Tagney et al., 2004) by Bertrams and Dickhäuser (2009). The scale includes 13 items, answers range from point 1 (*völlig unzutreffend – not at all like me[13]*) to point 5 (*trifft ganz genau zu – very much like me*). Items read e.g. *Ich bin gut darin, Versuchungen zu widerstehen – I am good at resisting temptation.* and *Ich wünschte, ich hätte mehr Selbstdisziplin. – I wish I had more self-discipline.* For the study at hand, the internal consistency of the SCS-K-D is acceptable with Cronbach´s Alpha = .786.

Achievement Emotions were assessed by the *Achievement Emotions Questionnaire* (AEQ) (Pekrun et al., 2005) The AEQ is a multidimensional self-report instrument to assess 8 achievement emotions that research has found to be common in academic settings (Pekrun et al., 2002). The items were originally developed in German (Molfenter, 1999; Titz, 2002) and then translated into English. The full questionnaire including 232 items consists of 3 scales: *Learning-Related Emotions* (75 items), C*lass-Related Emotions* (80 items) and *Test-Emotions* (77 items), each being divided into three more subscales: *before studying/class/taking the test*, *during studying/class/taking the test* and *after studying/class/taking the test*. The subscales consist of items on 5-point answer scales, ranging from *Starke Ablehnung – I completely disagree[14]* to *Starke Zustimmung – I completely agree*. By way of example for *enjoyment*, in the *class-related* subscale, item 1 (*before class*) reads *I get excited about going to class.*, item 24 (*during class*) is *I enjoy being in class*., and item 67 (*after class*) is *After class I start looking forward to the next class*. In the subscale *learning related enjoyment*, item 81 (*before studying*) reads *I look forward to studying.*, item 124 (*during studying*) is *I enjoy the challenge of learning the material.*, and item 150 (*after studying*) is *Reflecting on my progress in coursework makes me happy*. Finally, in the subscale *test-enjoyment*, item 156 (*before taking tests*) reads *I look forward to the exam.*, item 181 (*during taking tests*) is *I enjoy taking the exam.*, and item 213 (*after taking tests*) is *My hearts beats faster with joy*. (Pekrun et al.,

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[13] The English versions are those of the BSCS by Tagney et al. (2004)
[14] The English versions are taken from Barchfeld et al. (2011)

2005) The AEQ is not standardized, but discriminative and internal validity are confirmed. The final English scales were administered to a sample of N=389 Canadian students (mean age 20.63 years, SD = 3.48). Item and scale characteristics are based on this sample, the scales are found to be reliable as well as internally and externally valid. (Pekrun et al., 2005) For the study at hand, internal consistencies were as follows:

Table 6

Reliabilities for subscales of the AEQ

	Scales	Cronbach´s Alpha
Class-related	Anger	.839
	Anxiety	.898
	Boredom	.921
	Enjoyment	.802
	Hope	.759
	Hopelessness	.871
	Pride	.831
	Shame	.902
Learning-related	Anger	.863
	Anxiety	.833
	Boredom	.871
	Enjoyment	.651
	Hope	.774
	Hopelessness	.922
	Pride	.778
	Shame	.856
Test-related	Anger	.824
	Anxiety	.914
	Enjoyment	.750
	Hope	.860
	Hopelessness	.931
	Pride	.899
	Relief	.790
	Shame	.887
Self-Control		.786

As to *research design*, hypotheses were tested by means of null hypothesis significance testing. There was one point of time at which students filled in the paper-and-pencil versions of the questionnaires described above.

2.1.7.2 Results and discussion

Results largely confirm the hypotheses and are presented in the table below. It shows correlations between self-regulation and class-related achievement emotions.

Table 7

Correlations of self-regulation and class-related achievement emotions

	C-R-Hope	C-R-Hopelessness	C-R-Boredom	C-R-Pride	C-R-Anger	C-R-Anxiety	C-R-Shame	L-R-Anger	L-R-Anxiety	L-R-Boredom	L-R-Enjoyment	L-R-Hope	L-R-Pride	L-R-Shame	L-R-Hopelessness	Test Anger	Test Anxiety	Test Enjoyment	Test Hope	Test Hopelessness	Test Pride	Test Relief	Test Shame	Brief Self-Control-Scale
C-R-E¹	,62** (<,01)	-,46** (<,01)	-,52** (<,01)	,67** (<,01)	-,32** (,01)	-,40** (<,01)	-,42** (<,01)	-,35** (<,01)	,31* (,01)	-,41** (<,01)	,55** (<,01)	,40** (<,01)	,42** (<,01)	-,16 (,21)	,33** (<,01)	-,24 (,06)	-,21 (,09)	,44** (<,01)	,42** (<,01)	-,34** (<,01)	,51** (<,01)	,16 (,20)	-,23 (,07)	,37** (<,01)
Class-Related Hope	,71** (<,01)	-,41** (<,01)	-,59** (<,01)	,47** (<,01)	-,58** (<,01)	-,60** (<,01)	-,41** (<,01)	-,35** (<,01)		-,41** (<,01)	,47** (<,01)	,57** (<,01)	,48** (<,01)	-,40** (<,01)	,62** (<,01)	-,30* (,02)	-,18 (,15)	,55** (<,01)	,68** (<,01)	-,57** (<,01)	,57** (<,01)	,11 (,40)	-,41** (<,01)	,50** (<,01)
Class-Related Hopelessness		,50** (<,01)	,37** (<,01)	-,72** (<,01)	,73** (<,01)	,71** (<,01)	,58** (<,01)	,51** (<,01)		,51** (<,01)	-,27* (,03)	-,50** (<,01)	-,27* (,03)	,51** (<,01)	,79** (<,01)	,50** (<,01)	,33** (<,01)	-,43** (<,01)	-,53** (<,01)	,75** (<,01)	-,37** (<,01)	-,16 (,21)	,59** (<,01)	-,47** (<,01)
Class-Related Boredom		-,21 (,09)	,58** (<,01)	-,28* (,03)	,21 (,09)	,61** (<,01)	,25 (,05)	,66** (<,01)		-,23 (,07)	-,33** (<,01)	-,08 (,55)	,02 (,85)	,39** (<,01)	,47** (<,01)	,20 (,11)		-,07 (,61)	-,21 (,09)	,35** (<,01)	-,09 (,47)	-,003 (,98)	,14 (,26)	-,47** (<,01)
Class-Related Pride				-,07 (,58)	-,33** (<,01)	-,36** (<,01)	-,03 (,82)	-,07 (,56)		-,13 (,31)	,51** (<,01)	,39** (<,01)	,75** (<,01)	-,08 (,51)	-,24 (,06)	,05 (,67)	-,04 (,75)	,62** (<,01)	,49** (<,01)	-,25* (,04)	,78** (<,01)	,25* (,048)	-,11 (,37)	,24 (,053)
Class-Related Anger					,51** (<,01)	,45** (<,01)	,78** (<,01)	,41** (<,01)		,59** (<,01)	-,16 (,22)	-,43** (<,01)	-,02 (,85)	,23 (,07)	,64** (<,01)	,68** (<,01)	,25* (,045)	-,22 (,09)	-,29* (,02)	,52** (<,01)	-,06 (,62)	-,07 (,56)	,35** (<,01)	-,40** (<,01)
Class-Related Anxiety						,90** (<,01)	,45** (<,01)	,69** (<,01)		,25* (,049)	,02 (,87)	-,48** (<,01)	-,17 (,18)	,70** (<,01)	,69** (<,01)	,34** (<,01)	,54** (<,01)	-,37** (<,01)	-,50** (<,01)	,63** (<,01)	-,32* (,011)	,003 (,98)	,67** (<,01)	-,28* (,03)
Class-Related Shame							,38** (<,01)	,64** (<,01)		,29** (<,01)	-,06 (,65)	-,35** (<,01)	-,20 (,12)	,75** (<,01)	,66** (<,01)	,32** (,01)	,57** (<,01)	-,45** (<,01)	-,55** (<,01)	,65** (<,01)	-,36** (<,01)	-,004 (,98)	,71** (<,01)	-,29* (,02)

A second table showing correlations between learning-related achievement emotions and test-emotions (with *relief* added to the latter category) is in the appendix (comp. table C18). These correlations were not immidiately relevant for the interventional study presented in

this work, as tutees were only presented the class-related negative achievement emotions. However, data were raised, as they might become relevant in future interventional measures.

As stated above, results largely confirm the hypotheses. Considering all 3 subscales of the AEQ (class-related, learning related and test-emotions), 13 achievement emotions significantly correlated with self-regulation with p < ,01 and 7 more with p < ,05. Only four achievement emotions did not show statistically significant correlations with self-regulation. These are *class-related pride*, *learning-related anxiety*, *test-anxiety* and *test-relief*. Highest levels of correlation were found for *learning related boredom* and *learning-related hopelessness*, follwed by *class-related boredom* and *class-related hopelessness*. Table 7 in the appendix shows that correlations are highest between self-regulation and *boredom*, *hope* and *hopelessness*.

As class-related emotions are relevant for the intervention presented in this work, table 8 below shows correlation levels of individual class-related achievement emotions and self-regulation for N=64 (study 1, samples of 2017 and 2018).

Table 8

Ranks of correlations between individual class-related achievement emotions and self-regulation, study 1 (N= 64)

Class-related achievement emotions of AEQ	Ranking of correlation-levels	Correlations between individual class-related achievement emotions and self-regulation
Hope	1	.50**
Hopelessness	2	-.47**
Boredom	2	-.47**
Anger	4	-.40**
Enjoyment	5	.37**
Shame	6	-.29*
Anxiety	7	-.28*
Pride	8	.24

Table 9 below illustrates mean values of the eight individual class-related achievement emotions. Corresponding with the literature (Nett et al., 2011), of the negative achievement emotions, boredom shows the highest mean values. Interestingly, anger, which has received no special attention in research yet, ranks second. Originally, an additional perspective of the correlational studies reported here was related to conceptualizing the interventional study at hand and possible future studies. Average mean values for individual achievement emotions in the *AEQ* give an impression of how frequently and how strongly students perceive negative

achievement emotions. Yet, developing the material for the present study, we decided against focussing on one or two single negative achievement emotions. Instead, tutees were asked to choose among all five negative class-related achievement emotions from the *AEQ*. The decision was taken for various reasons which are outlined in chapter 5.3.. However, it might be an option for future interventional research to focus on anger, for example, for its relatively high mean values (comp. chapter 5.6.).

Table 9

Mean Values of class-related achievement emotions of the AEQ and reliabilities

	Mean values	Cronbach's Alpha
Hope	3,4479	,823
Pride	3,0631	,807
Boredom	2,8561	,803
Enjoyment	2,8061	,817
Anger	2,3307	,729
Anxiety	2,1721	,792
Shame	2,1315	,794
Hopelessness	1,9464	,795

One supposed strength of study 1 is that its design facilitates investigating correlations between self-regulation and achievement emotions without relating to a specific subject or specific situations. Instead, students are asked to think of a general tendency when responding to the items of the scales of the AEQ. Such, it might be assumed that emotional responses are less situation specific and more trait specific, indicating more general dispositional tendencies to react to stimuli that are relevant in school contexts or even beyond. The pedagogic implications of that are addressed in chapter 2.1.8. below. However, it is also true that general statements concerning the occurrence of achievement emotions might not be as valid as situation-specific ones. The literature points out that achievement emotions are related to specific subjects or provinces (Frenzel et al., 2015; Pekrun & Perry, 2014), and the questions of the students when asks to fill in the questionnaire both in 2017 and 2018 confirmed this, as these questions showed an inclination to think of specific subjects or situations rather than responding to the items of the AEQ drawing general references.

Regardless of its limitations, the present study shows that negative achievement emotions correlate positively with low self-regulative capacities, which means that students who often have negative (achievement) emotions – with all their described effects on achievement outcomes and respective mediators – also have difficulties with emotion-regulation as it is an aspect of self-regulation. These relations are not only situation-, but also person specific and

are due to aspects of personality that are, to a certain extent, genetically determined. If it were legitimate to apply such an emotional assessment in a scientific piece of work, I would say this is tragic, and on a more matter-of-fact base, interventional measures are indicated even more.

In the following, an overview is given of the different preconditions of students for interventions in emotion-regulation. It will be suggested that self-regulation in Pekrun and Perry´s (2014) scheme of the proponents of the Control-Value Theory of Achievement Emotions, can be seen as a superordinate mediator between (achievement) emotions and achievement outcomes, as the construct of self-regulation comprises a number of the individual constructs or variables Pekrun and Perry identify as mediators. For an illustration compare figure 7 below on page 65. At the same time, different strategies of self-regulation, including emotion-regulation, have different effects on cognitive and motivational processes that are constituents of self-regulation. As can be seen in figure 7, relations between these individual components of self-regulation that are identified by Pekrun and Perry (2014) - information processing and executive functioning as well as motivation (to close discrepancies between set goals and state-of-affairs) - and strategies of emotion-regulation, are reciprocal.

2.1.8   Pedagogic implications

2.1.8.1   Top-down self-regulation: Relations with temperament

Rothbart et al. (2014) give a detailed account of the correlations between temperament and emotion-regulation, and how psychological constructs that are part of people´s personalities are (to some extent) genetically determined. They see temperament as one basic constituent of personality, besides dispositional traits in the form of stable patterns of thought, emotions and behaviour - among which we find, for example, distal and proximal antecedents of achievement emotions, as generalized patterns of causal attribution, self-concepts of ability and individual goal-structures in achievement contexts. Temperament is defined as "constitutionally based individual differences in reactivity and self-regulation" (Rothbarth et al., 2014), and connected to a biological base of neural anatomy and function. Besides genes, it is influenced by experience and developmental processes of maturation[15]. Temperament manifests itself in different areas that are relevant in the context of the paper at hand and here especially in considering individual differences that have to be taken into account when planning interventions to train emotion-regulation.

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[15] A suckling, for example, can only at the age of about four months make first steps of wilfully (re)direct attention.

As stated above, one of the areas of interindividual differences in temperament is reactivity, which concerns the interplay of the two systems of approach and defence that organize reactions to relevant stimuli. The defence system focusses on avoiding harm by initiating withdrawal from threat. It is associated with the emotions of fear, anxiety, also anger, and behavioural tendencies of inhibition. If withdrawal is not possible, defensive aggression is promoted by the system alternatively. The approach system focusses on possible rewards. Associated emotions are joy, elation, and eager anticipation, related behaviour is impulsivity, with difficulties to inhibit immediate responses. In every individual, both systems cooperate, with a general tendeny of defence dominating approach if a situation includes threat and reward. However, the influence of both systems, and if they cooperate or compete (which can effect disorganized behaviour) differs between individuals, as much as they influence which stimuli are relevant to an individual. Students with a genetic disposition of high inhibition are, on average, less impulsive than students whose approach-system tends to dominate. The former will also focus attention to a greater extent on possible threats than on rewards, as the latter will tend to do. In school-contexts, for students with high inhibition this can be connected to habitually setting aviodance rather than approach-goals, with the described effects on perceived control and value and its influence on subsequent variables, for example. Research in the field of high sensitivity allocates "sensory-processing sensitivity" to individuals with high values in behavioural inhibition/fear. They are reported to be more open and subtle in their sensual perception, to react more intensively than others to inner and outer stimuli on neural and emotional levels. (Blach, 2016) Following from that, they need more effortful control to inhibit a first response to an impulse (Rothbarth et al., 2014). Moreover, the interindividual differences in reactivity are intergenerationally transmitted by various mechanisms such as prenatal programming, genetics and epigenetics, parenting behaviour, inter parent relations and broader rearing contexts (Bridgett et al., 2015).

The second relevant area of differences in temperament that Rothbart et. al. (2014) mention is orienting. Individuals constitutionally differ in their capacities to firstly sustain attention and secondly direct it away from threatening stimuli. Smaller capacities to focus one´s attention away from negative stimuli are connected to stronger negative emotionality. Apart from willingly directing control, individuals also differ in their ability to inhibit reactive, immediate responses. In other words, executive functioning is the third area of individual differences in temperament and as such partly constitutionally determined.

Applying the terminology of Bridgett et al. (2015) this leads to the almost cynical situation that besides reactive self-regulation, also elements of top-down self regulation (comp. figure 7 below) are a matter of temperament and therefore partly genetically determined. In other words, there are students who come with high levels of negative affectivity as an element of temperament, while, as Rothbart et al. (2014) put it, the effectivity of effortful control (which is used almost synonymously to top-down self-regulation by the authors) depends on the strength of the emotions against which it is employed, which means the student would need more effortful control than someone with less negative emotionality. Unfortunately, he might

have just the opposite and constitutionally based difficulties with top-down self-regulation as well, as Wagner & Heatherton (2014) recount on the relations between emotions and self-regulation failure. Now, the focus is set on person- instead of situation-specific aspects. Rothbart et. al. (2014) write from a developmental perspective, and certainly one must be aware of other than dispositional factors to influence the development of self-regulation. One important factor is the social environment of an individual. Yet, parents are often not likely to positively influence maladaptive dispositions, as these have a genetic component and such parents are likely to be affected themselves, as it is often the case, for example, in children with ADHS. Impulsivity in parents and children does not make it very likely that parents can support children with weak self-regulation by being a positive model in long-term planning and self-organitazion, when parents are bad at it themselves. (Gawrilow, 2012) The more important are social contexts beyond the familiy of origin.

2.1.8.2   Top-down self-regulation: Relations with other trait-constructs

As already outlined in the section relating to anxiety and its effects on (the mediators of) achievement outcomes, trait-anxiety can be genetically transmitted (Zeidner, 2014) and might serve as a mediator between temperamental dispositions towards behavioural inhibition and low self-regulative capacities. (Bridgett et al., 2015) In children with ADHS, aggressive or dissocial behaviour disorders are diagnosed in up to half of the affected children. (Frölich et al., 2014; Gawrilow, 2012). Additional to impaired executive functioning, which is associated with negative achievement outcomes, these children often experience a lack of social support or even social rejection which leads to negative emotions in school contexts. (Gawrilow et al., 2013) These, in turn, potentiate negative effects on executive functioning and motivation. Moreover, generalized patterns of causal attribution, self-concepts of ability and self-efficacy are personality traits of individuals and are, as outlined above, causes of perceived control and value of achievement activities and outcomes that have the described effects on achievement emotions and - mediated through cognitive and motivational factors and self-regulation - on achievement outcomes. It is also outlined above that certain adaptive emotion-regulation strategies as cognitive reappraisal that might help countering the effect of negative achievement emotions as anxiety and boredom are connected to dimensions of the NEO-FFI (Goetz & Hall, 2014) and such to personality traits. Again, students who come with critical conditions in that they frequently perceive negative (achievement) emotions that impede well-being and the attainment of goals in school contexts, might also dispose of weaker capacities in regulating these emotions as they tend to employ maladaptive emotion-regulation strategies.

Figure 7 below besides illustrating relations between self-regulation and individual constructs identified by Pekrun and Perry (2014) as effects of achievement emotions, shows which

constructs in the model have been outlined above as potentially trait specific. The relations illustrated can also be seen from a situational perspective and thus as state specific. To focus on the trait-perspective is supposed to raise pedagogic awareness. As outlined, when measures of training self-regulation are introduced in school-contexts, it is essential to consider the individual preconditions every single student comes with. This is also pointed out in the literature by for example Jacobs and Gross (2014) who suggest that when introducing different strategies of emotion-regulation in school contexts, beside their general effectivity it needs to be considers how they individually match with students´ personalities, as for example generalized patterns of attribution and self-concepts. (Jacobs & Gross, 2014) This does not mean that general measures to improve self-regulation, as for example training executive functioning or offering courses in martial arts, would not be helpful. Yet, from what has been recounted, it seems to be more effective to plan settings in which it is possible to consider individual conditions, as is the case in dyadic interventions as the 1:1 setting in the intervention at hand.

Figure 7

Trait-and temperament-based individual differences in self-regulation; reciprocal influence of strategies of emotion-regulation and individual components of self-regulation. Scheme of basic propositions of the Control-Value Theory of Achievement Emotions adapted from Pekrun and Perry (2014)
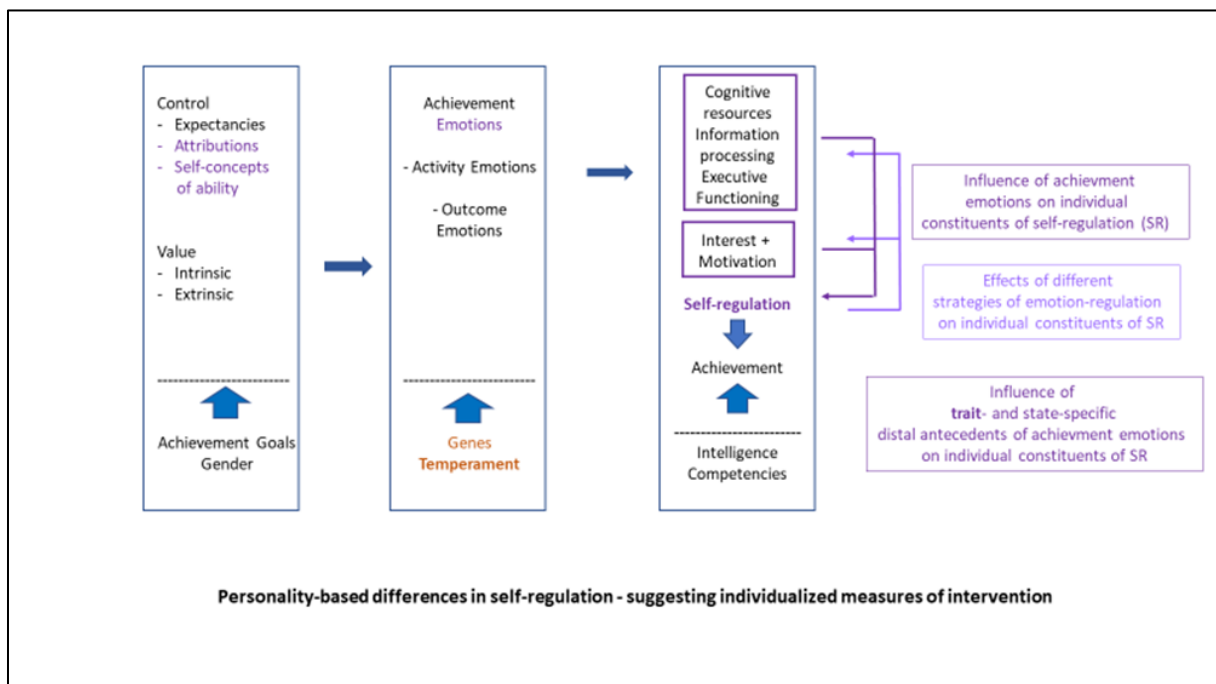
If the constitutive elements of self- and emotion-regulation are partly a matter of disposition and personality, and if these at least partly are shaped by genetics, the question of how much of it we can influence them and how much is determined arises self-evidently. The aspect will be touched on further below in the context of forming If-Then-Plans with Implementation Intentions (in chapter 2.3. and 2.4.) as these unify elements of the conscious, which is often connected to free will, and the unconscious, which is often connected to determinism. That goal striving does neither happen fully automatically (and without conscious awareness), nor under conditions of full intentional control, is revealed in the Strategic Automation of Implementation Intentions of goal-pursuit. Bargh (1994) and Bargh & Baumeister (2014) give a very interesting account of the features of automaticity and conscious acts of will and how shares of both, i.e., aspects of free will and determinism contribute to processes of goal striving. Unfortunately, going into detail here would go beyond the scope of this work.

2.2   Emotion-regulation: Allocations, conceptions, strategies, reasons for the selection of cognitive reappraisal for the present intervention

2.2.1   Emotion-regulation and self-regulation: Allocations of constructs.

As stated before, emotion-regulation can be considered an aspect of self-regulation. As illustrated in the introduction (chapter 1.1.2.), different theoretical approaches with different perspectives (as from personal and motivational psychology) propose different relations between basic and components and related constructs of emotion-regulation. Baddeley et al. (2012) allocate the regulation of thought, feeling and behaviour on one level, and describe self-regulation as a process of goal setting and striving consisting of three components, which are standards of thoughts, feeling, and behaviour that individuals set, their motivation to reach and uphold them, and their effort to reduce discrepancies between standards and actual states if indicated, as for example in the face of obstacles. (Bridgett et al., 2015) from the perspective of temperamental psychology differentiate between top-down and bottom-up self-regulation, defining the latter as reactive, automatic processes, and the former as consisting of two different components. One is "behavioural self-regulation" under which constructs as *executive functions, attentional control* and *effortful control* are subsumed. Some authors set a focus on „self-regulated learning", emphasizing motivational and volitional components in phases of planning, implementing, motoring and evaluating behaviour rather than focusing the underlying cognitive functions. (Benick et al., 2019).

When considering mechanisms of various emotion-regulation-strategies, it is obvious that these cognitive constructs (i.e. effortful control, executive functions) are equally involved in the regulation of emotion (Gross, 2014), which is the other component of "top-down self-regulation" according to Bridgett et. al. (2015). That emotion-regulation relies on the same

cognitive and neural mechanism as regulating thoughts and behaviour is also the reason for other authors (Heatherton & Wagner, 2014) to see more similarities than differences between emotion-regulation and the regulation of thought and behaviour. On the other hand, differences are recounted that would justify considering the two as separate domains. One of these differences is that, according to the multifaceted nature of emotions, the "coordinated set of response tendencies postulated in emotion is absent in other forms of self-regulation" (Gross, 2002). Seen from this angle, emotion-regulation could also be considered a superordinate category of self-regulation in so far as for example the regulation of thought, the cognitive component of emotion in the form of reappraising the distal or proximal antecedents of an (achievement) emotion, is only one of various stages at which emotion-regulation can apply. Schweiger-Gallo et al. (2009), while emphasizing the similarities of the regulation of feeling, thought and action as depicted above, point out that emotion-regulation might be considered a specific case in that it can undermine the regulation of thought and action. This concerns the relation between negative emotion and self-regulation failure addressed by Heatherton and Wagner (2014). Considered from that perspective, the successful regulation of emotion is a necessary condition for regulating thought and behaviour, while the complexity of relations shows in the fact that, as addressed above, the regulation of thought is one component of the regulation of emotion, taken one understands emotions as multifaceted constructs with its individual components reciprocally influencing one another. For the intervention at hand, it is not necessary to go into further detail here.

The mechanism that underly self- and emotion-regulation involve the overlapping constructs of attentional control, executive functions and functioning, and effortful control that can be seen in figure 1 below. One can see how the cognitive constructs of executive functions and attentional control (which are closely related) are viewed from the perspective of motivational psychology in their role of organizing goal-oriented behaviour and merge in the construct of effortful control as understood by Eisenberg et al. (2016).

Whatever way constructs and concepts are sorted and named, there is one basic distinction that consistently underlies these categorizations. It is the distinction between immediate, reactive processes that are sometimes also described as "automatic" and that are neurologically connected to genetically older brain regions of the amygdala on the one hand, and the goal-directed organization of feeling, thought and action that is associated with genetically younger brain regions of the frontal lobe and the prefrontal cortex. (Ansari & Derakshan, 2011; Bridgett et al., 2015). Figure 1 illustrates how concepts and terminologies connected to "emotion-regulation" relate to each other.

Figure 1

Concepts and terminology in the context of "self-regulation", excerpted from Baddeley et al. (2012), Bridgett et al. (2015), Eisenberg et al. (2016) and Gawrilow (2012)
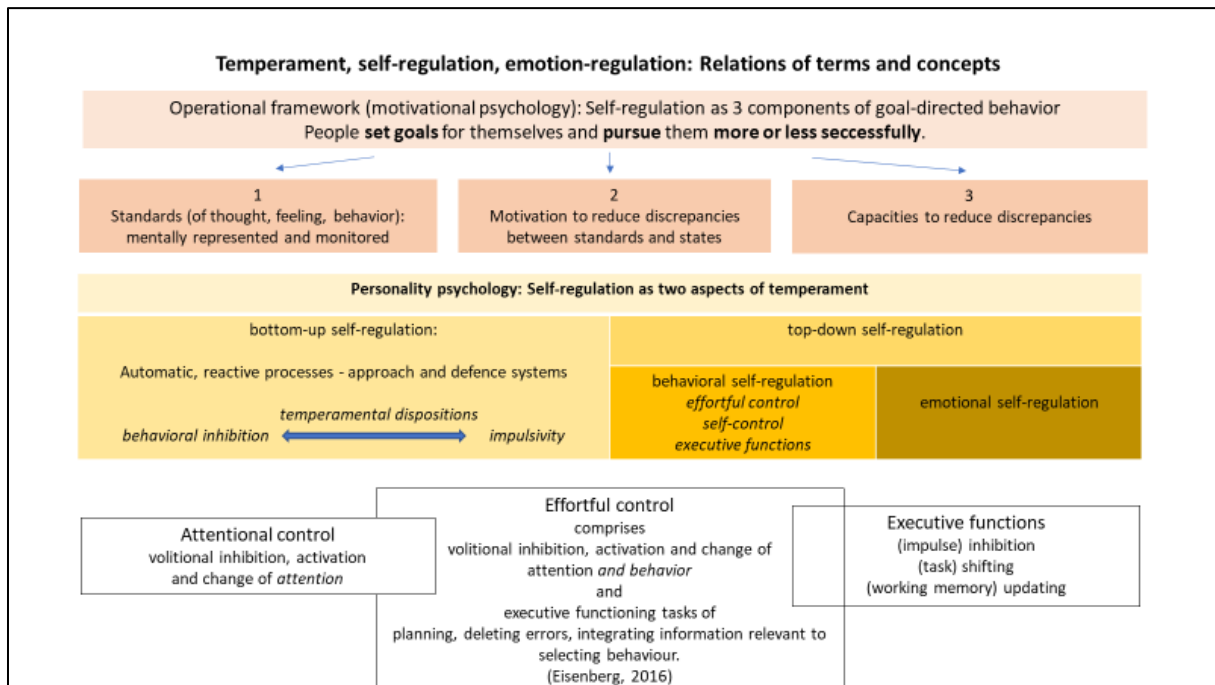
2.2.2 Conceptions of emotion-regulation and different emotion-regulation strategies

2.2.2.1 Theoretical perspectives on emotion-regulation

Different theoretical perspectives on emotions have different implications of what can be understood by emotion-regulation. According to basic emotion theories, emotions occur "automatically", in the form of an evolutionary program, so to say. What can be regulated under these assumptions is which stimuli an individual is exposed to. A change of stimuli effects a change of emotions, as a student who is afraid of mocking comments by his classmates in sports lessons will report sick and thus does not have to perform. If the stimulus as such cannot be avoided, the expressive component of the emotion elicited can be influenced as well as action-tendencies can be controlled. (Shuman & Scherer, 2014) The student in the example above can take an effort not to show how much the comments hurt him, and he can perform worse than he needed to show that he does not care. Appraisal theories, by contrast, posit that emotions arise and develop depending on how external and internal stimuli and relating values, expectations and capacities are interpreted, which means

that emotions can be influenced by changes in these appraisals. (Shuman & Scherer, 2014) Appraisal theories centrally underlie the work at hand. Yet, appraisals are obviously not the only option to regulate an emotion, as people are, for example, always free to avoid situations that effect certain (unwanted) emotions. There are more strategies to regulate emotion, which can be sorted according to the various stages of the emergence and trajectory of it, more concretely to the different stages of the process model of emotion-regulation suggested by Gross (2014) and referred to in chapter 2.2.2.5. This model is based on emotion-regulation understood as "top-down", or goal-oriented, in that emotions are regulated in view of long-term goals which often presupposes inhibiting first "bottom-up" emotional reactions. There is another model that integrates top-down and bottom-up processes of emotion-regulation.

2.2.2.2   Person-oriented emotion-regulation

As was referred to above in chapter 2.1.1. on the functions of emotion, some researchers (Koole & Aldao, 2016) point out that it might not always be most adaptive to only consider goal-oriented emotion-regulation. Sometimes, if an emotion is too high in arousal, and the corresponding habitual response too dominant, it might be better to resort to a combination of giving way to first impulses *and* considering long-term goals. (Even though it might be argued that logically, as soon as a sudden, first reaction is object to some form of rational evaluation, we need to speak of intentionality and willfulness, i.e., goal-oriented emotion-regulation, altogether, even if "first", immediate needs are somehow considered.) An example in school-contexts might be a student who is deeply hurt by the unjust evaluation of a teacher. A first impulse when getting back exam-results is buying marshmallows in the cafeteria. Regulation in view of long-term goals would, for example, rather focus on not having a fallout with the teacher and try to decrease the intensity of anger and disappointment felt by for example reappraising the situation as an opportunity to talk to the teacher about evaluation-criteria. Yet, if regulative capacities are just not high enough to do so, nor suppressing outward sign of anger is possible, the most adaptive strategy might be to say one needs to go to the bathroom, and instead go straight away to buy marshmallows, to afterwards rejoin class in a more composed condition. The example represents "person-oriented emotion-regulation" in that it integrates yielding to impulses (sugar to "calm down"), and goal-oriented behaviour (not falling out with the teacher). (Koole & Aldao, 2016). It might be a future option to examine the interventional material of the study to see what role person-oriented emotion-regulation plays and how tutees might have integrated both approaches.

2.2.2.3 Emotion-regulation as a process of social transaction

The topic, "by nature", relates to goal setting and striving, but as such has an indirect influence on the regulation of emotions in that it has a share in deciding which emotions are objects of regulation, and how. As repeatedly emphasized in the present paper, social emotions play an important, almost omnipresent role in school-contexts. Equally, emotion regulation as such is not an individual affair only, but also almost always a social one. (Scholz et al., in press) Individuals live in social contexts and close social relationships in which they set and pursue goals. They might set goals for (the sake of) others, or have others set goals for them, and social processes that accompany goal setting and striving might promote or impede goal-striving (Finkel et al., 2016), which has been depicted in a few examples above. A striking illustration of the thesis that "the most accurate unit of analysis for understanding human goal dynamics in not the individual, but rather the interdependent social group" (Finkel et al., 2016) might be the course of the intervention at hand: Students were asked to choose, from five achievement emotions, the one they felt to impede them most in attaining school-context aims they have. 50 out of 68 tutees who made an unambiguous choice selected boredom. Only 3 chose anxiety, 4 shame, 5 anger, and 6 students chose hopelessness. 2 students in group-settings (i.e., not working alone with their tutor) chose anxiety as the emotion that occupied them most, but formed If-Then-Plans for hopelessness, respectively boredom. Relative to the prevalence of anxiety in school-contexts not only in test- but also in study- and class-related situations (Zeidner, 2014) one would have expected more than 3 students to choose anxiety. And even though boredom is frequently reported by students (Goetz & Hall, 2014) it was chosen surprisingly more often than we would have expected it in the present intervention. I will come back to that in greater detail in the discussion of the paper (in chapter 5.4.) What is relevant for self-regulation as a process of social transaction is what might be a possible explanation for the unexpected "voting behaviour". Other than anxiety or shame, of the negative achievement emotions presented to the students, boredom appears to be socially more acceptable than the others, especially by peers. Students might not easily open up to their tutors in admitting that they are scared, or ashamed, especially not when they work in a group and it is visible to seven to nine peers, which emotion they choose to form their If-Then-Plans with. From this perspective, it is clearly illustrated how social processes can have considerable influence on goal setting and goal striving and thus, indirectly also on emotion regulation, which, referring to the present intervention, even goes beyond the decision of which emotions to regulate in the plans to make. Tutees who feel impeded in attaining their goals in school-contexts, and who, for the reasons outlined, do not form their If-Then-Plan with shame, for example, but with boredom instead, will still be concerned about shame in the formation of their plans, which might be an explanation for the few (6) incoherent plans in the study at hand, in which students refer to two or even three emotions.

2.2.2.4   Core-features of emotion-regulation

Gross´ process-model of emotion-regulation (Gross, 2014) potentially accounts for both the individual and the social perspective from which emotion-regulation needs to be considered. As to the fundamental question of what emotion-regulation is, beyond allocating the construct in a map of related terms and constructs (comp. chapter 6.2.1.), Gross defines three core features in the process of regulating which emotions one has, when one has them, and how one experiences and expresses them. Of the three elementary features of emotion-regulation he defines, the first is that a goal is activated. One can activate the goal to regulate an emotion in oneself, in others, or in both: When a teacher gets anxious because she realizes that the last lesson before the exams is badly planned and confuses students more than it helps them, she will probably want to regulate her concern and anxiety. She might perceive as well that the students get angry. Seeing that, she activates the additional aim to regulate the students´ anger by, for example, reassuring them in that their confusion is not their fault, but hers. That way, most students´ motivation and cooperation will return, and with it the chance that confusion can be turned into clarity, due to which the teacher´s anxiousness will decline. For the intervention at hand, tutees´ focus on regulating their own emotions, with the activated goal explicated in the material they work with. (Even though they might additionally be engaged in regulating their tutor´s emotions when they, for example, feel they are irritated or distracted.) Tutors, however, have the complex task of doing both in the intervention at hand: They regulate tutees´ emotions in helping them forming If-Then-Plans. While doing so (and possibly, to do so), they very likely will have to regulate their own emotions, as they might be bored or under pressure performing "well" in the tutor´s role, for example. The second core feature of an emotion is that people who regulate their emotions, engage in some process to do so. This process might fully, or partly, or nor at all come to the awareness of the person. Emotion-regulation often is a process that includes both features that are traditionally connected to the conscious, and thus awareness, as well as features that are traditionally connected to the unconscious, and thus automatic. (Bargh & Baumeister, 2014) The third core-feature of emotion regulation according to Gross is the change which the engaged process of emotion-regulation has on the dynamics of the emotion that is the object of regulation in terms of its duration, its strength, and the thoughts and action-tendencies connected to it, for example. (Jacobs & Gross, 2014) All three core-features named can be identified in the different strategies of emotion-regulation.

2.2.2.5 Different families of emotion-regulation strategies

There are different types of emotion-regulation according to the Process Model of Emotion-regulation which is called this because it relates to the Modal Model of Emotion (Gross, 2014) which sees emotion as a process of interaction between features of a situation and characteristics of an individual that both interplay in determining what emotion evolves and what trajectory it takes. (Gross, 2014) Emotion-regulation strategies can be distinguished according to what component or components in the multifaceted construct of emotion are affected by regulation. Reappraisal, for example, primarily affects the cognitive component. However, reappraising a situation is followed by changes in other components of the emotion. For example, a student who is ashamed of speaking in front of the class, might reinterpret the situations as a chance to show what she knows. Motivational tendencies will change from avoidance to approach, and even though physical arousal will probably still be high, it is likely to decline in the course of having reappraised the situation in the described manner. (Gross & John, 2003b). The outcomes of different emotion-regulation strategies will be discussed in greater detail in chapter 2.2.3. What is important now is one basic assumption of the process-model of emotion regulation. It is that which components of an emotion are affected by regulation-strategies relates to which temporal stage in the described process they are employed at. Cognitive reappraisal occurs before tendencies to act, or avoid acting, are initiated. One frequent form of response modulation, emotional suppression, by contrast, is employed when behavioural responses have already been instigated. Regulation cannot change the emotional response as such anymore, instead it regulates how initiated behaviour or physiological components that accompany it are experienced. One example that might at first seem a bit far-fetched, yet is commonly resorted to in school routines, are tranquilizers that anxious students take before presentations or exam-situations. A second example would be the student above who feels ashamed of speaking in front of the class at such a late stage in the process of emotion generation that she might apply emotional suppression as a regulative strategy. She would still perceive the situation as a threat (to her social status and self-esteem), but she would try not to show it.

For an overview over different emotion-regulation strategies, Gross´ (2014) model suggesting five categories of emotion-regulation strategies has been adapted adding the concrete example referred to above. It is taken from the material of a tutee of grade 7. He/she selected shame as the achievement emotion that impedes him/her in attaining a goal he/she identified as personally relevant in the material. The typical situation that tutees were asked to describe for the emergence of the emotion is found in the top line of the adapted scheme. Examples of different emotion-regulation-strategies are added. These are fictive ones adapted to the example.

Figure 8

The Process Model of Emotion Regulation and families of emotion-regulation strategies. Adapted from Gross (2014)
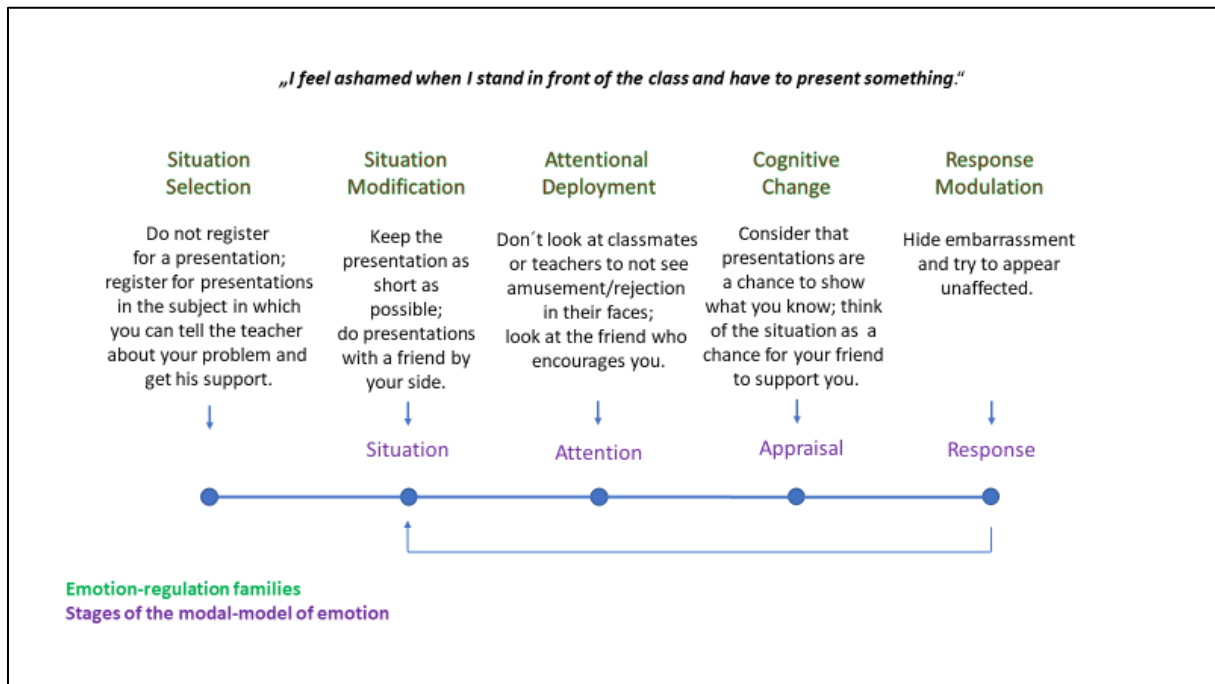
The tangible examples belonging to the five different families of emotion-regulation strategies postulated in the model are constructed in such a way that it becomes visible that all categories of strategies can theoretically be adaptive or maladaptive. In the latter case, in the first three examples emotion-regulation strategies are connected to avoidance-goals. Similarly to anxiety, shame increases with the avoidance of critical situations (Schwarzer, 1981), and more generally spoken, negative outcomes increase with avoidance and maladaptive strategies. (Jacobs & Gross, 2014) In the example for "attentional deployment", the critical situation would concretely take the form of anticipated reactions of the classmates and possibly teachers whom she fears to express disapproval. As also the first two examples show, the student expects failure in terms of control of achievement outcomes. It can also be seen in the constructed examples that situation-selection, situation modification and attentional deployment offer adaptive strategies for the student´s situation. To start facing the challenge of presenting contents in front of the others, the student might approach a teacher whom she perceived as supportive and "select" his lessons as the ones to first opt for a presentation on a voluntary basis. The student might then modify this situation in securing social support from a friend in the classroom who knows of her shame. Attentional deployment would add to the adaptivity of regulation in the form of a further strategy. She would direct attention in the

actual situation of giving the presentation to that friend, aware that knowing she is supportive would not let her trap into perceiving the other students´ faces as being full of disapproval, even though they might not feel it at all.

2.2.2.6   Concurrency and interaction of strategies of emotion- and self-regulation

The example also shows that emotion-regulation-strategies theoretically can be considered in isolation, in practice, however, they often occur simultaneously, or shortly following one another. In the present intervention, this became manifest in some tutees´ plans, when reappraisal was combined with other strategies even reaching beyond the regulation of emotion. The student referred to above reappraised the situation in setting a focus on the positive value that topics she might present, or comment on in lessons, might have for her. (*I should simply start [my comment, S.M.] before I tell myself it is stupid and see if the topic could be interesting for me.*) In the actual If-Then-Plan she included taking to action: *Every time I feel ashamed to present something in front of the class, I try practicing presenting to become better and more confident at it so that I do not have to feel ashamed.* The plan leaves room for two interpretations. The first is, that the student plans to reappraise situations in which she presents contents or makes contributions in class as an opportunity to practice exactly that, and, in a second step, she might even plan to take the initiative to do presentations or make comments in class to practice exactly that. On the background of how the training-material is constructed, these interpretations of her plan might be more likely than a third one, which could be practicing presentations at home, to attain more competence and confidence. The formulation of the plan illustrates what is also inherent in the Process Model of Emotion-Regulation (Gross, 2014), namely that in practice not only different strategies of emotion-regulation interplay and occur simultaneously, but that processes of emotion-regulation equally cannot be seen in isolation from processes of the regulation of action. This results from the fact that emotions have a motivational component with the function to initiate action (or withdraw from it). Because of that, the material developed for the intervention does not aim at reducing the described complexity in the formation of If-Then-Plans in the intervention, while the focus is clearly set on reappraising a situation that gives rise to an emotion, or reappraising the effects that emotions can have, which can be seen below. In this section form the interventional material, the strategy of reappraisal is illustrated to the students.

Figure 9

P. 11 of the interventional material. Tutors´ version for 1:1 condition: Preparing reappraisal for tutees´ negative achievement emotions as identified to impede goal attainment in relevant situations

Du siehst, ein und dieselbe Situation kann man verschieden bewerten. Je nachdem, wie du das tust, kommen unterschiedliche Gefühle dabei heraus, die auch unterschiedlich stark sein können.

Wenn du nun „dein" Gefühl steuern möchtest, weil es dir und deinen schulischen Zielen in bestimmten Situationen im Weg steht,

kannst du versuchen, die Situationen, in denen es aufkommt, für dich **neu zu bewerten**, und zwar so, dass ein **positiveres Gefühl** daraus folgt.

Dabei solltest du Folgendes beachten:

1: Manchmal reagiert man schon „automatisch" auf etwas. (z.B. auf Gedichte im Deutschunterricht: „Langweilig"). Da ist es wichtig, ein wenig **Abstand** zu schaffen, um die automatische Reaktion zu unterbrechen und ruhiger zu reagieren („Halt stopp. Jetzt gucke ich mir erst mal genauer an, was wir überhaupt machen.")

2: Denke an deine schulischen Ziele: **Welche neue Sicht auf die Situationen** könnte dir helfen, diese Ziele zu erreichen?

Versuche dazu einige Ideen aufzuschreiben:

_____

_____

_____

_____

_____

_____

Figure 9

Having stated that generally all strategies of emotion-regulation can be adaptive or maladaptive, depending on the situation and the individual employing them, there are some general preferences that research has identified. Strategies that are employed at an early rather than a late stage of the trajectory of an emotion and are focused on its antecedents, tend to be more adaptive than strategies that are employed at a later stage of the emotion-generative process and are response-focused, because the former have the potential to effect more than only the expressive component of the respective emotion. (Jacobs & Gross, 2014) The student from the example above who is ashamed of presenting contents in front of the class hides her shame before the others. This will have no effect on the degree of physical arousal, which will remain high, nor does it effect a change in appraisal. The student will still see the situation as a potential loss of self-esteem and reason for social rejection by the peer-group. She will still try to avoid respective situations in the future which manifests itself in all the described effects on achievement activities and result, as avoidance goals, a loss of cognitive capacities and motivation, and in the end far worse results than she theoretically could attain. Moreover, and maybe more importantly even, the student will continue to fear the described situations, and that will cause as much discomfort and emotional suffering as actually experiencing them.

The example shows that not only current situational factors, but also long-term effects of an intervention are important to be considered. Emotion-regulation strategies that are connected to avoidance (for example situation-selection and suppression in the examples above) lead to negative outcomes. Reappraisal, in contrast, is a strategy that contains approaching situations in which negative emotions are elicited, which leads to long-term improvement in capacities to handle the situation more adaptively, and to more positive social and achievement outcomes. Reappraisal can generally be described as a strategy of emotion-regulation with which a situation or aspects of a situation and/or the emotional response are reinterpreted as helpful (Jacobs & Gross, 2014), and even more generally, as a strategy that aims at controlling the meaning that an event has for an individual (Gross & John, 2003b).

2.2.3 Reasons for the choice of cognitive reappraisal for the present intervention

2.2.3.1 General assumptions

If emotions in achievement are primarily induced by appraisals of control and value of achievement activities and outcomes (Pekrun & Perry, 2014), and if appraisals of control and value are associated with a number of other constructs that are distal or proximal antecedents of both, it seems obvious that cognitive reappraisal should be an appropriate strategy of regulating emotions in achievement contexts. As logical as this appears, it needs to be substantiated.

The adapted visualization of Pekrun and Perry´s model of the Control-Value Theory of Achievement Emotions (Pekrun & Perry, 2014) serves as an overview over the antecedents of control and value.

Figure 10

Basic propositions of the Control-Value Theory of Achievement Emotions. Adapted from Pekrun and Perry (2014)
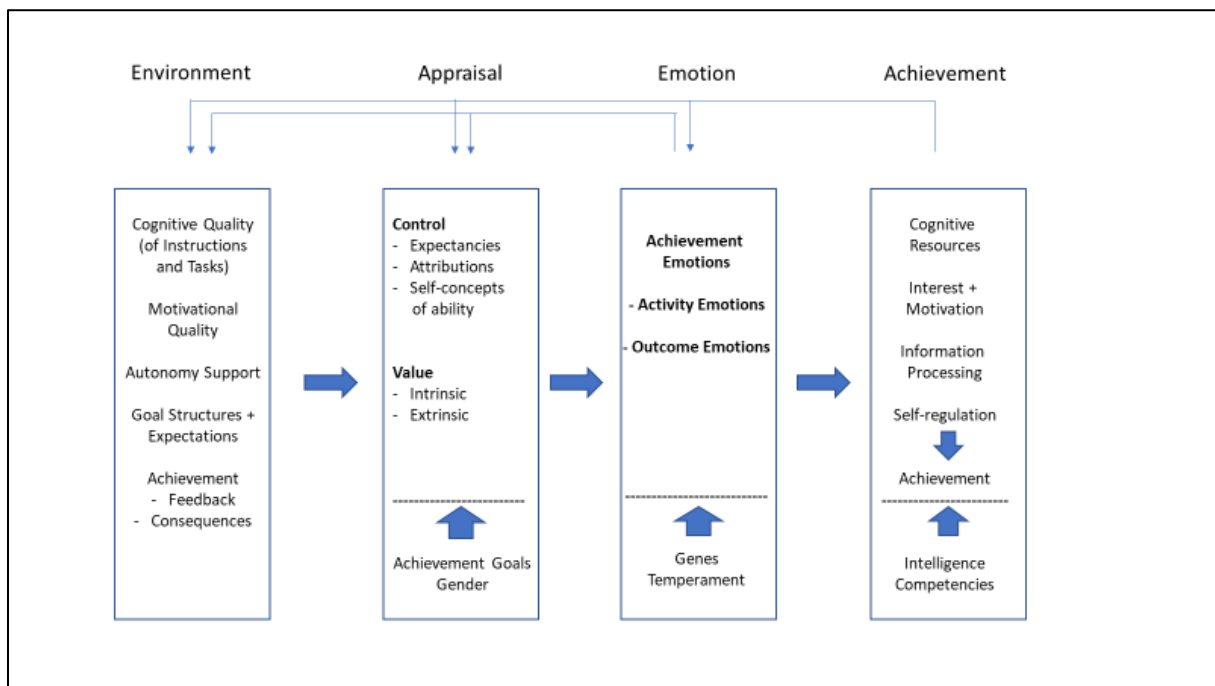
The constructs subsumed under "appraisal" in the overview above build on subjective situation- and/or person specific appraisals, as referred to in chapter 2.1.4. In the intervention at hand, students are presented examples of appraisals in the training material and in the additional information material for tutees. Tutors and tutees in the process of working with the training material were expected to especially consider and discuss constructs that are of personal relevance for the individual tutee. For example, a student hopeless in view of the oncoming English grammar exam can adjust expectancies to a realistic level. The goal set ("pass", instead of "do excellent", for example) would change from unattainable to attainable. Attributions relating to failure or success might change from external and stative (e.g., *The teacher needs to make the tasks easy for me to manage them well and she never does*.) to internal and dynamic (e.g., *If I give my best, I have a realistic change to manage the tasks (in such a way that I pass, even if I don´t excel*).) Within limits, reappraisal can be employed with environmental constructs, too. A teacher who tends to construct far too complex tasks for her students might annoy many of them. Students, reacting to that, can reappraise lessons in

terms of the value it has for them, as it might be important to get good grades in English for a future course of studies. What could be reappraised as an environmental factor, for example, is the motivation of the teacher. Students might tell themselves, that the tasks are complicated, but the teacher "wishes well and does her best" (as opposed to expecting far too much for taking her subject and herself too importantly, for example), and thus perceived anger might decrease while motivation might increase to collaborate instead of angrily decide to give up.

Figure 10 above shows other constructs that are connected to (emotion)-regulation strategies that are not appraisal-focused and that could be employed, as competence-trainings ("competencies"). As already referred to, elements of emotion-regulation strategies that reach beyond reappraisal were expected to be added to the suggested strategy of reappraisal in the intervention, and If-Then-Plans the students formed show that this indeed was the case (comp. chapter 6.2.2.6.).

2.2.3.2   Implications of reappraisal for individual components of emotions and its effects

An important reason for choosing reappraisal as the emotion-regulation strategy to be adapted in the present intervention are the positive effects it has on the affective, physiological, and cognitive components of emotions, respectively its effects on cognition, motivation, and social functioning as moderators of achievement outcomes. Moreover, reappraisal has, both for negative achievement emotions in general and anxiety and boredom specifically, proven to be an adaptive strategy also in terms of social aspects and emotional well-being. (Cisler et al., 2010; Goetz & Hall, 2014; Gross, 2002; Gross, 2014; Gross & John, 2003b; Jacobs & Gross, 2014; Nett et al., 2011). Cognitive reappraisal as an antecedent-focused strategy of emotion-regulation (employed before emotion-response-tendencies have fully become activated) in research has relatively often been contrasted to expressive suppression as a response-focused strategy of emotion-regulation (employed after emotional responses have become activated and only their expression can be modified). I will largely refer to that contrast and to the differences found between the two strategies of emotion-regulation in discussing the benefits of reappraisal.

2.2.3.2.1   Implications of reappraisal for affect

Affectively, reappraisal leads to a decrease in the experience of negative emotion, while suppression decreases positive, but not negative emotional experience. (Gross, 2014) In five studies that compare the habitual employment of cognitive reappraisal to suppression and its implications for affect, relationships and well-being (Gross & John, 2003b) the findings for

affect confirmed hypotheses in that students (from an undergraduate sample of about 200 participants) who apply reappraisal frequently reported (and also were reported by their peers) to experience and to express more positive and less negative emotions than students who use reappraisal less frequently. For suppression, the hypothesis was confirmed that students who report, and are reported, to frequently apply suppression, experience and express less positive emotion. Findings for the experience and expression of negative emotions are interesting. Suppressors were found to experience more negative emotion than appraisers, while at the same time they were found to be successful at suppressing their expression to such an extent that peers perceived no more negative emotionality in them than in appraisers. Yet, the efforts that students who habitually suppress the expression of negative emotions made to do so, were reported to be noticed by their peers. (Gross & John, 2003b) This, in turn, entails that they are perceived as inauthentic, which will be discussed further below.

2.2.3.2.2 Implications of reappraisal for physiological aspects

Physiologically, the effects of cognitive reappraisal and emotional suppression vary greatly as well. Suppression is connected to increased sympathetic nervous system arousal, i.e., to increases in blood pressure and the metabolic system. Reappraisal has no impact on sympathetic system responses or even decreases them. Neurobiologically, the two strategies affect different brain-regions in different ways. The employment of suppression is related to greater amygdala-activity compared to reappraisal, whereas reappraisal is related to increased prefrontal cortex (PFC) activity. (Gross, 2014) These differences parallel the distinction of the two basic self-regulatory systems of reactive, "bottom-up" self- regulation and "top-down" self-regulation that is made in temperamental psychology. (Bridgett et al., 2015), with the former being connected to the activation of subcortical brain structures as the amygdala, and the latter being connected to PFC activity and activity in other areas of the prefrontal lobe. Yet, these parallels seem contradictory at first sight, as suppression as a strategy of emotion-regulation which, being an aspect of self-regulation, is defined precisely by the activation of effortful control, which is related to activation of the PFC. It seems contradictory that what should be a defining element of any strategy of emotion-regulation is missing, or at least reduced in the employment of suppression. A possible explanation for this seeming contradiction is that the activation of different neurological structures is not a matter of "either-or", but a continual process. Suppression seems to change so little about the components of a negative emotion apart from the expressive component that its effects on achievement and its moderators (cognitive resources, motivation, self-regulated learning, and self-regulation) are presumably as negative as before. As outlined in chapter 2.1.5., one of these negative effects of negative (achievement) emotions on achievement activities and

outcomes is a limitation of cognitive resources, an impairment of attentional control and executive functioning.

Eysenck et al. (2007) outline these effects of anxiety in detail, and Cisler et al. (2010) suggest, that differences in emotion-regulation can explain why anxiety in individuals increases or decreases. They explain the findings that the employment of reappraisal decreases the emotional experience of anxiety on affective, physiological, and cognitive levels, while suppression increases them by suggesting that the PFC has a mediating function on amygdala-activity, which is illustrated in the table below:

Figure 11

Effects of emotion-regulation strategies mediated by PFC-activity: Reappraisal decreasing anxiety and suppression increasing anxiety
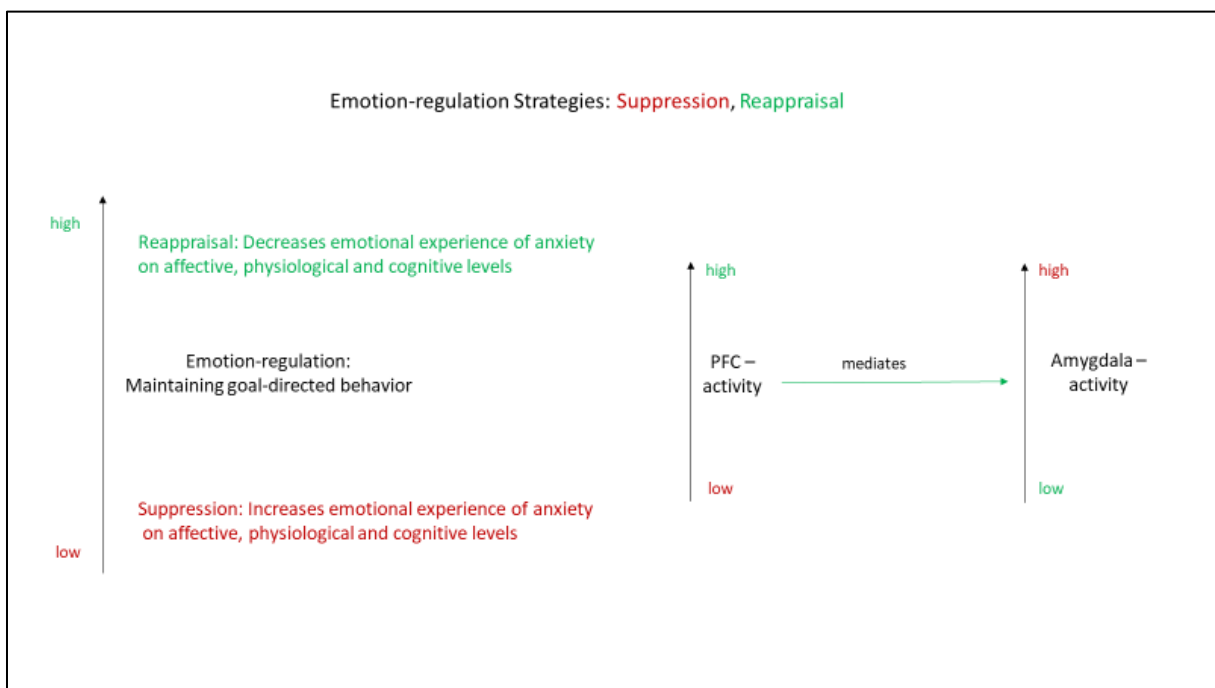
2.2.3.2.3 Implications of reappraisal for cognitive aspects

According to these relations (with the fields of neurobiology and cognition interleaving and being a matter of perspective here rather than a matter of distinct subject areas), it can be presumed that in inhibiting immediate impulses, processes of "top-down" self-regulation do not only "override" first (emotional) reactions, but also decrease their impact, with PFC

activity serving as a mediator of emotion-regulation processes. This would explain, why – as recounted above in the more general context of the effects of reappraisal (and suppression) on the affective component of an emotion - negative emotion-experience is found to decline with the employment of reappraisal (with greater PFC-activity) as compared to suppression (with greater amygdala-activity).[16]

As much as negative (achievement) emotions generally have limiting effects on cognitive capacities, this is especially true and serious in the case of anxiety, being one of the most frequent and such an incriminating emotion in school contexts. (Frenzel et al., 2015) Compared to other negative achievement emotions, the effects of anxiety on cognitive capacities are substantially researched. To the extent anxiety impairs attentional control and executive function, it increases directing attention to threat-related stimuli and effects that performance gets worse the more cognitive capacity is demanded, i.e., the more complex tasks get. (Eysenck et al., 2007) Thus, the reported relations from neurobiology and connected cognitive capacities show that especially for anxious students, it would be very helpful to get to know emotion-regulation strategies that have positive effects on these cognitive capacities.

As all emotions, achievement emotions in general, positive as well as negative ones, draw on cognitive resources. While in the case of anxiety, students direct attention to the stimulus that causes it, bored students might use cognitive capacities for playing battleships, and will likely know less than their classmates who do not take part in the game about the contents of a lesson in the end. As referred to before in chapter 2.1.5.1.1., Nett et.al. (2010), in a study to explore different strategies for regulating boredom, found (distinguishing regulation-strategies by the 4 factors of approach vs. avoidance-oriented and cognitive vs. behavioural-oriented) three different groups which employ specific emotion-regulation strategies habitually. Beside Evaders, Criticizers and Reappraisers differed significantly in how frequently they experienced boredom, moreover in cognitive and motivational aspects of achievement situations and overall academic achievement. (Nett et al., 2010) Students who employed reappraisal are reported to experience boredom less frequently than students who preferred the other two coping strategies. Criticizers as well as Reappraisers preferred approach-strategies to regulate boredom, with the difference that approach in Criticizers was behavioural (for example, in taking action to change the situation by asking the teacher to explain a certain context once more, or give the students more time for at task) As opposed to these two, "Evaders" primarily resorted to cognitive and behavioural avoidance strategies (as for example daydreaming or writing letters with a friend in a boring lesson). Students who employed reappraisal (mainly in the form of increasing the value the lesson or subject had for them in view of long-term goals) experienced boredom least frequent of all groups. As negative achievement emotions are generally connected to negative achievement outcomes,

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[16] Without going into detail here, no causal relation in the negative correlation between FPC- and amygdala-activity has been proven for humans, but animal studies (lesions of the respective brain-regions in rodents) suggest that PFC-activity causes amygdala activity. (Cisler et al., 2010)

and as cognitive variables, among others, moderate these outcomes, Reappraisers should be "evidenced by improved cognitions". (Nett et al., 2010) The authors concede that what remains unclear is, if reappraisal is typically used by students that anyway perceive boredom, and other negative (achievement) emotions less frequently than others, or if they experience boredom, and other negative emotions, less frequently because they habitually employ reappraisal, and thus, change the emotion at a relatively early stage in its trajectory, possibly not even always aware of it. Independent of causal relations, it can be stated that research on academic boredom supports more general finding about the adaptivity of reappraisal as an emotion-regulation strategy as regards cognitive capacities.

Suppression and reappraisal are found to also have different effects on memory-capacities. Suppression is a strategy of emotion-regulation that requires self-monitoring and readjustment of behaviour all throughout the experience of an (achievement) emotion, and consequently permanently draws on cognitive capacities. These capacities are not only not available for complex cognitive processes as attentional control and working memory, but they are also amiss to simply be aware of what is going on in a lesson, which later cannot be remembered. Reappraisal, in contrast, is employed at an earlier stage in the emotion-generative process, and once a student has reappraised a lesson as, for example, important for the oncoming exam, her anger at the monotony of the teacher´s monologue decreases, and she needs no or few capacities to monitor and adapt outward signs of it. That students who employ reappraisal have better memory than those employing suppression was found in experimental settings as well as in a comparison of habitual employment of the strategies. (J. J. Gross, 2002)

2.2.3.3   Implications of reappraisal for social aspects and well-being

2.2.3.3.1   Social implications

Experimental studies and studies that investigated the habitual employment of reappraisal and suppression (Gross & John, 2003b) both found that situation- as well as trait specifically, reappraisal is connected to greater liking by social partners than suppression, and that individuals who often employ suppression have less close social relationships than individuals who often employ reappraisal. Resulting from this, suppressors have less social support than reappraisers. (Gross, 2014). Five studies investigating differences in the habitual use of reappraisal and suppression as regards affect, social relationships, and well-being, report detailed results. The studies are based on large samples of undergraduate students averagely aged 20. (Gross & John, 2003b). As such, the sample as regards age and educational level is closer to tutors than tutees in the study at hand, but at the same time tutees are clearly old enough from a developmental perspective to employ reappraisal. From the age of about eight

years children are able to understand that not only acting differently in situations, but also thinking about them differently can change the situations. (Jacobs & Gross, 2014) One of the results of the investigation of correlations of the two emotion-regulation strategies of reappraisal and suppression with other constructs was that frequent use of suppression correlates positively with the perception of inauthenticity by peers. Suppressors themselves are also aware of lacking authenticity and the circumstance that they deceive others about their true feelings, attitudes, and beliefs. Tragically, they report to employ suppression to be accepted and liked, especially in relationships with others that are important to them. This is tragic because suppressors accomplish exactly the opposite of what they wish to attain.

Gross and John (2003b) found that individuals who habitually use suppression are less likely to share positive and negative emotions with others. They also report more avoidance of attachment, which is connected to, and might be explained by, discomfort with closeness and sharing. This seems plausible, as individuals who often hide what they feel and think, and at the same time are aware of doing so, must perceive this incongruency as a great burden. Yet, peers report no dislike of students who often employ suppression but feel neutrally about them. However, as stated above, suppressors were found to receive far less social support than reappraisers. For these, no significant correlations between the frequent employment of reappraisal and seeking to share emotions with others or avoiding attachment were found. Yet, there were significant positive correlations between reappraisal and having close social relationships. (Gross & John, 2003b). These findings are highly interesting. The authors suggest they might be explained by differentiating between sharing emotions and directly expressing them towards others. The differentiation can be understood in such a way that a student might be angry, for example, at a teacher´s grades he perceives as unfair, and be open about his anger, but at the same time spend the break with a friend, not elaborating on it, neither claiming social support of the friend in terms of, for example, approval of his view, or asking the friend to accompany him when speaking with the teacher. In such a way, authenticity and its positive effects would be assured without overstraining social partners. That this consideration is important, is mirrored in the construction of the instrument that was employed to measure social support in the intervention at hand, the *Berlin Social Support Scales* (Schulz & Schwarzer, 2000), respectively an adaptation of it. Additional to the subscales of *Perceived Available Support* and *Actually Received Support* (and two more), there is a subscale named *Protective Buffering*. The scale relates to behaviour that is intended to prevent overstrain in the person providing support, as retaining negative criticism or showing strength as to not upset the person (Schulz & Schwarzer, 2003).

2.2.3.3.2   Implications for well-being

Another study by Gross and John (2003b) investigated how the emotion-regulation strategies of suppression and reappraisal differ in long-term effects on well-being. The hypothesis was that habitual employment of reappraisal should promote well-being, as it is connected to less experience of negative and greater experience of positive emotion, to better peer-relations and more social support, which in turn should be related to more life-satisfaction and self-esteem. The hypothesis was confirmed for both constructs. Moreover, as reappraisers are more successful in view of challenges (in the form of coping with adverse situations), they were expected to be more optimistic and have greater self-efficacy than students who frequently employ suppression as an emotion-regulation strategy. Again, both presumptions were confirmed.

In comparison with reappraising, suppression is related to greater experience of negative emotion and peer-relations are found to be worse, which is connected to less social support, the effects of which were expected to be less life-satisfaction and lower self-esteem. Both was confirmed. The relatively smaller success of suppressors in regulating emotions in view of difficult situations was expected to be related to less optimism and lower self-efficacy, which both were also confirmed. (Gross & John, 2003b) As well-being is a broad construct it seems important to add that in the reported studies it was measured by six instruments seizing constructs that were obviously considered defining elements of well-being. *Environmental mastery*, *autonomy*, *personal growth*, *purpose in life*, *self-acceptance* and *positive relations with others* were measured.

Summarizing, reappraisal as an emotion-regulation strategy (in comparison with suppression) has positive effects on cognition, motivation, and social functioning, which are moderators of achievement outcomes. Relations between reappraisal and cognitive capacities have been outlined in relative detail. Moreover, reappraisal has been found to have positive effects on social relationships and emotional well-being.

2.2.3.4   The role of social support in the intervention at hand

I would like to draw attention to the aspect of social support at this stage, as it plays a central role in the construction of the intervention at hand in two respects that interplay. The first concerns the associations between the emotion-regulation strategy of reappraisal and social support. As has been outlined above, students who (habitually) employ reappraisal as an emotion-regulation strategy, are better liked by and have closer relationships with others, which in turn results in reappraisers receiving more social support than for example suppressors (comp. chapter 2.2.3.3.1.) Social support is associated with positive emotions,

which in turn have the described effects on well-being and on achievement and its mediators (comp. chapter 2.1.5. of this work). The positive effects of social support, however, are not only connected to emotion-regulation strategies. Moreover, they were one of the reasons to choose peer-to-peer tutoring as the social method for the present intervention. The direct positive effects of peer-to-peer tutoring on achievement emotions (comp. chapter 2.5.2.3.) and those moderated by its positive effects on cognition, motivation, and social functioning (comp. chapter 6.5.2.2.) are both reported to be moderated by social support in the literature on peer-to-peer tutoring (comp. chapter 6.5.2.). Moderating effects were supposed to be stronger in dyadic conditions of the intervention at hand than in group-conditions (comp. chapter 2.5.4). Social support as an "implicit mechanism of action" (Scholz et al., in press) to underlie the functioning of dyadic behaviour change interventions is mentioned more frequently than any other of these mechanisms in a review of different interventions of dyadic behaviour change. It is explicitly mentioned in connection with "dyadic planning" in the category of "joint" interventions, which is defined as "planning together with a dyad member but carrying [the] plan out alone" (Scholz et al., in press). This is exactly what applies to the intervention at hand, in which a tutor prepares forming If-Then-Plans with a tutee which the latter then employs alone. Social support, in that is connected to positive (achievement) emotions as stated above, also plays a central role in prevention and the promotion of health. Not only interventions to train self- and emotion-regulation contribute to it (as explained in chapter 5.2.4.) but also programs to promote social support are found in the curricula and guiding perspectives relating to the promotion of mental health. "Finding friends, keeping them and belonging" is one module of a program to promote mental health in schools. It is adapted by schools in Mecklenburg Hither-Pomerania and Schleswig-Holstein. (Kultusministerkonferenz, 2021a)

It can be resumed that the positive effects of social support accumulate in the present intervention, as they are brought about through the employment of reappraisal as an emotion-regulation strategy on the one hand, and through the social arrangement of peer-to-peer tutoring on the other hand.

2.2.3.5   Further considerations and résumé

Some central aspects and considerations relevant in the context of choosing reappraisal to be introduced to the tutees in the present intervention are not explicated in the chapter headings above but have repeatedly been referred to. They will synoptically be taken up in the following. Additionally, some further considerations will be outlined.

One additional consideration in the development of the intervention was the decision to offer only one emotion-regulation strategy to work with to the students, despite the fact that it depends on situational and personal factors which emotion-regulation strategies are

employed and how successfully this is done. The characteristics of given situations might favor some strategies over others, as, for example, situation-selection is only possible within tight limits when taking exams. One can report sick, but the strategy in its long-terms effects on achievement is certainly not adaptive. Furthermore, how successfully an emotion-regulation strategy can be employed is also dependent on the intensity of a stimulus in a concrete situation and the degree of emotional arousal in a person. If it is strong, it has been found that reappraisal is not effective anymore. Other strategies of emotion-regulation as attentional deployment must be employed before reappraisal can eventually be used again. (Gross, 2014; Koole & Aldao, 2016; Rosenbaum et al., in press) The intensity of a stimulus is due to both the characteristics of a situation and the sensitivity of the affected individual. There are other person specific factors that influence which strategies of emotion-regulation are most adaptive, as for example attribution-styles. (Jacobs & Gross, 2014) Trait-anxiety is a further example: For a highly anxious student it might be more adaptive to resort to situation modification at least additionally when having to present something in front of the class, as for example assuring that there is a well-wishing and supportive classmate by his side. Thus, it is clear that a flexible employment of emotion-regulation strategies is more effective than employing one strategy, however adaptive generally. (Koole & Aldao, 2016) Despite these concessions, we decided for introducing only reappraisal to the students for various reasons. One is, that introducing more strategies would mean they have to be explained to the tutors and tutees in the material (and for tutors in the additional material and preparatory lessons). The effort connected to understanding and employing different strategies was expected to possibly overstrain at least some students. At the same time, as outlined above in chapter 2.2.2.6., we expected students to combine reappraisal with elements of other strategies of emotion-regulation (as getting prepared for lessons, or organizing social support), and we saw no necessity to conceptually introduce them nor delimitate them from reappraisal.

Another decision to be made in constructing the interventional material related to which constructs would be suggested to the students as objects of reappraisal. From the options ranging from focusing on one specific proximal or distal antecedent of control or value of (achievement) emotions, over suggesting a selected number of them, to leaving it wholly up to the tutees, we chose the last one for the reason, that it is to a large extent dependent on the individual which of the antecedents of control and value, or which of the antecedents of social emotions, are best reappraised to employ emotion-regulation successfully. For one tutee it might be essential to reappraise the value of overwhelmingly boring poetry-lessons in view of improving her analytic competencies in producing a coherent comparison of two poems, which is a possible Abitur task. For another tutee, it might be relevant to change attributional patterns and reinterpret his success in mathematics as due to his own efforts instead of the good will of the teacher who, subjectively perceived, always makes the tasks easy enough. A third example would be the student already referred to in chapter 2.2.2.5., who feels ashamed to present contents or even contribute to lessons in front of her classmates. She needs to reinterpret respective situations as a chance to show her potential

instead of a threat to her self-esteem. To be able to reappraise such, she needs the social support of a friend. Koole and Aldao (2016) state that it is the fear of reduced self-esteem and social exclusion that effect negative emotions most strongly in social situations. People are reported to react in two ways to this fear. If they see no option for bonding newly, they tend to become aggressive, whereas they tend to affiliate when a chance to newly bond occurs. (Koole & Aldao, 2016) Employing reappraisal as an emotion-regulation strategy offers a chance to affiliate, as students can learn, for example, to make themselves aware of the motives of others and reappraise their intentions as thoughtless or self-defensive instead of offensive. An illustration refers to page 3 of the training material, on which tutees are confronted with the example of a student who is angry, for he has prepared for an exam together with the seatmate and worked as hard as him. The seatmate has done much better and proudly presents his paper. The angry student can now reinterpret this action and consider that the classmate is under pressure from his parents and wants to share his relief, not wanting to annoy the other and make him jealous.

As stated above (comp. chapter 2.1.5.2.), what emotion-regulation strategies students employ is explained both by situational and by dispositional factors. The employment of maladaptive strategies of emotion-regulation is especially harmful if it occurs habitually, and certain aspects of temperament as well as certain personality traits of the NEO-FFI are found to be related to maladaptive emotion-regulation. I will briefly come back again to these relations that are outlined in chapter 2.1.5. and chapter 2.2.3.2.3. in greater detail. Nett et. al. (2011) investigated state and trait use of different emotion-regulation strategies for coping with boredom and found three distinct trait coping profiles for regulating boredom: Reappraisers regulated boredom employing cognitive approach strategies, Criticizers regulated boredom employing behavioural approach strategies, and Evaders were characterized by employing avoidance strategies. These coping profiles also proved to correlate with personality trait-dimensions from the Neo-Five Factors Inventory (NEO FFI) (Costa & McCrae, 1985). Comparing the three profiles it was found that reappraisers scored higher in the dimension of Conscientiousness and lower in the dimension of Extraversion than Evaders. Reappraisers were also found to score higher in the dimension of Agreeableness than Evaders. No significant differences were reported for the comparison of Criticizers and the other two profiles. (Nett et al., 2011) Apart from the personality dimensions of the NEO FFI, relations between temperament and the habitual employment of reappraisal have been found. As outlined in chapter 2.1.7., students with high inhibition tend to habitually set avoidance rather than approach-goals, with the described effects on perceived control and value of achievement activities and outcomes and its influence on subsequent variables. Reappraisal is a strategy of cognitive approach with the described overall positive effects on the mediators of (achievement) outcomes. It is especially important for students who habitually employ maladaptive strategies of emotion-regulation to be introduced to alternatives that are more adaptive in terms of well-being and in view of social and achievement goals to be attained. If-Then-Plans have been chosen for the intervention at hand because, in the way they are

prepared in the intervention, they facilitate becoming aware of maladaptive emotion-regulation strategies in a first step. In a second step, a new and more adaptive strategy is habitualized. If emotion-regulation means overriding a response-set with an alternative one (Schweiger-Gallo et al., 2009), processes of "bottom-up", reactive self-regulation can be overridden as much as habitualized maladaptive strategies of emotion-regulation. These processes will be addressed in detail in chapter 2.4. To resume central aspects, reappraisal is an emotion-regulation strategy used to reinterpret a situation that gives rise to an emotion or aspects of that situation. (Jacobs & Gross, 2014) More generally described, it is a strategy that aims at controlling the meaning that an event has for an individual. (Gross & John, 2003b) As it is applied at an early stage of the emotion generative process, it affects different components of an emotion and thus can change its trajectory considerably to an extent that the original negative (achievement) emotion changes into a positive one, or positive aspects can be found in the situation and connected positive emotions can be focused on. The employment of reappraisal as an emotion-regulation strategy is adaptive in view of long-term goals, as opposed to avoidance-strategies for example, that might bring immediate relief, but lead to a long-term increase in negative outcomes. (Jacobs & Gross, 2014)

In the present work, so far, the significance of promoting knowledge and expertise in emotion-regulation in school contexts has been illustrated with reference to the role of emotions, its antecedents, and its effects on the mediators of achievement and well-being. It has also been outlined in chapter 2.1.6. how these mediators of well-being and achievements outcomes are constitutive elements of the construct of self-regulation. Likewise, it has been explained how these theoretical aspects are accounted for in the conception of the material developed for the study at hand.

Additional to these aspects, findings from motivational and action psychology as well as recent theories of goal setting and striving must be considered for effective self- and emotion-regulation (training). The respective theoretical backgrounds and its implications for the present study will be outlined in the following.

2.3 Self-regulation and emotion-regulation from the perspective of goal psychology

2.3.1 Conceptions of goal setting and goal striving

As is the case for the nature of emotions (comp. chapter 2.1.2.), behaviourist approaches alone cannot aptly explain processes of goal setting and striving, as human actions in general, cannot sufficiently be explained by processes of conditioning or observational learning. (Achtziger & Gollwitzer, 2006; Bovet, 2000a). Individuals do not simply take over goals from others, nor do they solely perform conditioned behaviour. Students might take over goals

from role models, as other students, teachers, or parents, but they at the same time modify, change, or even set them without observing others, and they do so, because they have individual and, at least partly, independent ideas of what is meaningful and reasonable for them to attain. Different goals have different degrees of priorities to individuals. Traditional motivational theories (Carver & Scheier, 1998) hold the view that the strength of an individual´s intention to reach a set goal as well as characteristics of the determinants of setting the goal predefine how successful goal pursuit is. Goal intentions, which can be described as self-instructions to reach certain outcomes as in achievement or social regard, are formed due to beliefs about how desirable and how feasible a goal is. (Gollwitzer & Sheeran, 2006; Oettingen & Gollwitzer, 2002) However, it has been found that holding a strong goal intention is often not sufficient to achieve a goal, because individuals do not manage to transfer their goal intentions into taking appropriate action to attain them. Kurt Lewin already pointed out in the early 20th century that the psychological processes underlying goal setting are different to those underlying goal striving. (Lewin, 1926) Yet, motivational psychology in the following decades focused on processes of goal setting until the perspective of actional psychology was revived from the 1970ies on (Achtziger & Gollwitzer, 2006). It was found that the strength of goal intentions only accounts for about 30% of the variance in goal attainment. What explains the rest are, on the one hand, features of goal contents and goal structures. (Gollwitzer & Sheeran, 2006) How this is considered in the developed material for the study at hand will be briefly referred to below. On the other hand, the explanatory gap is filled with finding that setting a goal is only the first step on the way to goal attainment. It is suggested that there is a second, volitional, moment that takes the form of self-regulatory processes of planning how, when, and where exactly to pursuit a goal, that has a great share in explaining whether, or to what extent, a goal is attained. The full way to goal completion combines motivational and volitional elements of the process and is described in four phases of action which are depicted in the *Rubicon Model of Action Phases* (Achtziger & Gollwitzer, 2006), which will be outlined in greater detail below. The afore mentioned self-regulatory processes of implementing goals are effective when they take the form of identifying feelings, thoughts and behaviour that is suited for goal attainment as well as situations in which the respective feelings, thoughts or behaviour can be implemented. In an additional step, the mental representations of both are connected to one another which leads to the automatization of initiating the defined behaviour as soon as the defined situation occurs. The effectivity of these Implementations Intentions can be increased by contrasting obstacles that are perceived to be in the way of goal attainment to imagining states-of-affairs that are associated with successful goal striving. (Oettingen & Gollwitzer, 2002)

2.3.2 Motivational and volitional aspects of goal attainment: The *Rubicon Model of Action Phases*

The model comprises four phases that organize the process of goal setting and striving that chronologically follow one another. At the same time, the model is circular in that, once goal pursuit has come to a (temporary) end, new, related or adopted wishes can be transformed into next goals to be pursued.

The first phase of action in the model is the *Predecisional Phase*. This phase is of motivational nature and transforms wishes into binding goals. As individuals have more needs and wishes than can possibly be transformed into goals to be pursued, they reflect on which of these needs and wishes they want to make binding goals. They commonly commit to goals that are perceived as highly desirable and feasible. What is considered as desirable, in turn, partly grounds on implicit motives for setting goals. These motives are biological needs that cause behaviour on an elementary level. Oettingen and Gollwitzer (2002) name affiliation and power as the two motives of this kind, additionally competence and autonomy. Depending on situational factors and personal factors, these motives are differently prominent in individuals. Referring to the NEO FFI (Costa & McCrae, 1985) people with high values in Agreeableness are expected to have many and strong affiliation motives and probably weaker and fewer power motives, and vice versa. Instruments to measure interindividual differences in such basic motives have been developed. For example, an instrument to measure the strength of the achievement motive, or, as the authors call it, the *Need for Achievement* was developed as early as 1953. In the so-called *Thematic Apperception Test* (Murray, 1971), pictures are presented to probands who are asked to produce a narrative relating to the picture. The text is evaluated according to content and linguistic criteria (McClelland et al., 1953). On this basis, the strength of the achievement motive is evaluated.

It has been outlined in chapter 2.1., how significant both achievement and social emotions are in school contexts. In that context, it has been explained why we do not assume it to be reasonable to restrict goals that tutees are asked to identify in the present intervention material to achievement goals. The decision is confirmed by the perspective of processes of goal setting, as the implicit motives referred to above are superordinate goals that determine what subordinate goals are set in their "service". Goal striving is considered to be the more effective, the better subordinate goals match with the needs individuals have. (Oettingen & Gollwitzer, 2002) If a tutee at the time the intervention took place, was most concerned about affiliation, it would not be sensible to not concern himself with related goals in the training. This can be seen from two angles. The ethic perspective would argue for setting goals that seem to be, momentarily, most significant to a student. If a student, for example, is hopeless to ever find friends in his class and wished to have fewer confrontations with his classmates, there should be an option to work on this (social) goal, as its attainment appears to be central to the emotional well-being of the student at the given point of time. It can

moreover be argued that, in the situation as it was, striving for another sort of goal would not be as effectively pursued, as the motive for affiliation was stronger and connected goals more desirable. So, if a tutee felt ashamed for feeling to not belong, if she feared or experienced rejection from her classmates, respective subordinate goals would be formulated, as the one explicated on page 3 of the training material at the bottom of the page.

Figure 12

P. 3 of the interventional material. Tutors´ version for 1:1 condition: Illustrations of achievement and social goals in school contexts

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Was sind Ziele, die man in der Schule haben kann?

Es gibt kleine Ziele, die innerhalb recht kurzer Zeit verwirklicht werden können, und es gibt größere, die man auf längere Sicht verwirklichen möchte. Es folgen Beispiele für

- ein kleines Ziel: Ich möchte in einem bestimmten Fach im Unterricht besser aufpassen.
- ein größeres Ziel: Ich möchte im Zeugnis in diesem Jahr z.B. eine Zwei in diesem Fach haben.
- ein noch größeres Ziel: Ich möchte das Abitur machen.

Könnt ihr Beispiele für Ziele nennen, die ihr in der Schule habt? Vielleicht auch für ein kleines, größeres und ganz großes Ziel? (Die Tutees schreiben noch nichts auf. Die Ziele sollen nur schon einmal ins Bewusstsein gerufen werden.)

Es gibt aber auch Ziele, die sich nicht nur auf **schulische Leistungen** beziehen, sondern z.B. auch die **Beziehungen** zu anderen betreffen, die man in der Schule hat. Beispiel für solche Ziele sind:

- Ich möchte mehr mit den anderen zusammenarbeiten.
- Ich möchte nicht mehr so aufgeregt sein, wenn ich einen Vortrag vor den anderen halten muss.

Habt ihr solche Ziele auch? (s.o. – Tutees scheiben noch nichts auf.)

Another feature of goal setting that has strong effects on the success of goal striving is also taken account for on page 3 of the material as can be seen above. Goals vary in their degree of specificity and abstraction, and in their temporal termination. (Bandura, 1997, 2011; Locke & Latham, 2002) Concrete examples for the first distinction in school contexts would be rather vague goals, as *I would like to be better at German.* as opposed to highly specific goals, as *I want to get at least a "2"* (grade B) *in the next written exam in German.* Referring to the second distinction, goals that lie remotely in the future (*I want to become a veterinarian*.) are opposed to goals that aim at a relatively close future point of time (*Next month, when we have to choose our "Leistungskurse"* (advanced courses), *I will certainly opt for biology*.) Such "small", "bigger" and "even bigger" (comp. material above) goals stand in hierarchical relation to each other. The "even bigger" – rather abstract and/or unspecific goals - as wanting to become a veterinarian, are superordinate goals, which are called *Be-Goals*. *Do-Goals*, in contrast, are subordinate to these Be-Goals and instrumental to their realization (Carver & Scheier, 1998), as choosing biology as a "Leistungskurs" in the example from above.

Other distinctions of types of goals have already been discussed in their role of causes and at the same time effects of (achievement) emotions. It has been illustrated in chapter 2.1.4. how for example performance goals are rather associated with negative emotions, whereas mastery goals are wholly associated with positive emotions and the respective effects on the moderators of achievement and well-being. The differentiation between whether a goal is directed towards performance assessment or an increase in competencies further manifests itself in the opposition of performance versus learning goals. Seen from the perspective of action psychology, they affect the rate of goal attainment as they are connected to different (implicit) notions of how much individuals believe that abilities and competencies can be changed. A student who believes, for example, that his competencies in sports can improve by practicing, will set learning goals for himself. Another, who beliefs that her talent for sports is and will always stay small, tends to set performance goals. Individuals who set learning goals for themselves, as research has shown, are better able to deal with experiences of failure and are more persistent in pursuing a goal in the view of obstacles that come up. (Gollwitzer & Sheeran, 2006) In the intervention at hand, information relating to these determinants of goals setting is contained in the tutors´ additional material, as illustrated in the excerpt from it below. The tutors´ version of the training material contains references to the additional material at the respective stages at which they are needed.

Figure 13

From p. 2f from the additional material for tutors: Features of goals

Ziele – hier nicht unbedingt Teil der Pläne, aber auf jeden Fall Hintergrund dafür - sollten in der Regel <u>SMART</u> sein

- <u>S</u>-spezifisch – konkret: Das Ziel sollte so wenig vage und allgemein sein wie möglich. Also nicht: „Ich möchte besser in Deutsch werden.", sondern: „Ich möchte in der nächsten Arbeit eine 3 in Deutsch haben."
- <u>M</u>-machbar
- <u>A</u>-attraktiv – sie sollten dem Tutee persönlich etwas bedeuten. Dazu kann man z.B. auch überlegen, was an einem Ziel, das von außen vorgegeben ist, ihm selbst wichtig ist.
- <u>R</u>-realistisch
- <u>T</u>-terminiert – Ziele, die in weiterer Zukunft liegen, kann man nicht so einfach erreichen, es braucht mehr Anstrengung und Geduld; nahe Ziele kann man gut erreichen, kleine Erfolge sind motivierend

Ziele können darauf ausgerichtet sein, etwas anzustreben („approach") oder etwas zu vermeiden („avoidance"). Eine weitere Unterscheidung betrifft das Bestreben, nach außen hin Kompetenz zu vermitteln - der Fokus liegt darauf, sich mit anderen zu vergleichen – („performance") oder die eigene Kompetenz zu erweitern - der Fokus liegt auf einem selbst – („mastery").

Annäherungsziele („approach-goals") sind eher mit positiven Emotionen (z.B. Freude) verbunden, Vermeidungsziele („avoidance-goals") eher mit negativen (v.a. Angst).

„Mastery-goals", also das Bestreben, sich an sich selbst zu messen, sind eher mit positiven Emotionen verbunden als „performance-goals", also das Bestreben, die eigene Leistung in Konkurrenz zu anderen zu sehen.

Also: Darauf achten, dass die Formulierung von schulischen Zielen oder eine Strategie der Neubewertung
- den Vergleich mit anderen nicht zu sehr in den Fokus setzt, v.a. wenn man das Gefühl hat, der Tutee setzt sich ohnehin unter Druck.
- nicht auf Vermeidung (von Misserfolg) abzielt, sondern darauf, etwas im positiven Sinn zu erreichen (nicht: „…möchte ich mich nicht mehr blamieren.", sondern: „…möchte ich zeigen können, was ich kann.").

As a result of reflecting upon the desirability of the consequences of the realization of concurrent wishes as well as on their attainability, the first phase of the model of action phases as illustrated above ends with forming a binding goal intention. Crossing the Rubicon is the image chosen for the transition of a wish into a goal. (Achtziger & Gollwitzer, 2006)

The following second phase of the *Rubicon Model of Action Phases* is of volitional nature. It is called the *Preactional Phase*. The central task in this phase is to initiate possibly successful goal-directed behaviour. This is not difficult when the way to goal attainment is familiar, because it is routinized and situations in which thoughts and behaviour that leads to goal attainment are familiar. There is, for example, no planning necessary when a student intends to cycle to school in the morning. She will not have to consider how to cycle, the motion sequences are performed largely automatically. This is not the case when goals are more complex, as many achievement goals and social goals in school contexts are. Situations which

are suited to execute goal-directed behaviour must be identified yet, as well as thoughts or behaviour that might be apt for goal attainment. To support goal-directed behaviour, forming plans that determine when, where, and how a certain behaviour leading to goal attainment can be carried out, is helpful. Such intentions to implement action are called *Implementation Intentions*. They will be related to in detail below. According to Achtziger and Gollwitzer (2006) different states of consciousness predominate the different phase of the model. States of consciousness are understood as cognitive foci in information processing. While in the Predecisional Phase, assessing possible consequence of attaining a goal and its feasibility are important, attention is directed towards possible negative as well as possible positive consequences of goal striving and attainment, and assessing resources needed for it is more realistic than in the Preactional Phase, when commitment to a goal is established. Individuals here focus on information they need to realize the set goal, and sometimes they tend toward being unrealistically optimistic even as regards desirability and feasibility, especially as regards personal resources.

Having considered which way to take to goal attainment, individuals start to perform goal-directed behaviour they have planned when suited situations occur. This is the third phase of the *Rubicon Model of Action Phases* which is called the *Actional Phase*. Different self-regulatory problems can occur in this phase, of which Gollwitzer and Sheeran (2006) give a comprehensive overview, which will be referred to in detail in chapter 2.3.3.3. Thus, only a brief overview will be given here: The first problem individuals face is about initiating goal striving. People might not seize opportunities to act because they do not recognize situations as suited to act, or they do not know how to act. They might also be reluctant to act because yielding to impulses and quick rewards seems more attractive than the consequences of pursuing long-term goals. The second problem that might occur on the way of pursuing a set goal is getting distracted by unwanted influences, while "unwanted" is understood as impeding long-term goals that students (or teachers, curricula, or parents) have set. Pursuing them necessitates repeated action, and resisting distractions in the form of competitive goals, for example. To "stay on track", individuals must refocus attention repeatedly. This can become especially problematic when strong emotional reactivity needs to be downregulated. (Schweiger-Gallo et al., 2009) The third self-regulative problem in goal pursuit occurs when individuals do not disengage from unproductive goal-striving. When goal striving is completed successfully, individuals naturally have no problem disengaging from the respective goal. If not, they can get "overcommitted" in perceiving it a failure to stop striving for a goal that should no longer be pursued, as, for example, living conditions have changed, capacities are reduced, or financial support has been lost. Here, an example serves to illustrate that more than one of the four self-regulative problems in goal-striving can occur simultaneously: A student who realizes that her single mother cannot afford paying for the chosen course of studies of business administration, might try everything to hold on to that perspective. Alternatively, she might realize she could profit from dual educational systems, disengage from the original plan, and look for a suited integrated degree program. Yet, every now and

then feelings of having failed might arise, where the second problem of "keeping on track" in goal striving outlined above becomes relevant again. In other words, unwanted influences in letting the original goal go would have to be blocked, the second and third sort of self-regulatory problem that Gollwitzer and Sheeran (2006) identify in goal striving occur simultaneously. The fourth challenge that might come up in the process of effectively regulating goal striving relates to ego depletion, i.e., avoiding that the pursuit of the current goal takes so much self-regulative capacities that there is little left for goals to follow, or those that are pursued parallelly. (Baumeister & Vohs, 2016) In all four areas of self-regulative difficulties of goal striving, simple intentions to disengage from a goal have been found to be less effective than Implementation Intentions. (Gollwitzer & Sheeran, 2006).

The fourth and final phase of the *Rubicon Model of Action Phases* is called the *Postactional Phase*. In this phase, outcomes of goal striving are evaluated by an individual - or a group, if the setting and striving of the goal involved more people. (Finkel et al., 2016) As the intervention at hand primarily addresses individual processes of goal setting and striving, the social aspect of it is less relevant. It does play a role, however, in so far as the interaction between tutees and tutors in the training sessions of the intervention at hand is a social process. (It will be referred to the roles of tutees respectively tutors in greater detail in chapter 2.4.) The evaluation of goal striving includes different aspects. Individuals ask themselves to what extent a set goal has been attained. They evaluate if the expected positive consequences indeed have occurred, and if the goal intention underlying goal striving can be deactivated. (Achtziger & Gollwitzer, 2006) If the goal is not (fully) attained, it needs to be decided whether to continue pursuing the goal, possibly with alternative means, or whether to deactivate it, nonetheless. The circularity of the model is illustrated by the fact that after its final phase of action, individuals return to the first stage again, deliberating on which new or adapted goals to set.

The circumstance that even the strongest goal intention does not guarantee goal attainment, because commitment does not materialize in successful actions, is captured in the image of the so-called *Intention-Behaviour Gap* included in the visualization of the *Rubicon Model of Action Phases* below. The two slides are taken from a presentation that was prepared to introduce tutors to background contents of the planned intervention.

Figure 14

Visualization of the Rubicon Model of Action Phases and the Intention-Behaviour Gap

Figure 15

Definition of the Intention-Behaviour Gap

Forming Implementation Intentions in research has proven to be an effective means to, staying with the metaphor, bridge the Intention-Behaviour Gap. In the following, basic theoretical assumptions as regards Implementation Intentions and so-called *Mental Contrasting*, a strategy to make Implementation Intentions more effective, will be outlined.

2.3.3 Implementation Intentions with Mental Contrasting: A strategy for effective goal striving

2.3.3.1 Implementation Intentions: Theoretical foundations

Achtziger and Gollwitzer (2006) describe Implementation Intentions as If-Then Plans of the format *If situation X occurs, I will initiate goal directed behaviour Y.*, as opposed to goal intentions of the format *I intend to reach Z*. As their name tells, the plans have two components, an If- and a Then-component. The If-component specifies a situation that is considered suited for implementing the thoughts or actions which are planned for goal attainment. The Then-component specifies these thoughts or actions. In other words, the specified situation is the condition under which a certain behaviour expected to support goal attainment is carried out. As stated above, If-Then-Plans have proven to be far more effective tools for self-regulation in the process of goal striving than mere goal-intentions. The effect on forming Implementation Intentions on goal striving is reported to be medium to large in a meta-analysis of 94 independent studies with altogether more than 8000 participants. (Gollwitzer & Sheeran, 2006) One reason for the effect of Implementation Intentions is that individuals consciously deliberate upon which situation might be suited for executing behaviour that is thought to lead to goal attainment. These conscious deliberations lead to the fact that the mental representation of the chosen situation is highly activated and easily accessible. The situation then is identified even under circumstances of high distraction or other adverse conditions. Another reason for the effectivity of the plans is so called *Strategic Automation*, which refers to the fact that the thoughts or actions a person has identified as being suitable for goal attainment are initiated automatically when the situation to which it has mentally been connected occurs. Two features of automaticity identified by Bargh (1994) have been confirmed in several studies to be connected to the execution of planned behaviour in Implementation Intentions: Efficiency, and the absence of conscious intent. (Gollwitzer & Sheeran, 2006) The process of automatization is explained though the strong cognitive connection of the situation specified for acting and whatever thoughts or actions have been identified as goal-relevant and planned to be executed as soon as the situation occurs. (Schweiger-Gallo et al., 2009) Strategic Automation, however, does not mean that automatization is automatized. Individuals are, rather, in a position to switch between

conscious action control and automatized goal striving. Acting without effortful conscious control when a situation specified in an If-Then Plan occurs does not mean, for example, that another situation that is well suited to carry out the identified goal-relevant behaviour cannot be recognized.

Examples of If-Then-Plans plans from school contexts in which the focus lies on the regulation of behaviour - other than on emotion-regulation as in the study at hand - are given in Gawrilow et al. (2013): A student who intends to do her homework regularly might form the following plan: *Every time I come home from school, I have lunch and directly afterwards I do my homework.* The situation specified as suited for acting is "directly after lunch", and the action to attain the set goal in this example is identical with the goal as such, provided the students acts as planned *always*. This is different in another plan set up to reach the same goal: *"Every time I get homework, I instantly note them down in my homework diary."* The two examples show that there is not "one best" plan to attain a certain goal set, but there are some criteria to distinguish good plans from those that do not ideally suit their purpose. Good plans define situations as specifically as possible, for it is easier for the student then to identify it. At the same time, good plans do not exclude situations that are also suited for implementing the planned actions toward goal-attainment. (Gawrilow et al., 2013) From this perspective, the second plan seems even better suited than the first for the goal at hand, for the student who has failed to do her homework directly after lunch, might be "invited" not to do it the evening either, as she might think it was "too late now anyway". Then-part of If-Then Plans are suited best when what is planned to be done once the situation in the If-part has occurred, is defined as narrowly as possible. In the two examples, closer definitions are not imaginable. Taking another example, one can identify the more narrowly defined action in the better suited plan in the comparison of *Every time my seatmate tries to persuade me to play hangman in Latin, I think about if it is worth missing what the teacher says.* as opposed to *I say no.* in the Then-part.

The high effects of Implementation Intentions on goal achievement can further be increased by combining them with Mental Contrasting, a technique to account for both being motivated by the imagined positive consequences of goal striving and for considering possible obstacles on its way.

2.3.3.2   Mental Contrasting with Implementation Intentions (MCII)

The technique concerns processes of goal setting, and according to Oettingen and Gollwitzer (2002) and Oettingen (2015) is the only way of three that leads to the settings of rational goals. The background of the assumption is that when people think about the future, this can be done in two different fashions. The first is to imagine future states-of-affairs independent of the likelihood of their occurrence. A student in this fashion would, for example, dwell on what

it would be like to attain excellent grades in her final exams in biology without considering how realistic this is. In the second approach to the future, thinking of it includes estimating to which degree a certain future state can be expected to become true. Individuals consider that by drawing on experiences they have made. In that second approach, another student might also dwell on the positive consequences of getting good results in her final exams. Knowing the results that she got in all the written exams of the past, she would additionally consider how likely it is to attain excellent, good, or average grades, and what obstacles stand in the way to each of the grade-levels. These two modes of imagining future events or situations have different effects on the processes of goal setting, as they constitute three types of it. Firstly, thinking of which wishes to transform into goals, people can leave their considerations at dwelling on imagined positive consequence of goal attainment. Secondly, they can leave their considerations at ruminating about obstacles that might impede goal attainment. In both cases, the effort invested in goal striving is not adequate. In the former case, commitment to a set goal is too weak, in the latter case, too little effort is invested if expectancies are high, too great effort if expectancies are low. Only considering both expected positive consequences of goal attainment and possible obstacles on its way leads to realistic goal expectancies and investing adequate effort in goal striving. (Oettingen & Gollwitzer, 2002)

Again, an example of an If-Then-Plan with Mental Contrasting is given in Gawrilow et al. (2013): Students were first asked to think of all the positive things that they expected to happen given that the goal they set for themselves was attained. Students whose goal was, for example, to get good results in the next mathematics exam, would think of their parents´ pride, of getting a reward they were promised, of their own pride when getting the exam back, to name some possible consequences to dwell upon. In a next step, the students were asked to consider obstacles standing in their way to attaining the goal, as their reluctance to sit down to study, for example.

Combining the formation of Implementation Intentions with the technique of Mental Contrasting in scientific contexts is called *Mental Contrasting with Implementation Intentions (MCII).* In non-scientific contexts it is generally called *WOOP*, acronymic for Wish - Outcome - Obstacle - Plan, as the term is better understandable for people who are not familiar with theoretical backgrounds. (Oettingen, 2021) It follows from what is explained above that Mental Contrasting can theoretically be seen from two perspectives. On the one hand, it has a share in determining or specifying which goal exactly is set. It contributes to setting realistic goals. A student who knows that his strengths are rather languages than mathematics would not set the aim of getting excellent grades in the next exam in mathematics, for example. On the other hand, proceeding from a set goal, Mental Contrasting makes a desired future as accessible as the obstacles that stand in the way of realizing this future. Individuals who seek to attain a goal can consider both aspects when forming implementations intentions in the shape of If-Then-Plans. A student can, for example, account for the fact that the noisy baby brother is an obstacle when wanting to study for mathematics, form a plan in which the situation specified in the If-part is in the evening when the baby brother is in bed: *"From*

Mondays to Fridays, I sit down to study mathematics for half an hour every evening at eight o´clock."

2.3.3.3 Different areas for effects of Implementations Intentions

Implementation Intentions have positive effects on goal attainment in different areas. Gollwitzer and Sheeran (2006) structure these effects along the self-regulatory problems in goal striving that Implementation Intentions help to overcome. Synoptically, they distinguish four main categories of difficulties that might come up, which are initiating, maintaining, disengaging from, and undertaking further goal striving:

Individuals can form If-Then-Plans to successfully initiate goal striving, as lack of success in attaining goals is often caused by failing to get started to act, which in turn can have various reasons. One can fail to notice that a situation is suitable for acting in terms of goal completion. (E.g., a student having trouble with Latin, sits at the coffee table at his grandma´s eightieth birthday party without realizing that his uncle, who is a teacher of Latin, could help him.) It is furthermore possible that individuals, having formed goal-intentions only, do not know how to act exactly, even though they know a situation would be suited. (This would be the case if a student knew he had time every day from five to six o´clock, but he did not know where and how to start catching up with everything he has missed in physics.) Another reason for not getting started might be trading off short term-consequences against long-term consequences of acting. (Paul knows he should attend the music lesson to be able to take a good test next week, but he is in love with Aisling and chooses to have coffee with her.)

Another area of self-regulation in goal striving is persevering once goal striving is initiated. As striving for long-term goals makes repeated action necessary, and as many situations offer distraction, goal- striving needs to be shielded from adverse influences. Research has found that this can be done relatively successfully in case individuals know what obstacles they must expect. (If a student whose aim is to follow the ethics lessons more concentratedly knows that it is always his friend and seatmate Eric to address him for having a chat in class, he can prepare how to react.) If it is difficult to know what distraction one might be faced with, shielding goal striving is more difficult. Corona-schooling almost imposes itself as an example: If neither teachers nor students know in one week what format of schooling is coming in the next, and oral exams, e.g., need to be planned for numerous different scenarios (they take place in their usual form in face-to-face lessons vs. online vs. partly here and party there vs. they take place in a reduced version vs. they might be cancelled altogether), it is very difficult to persevere in preparing for them.

The third and fourth area in which difficulties in goal striving can be overcome much better with Implementation Intentions than with mere goal intentions are disengaging from

ineffective goal striving and overextending oneself in the pursuit of a goal. Disengaging from a goal that proves to be unrealistic can be necessary when circumstances change and, for example, a refugee from Syria who in his home country had excellent results, comes to Germany. With little command of German, the student has no realistic chance to keep up the standards he is used to. Yet, he is reluctant to give them up, even if only temporarily, for his academic self-concept is an essential part of his identity. The example links the third to the fourth area of possible difficulties in goal striving, which is overextending oneself in the pursuit of a goal. As individuals follow not only one, but multiple goals at the same time and successively, they need to conserve capacities for pursuing all these and not overextend themselves in the pursuit of one. Drawing on the example above, if the Syrian student invests almost all his energy into learning German to be able to keep up achievement standards, he might miss opportunities to socialize, to get to know the country he has come to, not to speak of trying to come to terms with the experiences of flight and expulsion.

Achtziger and Gollwitzer (2006), choosing the content of If-Then-Plans as the criterion of categorizing different kinds of Implementation Intentions, basically distinguish between three areas in which Implementation Intentions have positive effects. One is the promotion of desirable behaviour, and the other is the control of undesired behaviour. Desired behaviour comprises the initiation and persistence of goal directed behaviour in view of the above-mentioned obstacles, whereas undesired behaviour comprises firstly feeling, thought and action that are impeding effective goal striving and secondly the replacement of undesired behaviour by a contrasting alternative. A third area in which Implementation Intentions are found to be useful is shielding goal striving from unwanted internal and external influences.

It is obvious that the two approaches structure types of Implementation Intentions according to different criteria, respectively see the same phenomenon from different perspectives. Yet, they correspond in how they see the role of emotion and emotion-regulation in the processes underlying the formation of Implementation Intentions.

2.4 Emotion and emotion regulation in If-Then-Plans with Mental Contrasting: Implementations of theoretical contexts in the present intervention (material)

2.4.1 Determinants and processes of goal setting and striving in emotion-regulation

Of the different self-regulatory problems individuals might face in successful goal striving (Gollwitzer & Sheeran, 2006), two of those referred to above seem especially relevant for emotion-regulation. In failing to get started, emotions play a role when students, for example, find themselves in situations to weigh up positive short-term consequences against positive

long-term consequences. The short-term relief, for example, caused by "letting off steam" when one is angry might seem attractive compared to regulating the anger in view of not complicating conflicts with classmates and/or missing parts of the lesson, which is illustrated in the material as follows:

Figure 16

Excerpt from p. 2 of the interventional material. Tutors´ version for 1:1 condition: Illustration of possible consequences of bottom-up emotion-regulation

Gefühle, die man hat, „herauszulassen", ist nicht an sich gut oder schlecht. Seine Freude zu zeigen tut oft gut. Es kann auch guttun, seinen Ärger zu zeigen.

Im Beispiel oben seht ihr aber schon, dass es nicht in allen Situationen gut ist, seinen Gefühlen freien Lauf zu lassen und spontanen Reaktionen nachzugeben und nach ihnen zu handeln:

- Vielleicht „grummelt" es in dir, bevor du deinem Ärger Luft machst. Der Kommentar des Sitznachbarn beschäftigt dich. In der Zeit verpasst du die Besprechung der Arbeit.
- Vielleicht hat deine heftige Reaktion den Nachbarn verletzt.

- Der verbale „Ausbruch" stört den Unterricht, und du wirst ermahnt.
- Nun beschäftigt dich vielleicht die Reaktion deines Nachbarn. Du wolltest ihn doch nicht verletzten…Und dass du ermahnt worden bist, beschäftigt dich auch. Vielleicht ärgerst du dich noch mehr, oder schämst dich - und verpasst du noch mehr von der Besprechung der Klassenarbeit…

Das alles ist nicht so gut, weil es möglicher Weise den schulischen Zielen, die du hast, entgegensteht – wenn du z.B. im Unterricht aufpassen möchtest, weil du gern eine gute Note im Zeugnis hättest.

Equally, the short-term consequences of playing battleships in a boring lesson (joy and happiness over social bonding and having escaped boredom as the "dead calm of the soul" (Nietzsche, 2017) have often been observed in classrooms to be favoured over long-term consequences as goals like good results in class-reports, even if explicit goal intentions commit students to the latter. Thus, major effects of Implementation Intentions for emotion-regulation are expected to concern the problem of "getting derailed" (Gollwitzer & Sheeran, 2006) in goal striving, when repeated action to attain a set goal is necessary and numerous classroom and school-context situations offer distraction which students need to resist for successful goal striving. Schweiger-Gallo et al. (2009) differentiate between inward and outward interferences that need to be countered when one intends to "stay on track" in goal striving. They specify outward interferences as temptations and distractions, and inwards

interferences as emotional states of, for example, being anxious or bored. Both are understood in terms of emotional reactivity, as immediate emotional reactions to stimuli in the environment that fall under the category of "bottom-up self-regulation" - immediate, reactive processes that are described as automatic ones (that are neurologically connected to older brain regions, mainly the amygdala.[17]) (Bridgett et al., 2015) If If-Then-Plans are constructed to shield goal striving in the sense of the goal-directed organization of feeling, thought and action in view of long-term school context goals, and as If-Then-Plans ground on the automatization of these feelings, thoughts and behaviours in specified situations suited for goal striving, we then have the difficult situation that a process of automatization is expected to counteract automatized processes. Schweiger-Gallo et al. (2009) confirmed the assumption that emotional reactivity can be downregulated by forming Implementation Intentions in a laboratory study on the Strategic Automation of emotion-regulation. If-Then-Plans were found to introduce new habits that can suspend old ones. Negative emotions are not, as referred to above in chapter 2.1.8., situation specific alone. They are also person specific, caused by generalized patterns of perception (as habitual forms of attentional control, for example towards potential threats in trait-anxious people) and habitual interpretations of environments (as for example generalized patterns of attribution). These person specific responses generally happen outside people´s awareness and can impede long-term goal striving as much as emotions caused by situational distractors. It is important to draw attention to the fact that If-Then-Plans in the intervention at hand are expected to relate to both, depending on what can be worked out about the main causes of difficulties in goal striving in the situations the tutees identify as typical for the occurrence of "their" negative emotion.

Taking this into consideration, in the formation of If-Then-Plans in the study at hand, emotions in school contexts are assigned the role of a "distractor" (Gollwitzer & Sheeran, 2006) or, in more general terms, feelings that are undesired in view of long-term goals. The plans as such, according to Achtziger and Gollwitzer´s (2006) categorization, would be Implementation Intentions to suppress undesired feeling, thought, and action. At the same time, they go beyond that, as reappraisal goes beyond suppression. And as goal-relevant thoughts or behaviour can implicitly or explicitly be included in the Then-parts of If-Then-Plans, they can be considered Implementation Intentions to replace undesired by antagonistic behaviour. Furthermore, the plans that tutees make promote adaptive feeling, thought and potentially action (comp. chapter 2.3.4.) in which they also go beyond suppression.

As referred to above, the material illustrates that it can occasionally "do good", i.e., can be relieving and serve emotional well-being to follow a first emotional reaction. It can also be part of "person-oriented emotion regulation" (Koole & Aldao, 2016) as outlined in chapter 2.2.2.2. of this work. In the following material, however, students are introduced to the fact

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[17] For more detailed information on conceptions of self- and emotion-regulation and their theoretical implications comp. chapter 2.2.1. of this paper.

that yielding to an impulse can often impede the pursuit and attainment of long-term goals in school contexts, with a focus set on achievement goals, which is illustrated above in the excerpt of page 2 of the tutors´ material. In a next step, tutees are introduced to examples of goals one can have in school contexts, with examples representing different levels of specification. These first examples are achievement goals, while in the following tutees are made aware of the circumstance that social goals can also be relevant goals in school contexts. Moreover, the examples are chosen in such a way that it becomes clear that achievement and social goals can hardly be separated from one another.

Figure 12

P. 3 of the interventional material. Tutors´ version for 1:1 condition: Illustrations of achievement and social goals in school contexts

Was sind Ziele, die man in der Schule haben kann?

Es gibt kleine Ziele, die innerhalb recht kurzer Zeit verwirklicht werden können, und es gibt größere, die man auf längere Sicht verwirklichen möchte. Es folgen Beispiele für

- ein kleines Ziel: Ich möchte in einem bestimmten Fach im Unterricht besser aufpassen.
- ein größeres Ziel: Ich möchte im Zeugnis in diesem Jahr z.B. eine Zwei in diesem Fach haben.
- ein noch größeres Ziel: Ich möchte das Abitur machen.

Kannst du Beispiele für Ziele nennen, die du in der Schule hast? Vielleicht auch für ein kleines, größeres und ganz großes Ziel? (Die Tutees schreiben noch nichts auf. Die Ziele sollen nur schon einmal ins Bewusstsein gerufen werden.)

Es gibt aber auch Ziele, die sich nicht nur auf **schulische Leistungen** beziehen, sondern z.B. auch die **Beziehungen** zu anderen betreffen, die man in der Schule hat. Beispiel für solche Ziele sind:

- Ich möchte mehr mit den anderen zusammenarbeiten.
- Ich möchte nicht mehr so aufgeregt sein, wenn ich einen Vortrag vor den anderen halten muss.

Hast du solche Ziele auch? (s.o. – Tutees scheiben noch nichts

In a next step, the example illustrating how (achievement) emotions can impede long-term goal striving on page 2 of the material is related to the tutees individually. They are asked how they might react to the given situation and what the consequences might be, if they acted according to the feeling that might come up. Sadness is suggested as an alternative to anger, while it is important that the tutor tries to make the tutee put herself in the described situation to be able to seize and see in front of his inner eye what might happen if she gave way to her feeling arising in the situation.

This stage of the material is one of several in which we expected it to be especially important that it relates to the tutees´ situation as much as possible, for at this stage tutees are introduced to the topic and context of emotion-regulation. As can be seen below on page 4 of the tutors´ version of the training material, tutees learn that feelings can be regulated by employing strategies of emotion-regulation.

Figure 17

P. 4 of the interventional material. Tutors´ version for 1:1 condition: Illustration of the possibility to regulate emotions by specific strategies

Wir haben schon gesehen: Manchmal sind Emotionen, die wir haben, nicht förderlich, wenn wir bestimmte Ziele erreichen möchten.

Kommen wir zum Beispiel von vorhin zurück: Die Englischarbeit wird zurückgegeben. Dein Sitznachbar und Lernpartner hat eine bessere Note.

Dein Gefühl: Ärger

Die Folgen: Du verpasst die Besprechung der Klassenarbeit, zumindest einen Teil davon.

Dein Ziel: Im Unterricht aufpassen.

Wir haben ja eben schon darüber gesprochen, ob du wohl ähnlich reagieren würdest. Wenn nicht (du also z.B. eher traurig wärst), hätte „dein" Gefühl auch Folgen für den Unterricht? Was wären die wohl? (Tutee berichtet ggf.)

Da ist es schon einmal gut zu wissen, dass man seinen Gefühlen nicht einfach ausgeliefert ist, sondern sie beeinflussen kann.

Man kann bestimmte Strategien anwenden und damit Gefühle verstärken, abschwächen oder verändern, oder auch den Umgang damit beeinflussen.

Und so kann man auch das Handeln, das einem Gefühl folgt, in eine bestimmte Richtung steuern.

Das schauen wir uns später noch genauer an.

2.4.2   Preparing If-parts of plans

The following step is the last step of the first of two training sessions, in which tutees are asked to rank the emotions of the *Achievement Emotions Questionnaire* according to the frequency with which they occur to them in everyday school life.

Figure 18

P. 5 of the interventional material. Tutors´ version for 1:1 condition: Choosing a negative achievement emotion that impede goals attainment

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Es gibt ganz unterschiedliche Gefühle in unterschiedlichen Bereichen. Wissenschaftler haben herausgefunden, dass es bestimmte **Gefühle** gibt, die bei allem, was mit **Schule und Lernen** zu tun hat, häufig vorkommen. Das sind:

Freude, Hoffnung und Stolz,

Ärger, Angst, Hoffnungslosigkeit, Scham und Langeweile

Man kann z.B. stolz sein, wenn man sich gut vorbereitet hat und ein gutes Ergebnis in einem Test zurückbekommt.

Man kann z.B. Hoffnungslosigkeit empfinden, wenn man sich immer wieder gut vorbereitet in einem Fach und die Ergebnisse dennoch nicht so gut sind.

Kennst du solche Situationen auch? Welche sind das?

Jetzt bist du an der Reihe: Denke darüber nach, welche der oben genannten Gefühle du aus deinem Schulalltag kennst. Bringe sie in eine Reihenfolge – zuerst das Gefühlt, das am häufigsten vorkommt, zuletzt das, was du am seltensten verspürst.

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

Hier ist evtl. Hilfestellung erforderlich, wenn die Tutees sich nichts Genaues unter den Gefühlen vorstellen können. Bitte Zusatzseite zu 5 (5.1.) beachten.

After having ranked the achievement emotions of the AEQ as outlined, tutees´ attention again is drawn to the fact that the intention of the intervention, of their working on the material with their tutors, is to regulate negative emotions in such a way that these do not cause (as much) discomfort (as before regulation) and that they do not stand in the way of goals tutees have in school contexts (as much as before). Subsequently tutees are asked to select one of the five negative achievement emotions from the Achievement Emotions Questionnaire (comp. chapter 2.1.5.1.) they perceive to stand in their way (of goal attainment) most frequently.

Figure 19

P. 6 of the interventional material. Tutors´ version for 1:1 condition: Preparing Then parts of If-Then-Plans, step 1

Uns geht es darum, die eher unangenehmen **Emotionen** so zu **beeinflussen**, dass sie

- einem nicht mehr so zu schaffen machen und
- bestimmten Zielen, die man hat, nicht mehr so im Weg stehen.

Um das zu schaffen, muss man ein paar **Schritte** gehen:

Schritt 1: Schreibe bitte aus deiner Liste oben hier noch einmal das negative Gefühl auf, von dem du denkst, dass es dir am häufigsten im Weg steht und dass du es gern weniger oft verspüren würdest oder gerne besser „im Griff" hättest.

Konzentriere dich dabei auf Situationen im Unterricht (also nicht in Klassenarbeiten).

_____

At the end of the first training session, one component of the If-part of the plans the tutees are asked to form at the end of the second training session, is prepared for. It is the negative achievement emotion (possibly overlapping with social aspects of that emotion, for example, being angry because of one´s own bad results and because the seatmate has better ones) the tutees have selected to stand in the way of goals they have in school contexts. Having worked their way through the material so far, tutees have become aware of an originally reactive, automatic emotional response the mental representation of which is now highly activated. Later, when If-Then-Plans have been formed, the selected emotion is expected to be identified without conscious effort again and effect the employment of the process of reappraisal defined in the Then-Part of the plan. As the selected emotion, the situation in which it typically occurs has become mentally activated and is expected to be identified without conscious effort. The situation in which to employ reappraisal as a strategy of emotion regulation is the second element of the If-parts of the If-Then-Plans tutees form that needs to be specified. In the end of session 1, tutees are asked to pay special attention to situations in which "their" negative (achievement) emotion, the one they have selected from the five of the AEQ, occurs. They are also asked to take notes as to these specific situations in the week in between training session 1 and training session 2. Only in the beginning of session 2 the tutees are asked to specify in writing the situations in which "their" negative (achievement) emotion occurs in the respective section of the material:

Figure 20

P. 6 of the interventional material. Tutors´ version for 1:1 condition: Situations in which the chosen emotion occurs and goals which attainment it impedes

Für die nächsten Schritte hast du Zeit bis zum nächsten Treffen mit deinem Trainer oder Tutor. Das ist etwa eine Woche.

Bitte lies die nächsten Schritte 2 bis 5 (auf den folgenden 2 Seiten) **jetzt** aufmerksam durch:

Versuche, in der kommenden Woche einmal genau darauf zu achten, wann „dein" Gefühl auftritt, und in welchen Situationen. Du kannst dir auch Stichpunkte dazu aufschreiben.

Trage bitte erst am Ende der Woche in das Arbeitsmaterial unten ein, was du herausgefunden hast.

Schritt 2: Denke darüber nach, ob es bestimmte Situationen gibt, in denen dein in Schritt 1 gewähltes Gefühl öfter auftaucht.

Versuche, solche Situationen zu beschreiben:

_____

_____

_____

_____

_____

_____

Schritt 3: Überlege dir, welchen schulischen Zielen, die du hast, das Gefühl im Weg stehen könnte. Denke an die Situationen, in denen es öfter auftaucht.

- _____

- _____

- _____

When tutees then engage in describing respective situations, tutors´ task is to support them in doing it in such a way that the plan constructed later can be effective. This means that situations need to be specific enough, and they need to be specified precisely enough for the tutee to identify them as instances to trigger emotion-regulation as identified in the Then-part of their plans. The situations also need to be typical of the occurrence of the selected negative achievement emotion. Situations that only rarely occur are unsuited because there would not be enough occasions to apply the constructed If-Then-Plans. Unsuited situations moreover are such in which the planned thoughts or behaviour cannot be performed. (Gollwitzer & Sheeran, 2006) Examples of possible If-parts of If-Then-Plans are given on page 12 of the material before the tutees form individual plans:

Figure 21

Excerpt from p. 12 of the interventional material. Tutors´ version for 1:1 condition: Examples of If-parts of If-Then-Plans

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Nun formulierst du den Plan, der dir helfen soll, „dein" Gefühl besser zu steuern. Solche Pläne heißen „Wenn-Dann-Pläne".

Die Situationen, in denen „dein" negatives Gefühl häufiger aufkommt, kommen in den **Wenn**-Teil des Plans. Versuche, die Situation möglichst genau zu beschreiben.

Einige Beispiele:

„Immer, **wenn** ich mich im Deutschunterricht langweile…"

„Immer, **wenn** ich Angst davor habe, etwas vor der Klasse vorstellen zu müssen…"

„Immer, **wenn** ich mich ärgere, weil Lehrer/in … viel zu schnell erklärt…"

Other than the examples given in the material suggest, If-part of plans could theoretically only comprise the specification of situations in which a negative achievement emotion occurs, without explicating it, as is the case in "Every time I have to present something in class, I tell myself that I can manage the situation.". The emotion that is intended to be regulated is anxiety.

Before students prepare and formulate the Then-parts as the second constituents of their If-Then-Plans, they are asked to contrast the imagined positive consequences of goal attainment and probable obstacles that stand in its way.

2.4.3   Applying Mental Contrasting

As related to above in chapter 2.3.3, only considering both expected positive consequences of goal attainment and possible obstacles on its way – i.e. applying the technique of Mental Contrasting - leads to realistic goal expectancies and investing adequate effort in goal striving. (Oettingen & Gollwitzer, 2002) At the same time, when proceeding from a set goal, Mental Contrasting makes a desired future as accessible as the obstacles that stand in the way of realizing this future, and it makes both more accessible than mere goal-intentions would. Tutees who form If-Then-Plans can consider both aspects. On page 8 of the training material, they are first asked to think of how the situations in which "their" negative (achievement) emotion typically occurs, might change if they felt less of that negative emotion. It was expected that tutees refer to the goals they identified at an earlier stage as being relevant in school contexts, which they generally did, as can be seen in the examples below.

Figure 22

P. 8 of the interventional material. Tutors´ version for 1:1 condition: Illustrating Mental Contrasting

Schritt 4: Stelle dir nun vor, dass die Situationen, die du oben beschrieben hast, viel weniger von „deinem" negativen Gefühl geprägt sind. Du bist also z.B. weniger ärgerlich, weniger ängstlich, oder weniger gelangweilt.

Was wäre besser, wenn das der Fall wäre? Wie würden sich die Situationen dann verändern? Versuche dir das vorzustellen, und schreibe es auf:

_____

_____

_____

_____

_____

Und nun noch ein letzter Schritt: *Schritt 5*

Was, glaubst du, hindert dich daran, z.B. weniger ärgerlich, ängstlich oder gelangweilt zu sein? Denke wieder an die Situationen, in denen „dein" Gefühl oft vorkommt.

_____

_____

_____

_____

_____

Hast du bei allen Schritten verstanden, was du machen sollst? Das ist ganz wichtig. Hast du noch Fragen? (ggf. beantworten. Wenn Sie nicht sicher sind, Frau Schwarz oder Frau Merhofe ansprechen.) *Wenn alles klar ist nicht, sind wir für heute fertig, und sehen uns dann in der **nächsten Woche** wieder.*

In step 5 tutees are asked to consider the obstacles they expected to face on the way to goal attainment. Here, we expected responses that referred to the antecedents of the selected negative achievement emotion, as for example the monotony of the German lessons with teacher X in the case of boredom, or the consequences of being held up to ridicule when making contributions in class and not remembering what to say in the middle of the sentence in the case of anxiety, for example. Anger might be caused, for example, by the perceived difficulties to translate texts fast enough in Latin lessons. The following examples are taken from the training material tutees worked on supported by their tutors. One grade 8 student (in the dyadic training condition) selected *hopelessness* as the emotion standing in the way of the aims of *[getting] good grades* and *[a good] Abitur*. Step 4, in which students are asked to imagine positive consequences given they achieve "their aims", in this case feeling less hopeless, is specified as *studying in a more concentrated manner, longer, and better*. In step 5, the student states what he/she thinks is an obstacle to feeling less hopeless: *When one thinks of all the things one must do, what is ahead of one*. The student obviously feels to have little or no control over the demands he/she is confronted with in school-contexts.

Another student in the dyadic training condition selected *boredom* as the feeling that impedes goal attainment, with the goal being formulated as "[good] oral results". Dwelling on the positive consequences of the aim of feeling less bored is specified as *being more attentive in the lessons → studying less at home* in step 4, and step 5, the obstacles that are perceived to hinder him/her feeling less bored are *teachers, noise level of the class, topics*.

In a third example, a student of grade 8 in the group condition, chose *anger* as the emotion impeding the attainment of his/her goals most. These goals are *[good] written exams, a good class-report, [the] Abi*. In step 4, the students states that he/she would *concentrate more on the lessons and thus would likely be better in written exams because he/she would probably have understood more.*, imagining the positive consequences of feeling less anger. In step 5, he/she specifies what hinders his/her feeling less anger: *Would certain people not do so many incomprehensible things, I would probably get less upset*. Having prepared If-parts of plans, the next step for tutees is preparing Then-parts of the final plans, in which they specified how to apply reappraisal to regulate the emotion identified to impede goal attainment.

2.4.4   Preparing Then-parts of plans

Schweiger-Gallo et al. (2009), as referred to above, hypothesize that Implementation Intentions should be an effective tool for emotion regulation, as they have proven to be such for the regulation of thought and action. The assumption grounds on the fact that emotion-regulation in many aspects underlies the same principles as the regulation of thought and action. (For more detailed reference compare chapter 2.2.1. of this paper). In the laboratory studies they conducted, the effectivity of forming If-Then-Plans to downregulate emotional

reactivity was tested and confirmed in three different experiments. The second experiment, in which fear of spiders was elicited, comprised two emotion-regulation strategies: The effectiveness of forming Implementation Intentions was found for both emotion-regulation strategies in the Then-part of the plan. Probands in the first condition were provided with an antecedent-focused emotion-regulation strategy (*If I see a spider, I will ignore it*.) Those in the second condition were told to employ a response-focused strategy (*If I see a spider, I will remain calm and relaxed*.) (Schweiger-Gallo et al., 2009).

Hypothesizing that forming If-Then-Plans with Mental Contrasting for emotion-regulation has comparable positive effects in the present intervention, it must be considered that conditions are far more complex than in laboratory situations in several respects:

Laboratory situations are obviously far less complex than real situations as the one in the study at hand. As regards feelings targeted in reappraisal, while there was one emotion to be regulated (disgust or fear) in the three laboratory studies respectively, in the study at hand, the emotion that tutees identified to impede goal attainment most cannot be regarded as delimitable as in the laboratory situation. In school contexts, the emotions tutees choose to reappraise in their plans, will arise together with other, similar ones, as for example the anger a student feels when he compares his own results to the better ones of his seatmate whom he knows not to have spent more time on preparing than he himself, will not clearly be separatable from the envy he feels on account of exactly that (comp. page 2 of the training material). As outlined above in chapter 1.2.1., social and achievement emotions probably rarely occur separately in school situations, as almost all situations have a social component, which makes processes of reappraisal more complex.

As to the exact content of Then-parts of If-Then-Plans, i.e., the objects of reappraisal, it has been outlined in chapter 2.2.3.1. that as emotions in achievement are primarily induced by appraisals of control and value of achievement activities and outcomes (Pekrun & Perry, 2014), and as appraisals of control and value are caused by a number of other constructs that are distal or proximal antecedents of both, it seems obvious that these constructs are objects of reappraisal in the Then-parts of If-Then-Plans in the intervention at hand. Yet, other than in laboratory studies, in which the respective antecedent of the emotion to be regulated is unambiguous and easily assessable in the form of pictures (of mutilated bodies to elicit disgust and spiders to elicit fear), in the present study, the one (achievement) emotion that tutees chose to reappraise in a specific situation in which it typically occurs is not caused by one isolated antecedent. As situations in school are of a rather complex nature, determined by social factors and achievement factors which themselves are manifold, the antecedents that cause emotions were expected to be numerous as well.

Processes of reappraisal are far more specific as in the laboratory studies referred to than in the present study in another aspect. In the laboratory study conducted by Schweiger-Gallo et al. (2009), it was pre-formulated for participants how to employ both the antecedent and

response focused emotion-regulation strategy (*If I see a spider, <u>I will ignore it</u>*. vs. *If I see a spider, <u>I will remain calm and relaxed</u>*.) The same was the case in the laboratory study on the automation of emotion-regulation conducted by Christou-Champi et al. (2015) (comp. chapter 1.2.5.), in which undergraduate students employed reappraisal as an emotion-regulation strategy. Again, the stimuli inducing negative emotions (with no specification made) were pictures, of mutilated bodies. Reappraisal in the Then-part of the If-Then-Plans was specified as: *When seeing these injuries, I must remind myself that they are fake; they were created by the film industry using special effect technology to be used in movies*. (Christou-Champi et al., 2015) In the present intervention, tutees had no model version, or prototype of how to formulate reappraisal in the Then-parts of If-Then-Plans.

From the options ranging from focusing on one specific proximal or distal antecedent of control or value of (achievement) emotions, over suggesting a selected number of them, to leaving it wholly up to the tutees, we chose the last one for the reason, that it is to a large extent dependent on the individual which of the antecedents of control and value, or which of the antecedents of social emotions, are best reappraised to employ emotion-regulation successfully. For one tutee it might be essential to reappraise the value of overwhelmingly boring poetry-lessons in view of improving her analytic competencies in producing a coherent comparison of two poems, which is a possible Abitur task. For another tutee, it might be relevant to change attributional patterns and reinterpret his success in mathematics as due to his own efforts instead of the good will of the teacher who, subjectively perceived, always makes the tasks easy enough. Relating to the example from page 2 of the training material again, the student´s anger at his bad results is, caused by the comparison with his seatmate´s results, with whom he has prepared for the exams, which makes his anger a social emotion additionally to the achievement "aspect" it has. This might be caused by goal structures the student possibly typically sets for himself. In this case, he might tend towards setting achievement rather than learning goals with the outlined effects. Moreover, his self-concepts of ability in English, or foreign languages in general, might be negative. His parents might expect the student to perform well, possibly setting clearly defined standards. All these components would, in the constructed example, lead to a reduced degree of subjective control over achievement activities and outcomes for the student. As regards value, the student might not value English lessons very highly, and motivation to perform well might be external, coming from his parents rather than himself. In such complex situations as the example, tutees would likely be overchallenged with deciding which antecedents, which aspects of the situation to focus on in reappraising it. The support of tutors is essential here, who work through the material with the tutee, drawing on their background knowledge from preparatory lessons and the additional material in trying to identify which of the possible causes of tutees´ negative emotions have great impact and should thus be foci of reappraisal.

According to what is outlined in chapter 2.2.2.6. on concurrencies and interactions of ER-strategies, Then-parts of If-Then-Plans can include more than cognitive processes. Referring to the example from above, talking to one another, tutee and tutor alternatively might find

out that it is the friendship to his seatmate, that is problematic in more respects than preparing together for English exams, and that it is the tutee who habitually is quite competitive in many respects. Here, the emotional reaction to the situation would partly be caused by personality features, in terms of the NEO FFI (Costa & McCrae, 1985) by low values in Agreeableness. A respective plan might read: *Every time I get annoyed because my friend has again done better than I, I tell myself that we are friends and not rivals, and I try to be happy for him for his good results and I tell him*. The hypothetical example shows that Then-parts of plans can include more than cognitive processes. Along with reappraising the relationship to the friend, which results in being happy for him, the formulation comprises a behavioural aspect, namely telling the friend that one feels happy for him. The reasons it was decided against restricting the tutees to solely cognitive processes in the formation of the Then-parts of their plans are outlined in detail in chapter 2.2.2.6. It refers to the circumstance that, in practice, not only different strategies of emotion-regulation interplay and occur simultaneously, but processes of emotion-regulation equally cannot be seen in isolation from processes of the regulation of thought and action. To account for that, in the intervention material, two of three examples for Then-parts of If-Then-Plans include behavioural aspects in addition to cognitive processes:

Figure 23

Excerpt from p. 12 of the interventional material. Tutors´ version for 1:1 condition: Examples of Then-parts of If-Then-Plans

In den **Dann**-Teil des Plans kommt, wie du die Situation für dich so neu bewerten willst, dass „dein" negatives Gefühl abnimmt und du deine schulischen Ziele besser erreichen kannst.

Einige Beispiele:

„…**dann** mache ich mir klar, dass ich das selbst ändern kann: Wenn ich mich beteilige, ist mir weniger langweilig. Und meine Note in Deutsch ist besser."

„… **dann** sage ich mir, dass ich gut vorbereitet bin und die Situation eine Chance ist, das zu zeigen. Und dass ich das Vortragen üben kann, um darin besser zu werden."

„…**dann** mache ich mir klar, dass ich dem nicht hilflos „ausgeliefert" bin, sondern mein Problem deutlich machen kann: Ich gehe zu ihr/ihm hin und sage, dass es mir zu schnell geht und frage, was ich machen kann, um besser mitzukommen."

The one example from a tutee´s plan already referred to already (comp. chapter 6.2.2.6., e.g.) shows that emotion-regulation strategies in practice indeed occur simultaneously, here in the form of cognitive reappraisal combined with taking to action. The tutee reappraised the situation in setting a focus on the positive value that topics she might present, or comment on in lessons, might have for her. (*I should simply start [my comment, S.M.] before I tell myself it is stupid and see if the topic could be interesting for me.*) In the actual If-Then-Plan (which is orientated towards the example from the training material, comp. figure 23 above) she included taking to action: *Every time I feel ashamed to present something in front of the class, I try practicing presenting to become better and more confident at it so that I do not have to feel ashamed.*" In another plan, cognitive reappraisal is added to by a response-focused strategy in the form of decreasing physical symptoms of anxiety: "Every time I have to present something in front of the class, I take a deep breath and tell myself that I can manage the situation."

Further considerations of how reappraisal as an emotion-regulation strategy was expected to be employed in If-then-Plans in the study at hand relate to different levels of abstraction. The second example (*Every time I have to present something in front of the class, I take a deep breath and tell myself that I can manage the situation.*) is less specific than the first one (*Every time I feel ashamed to present something in front of the class, I try practicing presenting to become better and more confident at it so that I do not have to feel ashamed.*) Gollwitzer and Sheeran (2006) suggest that further research on Implementation Intentions might integrate responses that are less specific than what has been suggested so far to make plans effective, and that Then-components should "facilitate multiple and various goal directed responses" (Gollwitzer & Sheeran, 2006). They address the example of self-efficacy beliefs that could be improved by Implementation Intentions, or changes in motivation relevant beliefs (as habitualized patterns of appraisal, for example). The way in which tutees are introduced to constructing Then-components of plans in the intervention at hand leaves open how specifically reappraisal relates to its object, be it the selected emotion itself, an antecedent of it, or a social variable in the classroom- or school-situation. Plans, theoretically, can range from *Whenever I get bored in poetry lessons, I think of Shakespeare and how cunningly and beautifully he captures the bottom of our souls and hearts, and then I know why poetry is important*. to *Whenever I get hopeless when an exam lies on the table in front of me, I tell myself that I am not at the mercy of the others but can influence myself what is happening.*, with the latter Then-part of the plan being an example of the unspecific response that has the potential to facilitate different goal-directed responses depending on the concrete subject and exam-topic and other situational factors.

The process of considering possible antecedents for the negative emotions that tutees identify as impeding goal attainment most in the intervention is prepared, moreover, in Mental Contrasting at an earlier stage of the material. Tutees already reflect upon possible causes of "their" emotion to impede goal attainment in step 5 of the training material when applying Mental Contrasting. As outlined in chapter 2.4.3. it was expected that in this step, the

obstacles perceived to stand in the way of goal attainment would often be the causes of the negative emotions identified to impede goal striving. In other words, as a tutee, for example, considers that boredom often stands in his way of getting good oral grades in German lessons, he might, being asked to consider what hinders him from feeling less bored, draw on the causes of being bored. These, in turn, can be manifold, from teachers´ incapacities to make lessons interesting to a perceived lack of impulse control in the tutee, or even an awareness of the mechanism that underly being distracted.

Resuming which conditions framed the formation of Then-parts of the If-Then-Plans constructed by the tutees in the present study, it can be stated that analogical to the quite complex situations in which tutees formed these plans, the process of reappraisal was quite complex, and its constituents theoretically were manifold. This concerns the sorts of emotions to be regulated due to the circumstances that sometimes social and achievement aspects of situations occur together. It furthermore concerns the numerous possible antecedents of selected emotions and which of them the tutees finally choose to reappraise. Additional to reappraisal as a cognitive process, elements of other strategies of emotion-regulation, and also the regulation of action (the regulation of thought is an inherent part of reappraisal and therefore falls under emotion-regulation in this case) in view of goal attainment could be included in the Then-parts of plans. At last, reappraisal was expected to be employed on different levels of abstraction, from specific responses in Then-parts to addressing abstract variables as self-efficacy beliefs or personality traits. The reason for not defining conditions of reappraisal more closely is the consideration that emotion-regulation needs to be adapted to the specific situations, conditions, and personalities the tutees come with to be effective in terms of achievement and well-being. Supplying tutees, for example, with precise plans how to regulate a predefined emotion, it would be unambiguous as regards the results of the study, which variable exactly caused or did not cause the hypothesized decline of values for negative (achievement) emotions. Nevertheless, the preselected emotion might not be relevant for all tutees, and the narrowly defined plans to implement emotion-regulation might not match the personality of the tutees or the situation they perceive as emotionally problematic in school-contexts.

Proceeding through the interventional material, before forming Then-parts of If-Then-Plans, tutees were introduced to the strategy of reappraisal as an emotion-regulation strategy. For this purpose, two different views on one situation were suggested in the material. Tutees were asked to consider, which emotion could be elicited by the two views:

Figure 24

P. 10 of the interventional material. Tutors´ version for 1:1 condition: Examples for two views on one situation

Bevor wir den Plan schreiben können, brauchen wir noch einen Zwischenschritt:

In dem geht es darum: **Wie** kannst du „dein" Gefühl so steuern, dass es dich weniger stört und deinen schulischen Zielen nicht mehr im Weg ist?

Dazu hat ein schlauer Mensch – Epiktet – gesagt:

Es sind nicht die Dinge selbst, die uns beunruhigen, sondern die Vorstellungen und Meinungen von den Dingen.

Ein Beispiel: Der Lehrer schaut zu dir herüber, einige Sekunden lang, während einer Stillarbeitsphase.

1: Du könntest denken: „Wieso guckt der/die mich so lange an? Will der/die mich kontrollieren?"

Welches Gefühl könnte mit diesem Gedanken verbunden sein? _____

2: Du könntest dir auch eine andere Vorstellung, eine andere Meinung zum Handeln des Lehrers bilden, z.B.: „Er/Sie möchte sehen, ob ich zurechtkomme mit den Aufgaben, er/sie möchte mich unterstützen"

Welches Gefühl könnte mit dem Gedanken verbunden sein? _____

Was meinst du, wie deine Reaktion wohl wäre? (Tutee äußert sich ggf.)

In a next step, tutees are related back to their individual situations and are asked to consider which new view on it might lead to more positive feelings. Tutees are also made aware at this stage of the circumstance that emotional reactions are often automatized, and that it is useful to become aware of these automatized, habitual reactions to find new ways of appraising the situation.

Figure 25

P. 11 of the interventional material. Tutors´ version for 1:1 condition: Illustration of the effects of reappraisal

Du siehst, ein und dieselbe Situation kann man verschieden bewerten. Je nachdem, wie du das tust, kommen unterschiedliche Gefühle dabei heraus, die auch unterschiedlich stark sein können.

Wenn du nun „dein" Gefühl steuern möchtest, weil es dir und deinen schulischen Zielen in bestimmten Situationen im Weg steht,

kannst du versuchen, die Situationen, in denen es aufkommt, für dich **neu zu bewerten**, und zwar so, dass ein **positiveres Gefühl** daraus folgt.

Dabei solltest du Folgendes beachten:

1: Manchmal reagiert man schon „automatisch" auf etwas. (z.B. auf Gedichte im Deutschunterricht: „Langweilig"). Da ist es wichtig, ein wenig **Abstand** zu schaffen, um die automatische Reaktion zu unterbrechen und ruhiger zu reagieren („Halt stopp. Jetzt gucke ich mir erst mal genauer an, was wir überhaupt machen.")

2: Denke an deine schulischen Ziele: **Welche neue Sicht auf die Situationen** könnte dir helfen, diese Ziele zu erreichen?

Versuche dazu einige Ideen aufzuschreiben:

_____

_____

_____

_____

_____

Hier helfen, eine geeignete Strategie der Neubewertung der Situation zu formulieren. Bitte Zusatzseite zu 9 (9.1.) beachten.

After page 12, on which tutees are given examples of If- and Then-parts of If-Then Plans, Then-parts of plans are finally prepared, and with them both parts. On the last page of the material the tutees are now asked to formulate their individual If-Then-Plan:

Figure 26

P. 13 of the interventional material. Tutors´ version for 1:1 condition: Form for individual If-Then-Plans

Dein Plan:

Immer, wenn…,

_____

_____

_____

_____

_____

dann….

_____

_____

_____

_____

_____

Auch hier bitte den Tutte unterstützen – s. Zusatzmaterial 9.1.

Bitte schreibe nun du den Plan auf die beiliegende Karteikarte und lege die in dein Mäppchen.

Wichtig ist, dass du so oft wie möglich versuchst, den Plan anzuwenden. Es soll ja später überprüft werden, ob er dich auch tatsächlich unterstützt hat. Dazu musst du ihn natürlich greifbar haben.

2.4.5 Processes of generalization for If- and Then-parts of If-Then-Plans

In the hypotheses formulated in chapter 2.7., we assume processes of generalization for both the situations identified in If-Then-Plans in which tutees apply reappraisal as an emotion-regulation strategy as well as for the concrete strategy of reappraisal tutees formulate in the Then-part of their plans. This assumption bases on fundamental principles of learning and behaviour. Most definitions of *generalization* in psychology draw on learning theory and the principles of classical and operant conditioning and observational learning in the sense of concluding from a part of something to the whole of it. (Wirtz, 2014) More concretely, they state, that reactions that have proven to be successful ones to certain stimuli are adapted to a wider range of stimuli that are perceived as similar. (Stangl, 2021) In the case of the study at hand, generalization would not only apply to situations in which negative achievement emotions occur, i.e., to stimuli, but also to the reaction as such. The (more or less) concrete strategy (comp. chapter 2.4.4.) of reappraisal that tutees formulate in Then-parts of plans was expected to be applied in similar situations to the ones identified in the plans in a manner that includes the adaptation of reappraisal to this new situation. Depending on the specificity of reappraisal, this might necessitate very little change, as in quite general reappraisals as in the following familiar example (comp. chapter 2.4.4., e.g.): *Every time I feel ashamed to present something in front of the class, I take a deep breath and tell myself that I can manage the situation.* This way of reappraising the specific (achievement) situation identified here – in which shame impedes successfully presenting results – in the form of telling oneself that one has control over what happens, can be applied to a wider range of situations in which one is ashamed, and moreover to those in which one is angry, anxious, bored, or hopeless. In an alternative If-Then-Plan formulated by the same tutee, the way of reappraising the same situation would have to be adapted in other, similar situations: "Every time I feel ashamed to present something in front of the class, I try practicing presenting to become better and more confident at it so that I do not have to feel ashamed." In situations characterized by other negative (achievement) emotions, a generalized form of this appraisal could take the form of something as *Every time I feel anxious/hopeless/angry for fear of compromising myself, I approach the situation and/to practice how to face it to later feel less anxious/hopeless/angry.*

Such processes of generalization often occur outside people´s awareness, as is typically the case in observational learning and classical and operant conditioning. In achievement contexts and the literature of pedagogic psychology, such unconscious processes of generalizing certain experiences are often topicalized, and they often concern negative emotions in school contexts, as anxiety, shame, and helplessness, for example. (Bovet, 2000a)

However, definitions of the process of generalization also go beyond learning theory and describe a process of reasoning, in which the scope of application for a certain conclusion that is made for one, or few specific cases, is expanded to more cases that have similarities with the original one(s). (Stangl, 2021)

Whether the processes of generalization assumed for the intervention at hand – and real situation following the intervention – are wholly unconscious, or initially conscious and then automatized, as Strategic Automation functions in the Implementation Intentions as such, is not clear. According to learning theory, they tendentially would happen outside tutees´ awareness, but it is also imaginable that conscious deliberation in a new situation leads tutees to reappraising the strategy formulated in the Then-part of their plan and adopt it in that novel situation, as exemplified above, with processes of Strategic Automation presumed to follow.

Overviewing theoretical contexts and frameworks for the development of the intervention at hand, at this stage of the present work reference has been made to relevant theoretical aspects of emotions and emotion regulation in achievement contexts, and to self- and emotion-regulation from the perspective of goal psychology. It has been subsequently outlined how training emotion-regulation was implemented in concrete school contexts employing Implementation Intentions with Mental Contrasting.

In the following, it will be referred to another central methodical decision for the interventional design, which relates to so-called social forms of teaching. Considerations were such that the social form in which the intervention was to be conducted should contribute to realizing the purpose of the intervention, i.e., regulating negative emotions more adaptively. We decided against traditional classroom settings and for peer-to-peer tutoring settings in dyadic and in group structures due to the positive effects of peer-to-peer tutoring in cognitive, motivational, and social regards. These effects, and the circumstance that they are associated with the constructs of empathy and social support, are well-documented in the respective literature (which will be referred to below in chapter 2.5.). In the context of the intervention at hand, the cognitive, motivational, and social benefits of peer-to-peer tutoring were expected to positively affect the adaptivity of If-Then-Plans that tutees construct in the intervention. This effect was supposed to be moderated by the direct positive effects of peer-to-peer tutoring on (achievement) emotions. This, in turn, plays an important role from the perspective of students´ well-being and mental health.

2.5   Peer-to-peer tutoring: Conceptions and effects

This chapter refers to what is understood by the term and method (resp. social form, in didactic terminology) of *peer-to-peer tutoring*, before outlining its positive effects on learning, achievement, and – central to the work at hand – achievement emotions as mediators of achievement - in cognitive, motivational, and social regards. It will then be explained how empathy and social support, two constructs that encompass much of what is considered the social benefits of peer-to-peer tutoring, are reported to likewise moderate the overall positive effects of the method. The constructs will be described relating to the literature on peer-to-peer tutoring and construct descriptions in the manuals of the instruments employed to

measure them in the present intervention. Following, it will be outlined how social support and empathy, moderating the overall positive effects of peer-to-peer tutoring, are expected to positively affect the adaptivity of If-Then-Plans constructed in the intervention, and (partly through this process) to be associated with a decrease of values for negative achievement emotions, respectively an increase of values for positive ones. The mechanisms underlying will be considered from two perspectives. On the one hand, positive effects of peer-to-peer tutoring as moderated by empathy and social support directly act upon processes of forming If-Then-Plans. On the other hand, they positively affect achievement emotions via their antecedents as well as directly, which in turn was expected to be connected to more adaptive plans, the form of which improved achievement outcomes take in the present intervention. Lastly, it will be addressed how we expected the mentioned positive effects of peer-to-peer tutoring to be stronger in dyadic conditions than in group-conditions of the intervention.

2.5.1   Peer-to-peer tutoring: Conceptions

What is here referred to as *peer-to-peer tutoring* has various names that are used ambiguously in the literature. Dash et. al. (2015) give an overview of the corresponding terminology and its usage: Besides peer-to-peer tutoring, *peer (mediated/assisted) learning*, *peer teaching* and *partner learning* are used, to name some. Authors do not always refer to the same settings by these terms. Concerning age, some include settings with students of the same age only, others also include settings with students of different ages (Kalkowski, 1995). The latter is sometimes also referred to as *cross-age tutoring*. A broad, common-ground definition of peer-to-peer tutoring reads: "[A] system of instruction in which learners help each other and learn (themselves) by teaching" (Dash et al., 2015). In the study at hand, tutees profit from the arrangement to a greater extent than tutors, as they are the ones to achieve new competencies on a larger scale than the tutors, which is an individually adapted strategy for emotion-regulation in personally significant situations in school contexts. Yet, also tutors might profit from the intervention, as they are expected, by means of implicit learning, to employ reappraisal more often at T2 than at T1. Peer-to-peer tutoring is reported to be commonly realized in dyadic structures or smaller groups. It can be reciprocal, when tutors and tutees change roles according to set criteria (e.g. time), or roles can be set, as is the case in the study at hand, in which senior grade students, called tutors, "instruct [ ] another child in material on which the first is an expert and the second a novice". (Damon & Phelbs, 1989) The "other child", or children in this case, are the tutees of grade 7 or 8.

Another narrower definition of peer-to-peer tutoring also applies to the case at hand, as tutees receive individualized instruction "through a structured program supervised, planned and monitored by a teacher" (Boud et al., 2001): The "structured program" is defined by the interventional material that specifies steps in which tutors and tutees proceed towards the

tutees´ constructing If-Then-Plans for emotion regulation. It is also set by the two given factors dates and times at which the intervention takes place. At all times, academic staff familiar with the material and procedure were present and functioned as contact persons to organize procedures and be available in case tutors or tutees had questions to ask. Both conditions of the intervention, 1:1- and group-conditions, lie within the range of what is understood by peer tutoring (or the concepts and terms used synonymously) in the literature as outlined above. Detailed information as to the conception of the material is given in chapters 2.6.1 (*Sources*) and 2.6.2. (*Didactic-methodic aspects*), and as to the remaining frame conditions of the interventional program in chapters 3.5. (*Research design*) and 3.6.1. (*Proceedings through the intervention*).

2.5.2 Peer-to-peer tutoring: Effects

As already addressed, there is evidence that the constructs of empathy and social support, themselves being elements of the positive effects of peer-to-peer tutoring in social respect, contribute to explaining the overall positive effects of peer tutoring on achievement processes and outcomes. (Johnson& Bailey, 1974; Krautter et al., 2014; Schwarz, 2016) In the following, the two constructs will be described in the first place, drawing on the literature on peer-to-peer tutoring and construct descriptions in the manuals of the instruments employed to measure them in the present intervention, before the positive effects they moderate are concretized and explained for the intervention at hand.

2.5.2.1 Social support and empathy: Construct descriptions

In the literature on peer-to-peer tutoring, construct descriptions of empathy and social support are not quite sharply contoured and overlap. The latter is also valid for construct descriptions in the manuals of the two instruments that were employed in the present intervention to measure the variables - the *Berlin Social Support Scales* (*BSSS*) (Schulz & Schwarzer, 2003) for social support, and the *Saarbrücker Persönlichkeitsfragebogen* (*SPF*) (Paulus, 2009), a German adaptation of the *Interpersonal Reactivity Index* (*IRI*) (Davis, 1983), for empathy.

2.5.2.1.1 Empathy

In the literature on peer-to-peer tutoring, empathy is seen as being connected to a type of communication characterized by more personal appreciation and less evaluation than is associated with the role of the teacher (Johnson & Bailey, 1974). Emphatic communication by tutees is associated with the feelings of security and being understood. (Krautter et al., 2014) Emphatic communication requires the ability to take the perspective of the other, in the case of the present study it is the tutors´ ability to take tutees´ perspectives. Damon & Phelbs (1989) ascribe positive social and cognitive effects of peer tutoring to an improvement in perspective-taking that is inherent in the method.

Perspective taking (PT) is one of the four subscales of the *Saarbrücker Persönlichkeitsfragebogen (SPF)* (Paulus, 2017). The *SPF* comprises four subscales that measure different aspects of the construct of empathy that are seen as interconnected, with empathy as an overall construct understood as the ability to understand another person´s emotional condition or context and share it. (Paulus, 2009) Two of the subscales relate to subconstructs that are connected to interpersonal capacities that we expected to positively affect tutor-tutee interactions. Perspective taking is the cognitive aspect of the multidimensional construct and measures the capacity to see circumstances spontaneously from the perspective of another person. It is associated with better social acceptance and following from it, greater self-confidence and consequently is connected to interpersonal abilities. (Paulus, 2009) The emotional capacity to emphasize with another person is measured by the subscale of *emphatic concern (EC).* Empathic concern relates to feelings as compassion or concern for others. Theoretically it is not clear how this is connected to sociability (Paulus, 2009). Yet, we considered it to have a positive effect on the interaction between tutors and tutees in that sympathizing with the tutee and taking an interest in him/her should be connected to a motivation to help and support him/her, i.e., lead to better conditions for forming adaptive If-Then-Plans.

2.5.2.1.2 Social support

As addressed above, Krautter et.al. (2014), in a study conducted in peer-to-peer tutoring in medical education, report that tutees associated social support with respectful and supportive relationships that are not based on fear.

In the manual of the *Berlin Social Support Scales* (*BSSS*) (Schulz & Schwarzer, 2003), the instruments employed in the present intervention to measure social support in an adapted version, the construct in a multidimensional approach comprehends cognitive and behavioural aspects of social support as subjectively received by individuals. It is subdivided

into six subconstructs, of which the manual defines two as central. One is the social support that an individual expects to be available, and the second is the social support a person feels to actually have received in a difficult situation. In the present intervention, the latter subconstruct was measured in an adapted version of the respective subscale *Actually Received Support*. As the scale is retrospective with strong reference to a concrete situation, and as such suited to measure how tutees perceived tutors´ support in an intervention having just taken place. The other subscales of the construct measured in the BSSS do not capture the positive social effects of peer teaching-structures as precisely. Apart from the social support recipients expect to be available, they relate to how much potential recipients are in need for support, to what extent they seek it so, and in how far they take an effort to not overstrain supporting individuals. We decided to focus on the aspects of how much social support tutees perceived themselves receiving in the present intervention. [18]

In describing the constructs further, the manual of the BSSS distinguishes between the subcategories of emotional support (EMO), instrumental support (INST), informational support (INF) and satisfaction with support (SAT). The items of the adapted subscale in the present intervention measure emotional and instrumental support and one item refers to general satisfaction with the support tutees perceived themselves receiving.

The items of the adapted subscale *Actually Received Support* show that the constructs of empathy and social support as understood in the two manuals of the respective instruments (*SPF* and *BSSS*) overlap, which is equally valid for the original items of the *BSSS*, as adaptations are made to contexts, not to contents of subconstructs, mostly in the form of replacing *this person* by *my tutor* (comp. table 14 contrasting original and adapted items in chapter 3.4.). In the adapted version, item 5 measures the amount of empathy that tutees believe their tutors to have shown. Moreover, social acceptance is part of the construct, as can be seen in item 1 (*My tutor showed that he/she likes and accepts me*.), as is respect and personal appreciation. (Item 6: *My tutor made me feel valued and important*.) Instrumental aspects of perceived social support relate to the degree of reliability and availability of tutors and how much they were believed to have helped.

The following chapters refer to the overall positive effects of peer-to-peer tutoring as moderated by the two constructs of empathy and social support. In the present intervention, these effects concern the process of constructing If-Then-Plans for reappraisal and the adaptivity of these plans, and achievement emotions firstly in their role in that process and secondly concerning emotional well-being.

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[18] For more detailed information as to the subconstructs belonging to social support in the *BSSS* see chapter 3.4.

2.5.2.2   Effects of peer-to-peer tutoring on cognition, motivation, and social functioning as moderated by empathy and social support and their manifestation in the construction of If-Then-Plans in the present intervention

The benefits of peer-to-peer tutoring in these areas are academically well-founded. Legenhausen (1998) resumes that "the effects of motivational increase, the promotion of solidarity [among tutors and tutees, S.M.], and personal development as well as the gain in knowledge have been verified in numerous research projects". Against the background of this state of research, the present study does not aim at verifying the validity of findings, but at utilizing them for the intervention conducted. Consequently, a relatively comprehensive survey of the relevant literature will be given in the following.

As cognitive achievement is concerned, both tutors and tutees are reported to show better results than students in traditional teacher-student classroom interactions. For example, a meta-analysis of the results of 65 evaluations of peer tutoring programs showed medium effect sizes for tutees´ academic performance in examinations compared to control students. The same meta-analysis also reports positive effects for the tutors in these programs. (Cohen et al., 1982) Peer-to-peer tutoring is also reported to effect a more complex understanding of contents in tutees than teacher-students settings do. (Krautter et al., 2014) A "more complex understanding" is specified by Kelchner & Martin (1998) as the attainment of so called "fluid knowledge" which is the opposite of "inert knowledge" (Bovet, 2000b). Fluid knowledge can be adapted to new, hitherto unfamiliar situations and as such is indispensable particularly in the world of today with its constantly changing demands in social and working worlds. Moreover, tutors are expected to improve their skills in meta reflection, as they are concerned with processes of knowledge acquisition. (Kelchner & Martin, 1998) These positive effects are partly connected to the circumstance that students in peer-to-peer tutoring deal with contents more actively, and more intensely and individually, as there is more time for interactions due to due to fewer tutees mentored by one tutor than there are students with one teacher in traditional classroom settings. (Büttner et al., 2012) Tutees are involved to a greater extent, as they are more often addressed directly.

Greater participation and more personal involvement are also connected to higher motivation. Moreover, the absence of fear in peer-to-peer tutoring conditions positively affects intrinsic motivation. Another reason why peer-to-peer tutoring is generally reported to increase students´ intrinsic motivation is the above mentioned active role that tutees have compared to traditional classroom settings when dealing with contents, discussing possible solutions for tasks or approaches of handling them, which moreover leads to a greater amount of perceived autonomy and a more positive attitude towards contents compared to teacher-classroom settings (Büttner et al., 2012). Likewise, Dash et. al. (2015) state that cooperative forms of interaction in the absence of anxiety lead to an increase in students´ commitment. Weyns et al. (2018) in their findings confirm that the social advantages of peer-to-peer

tutoring lead to an increase in motivation and that improved peer acceptance can enhance students´ engagement.

As regards social learning, students perceive peer tutoring relationships as more respectful and more supportive than those between teachers and students. Tutees moreover report that tutors provide social support through relationships that are "non-fear-based". (Krautter et al., 2014) In student-teacher interactions, fear is more prone to being evoked through some of the (official) functions that are part of the occupational profile of teaching[19] (Kultusministerkonferenz, 2019), especially when they are mutually exclusive, as evaluating achievement processes and outcomes and motivating students for exactly these at the same time, for example. Peer-to-peer tutoring enhances social acceptance. Büttner et al. (2012) found that especially students with learning difficulties get socially more accepted in peer-to-peer tutoring settings than in traditional teacher-student interactions. Peer-to-peer tutoring also promotes the development of close social relationships as well as the improvement of social competencies, such as communication-skills or the ability to deal with conflict. (Büttner et al., 2012) A meta-analysis distinguishing among different forms of peer-tutoring (same-age vs. cross-age tutoring, interventions with and without reward contingencies) found that the effects of cross-age tutoring on social outcomes were higher than those of same-age tutoring forms. (Bowman-Perrott et al., 2014)

The moderating role of empathy and social support in peer-to-peer structures is partly associated with the absence of fear, as anxiety leads to cognitive underachievement, in that it entails limitations in attentional control and impedes performance in essential domains of executive functioning. (Eysenck et al., 2007; Zeidner, 2014) Learning strategies employed by anxious students are less flexible than those employed under the influence of positive emotions. (Frenzel et al., 2015) For a detailed account of the effects of anxiety on achievement and well-being compare chapter 2.1.5.1.2. The positive correlation of social support and belonging on the one hand, and decreases in anxiety on the other hand, is also emphasized in the literature on emotion-regulation, when is it recommended to plan interventions in emotion-regulation that "mak[e] "students feel socially more connected [to] decrease fear" (Jacobs & Gross, 2014). Frenzel et al. (2015) also state that anxiety, and negative emotionality generally, do not only have negative effects on cognitive performance, but also on motivation, and also social interactions are reported to be affected by processing deficits in the course of anxiety (Zeidner, 2014).

These findings that the literature documents about the positive effects of peer-to-peer tutoring in cognitive and motivational respect, are not primarily relevant in terms of general curricular standards and achievement goals in the present intervention. As stated above in the

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[19] These "areas of competency", as titled by the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, are the following functions of the professional profile: To teach, to educate, to diagnose and promote/support, to advise, to measure and evaluate achievement, to organize and administrate, to innovate and cooperate.

introductory passage of chapter this chapter (2.5.), positive effects of peer-to-peer tutoring as moderated by empathy and social support directly act upon processes of forming If-Then-Plans, which in the intervention at hand take the place of achievement outcomes. With more time for the interactions between tutors and tutees, and consequently greater involvement of tutees, as well as learning and achievement processes becoming more intensive, more individual, and more autonomous than in traditional classroom settings, If-Then Plans can be expected to be comparatively more effective. Individual conditions of the tutees, as for example relevant variables as proximal or distal antecedents of achievement emotions, or the social position of tutees in their classes, can be identified and more thoroughly taken account for, so that plans can be adapted more individually, which includes that the strategies chosen for reappraisal should be more adaptive in the situations which tutees have identified for the employment of reappraisal. This, in turn, should entail that the strategy is indeed employed in between T1 (when tutees have formulated their individual plans) and T2 (8 weeks later in which they had opportunity to utilize plans).

The moderating role of empathy and social support is derived from the circumstance that the outlined effects are expected to be the stronger, the more empathy tutors show towards tutees, and the more social support tutees feel to receive during the intervention: The more empathy tutors have and the more social support tutees perceive themselves receiving from their tutors, the greater should the extent be to which more intensive, more individual, and more autonomous forms of working with the training material come into effect. One could go as far as saying that it might depend on the tutors´ cognitive capacity of taking the perspective of tutees and on tutors´ emotional capacity to feel concern for tutees, i.e., on tutors´ empathy, as well as on the social acceptance, respect, personal appreciation and also on the reliability, and availability shown to tutees, if individual and intensive forms of interaction develop to be effective at all, while effective is to be understood in the above described sense, namely in how both tutor and tutee manage to figure out which are the crucial situational aspects, and those of the tutees´ personality, that should be at the center of the strategy of reappraisal finally formulated in the If-Then-Plan. If tutees do not perceive their tutor as respectful, appreciative, supportive, also in terms of granting autonomy, they will likely not be open enough about themselves and their situations to provide a basis for an effective plan. If tutors, in turn, have no capacities of considering things from their tutees´ perspective and to feel for him/her, they will not be able to understand the conditions they come with, which will also make it difficult to prepare for and form effective plans. These correlations are explicated in hypothesis 3:

Relations between scores for the employment of reappraisal before and after the intervention (hypothesis 1) are moderated by the amount of social support tutees perceive themselves receiving from their tutors (The higher tutees score for perceived social support, the greater the increase of scores for the employment of reappraisal from T1 to T2.) and by the amount of empathy the tutors report to have (The higher tutors score for emphatic capacities, the greater the increase of scores for tutees´ employment of reappraisal from T1 to T2.).

Comparing the interventional design of the present study to traditional classroom settings in school contexts, and how the whole process of preparing plans, i.e., working through the various stages of the interventional material, can be personally adapted to tutees to a far greater extent than it would be possible in classroom settings in which one teacher supports around 30 students in constructing If-Then-Plans, it must be stated that this differentiation of course must also be made for dyadic and group conditions in the present intervention. This will be referred to below in chapter 2.4.4.

As the present intervention aims at helping students to regulate negative achievement emotions they have in (individually identified) school context situations by reappraising (aspects of) situations in which these negative emotions occur, it is crucial to also consider the effects of peer-to-peer tutoring as moderated by empathy and social support from the perspective of (achievement) emotions, considering firstly the aspect of well-being and secondly how they affect the adaptiveness of the construction of If-Then-Plans.

2.5.2.3 Effects of peer-to-peer tutoring on achievement emotions as moderated by empathy and social support and their manifestation in the present intervention

As explicated in hypothesis 4 (see below and chapter 2.7.), we also considered it possible that, other than in the assumptions underlying hypotheses 1 and 2, tutees do not employ reappraisal (significantly) more often at T2 than at T1, but that scores for negative achievement emotions nevertheless decline from T1 to T2. In that case, we assumed that decline to be connected to positive effects of peer-to-peer tutoring on achievement emotions as moderated by the variables of social support and empathy:

Forming If-Then-Plans in which tutees formulate a strategy of reappraisal is associated with a decline of scores for negative achievement emotions from T1 to T2 for all negative achievement emotions, moderated by the amount of social support tutees perceive themselves receiving from their tutors (The higher tutees score for perceived social support, the greater the decrease of scores for all negative achievement emotions from T1 to T2.) and by the amount of empathy the tutors report to have (The higher tutors score for emphatic capacities, the greater the decrease of scores for negative achievement emotions from T1 to T2.).

Considerations as to these correlations can be integrated into Pekrun and Perry´s (2014) model of the Control-Value Theory of Achievement Emotions. On the hand, I would consider the addressed decrease in negative achievement emotions to not necessarily and only take its course over control and value. Yet, social support and empathy, as well as the overall positive effects of peer-to-peer tutoring they moderate, can certainly be considered as environmental factors causing control and value of achievement activities, which here mainly take the form of working on the interventional material resulting in the formation of If-Then-Plans. As

outlined above and indicated in the adapted model (comp. figure 5 below) peer-to-peer tutoring effects as mediated by empathy and social control concern the cognitive quality of instructions and tasks (though more intense and individual forms of interaction), as well as motivational quality and autonomy support. Working on a task intensely with a tutor who can relate to the individual concerns of tutees, while the time that is at the pairs´ or groups disposal can be individually adjusted, should be connected to (relatively) high values of perceived control. The same is expected to be valid for greater autonomy granted to tutees in peer-to-peer tutoring. Likewise, social support is expected to increase values of control, as tutees are aware of not being alone. For one thing, this can be understood literally when constructing their plans and tutors, for example, offer support and encouragement to tutees when they have difficulties (e.g., to identify aims they have in school contexts or in finding a way of reappraising a typical achievement situation that effects negative emotions). Beyond this, tutees, especially those without much social support, might transfer the feeling of not being alone, and being understood, to school contexts beyond the intervention. The association between social support and perceived value of achievement activities is resumed by Pekrun and Perry (2014). They state that to increase the perceived value of an achievement activity or outcome, classroom management should support cooperation among students instead of competition, and thus "fulfill[ ] students´ needs for social relatedness" (Pekrun & Perry, 2014), which they also expect to generally lead more positive emotions. Research on dyadic behaviour change interventions reports that increased self-efficacy, which is an antecedent of perceived control (Pekrun & Perry, 2014), as can be seen in the visualization in figure 5 below, is an "implicit mechanism of action" in dyadic intervention techniques. (Scholz et al., in press)

Moreover, from the perspective of emotional well-being and the expected adaptivity of constructed If-Then-Plans, it can be presumed that receiving appreciation, respect, acceptance, and realizing that someone can understand one´s position, will lead to positive emotions maybe even in more social than achievement concerns of working together on If-Then-Plans. Most probably, tutees will feel more hope than before that they can manage constructing plans, as well as hope to be able to cope more successfully with the emotionally difficult situations they identify in their plans. They might be happy and maybe even proud, especially those that normally do not receive much attention, to see that someone cares and is considerate. Their anger and hopelessness might decrease, relating to the situations for which they form If-Then-Plans, but also on a more general level presumably. At this stage, an aforementioned point that Heatherton and Wagner (2014) make might come into effect. They report that individuals tend to get aggressive as a reaction to social exclusion unless they see a chance to newly affiliate. For those that do feel socially excluded, the tutee-position in the context of the intervention might be such a silver lining of hope on the horizon in terms of getting at least some form of social recognition. Hoping for a positive change in the described manner, hopelessness can be expected to decrease, and if tutees feel ashamed, this can also be expected to decrease with someone supportive by their side. All the outlined effects are

certainly connected to an increase in motivation and a decrease in anxiety, for who feels more hope, happiness and pride, and less anger, hopelessness, and shame, will be less anxious at the same time.

Figure 5

Basic propositions of the Control-Value Theory of Achievement Emotions and Effects of Peer-to-Peer Tutoring. Adapted from Pekrun and Perry (2014)
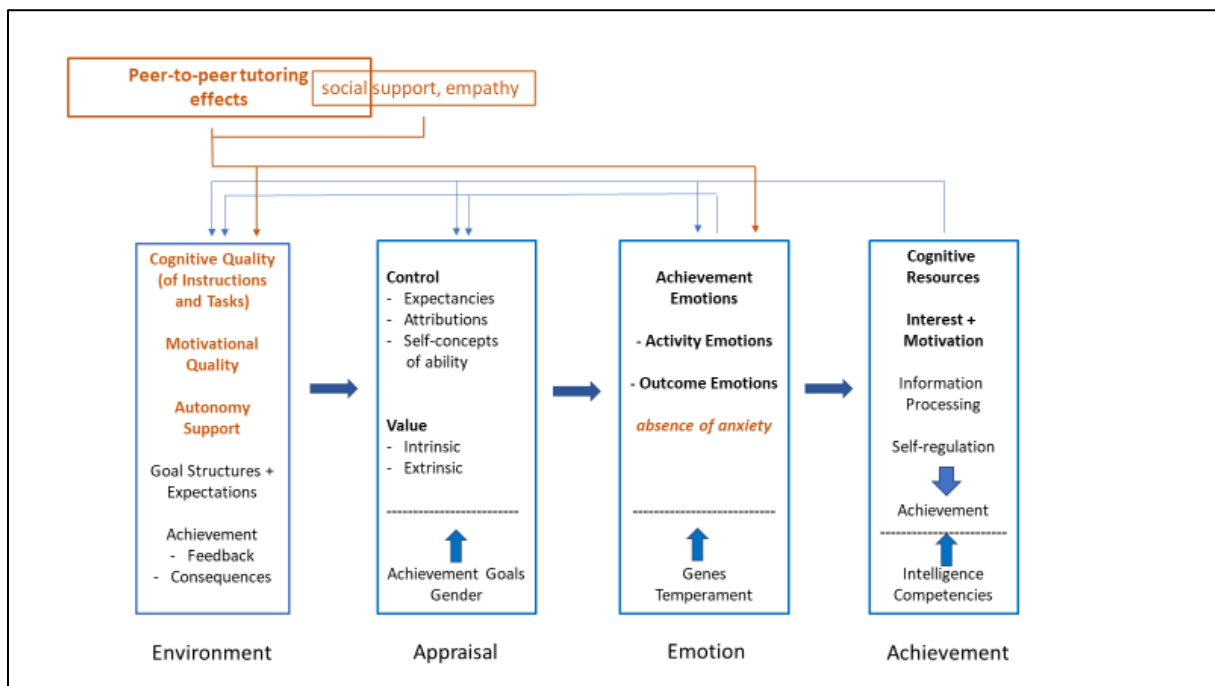
2.5.3   Interim résumé

In the chapter above, we outlined how the positive effects of peer-to-peer tutoring in cognitive, motivational, and social regard, as moderated by empathy and social support, manifest themselves in different ways and from different perspectives in the intervention at hand.

At first, through peer-to-peer tutoring´s positive effects on cognition, motivation, and social functioning, preparing the formation and formulating If-then Plans for reappraising, are directly positively affected, as outlined in chapter 2.5.2.2. At second, the benefits of peer-to-peer tutoring as mediated by social support and empathy can be considered from the perspective on the positive effects they take on achievement emotions, which mediate achievement processes and outcomes, i.e., the formation of If-Then-Plans. Peer-to-peer tutoring conditions and their effects are environmental factors in Pekrun and Perry´s (2014)

model of the Control-Value Theory of Achievement Emotions and as such function as antecedents of perceived control and value of achievement activities and outcomes. An increase in perceived value and control correlates with an increase in positive achievement emotions. This in turns is expected to positively affect constructing If-then-Plans for reappraising in specific situations that have been identified as personally relevant by tutees. When tutees realize, in the eight weeks to follow in between T1 and T2, that plans can be employed successfully, i.e., a situation really occurs, and the selected strategy of reappraisal can indeed be applied in these situations, again this is expected to correlate with an increase of positive and a decline of negative (achievement) emotions. Moreover, empathy and social support and their effects on cognition and motivation, are directly associated with an increase in positive feelings, as outlined in chapter 6.5.2.3.

Resuming, one more aspect needs to be addressed. Obviously, in the present study, data were acquired only for the mediators of the overall positive effects of peer-to-peer tutoring reported in the literature. We did not investigate how these positive effects on cognition and motivation would come into operation independent of their mediators. Reasons for this decision are addressed in chapter 5.3.1.

2.5.4   Comparing the positive effects of peer-to-peer tutoring as mediated by empathy and social support in dyadic and group structures of the present intervention

We expected the effects described above to be stronger in 1:1-conditions than in group conditions. This, on the one hand, relates to the construction of plans, which is explicated in hypothesis 5:

In 1:1-conditions the moderating effect of perceived social support and tutors´ empathy is higher than in group-conditions, which is associated with a greater increase of scores for the employment of reappraisal from T1 to T2 in 1:1-conditions than in group-conditions (hypothesis 1).

We expected the difference in effects to also relate to the expected decline of negative achievement emotions independent of the employment of reappraisal in the process of the intervention, which is explicated in hypothesis 6:

In 1:1-conditions the moderating effect of perceived social support and tutors´ empathy is higher than in group-conditions, which is associated with a greater decline of scores for negative achievement emotions from T1 to T2 in 1:1-conditions than in group-conditions for all negative achievement emotions (hypothesis 4)

These hypotheses ground on the assumption that the advantages of peer-to-peer tutoring in cognitive, motivational, and social regards, as moderated by empathy and social support, have

stronger effects with a decreasing number of tutees allocated to one tutor. In dyadic conditions, tutors have more time for each tutee than in group conditions. Following, in dyadic conditions the involvement of tutees as well and the intensity of working together through the material towards the formation of plans is expected to be higher. Even though tutors certainly can relate to tutees personally in group structures, working in groups necessitates to find common grounds as regards the pace of working, and instructions cannot be individualized to the same extent as this is possible in dyadic structures. Examples (of how to proceed at various stages of the material) would generally be given for all, possibly adapted to one or two students individually in case they need additional support to process a certain step in the material, but it is obvious, that this cannot be done for 8 or 10 tutees to the same extent as this is possible in dyadic conditions. Likewise, tutors are more limited in group conditions as regards identifying individual preconditions as predispositions tutees come with. These can be, for example, environmental conditions (parents´ expectations, the tutees´ social position in class, e.g.) or psychological constructs as self-efficacy concepts or habitualized patterns of attribution that are antecedents to (achievement) emotions.

Social support and empathy, that moderate the above effects, are equally expected to take greater influence in 1:1- than in group conditions. As for empathy, tutors in dyadic conditions can engage with one perspective to take, and consequently can do this in far greater detail and elaborateness than tutors in group-conditions. The same is most likely valid for the degree of concern that can be developed and expressed by tutors. As for social support, acceptance, respect, and appreciation can be shown in both conditions on a general level, in the form of a basic attitude tutors come with (or not). Yet, in dyadic conditions, it can be related more individually, i.e., tutors can ex- or implicitly let tutees know for what they are accepted, respected, and appreciated, which in turn will appear to be more credible to tutees. As concerns reliability and availability, it is self-evident that with more time for tutees, tutors can be more available, which will appear to be more reliable on tutees.

Firstly, the described differences were expected to manifest themselves in greater commitment to the work with the interventional material and its goal of constructing and employing individual strategies of reappraisal for the situation tutees have identified, and consequently to more frequently employing plans in the time between T1 and T2 in dyadic conditions compared to group conditions. As outlined in chapter 2.5.2., greater participation of tutees, more personal involvement and a decrease in anxiety positively affect intrinsic motivation. Secondly, we expected the described differences to be associated with more adaptive If-Then-Plans in dyadic than in group conditions (comp. 2.5.4.) Following, we anticipated a stronger increase of scores for the application of reappraisal (hypothesis 5) in dyadic conditions than in group-conditions. The differences in effects were moreover expected to manifest themselves, via functioning as distal and proximal antecedents of achievement emotions, in a greater decrease in scores for negative achievement emotions (hypothesis 6) in dyadic than in group-conditions. This, in turn, is expected to positively affect

emotional well-being as well as the adaptivity of If-Then-Plans - as emotions in achievement have the known effects on the moderators of achievement outcomes – to different extents.

Two items of reflection that will be taken up in chapter 5.2. of this paper will be briefly addressed here. One is the consideration that the positive effects of peer-to-peer tutoring can only be brought to bear under the condition that tutors *are* empathic and *do* provide social support. If tutors do not have the capacities for empathy and are not in a position (willing or able) to provide social support, the outlined direct and moderated positive effects are certainly reduced, if not turned into their opposite. Secondly, group-settings might make it difficult for the positive effects of peer-to-peer tutoring as moderated by empathy and social support to come into play because of different aspects of group dynamics. Students of grade 7 and 8 might not reveal motives or concerns (as e.g. school context goals they have, or conditions that put them under pressure, as being anxious) that might entail social rejection, and regardless of the fact that the training is not arranged in a way that tutees in group conditions are asked to present their concerns in front of the group, students do look into each other´s material, and if they do not, the given possibility alone causes group-pressure.

In implementing measures of training emotion-regulation in school contexts, these circumstances must be accounted for, which concretely means that tutors need to be suited and qualified for their role, which is one condition under which the effects of dyadic behaviour change interventions are highest, as reported in the literature (Scholz et al., in press). Moreover, settings need to be such that tutees do not fear social pressure. It follows from what has been recounted above, and from recent research on dyadic behaviour change interventions, that dyadic training conditions are assumed to be better suited than group conditions for implementing emotion-regulation training. These considerations will be taken up in chapter 5.6. when discussing options of implementing the intervention at hand.

2.5.5   Effects of the intervention for tutors

What has not been considered explicitly so far is what positive effects the intervention might have for tutors. It is parenthetically mentioned in chapter 2.5.1. that tutees profit from the intervention at hand to a greater extent than tutors. And indeed tutors´ main role is to provide functional, subject-specific, social, and emotional support to tutees in working through the material to formulate If-Then-Plans for reappraisal. Yet, tutors in preparing for their role, gain relatively detailed knowledge about emotions in education and the connected variables, about self-and emotion regulation, and about motivational and goal psychology. Beyond procedural knowledge (which is knowledge about how processes function, e.g., about how to form an If-Then-Plan) and semantic knowledge (which is related to facts, e.g., that perceived control over achievement processes depends on self-concepts of ability), we expected tutors to learn to employ reappraisal as an emotion-regulation strategy implicitly and via

observational learning, and thus to more often apply it after the intervention (at T2) than in the beginning of it (at T1), which is explicated in hypothesis 7. Implicit learning is learning that takes place automatically, in that the learner is not aware of the learning process. Likewise, implicit knowledge can generally not be retrieved by a conscious act of will. (Wirtz, 2014) Implicit knowledge, form the perspective of memory psychology, does not proceed from sensory memory to long-term memory via working memory, but directly from the first to the second without being consciously processed, which is typically the case for motor skills or familiar information that one already expects to receive. (Bovet, 2000b). It also concerns conditioning processes, which in the present intervention take place as observational learning. Tutors do not construct If-Then-Plans for themselves, but they concern themselves so thoroughly with the variables that determine the constitution of If-parts and Then-parts and the processes of mentally linking both that we presumed it likely they might relate these processes to their own needs of emotion-regulation in situations that are significant for them, in so far as they are connected to the occurrence of negative (achievement) emotions that impede well-being and/or achievement goals. Of the factors that are reported to foster observational learning, two are presumably relevant for tutors in the present intervention. The first is that a need for action orientation is perceived, and the second is that the object of observation is clearly discernible and salient. (Bovet, 2000a) Relating this to tutors´ situations in the intervention at hand, it can be presumed that they have a need for adaptive emotion-regulation strategies themselves. At second, as stated above, adapting strategies for reappraisal to the situations as personally significant for tutees is practiced in such detail that relevant components should be clearly discernible and salient. Conceding, it needs to be mentioned that observational learning in the case at hand does not directly relate to behaviour that is shown and might be adapted implicitly by tutors, but to making plans for such behaviour. However, it might be activated in situations that are suited for employing emotion-regulation strategies that tutors have adapted implicitly via observational learning on the grounds of Strategic Automation and the strong mental link that is established between the situations identified relevant for acting and the implementation of planned thought or action connected to them.

As regards theoretical contexts and frameworks for the present study, the interventional material has recurrently been addressed. I have outlined how theoretical considerations as to emotions and emotion-regulation in education, motivational and goal psychology as well as, more specifically, Implementation Intentions with Mental Contrasting, are accounted for in the construction of the material. What needs to be addressed yet is how didactic-methodic considerations materialize in the construction of the material as well as the sources it is built on.

2.6   Conception of the training material

Considerations relating to content and didactic-methodic aspects of the interventional material are already addressed throughout chapter 2.4., in which theoretical aspects necessitate concrete reference to the developed material. To avoid redundancies, these aspects are addressed on a more abstract level in this chapter. A synopsis of interventional procedures as regards preparing the tutors for working with the interventional material, and the different steps tutors and tutees take towards forming If-Then-Plans will be outlined in chapter 3, as these are methodic concerns mainly.

2.6.1   Sources

The main source for constructing the present interventional material is a manual for training self-regulation with students with the title of *Störungsfreier Unterricht trotz ADHS. Mit Schülern Selbstregulation trainieren – ein Lehrermanual.* (*Undisturbed lessons despite ADHS. Training self-regulation with students – a teachers´ manual.*) (Gawrilow et al., 2013). If-Then-Planning here focusses on behavioural self-regulation. The different steps that lead to the final formation of If-Then-Plans in the manual could be transferred to the material without profound changes in how to proceed from the first step of identifying goals in school contexts, over specifying situations that are goal-relevant to associating them with a form of reaction that is expected to support goal attainment. Compared to the source, these steps in the present interventional material generally take on more complex forms, because in the process of emotion-regulation as it is introduced to the students in the material, there are two aspects of reference for emotion-regulation that are brought in relation to one another and must be considered in making If-Then-Plans. One aspect is the negative (achievement) emotion that tutees perceive to impede goal-attainment in school contexts most. The other aspect is the aims the pursuit of which tutees identify to be impeded by the chosen negative emotion. Preparing for and finally constructing Then-parts of If-Then-Plans by formulating an individual approach of how to reappraise the respective situation, tutees and tutors consider both. The material needs to lead students through these complex steps as transparently as possible. Additional to the comparatively more complex form that If-Then-planning takes in the intervention at hand, we introduced students to selected items of theoretical knowledge about emotions and emotion-regulation.

These, and further concrete suggestions as to how to realize training emotion-regulation in practice, were taken from a training manual for psychotherapists developed by Barnow et.al. (2016) with the title of *Emotionsregulation. Manual und Materialien für Trainer und Therapeuten*. (*Emotion-regulation. A manual and material for trainers and psychotherapists*.) To the best of my knowledge, there is no manual developed for training emotion-regulation

with students of secondary education specifically, nor for educational contexts altogether. There are elements of that in ADHS interventional multimodal programs as for example in the THOP (*Therapy program for children with hyperkinetic and oppositional problem behaviour*) by Döpfner et al. (2019). Moreover, there are interventional measures and programs that largely come from the areas of adult clinical psychology and psychotherapy (Grafton & McLeod, 2014; Mennin & Fresco, 2014; Neacsiu et al., 2014). The same applies to the material developed by Barnow et al. (2016). Yet, it proved to be best suited to adapt parts of it for the interventional material for the present study, for it is comparatively compact and comprehensible. We adapted parts of the material primarily from chapter 1 ("General introduction to emotion and emotion-regulation"), chapter 2 ("Strategies of emotion-regulation") and chapter 4 ("Reappraisal").

2.6.2   Didactic-methodic aspects

Another important aspect to be considered was the adaptation of the material to the age of tutees and tutors and developmental considerations in this context. Tutees were aged in between 13 and 14 years. From the perspective of comprehensibility – and motivation depending on it – individual steps need to be easily identifiable and clearly distinguishable from one another. It must be transparent what the main content, aim and purpose of the individual step is as such and in the context of the whole process of forming Implementation Intentions. Duly, individual steps need to be separated from one another by the layout of the material. More complex items of contents, for reason of comprehensibility and for motivation, are illustrated, and formulations are kept as simple as possible (with more short than long and complex sentences and little specific terminology to be introduced). Another concern was to continuously relate contents to tutees´ personally, firstly to convey their relevance for their individual situations, and secondly to foster their motivation to concern themselves with the material. For these purposes, the tutors´ version of the material contains hints to questions which tutees might be asked or inviting tutees to relate to examples from the material to themselves. Explanations of abstract and complex contents are also added to by visualizations and concrete examples. Page 5 from the tutors´ version of the training material below serves as an example. Invitations to tutees to relate content to their personal situation are highlighted in yellow.

Figure 18

P. 5 of the interventional material. Tutors´ version for 1:1 condition: Choosing a negative achievement emotion that impedes goal attainment

Es gibt ganz unterschiedliche Gefühle in unterschiedlichen Bereichen. Wissenschaftler haben herausgefunden, dass es bestimmte **Gefühle** gibt, die bei allem, was mit **Schule und Lernen** zu tun hat, häufig vorkommen. Das sind:

Freude, Hoffnung und Stolz,

Ärger, Angst, Hoffnungslosigkeit, Scham und Langeweile

Man kann z.B. stolz sein, wenn man sich gut vorbereitet hat und ein gutes Ergebnis in einem Test zurückbekommt.

Man kann z.B. Hoffnungslosigkeit empfinden, wenn man sich immer wieder gut vorbereitet in einem Fach und die Ergebnisse dennoch nicht so gut sind.

Kennst du solche Situationen auch? Welche sind das?

Jetzt bist du an der Reihe: Denke darüber nach, welche der oben genannten Gefühle du aus deinem Schulalltag kennst. Bringe sie in eine Reihenfolge – zuerst das Gefühlt, das am häufigsten vorkommt, zuletzt das, was du am seltensten verspürst.

1: _____

2: _____

3: _____

4: _____

5: _____

6: _____

7: _____

8: _____

Hier ist evtl. Hilfestellung erforderlich, wenn die Tutees sich nichts Genaues unter den Gefühlen vorstellen können. Bitte Zusatzseite zu 5 (5.1.) beachten.

As can be seen on the bottom of the page, the material also contains references for tutors as to how to proceed, to help them find their way helping the tutees through the material. There are two versions for tutors – one for the 1:1 condition, and one for group-tutors. The differences only concern numerus in addressing the tutees, in a shift from singular to plural, yet I thought in the anyway complex situation, even more so in group-tutoring conditions, this might be supportive. Most tutors were aged in between 16 and 17 years. Accordingly, the additional material for tutors contains more complex texts and no graphic illustrations.

A point to add refers to the adaptation of the material to different age groups (as will be referred to in chapter 5 of this work in greater detail). It seems important to adapt the material in such a way that - on the one hand, as referred to above - it is sufficiently clear, transparent, and illustrated for the respective age groups of tutees. At the same time, this must not be "overdone" with the results so that tutees consider it inappropriate for their age. This, from experience, leads to a reluctance to concerns themselves with it seriously at all. The material at hand would have to be further adapted in the addressed sense to tutees older than 14.

An overview over how tutees and tutors proceed through the material would, in terms of coherence, follow here. Likewise, it belongs to methodic decisions described in chapter 3. To avoid redundancies, it is given there.

2.7 Hypotheses

Hypothesis 1

Forming If-Then-Plans in which tutees formulate a strategy of reappraisal is associated with an increase of scores for the employment of reappraisal as an emotion-regulation strategy from T1 to T2.

On the grounds of what has been explained as to the functioning and effects of Implementation Intentions with Mental Contrasting generally and for the present intervention specifically (comp. chapters 2.3. and 2.4.), we presumed the association explicated in the hypothesis to be made on the grounds of the initiation of a process of Strategic Automation of the employment of reappraisal in the intervention. More precisely, we presumed a mental link to be established between situations that tutees individually identify as relevant for reappraisal in so far as a specific negative achievement emotion that is perceived as impeding school-context goals typically occurs in it, and the formulated strategy of reappraisal which to employ in these situations, while working with the material. In the end of the course through the material, If-Then-Plans are assumed to be formed in conscious acts of will and become habitualized in the six weeks to follow until T2.

Hypothesis 2

Increased employment of reappraisal as an emotion regulation strategy is associated with a decline of scores for negative achievement emotions from T1 to T2 for

- *the emotion identified as personally significant.*
- *all negative achievement emotions.*

Premising the positive outcomes of reappraisal as a strategy for emotion-regulation, tutees by employing reappraisal are assumed to reinterpret the situations they have identified as connected with negative (achievement) emotions that they perceive to impede goal pursuit in school contexts in such a way that the negative emotion should decrease in valence, or even change into a positive one (as hopelessness into hope, e.g.). The employment of reappraisal is also assumed to be connected to the effect that the identified situations can be handled in more adaptive ways, which again is assumed to be connected to a decrease of negative respectively an increase of positive emotions.

We expected this to be the case for the specific situations identified for the chosen negative achievement emotion and the employment of the adapted strategy of reappraisal in the If-Then-Plans tutees made. Based on theoretical backgrounds of processes of generalization (com. chapter 2.4.5.), we moreover expected situations in which to employ reappraisal to be generalized as well as the strategies formulated in plans themselves. As for situations in which to employ reappraisal, two cases of generalization were assumed: Firstly, situations in which to employ reappraisal to regulate the negative (achievement) emotion identified in the interventional material, and secondly, situations in which another negative achievement emotion was felt to impede (achievement) goal attainment and/or well-being. We moreover assumed a process of generalization concerning the strategy of reappraisal formulated in the Then-parts of plans, in that strategies might be generalized to match new situations.

Hypothesis 3

Relations between scores for the employment of reappraisal before and after the intervention (hypothesis 1) are moderated by

- the amount of social support tutees perceived themselves receiving from their tutors. The higher tutees score for perceived social support, the greater the increase of scores for the employment of reappraisal from T1 to T2.

- the amount of empathy the tutors report to have. The higher tutors score for emphatic capacities, the greater the increase of scores for tutees´ employment of reappraisal from T1 to T2.

As outlined in chapter 2.5.2., the methodical decision for peer-to-peer tutoring as the social form (of learning and teaching, in didactic terminology) in which the study was to be conducted, grounds on the consideration that it should contribute to realizing the intervention´s purpose of regulating negative emotions more adaptively by means of reappraising situations in which these negative (achievement) emotion frequently occur. The effects of peer-to-peer tutoring as moderated by the constructs of empathy and social support meet these conditions in that they firstly are positive as regards the process of the formation and consequently adaptivity of tutees If-Then-Plans, which then is expected to manifest itself in an increase of values for their employment. For detailed information on these relations comp. chapter 6.5.2.2., for construct description of empathy and social support chapters 6.5.2.1.1. and 6.5.2.2.2.

Hypothesis 4

Forming If-Then-Plans in which tutees formulate a strategy of reappraisal is associated with a decline of scores for negative achievement emotions from T1 to T2 for all negative achievement emotions, moderated by

- the amount of social support tutees perceived themselves receiving from their tutors. The higher tutees score for perceived social support, the greater is the decrease of scores for all negative achievement emotions from T1 to T2.

- the amount of empathy the tutors report to have. The higher tutors score for emphatic capacities, the greater is the decrease increase of scores for all negative achievement emotions from T1 to T2.

The positive effects of peer-to-peer tutoring as mediated by empathy and social support are supposed to also have positive effects on achievement emotions. On the one hand, the assumed adaptivity of If-Then-Plans is expected to lead to an increase in scores for the employment of reappraisal. This mechanism is explained in Pekrun and Perry´s (2014) (model of the constituents) of the Control-Value Theory of Achievement Emotions, in that positive achievement outcomes (which here take the form of If-Then-Plans) are wholly connected to an increase of positive achievement emotions. For detailed information comp. chapter 2.1.5. Moreover, the effects of peer-to-peer tutoring as moderated by empathy and social support are expected to directly be associated with the decline of scores for negative achievement emotions. The mechanism presumed to underlie this are outlined in chapter 2.5.2.3.

Hypothesis 5

In 1:1-conditions the moderating effect of perceived social support and tutors´ empathy is higher than in group-conditions, which is associated with a greater increase of scores for the employment of reappraisal from T1 to T2 (hypothesis 1) in 1:1-conditions than in group-conditions.

We expected the positive effects of peer-to-peer tutoring as moderated by empathy and social support to generally be stronger in 1:1-conditions than in group-conditions of the intervention. This was presumed to relate to the process and outcomes of the construction of If-then-Plans. The more time can be dedicated to each tutee, the greater the benefits of peer-to-peer tutoring as moderated by empathy and social support are expected to come into effect. The mechanisms and processes we supposed to underly are outlined in detail in chapter 2.5.4.

Hypothesis 6

In 1:1-conditions the moderating effect of perceived social support and tutors´ empathy is higher than in group-conditions, which is associated with a greater decline of scores for negative achievement emotions from T1 to T2 (hypothesis 4) in 1:1-conditions than in group-conditions for all negative achievement emotions.

The expectation that the positive effects of peer-to-peer tutoring as moderated by empathy and social support should generally be stronger in 1:1-conditions than in group-conditions was moreover presumed to relate to achievement emotions. The more time can be dedicated to each tutee, and the more the intervention can be individually adapted, the greater the benefits of peer-to-peer tutoring as moderated by empathy and social support are expected to come into effect. The mechanisms and processes we supposed to underly are equally outlined in detail in chapter 2.5.4.
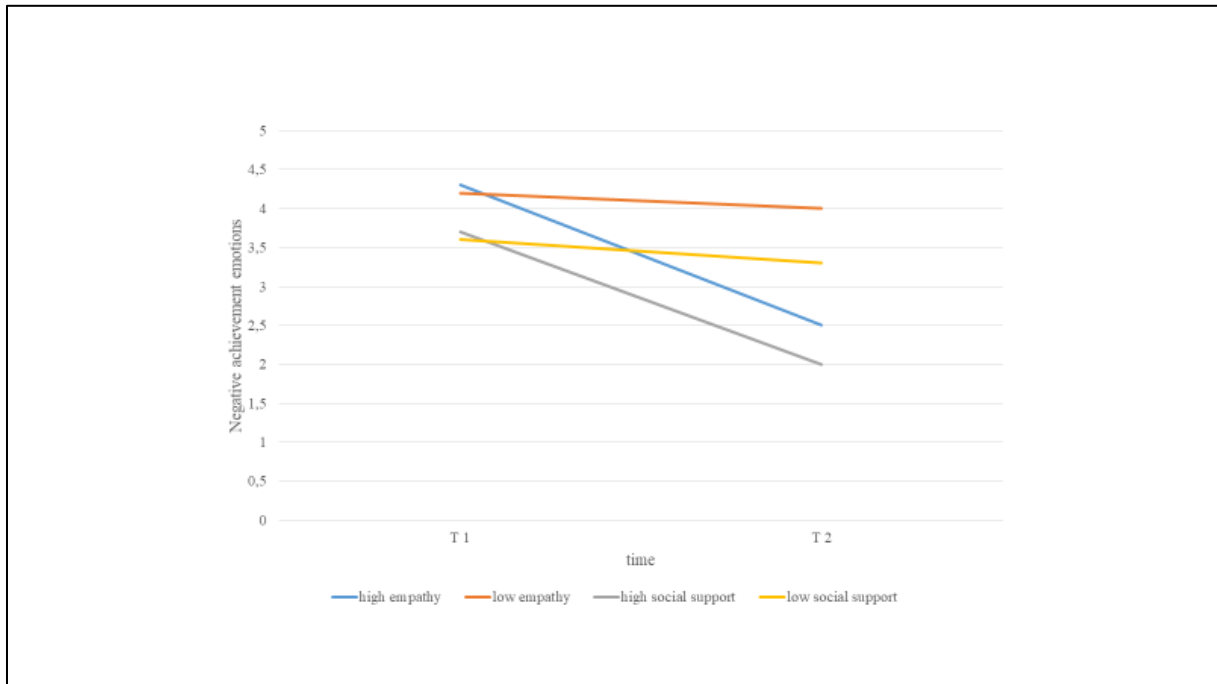
Figure 27

Expected moderations

Hypothesis 7

Tutors apply the strategy they have trained the tutees in by means of implicit learning, which is associated with an increase of scores for the employment of reappraisal as an emotion-regulation strategy from T1 to T2 in tutors´ reports.

Table 10

Overview of hypotheses

1.	*Forming If-Then-Plans in which tutees formulate a strategy of reappraisal is associated with an increase of scores for the employment of reappraisal as an emotion-regulation strategy from T1 to T2.*

2.	*Increased employment of reappraisal as an emotion regulation strategy is associated with a decline of scores for negative achievement emotions from T1 to T2 for*
	   - *the emotion identified as personally significant.*
	   - *all negative achievement emotions.*

	Moderation hypothesis
3.	*Relations between scores for the employment of reappraisal before and after the intervention (hypothesis 1) are moderated by* *- the amount of social support tutees perceived themselves receiving from their tutors. The higher tutees score for perceived social support, the greater the increase of scores for the employment of reappraisal from T1 to T2.* *- the amount of empathy the tutors report to have. The higher tutors score for emphatic capacities, the greater the increase of scores for tutees´ employment of reappraisal from T1 to T2.*
4.	*Forming If-Then-Plans in which tutees formulate a strategy of reappraisal is associated with a decline of scores for negative achievement emotions from T1 to T2 for all negative achievement emotions, moderated by* *- the amount of social support tutees perceived themselves receiving from their tutors. The higher tutees score for perceived social support, the greater is the decrease of scores for all negative achievement emotions from T1 to T2.* *- the amount of empathy the tutors report to have. The higher tutors score for emphatic capacities, the greater is the decrease increase of scores for all negative achievement emotions from T1 to T2.*
5.	*In 1:1-conditions the moderating effect of perceived social support and tutors´ empathy is higher than in group-conditions, which is associated with a greater increase of scores for the employment of reappraisal from T1 to T2 (hypothesis 1) in 1:1-conditions than in group-conditions.*
6.	*In 1:1-conditions the moderating effect of perceived social support and tutors´ empathy is higher than in group-conditions, which is associated with a greater decline of scores for negative achievement emotions from T1 to T2 (hypothesis 4) in 1:1-conditions than in group-conditions for all negative achievement emotions.*

7.	*Tutors apply the strategy they have trained the tutees in by means of implicit learning, which is associated with an increase of scores for the employment of reappraisal as an emotion-regulation strategy from T1 to T2 in tutors´ reports.*

3   Method

3.1   Participant characteristics

All participants of the study are students at the same Stuttgart grammar school (N = 110). 76 of them participated as tutees and 34 participated as tutors. Initially, there were an additional 2 tutees and 1 tutor, who were present in the first, but not in the second training session.[20]

35 male and 41 female (N = 76) tutees were recruited from grades 7 and 8, aged 13.1 years on average (SD = 0.7)[21]. Of the 46 tutees who participated of grade 7, 20 are male and 26 are female. Of the 30 students who participated of grade 8, 15 are male and 15 are female.

12 male and 22 female tutors (N = 34) were recruited from one class in grade 10 and one course in grade 11, aged 16.4 years on average (SD = 0.6). Of the 9 tutors of grade 11, 2 are male and seven are female. Of the 25 tutors of grade 10, 11 are male and 14 are female.

Most of the participating students come from the educated middle-class, which generally applies to the pupils of the school, not only to the courses and classes that were invited to take part in the study. This is worth mentioning because the students are generally achievement oriented and open to measures to improve on achievement results (which was introduced to them as one of the effects of emotion-regulation). Likewise, the parents of students wholly have the same attitude, and we perceived many of them to support the intervention and their children´s participation.

Participants are mostly German, some have another or a multiethnic background, but all speak German as at least one of their native languages. Consequently, we expected no differences in results due to limitations in e.g., understanding questionnaires or working with the training-material.

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[20] One tutee had changed schools after the first training-session, the second was excused for a family celebration. The tutor missing in the second session reported sick on that day.
[21] 1 Tutee provided no information as regards age.

3.2   Sampling procedures

Restrictions to who could participate were given by the sampling procedures, resulting from conditions given by school routines such as time-tables and the fact that the study was conducted within the time of regular lessons.[22] We presented the study to possible tutors from only one class of grade 10 and one course of grade 11 (whose teacher provided a number of "her" lessons for preparing the tutors, i.e. introducing them to the relevant knowledge and their role in the procedure of the study and excused participants for missing lessons on the two dates on which the study was conducted.)

Tutees were recruited from all students of grades 7 and 8. Here, there was no time needed to prepare them as to (psychological) theory, but they as well missed two lessons taking part in the training and the teachers of resp. one "slot" in the schedule of the two grades (all classes of ethics and religion) offered the required time of their lessons for introducing the study to the students.

Within these groups of people selected for the described reasons there were no further limitations to participation.

Recruitment of the participants went, after having discussed and organized possible arrangements with the teachers as referred to above, and of course the principal and school management, as follows: The project was introduced to potential tutors of the two mentioned courses by a member of the research team in a regular lesson through a short oral presentation of the content, form and aims of the training. Letters of invitation (comp. appendices B3 – B6) containing a detailed description of the study (target groups, content and aims of the study, relevant dates) were handed out to the students to read and, if any, ask questions. In the case of the tutors, we addressed both students and parents in one letter, as no need to simplify language and/or the presentation of contexts was seen. In grade 10, 25 out of 28 students (89,3 %) chose to participate. Additionally, the study was presented to the parents of the grade 10 - students on parent-teacher meeting. In grade 11, 9 out of 20 students (45 %) chose to participate. It was decided not to offer an additional information event for the parents of the senior grade.

The difference in age between tutors and tutees in the present intervention is relatively great. This is owed to the fact that we considered it sensible to recruit tutors from psychology courses that are only offered in grade 11 and 12. As tutors´ tasks were quite complex, we expected it to be a necessary condition that they are senior students with some basic knowledge in psychology that could be built upon, as they not only were introduced to the theory of emotion regulation and motivational psychology to later convey it to tutees, but at

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[22] Timing it outside regular lessons would presumably have resulted in a much smaller number of participants, judging from experience.

the same time had the complex tasks of orientating in the material and individually adapting to "their" tutee as they worked with him/her. For the tutors of grade 10, as mentioned above, with the parents´ consent, six regular German lessons were provided to introduce students to the relevant psychological background knowledge. I would not recommend younger students than 10 graders for the role of the tutor on the grounds of the outlined reasons. Tutees could, also from the perspective of developmental psychology, as well be 5 and 6 graders.[23] That tutees in the present intervention were recruited from grades 7 and 8 was due to the circumstance that the colleagues who taught ethics and religion where prepared to provide some of their lessons for the intervention. One last, indirect restriction relates to a maximum limit I would see for tutees´ age. Students older than 8 graders are so close in age to tutors that they would probably have difficulties in seeing them as role models and, moreover, authorities. This factor is assumed to come into effect in group-conditions more than in dyadic conditions, as tutors while working with the tutees possibly must also discipline them.

Of the students who chose to participate in the study as tutors, 8 volunteered for presenting the study to the students of grade 8 and 7, who were offered to participate as tutees. The tutors prepared a short presentation (comp. appendix B1) for that purpose, and again handed out letters of invitation. Two versions were produced here, one less complex in language and explaining contexts for the students (comp. appendix B3), and one for the parents (comp. appendix B4) that was also handed out to the students. Recruitment took place on one day for all optional tutees of the two grades. Altogether there were 214 students in the two grades, 104 in grade 7 and 110 in grade 8. That results in 44,2 % (46 out of 104) of grade 7 students and 27,3 % (30 out of 110) of grade 8 students choosing to participate.[24]

To increase compliance, we expended great effort in the presentation of the project especially in portraying the relation between aims students have in school contexts, their (emotional) well-being there and the capacity to regulate emotions, hoping for and expecting intrinsic motivation. Apart from that, as the study is by its nature an element of individual promotion as a cross-disciplinary part of the curriculum, students were offered that their participation will be included in a portfolio handed out at graduation[25] if desired.

On the 21st of February 2019, a request for the approval of the present intervention was submitted to the ethics commission of Tübingen University and approved of.

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[23] This will be referred to in chapter 5.3. in greater detail.

[24] The interest in participating in grade 7 was obviously larger than in grade 8. This corresponds to our impression of an overall greater commitment of the tutees of grade 7 than of those of grade 8. One explanation might be the aspect that the older students get, the less it might be socially desirable to train regulating emotions. This will be discussed in chapter 9.

[25] The portfolio is part of the school´s measures of individual promotion.

The final number of participants (N=110, 76 tutees and 34 tutors) lies within the range of what we had hoped for and rendered possible to conduct the study as planned as regards the number of individuals in each condition.

Table 11

*Numbers of **tutors** in total and both conditions according to grades and sex* [26]

	1:1 – condition		Group-condition		Both conditions	
	Grade 10	*Grade 11*	*Grade 10*	*Grade 11*	*Grade 10*	*Grade 11*
Tutors						
male	7	2	3	-	11	2
	9		3		12	
female	14	6	1	1	14	7
	20		2		22	
male and female	21	8	4	1	25	9
	29		5		**34**	

[26] The variable *gender* was not included in the present study. However, it would be an option to include it retrospectively.

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Table 12

*Numbers of **tutees** in total and both conditions according to grades and sex*

	1:1 – condition		Group-condition		Both conditions	
	Grade 7	Grade 8	Grade 7	Grade 8	Grade 7	Grade 8
Tutees						
male	7	8	13	7	20	15
	15		20		35	
female	9	5	17	10	26	15
	14		27		41	
male and female	16	13	30	17	46	30
	29		47		**76**	

Sorted according to **conditions**, there were 29 pairs in the **1:1-condition**. The intervention was conducted at two times of the day at both T1 and T2, as grades 7 and 8 could not be mixed due to class-schedules.[27] Tutors from grades 10 and 11, however, were available at both points of time. In the first interventional session at T1 there were 16 pairs in the 1:1-condition with tutees from grade 7, and there were 3 groups in the group-condition with 10 tutees from grade 7 in each group. In the second interventional session there were 13 pairs in the 1:1 - setting with tutees from grade 8, and there were 2 groups with 8 tutees of grade 8 in one and nine tutees of grade 8 in the other. At T2, organized in the same way as T1, numbers in conditions were the same apart from one pair fewer in the 1:1-condition in grade 7.[28]

Within the *1:1-condition* (1 tutor works with 1 tutee) there were **29 pairs**. Of the 29 **tutees**, 15 were male and 14 were female. (16 tutees (7 males and 9 females) were 7-graders, and 13 tutees (8 males and 5 females) were 8-graders.) Of the 29 **tutors**, 9 were male and 20 were female. (8 tutors 2 males and 6 females) were 11-graders, and 21 (7 males and 14 females) were 10-graders.)

Within the *group-condition* (1 tutor works with a group of students) there were **47 tutees** in total. Of these 47 tutees, 20 were male and 27 were female. 5 groups of tutees were formed, 3 of 10, 1 of 8 and 1 of 9 tutees. (In the 3 groups of 7-graders of resp. 10 tutees, there were 13 males and 17 female ones. In the 2 groups of 8-graders of 8 and 9 tutees, there were 7

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[27] As mentioned above, the teachers of ethics and religion provided their lessons for the intervention, and lessons in these subjects took place on Mondays in lesson 3 in the classes of grade 7, and in lesson 5 in the classes of grade 8.

[28] One female tutor from grade 11 and one female tutee from grade 7 dropped out.

males and 10 females.) There were **5 tutors** in total. Of these 5 tutors, 3 were male and 2 were female. (1 female was an 11-grader, and 4 - 3 male and 1 female - were 10-graders.)

Group sizes were planned around 10 tutees, as we bore in mind that the intervention might be integrated into measures of individual support, i.e., training self-regulation in schools on a regular basis beyond regular classroom settings. Greater groups would not be recommendable for that purpose.

Table 13

*Assignment of participants to conditions at T2, **1:1-settings***

Session	Pairs	Tutors				Tutees			
		grade 10		*grade 11*		***grade 7***		*grade 8*	
1		male	female	male	female	**male**	**female**	male	female
		3	9	1	3	**7**	**9**		
		12		4					
	16	16				**16**			
		grade 10		grade 11		grade 7		**grade 8**	
2		male	female	male	female	male	female	**male**	**female**
		4	5	1	3			**8**	**5**
		9		4					
	13	13						**13**	
Both	**29**					29			

Table 14

*Assignment of participants to conditions at T2**, group-settings***

Session	Group	Tutors grade 10		Tutors grade 11		Tutees **grade 7**		Tutees grade 8	
		male	female	male	female	**male**	**female**	male	female
	1	1				**4**	**6**		
		1				**10**			
	2	1				**4**	**6**		
		1				**10**			
1	3		1			**5**	**5**		
		1				**10**			
	4	1						**3**	**5**
		1						**8**	
2	5				1			**4**	**5**
		1						**9**	
	all	3	1		1	13	17	7	10
		4		1		30		17	
				5				**47**	

3.3 Sample size, power, and precision

As stated in the chapter above, the final number of participants was 110 (N=110, 76 tutees and 34 tutors). It lies within the range of what we had hoped for and rendered possible to conduct the study as planned as regards the number of individuals in each condition. With response rates around 10% on average for interventional studies in schools, those for the present intervention are comparatively high, with an average 62% for tutors (89,3 & in grade 10 and 34,6% in grade 11) and 35,8 % on average for tutees (44,2 % in grade 7 and 27,3 % in grade 8). Still, the sample is relatively small, but clearly beyond the theorem defining limit values for participants (n≥30). Thus, it fulfills statistically required conditions for the sample size. As for precision, reliabilities were calculated for all measures and are reported below in the following subchapter. The applied statistical model is a multifactorial analysis of variance (ANOVA).

3.4 Measures

Self-regulation was measured by the German adaptation of the *Brief Self Control Scale (Tagney et al., 2004)* by Bertrams and Dickhäuser (2009). The scale includes 13 items, answers range from point 1 (*völlig unzutreffend – not at all like me[29]*) to point 5 (*trifft ganz genau zu – very much like me*). Items read e.g. *Ich bin gut darin, Versuchungen zu widerstehen – I am good at resisting temptation.* and *Ich wünschte, ich hätte mehr Selbstdisziplin. – I wish I had more self-discipline.* For the study at hand, the internal consistency of the SCS-K-D is acceptable for tutors with Cronbach´s alpha at T1 and T2 = .76 and good for tutees with Cronbach´s alpha at T1 and T2 = .90.

Emotion-regulation strategies were measured by the German adaptation of the *Emotion Regulation Questionnaire (ERQ)* by Gross and John (2003a) (Abler & Kessler, 2009b). The questionnaire refers to preferences for two strategies of emotion-regulation that are frequently employed – suppression and reappraisal. Items 1, 3, 5, 7, 8 and 10 make up the cognitive reappraisal part, and items 2, 4, 6 and 9 make up the expressive suppression part. The altogether 10 items range from are 1 (*stimmt überhaupt nicht – strongly disagree[30]*) over 4 (*neutral*) to 7 (*stimmt vollkommen – strongly agree)*. Item 1 (reappraisal) reads *Wenn ich mehr positive Gefühle (wie Freude oder Heiterkeit) empfinden möchte, ändere ich, woran ich denke. - When I want to feel more positive emotion (such as joy or amusement), I change what I am thinking about.* Item 2 (suppression) reads *Ich behalte meine Gefühle für mich. - I keep my emotions to myself.* Even though the work at hand is concerned with reappraisal as an emotion-regulation strategy, also suppression was measured. These data, irrelevant for the

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[29] The English versions are those of the BSCS by Tagney et al. (2004)
[30] The English versions are taken from the English original by J. Gross and John (2003)

present study, were raised as subsequent studies might be conducted that are concerned with emotion regulation strategies beyond reappraisal. For the study at hand, the internal consistency of the ERQ is acceptable, with Cronbach's alpha for both tutees and tutors at T1 and T2 = .77.

Achievement Emotions were assessed by one of the subscales of the *Achievement Emotions Questionnaire* (AEQ) (Pekrun et al., 2005) - a multidimensional self-report instrument to assess achievement emotions that research has proven to be common in academic settings. (Pekrun et al., 2002) Research on students´ (and teachers´) emotions in secondary education has been scarce so far. (Pekrun & Perry, 2014) Consequently, there is no instrument available that would more specifically be adapted to measuring the emotions of younger students of grade 7 and 8.

The items were originally developed in German (Molfenter, 1999; Titz, 2002) and then translated into English. The full questionnaire including 232 items consists of 3 scales: *Learning-Related Emotions* (75 items), *Class-Related Emotions* (80 items) and *Test-Emotions* (77 items), each being divided into three more subscales: *before class*, *during class* and *after class*. The employed subscale *class-related emotions during class* consists of 44 items on 5-point answer scales, ranging from *Starke Ablehnung – completely disagree*[31] to *Starke Zustimmung - completely agree*. The eight emotions suggested by the authors as being typical in achievement-situations are covered by these items. By way of example, item 1 reads *I enjoy being in class.* (Class-related enjoyment), item 2 *I am optimistic that I will be able to keep up with the material*. (Class-related hope), item 3 *I worry the others will understand more than me.* (Class-related anxiety), item 4 *I am tempted to walk out of the lesson because it is so boring.* (Class-related boredom), item 5 *When I say something in class, I feel like I turn red.* (class-related shame), item 6 *I feel frustrated in class.* (Class-related anger), item 8 *I take pride in being able to keep up with the material.* (Class-related pride) and item 9 *Because I don´t understand the material I look disconnected and resigned.* (Class-related hopelessness). The AEQ is not standardized. The final English scales were administered to a sample of N=389 Canadian students (mean age 20.63 years, SD = 3.48). Item and scale characteristics are based on this sample, the scales are found to be reliable as well as internally and externally valid. (Pekrun et al., 2005)
For the study at hand, reliability values range in between good and excellent, with Cronbach´s alpha at T1 and T2 for class-related anger (10 items) = .81, for class-related anxiety (10 items) = .82, for class-related boredom (22 items)= .96, for class-related enjoyment (8 items) = .87, for class-related hope (6 items) = .80, for class-related hopelessness (6 items) = .84, for class-related pride (10 items) = .81 and for class-related shame (16 items) = .93.

The reason for the variation in item-numbers in the employed subscales for the different emotions is an uneven distribution of items in the original 3 subscales "before class", "during

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[31] The English versions are taken from Barchfeld et al. (2011)

class" and "after class". The uneven distribution is due to the nature of the different emotions. Boredom, for example, which has the most items "during class", is felt mainly in class rather than before or after it. Other than that, anger, enjoyment, and hopelessness can be felt before and after class as well. Anxiety and hope are felt before and during class, other than pride and shame, which are felt during and after class. As a result, there is only 1 during class-item allocated to hope in the original subscale of class-related emotions, and 2 before class - items were added to the subscale used in the present study: Item 2. *Ich bin optimistisch, dass ich im Unterricht gut mitkommen werde.* (*I am optimistic that I will be able to keep up with the material*.) and item 44. *Die Hoffnung darauf, dass ich im Unterricht gut mitkomme, motiviert mich sehr.* (*Being confident that I will understand the material motivates me.*) 1 item relating to pride, originally allocated to after class, was added to the subscale in the present study: Item 31. *Ich bin stolz auf meine Beiträge im Unterricht.* (*I am proud of the contributions I have made in class*.)

Tutors´ *empathy* was measured by the *Saarbrücker Persönlichkeitsfragebogen* (Paulus, 2017) a German adaptation of the *Interpersonal Reactivity Index* (Davis, 1983). The instrument bases on a multidimensional approach to the construct, which includes four subscales: *Perspective taking* (PT), *fantasy* (FS), *empathic concern* (EC) and *personal distress* (PD) (Paulus, 2009). It includes 16 items on 5-point answer scales ranging from 1 (--) (*nie – never*) to 5 (++) (*immer – always*). Examples are *Ich versuche bei einem Streit erst beide Seiten zu sehen, bevor ich eine Entscheidung treffe. (I try to look at everybody's side of a disagreement before I decide.)* (PT); *Nachdem ich einen Film gesehen habe, fühle ich mich so, als ob ich eine der Hauptpersonen aus diesem Film sei. (After seeing a play or movie, I have felt as though I were one of the characters.)* (FS); *Ich empfinde warmherzige Gefühle für Leute, denen es weniger gut geht als mir. (I often have tender, concerned feelings for people less fortunate than me.)* (EC); *In Notfallsituationen fühle ich mich ängstlich und unbehaglich. (In emergency situations, I feel apprehensive and ill-at-ease.)* (PD). The example from the subscale FS shows what the author notes in the psychometric evaluation of his German version of the Interpersonal Reactivity Index: After marginal changes in the German translations of the original items, good parameters for the reliability and validity of the instrument could be attained. (Paulus, 2009) For the study at hand, the internal consistency of the SPF is good, with Cronbach's alpha at T2 = .86.

Of the four subscales, only two were included in measuring tutors´ empathic capacities for the present study, as only these two relate to subconstructs that are connected to interpersonal capacities that should positively affect tutor-tutee interactions. The two other subscales are negatively correlated with interpersonal capacities resp. do not correlate at all. The two subscales used are *Perspective taking*, which measures the cognitive aspect of the multidimensional construct, i.e., the capacity to see circumstances spontaneously from the perspective of another person. It is associated with better social acceptance and following from it, greater self-confidence and consequently is connected to interpersonal abilities. (Paulus, 2009) The emotional rather than cognitive capacity to emphasize with another person

is measured by the subscale of *emphatic concern (EC).* Empathic concern relates to feelings as compassion or concern for others. Theoretically it is not clear how this is connected to sociability (Paulus, 2009). Yet, we considered it to have a positive effect on the interaction between tutors and tutees in that sympathizing with the tutee and taking an interest in him/her should be connected to a motivation to help and support him/her, i.e., lead to better conditions for forming adaptive If-Then-Plans. *Fantasy (F)* measures the tendency to put oneself into the position of fictional figures and shows no correlation with interpersonal capacities or sensitivity towards others, and *Personal Distress (PD)* measures feelings of uneasiness and agitation in interpersonal situations and thus negatively correlates with interpersonal capacities. (Paulus, 2009) Yet, we raised data for these subscales as well, for *PD* is reported to correlate positively with emotion-regulation capacities, and *FS* to correlate positively with emotional arousal. These data might be useful in future studies, as is outlined in chapter 5 of this paper.

Social support as tutees perceived themselves receiving from their tutors was measured by one of the six subscales of the *Berlin Social Support Scales (BSSS)* – the German version titled *Berliner Social Support Skalen (BSSS)* – by Schulz and Schwarzer (2000). The instrument was developed to measure cognitive and behavioural aspects of social support as subjectively perceived by patients in coping with illness. It distinguishes between social support as it is perceived or expected to be available by a person, which is measured by the first subscale *Perceived Available Support*, and social support that persons have perceived themselves receiving, which is measured by the fourth subscale *Actually Received Support*. Additionally, there are three related constructs that are not, according to the authors, integral parts of social support, but important in its context. It is the second subscale *Need for support*, the third named *Support Seeking*, and the sixth, which is not as self-explanatory as the other two, named *Protective Buffering*. The scale relates to behaviour that is intended to prevent overstrain in the person providing support, as retaining negative criticism or showing strength as to not upset the person (Schulz & Schwarzer, 2003). A sixth subscale, number five in the questionnaire, is called *Actually Provided Social Support* and only relevant when data of the persons providing support are collected. Of these five, respectively six subscales, the study at hand used the fourth subscale *Actually Received Support (Recipient)* in an adapted version. It refers to what people subjectively see as the support they have received. The scale is retrospective with strong reference to a concrete situation, and as such suited to measure how tutees perceived tutors´ support in an intervention having just taken place. The other subscales of the construct measured in the instrument do not capture the positive social effects of peer teaching-structures as precisely, so it was decided against including them in the adaptation of the instrument.

The original 15 items of the scale belong to four subcategories: *Emotional Support* (EMO), *Instrumental Support* (INST), *Informational Support* (INF) and *Satisfaction with Support* (SAT).

4-point answer scales range from *is not true* to *is perfectly true* (*stimmt nicht* bis *stimmt genau).* The authors hint to the problem of contextualization. Depending on the context of investigation, it seems necessary to phrase items specifically. (Schulz & Schwarzer, 2003) In the context at hand, eight items of the scale were adopted. The others did not apply to the educational context of the study. Reliability and validity of the original instrument were tested and found satisfactory on a sample of cancer patients. A generalization of satisfactory results must remain speculative according to the authors. At the same time, they state there are indicators that the instrument may be suitable for wider contexts, e.g. in stress-regulation. (Schulz & Schwarzer, 2003). The table below shows the original scale-items and the adopted ones. For the study at hand, the internal consistency of the adapted BSSS is questionable, with Cronbach's alpha at T2 = .68.

Table 15

Items of the original scale 4 of the BSSS (Actually Received Support, Recipient) and adopted items for the present study

| Item-number in original	Original items of scale	Item-number in adopted version	Selected and adopted items for study
1	This person showed me that he/she loves and accepts me. (EMO) *Diese Bezugsperson hat mir gezeigt, daß sie mich mag und akzeptiert. (EMO)*	1	My tutor showed me that he/she likes and accepts me. **Mein Tutor/meine Tutorin hat mit gezeigt, dass er/sie mich mag und akzeptiert.**
2	This person was there when I needed him/her. (INST) *Diese Bezugsperson war für mich da, wenn ich sie gebraucht habe. (INST)*	2	My tutor was there when I needed him/her. **Mein Tutor/meine Tutorin war für mich da, wenn ich ihn/sie gebraucht habe.**
3	This person comforted me when I was feeling bad. (EMO) *Diese Bezugsperson hat mich getröstet, wenn es mir schlecht ging. (EMO)*		
4	This person left me alone. (–) (EMO) *Diese Bezugsperson hat mich allein gelassen. (–) (EMO)*	3	My tutor left me alone. **Mein Tutor/meine Tutorin hat mich allein gelassen.**
5	This person did not show much empathy for my situation. (–) (EMO) *Diese Bezugsperson hat wenig Verständnis für mich gehabt. (–) (EMO)*	4	My tutor did not show much empathy for my situation. **Mein Tutor/meine Tutorin hat wenig Verständnis für mich gehabt.**
6	This person complained about me. (–) (EMO) *Diese Bezugsperson hat etwas an mir auszusetzen gehabt. (–) (EMO)*		
7	This person took care of many things for me. (INST)	5	My tutor helped me much.

	Diese Bezugsperson hat viel für mich erledigt. (INST)		***Mein Tutor/meine Tutorin hat mit viel geholfen.***
8	This person made me feel valued and important. (EMO) *Diese Bezugsperson hat mir das Gefühl gegeben, wertvoll und wichtig zu sein. (EMO)*	6	My tutor made me feel valued and important. ***Mein Tutor/meine Tutorin hat mir das Gefühl gegeben, wertvoll und wichtig zu sein.***
9	This person expressed concern about my condition. (EMO) *Diese Bezugsperson hat ihre Sorge um mein Befinden ausgedrückt. (EMO)*		
10	This person assured me that I can rely completely on him/her. (EMO) *Diese Bezugsperson hat mir das Gefühl gegeben, dass ich mich auf sie verlassen kann. (EMO)*	7	My tutor assured me that I can rely completely on him/her. ***Mein Tutor/meine Tutorin hat mir das Gefühl gegeben, dass ich mich auf sie verlassen kann.***
11	This person helped me find something positive in my situation. (INF) *Diese Bezugsperson half mir, meiner Situation etwas Positives abzugewinnen. (INF)*		
12	This person suggested activities that might distract me. (INF) *Diese Bezugsperson schlug mir eine Tätigkeit, vor, die mich etwas ablenken könnte. (INF)*		
13	This person encouraged me not to give up. (EMO) *Diese Bezugsperson machte mir Mut, mich nicht aufzugeben. (EMO)*		
14	This person took care of things I could not manage on my own. (INST) *Diese Bezugsperson kümmerte sich um meine Angelegenheiten, die ich nicht alleine erledigen konnte. (INST)*		
15	In general, I am very satisfied with the way this person behaved. (SAT) *Mit dem Verhalten dieser Bezugsperson bin ich insgesamt sehr zufrieden. (SAT)*	8	In general, I am very satisfied with the way this person behaved. ***Mit dem Verhalten meines Tutors/meiner Tutorin bin ich insgesamt sehr zufrieden.***

3.5   Research Design

The interventional study at hand used a within-subject pre-post design. T2 followed nine weeks after T1. T1, and the first of two training-sessions that lasted 75 minutes, took place on the same day. The second training-session of 90 minutes followed exactly a week after the first, which means there were 8 weeks in between the end of the intervention and T2. Accounting for 2 weeks of holidays the students had an approximate 6 weeks to apply their plans in the lessons. An overview over the procedure is given below.

Figure 28

Overview over the interventional procedure
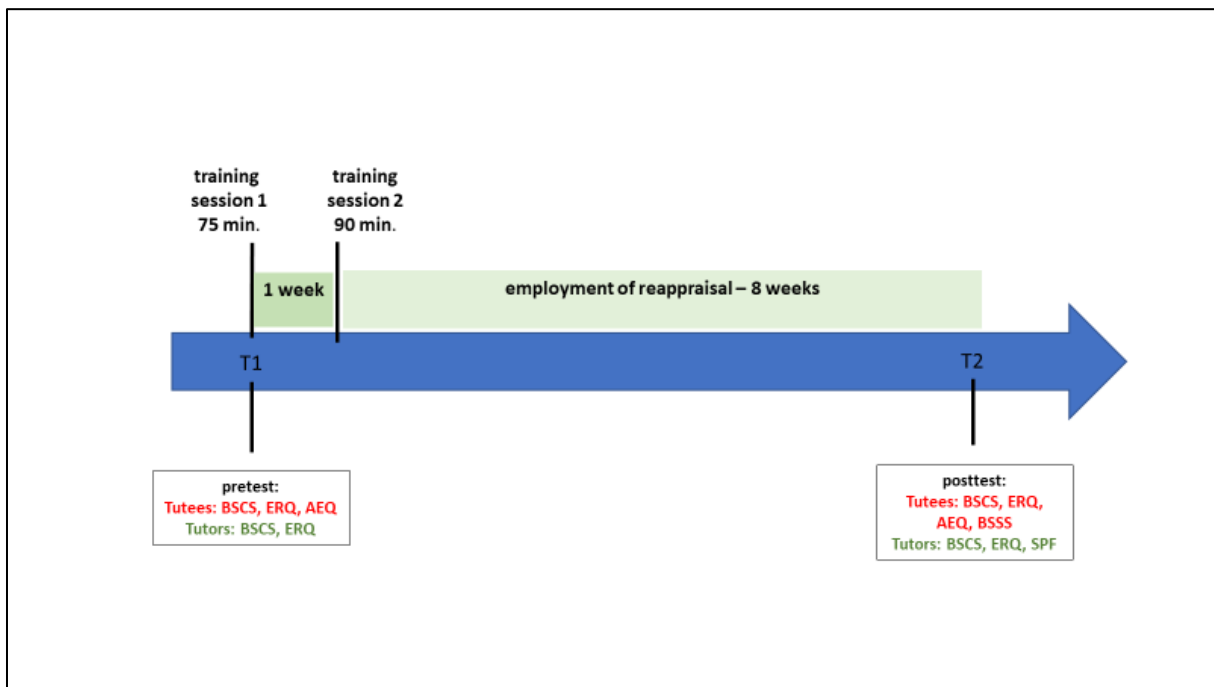
The study used a 2-factorial design with the between-participants factor *training condition* and the dependent variable for the manifestation of the negative achievement emotion chosen in the tutee´s plan. It is a quasi-experimental pre-post-test of a change hypothesis.

The two training conditions were both peer-to-peer tutoring conditions. This decision grounds on the positive effects of peer-to-peer tutoring described in chapter 2.5. Condition 1 was a 1:1 condition in which one tutee worked on the training material together with one tutor. Condition 2 was a group condition in which one tutor and groups in between 8 and 10 tutees worked on the interventional material.

As to randomization and the assignment of participants to conditions, there was one restriction in randomization we had to take account for in the intervention, as tutees of grades 7 and 8 could not be mixed in their allocations to different conditions. This is due to the fact, that tutees were recruited from religion and ethics classes, which in every grade have a separate time slot, in which everything connected to the intervention took place, i.e., introducing the intervention to the students as well as their participation in the two training sessions. In the process of randomization each participant´s was allocated a number as they appeared on class-lists. Slips of papers with these numbers on them were mixed. Numbers for males and females were separated with the aim to have a balanced share of males and females in each condition resp. each group in the group condition. This was decided to keep group constellations principally as they generally are and not change more variables than

necessary in the intervention. Numbers representing tutors were separated from those representing tutees, and numbers for tutees from grade 7 were kept separately from those for tutees from grade 8. Numbers were then drawn, first for tutors in 1:1-conditions for both grades, then for group-tutors. Following, tutees were matched with tutors through the same procedure of random assignment.

3.6   Interventions

The interventional material the author developed for the present study bases on two interventional manuals. One is a manual for training self-regulation with students with ADHS by means of forming If-Then-Plans (Implementation Intentions with Mental Contrasting. (Gawrilow et al., 2013). The other material is a manual and material developed for training emotion-regulation in psychotherapy. (Barnow et al., 2016). For more detailed information about the sources on which the present interventional material bases, comp. chapter 2.6.1.

The interventional material developed for the study at hand has three versions: One for tutors in the 1:1 condition, and one for tutors in the group condition. There is one version for tutees for both conditions. For tutors, additional material was developed and prepared in class. The material contains additional information about determinants and processes of goal setting and striving (e.g., differences in temperament (extraversion/introversion), friendships and social acceptance of the tutee within the peer-group, and his/her achievement potential). The tutor-versions of the interventional material highlight "instructions", or formulations the tutor is asked to use when guiding the tutee through the material. It moreover highlights when tutors are asked to invite tutees to refer to personal experiences. This was done firstly to relate contents of the material to the individual situations of the tutees to motivate them, secondly to help the tutor moderate the session, and thirdly to approach standardization of the material for better comparability and reproducibility. Didactic and methodic considerations in the development of the material are referred to in detail in chapter 2.6.2.

3.6.1   Proceeding through the intervention

3.6.1.1   Preparations

Following the information of the students that were offered participation, i.e., introducing the background, procedure, aims and relevant dates to students and their parents in the described form, the tutors received a training to be prepared for their role. Within six regular lessons (á 45 minutes) they acquired subject-knowledge about emotions in education, emotion- and

self-regulation and motivational and goal psychology. They also made themselves familiar with the training-material and did a trial-run of the 1:1-condition in the form of a role-play in which half of the tutors took the role of the tutee and the other half the tutor´s role before the two training-sessions.

In both training-sessions, tutors and tutees worked together in classrooms, which are familiar surroundings that offer no more than the usual distraction. The groups worked in a classroom each, and the pairs in the 1:1-condition had two classrooms reserved for them at both sessions in both grade 7 and 8, with the aim to not overcrowd classrooms to avoid more than the usual distraction. Session 2 took place exactly a week after session 1. In the first session, ca. 15 minutes were planned for data collection, in which tutors and tutees were asked to fill in questionnaires. The second point of time for data acquisition did not lie within training sessions. Tutees at T1 filled in the German versions of the *Brief Self Control Scale* (Betrams & Dickhäuser, 2009), the *Emotion Regulation Questionnaire* (ERQ), (Abler & Kessler, 2009a) and the adapted version of the *Achievement Emotions Questionnaire* (Pekrun et al., 2005). At T2, they filled in theses questionnaires a second time, and additionally an adapted version of the *Berlin Social Support Scales* (BSSS) (Schulz & Schwarzer, 2000). Tutors at T1 and T2 filled in the German versions of the *Brief Self Control Scale* (BSCS) (Betrams & Dickhäuser, 2009), and the *Emotion Regulation Questionnaire* (ERQ) (Abler & Kessler, 2009a). At T2, they additionally filled in the *Saarbrücker Persönlichkeitsfragebogen* (SPF), a German adaptation of the *Interpersonal Reactivity Index* (IRI) (Paulus, 2017).

3.6.1.2 Proceeding through the material

After introducing themselves to one another, and the tutor adding both students´ codewords in the material, tutors and tutees started to proceed through the material with the overall aim to formulate an If-Then-Plan for the tutee that should facilitate handling situations in which tutees perceive a negative (achievement) emotion to impede the attainment of an (achievement) goal they consider relevant in a more adaptive way. The first session of the two includes pages 1 to 8 of the interventional material which comprises 13 pages altogether. In a first step tutees are introduced to the fact that emotions play an essential role in their (school)-lives, and that they considerably influence an individual´s emotional well-being and achievement in school. (p.1) Tutees get to know the different components of an emotion and how they interdepend, which is illustrated by an example. This applies to most of the material´s steps and stages. The complete material is depicted and discussed in chapter 2.4. and in the appendix (comp. appendices B10 – B12 for the different versions). For reasons of conciseness, examples and illustrations are not taken up again here. Next, it is illustrated, how immediate (bottom-up) emotional responses need not necessarily, but can be, maladaptive in view of the aims one has. (p.2) In a next step, the tutees´ attention is drawn to the fact that

individuals have aims they want to achieve, in achievement as well as in social contexts, which often occur together. Again, tutors ask tutees to give examples of their own aims. (p.3) Tutees, after their attention is again drawn to the fact that sometimes immediate emotional reactions can stand in the way of pursuing goals that they consider important, get to know that emotions can be regulated - and that they will come back to how that is possible at a later stage of the training. (p.4) Next, tutees are introduced to the eight achievement emotions from the AEQ (Pekrun et al., 2005) and asked to rank them according to personal relevance. They consider which of the (five) negative achievement emotions they perceive to stand in their way to well-being and/or achievement (aims) most often. (p.5) Following, emotion-regulation aims (facilitating goal attainment and emotional well-being) are brought to tutees´ awareness. They are then asked to concentrate on situations in which the "chosen" emotion occurs frequently in class. (p.6) To do so, they get a task for the week to come in between the first and the second training session, which is to focus on typical features of situations in which "their" negative achievement emotion occurs, and which of the tutees´ long-term (achievement) goals are felt to be impeded by the emotion.

Tutees talk about their findings with their tutors in the second session. (p.7) In a next step they apply Mental Contrasting: Tutees imagine the typical situations identified with less of the negative emotion, and how they might change for the better. Tutees reflect upon what might possibly hinder them to feel less of the negative emotion, e.g., be less anxious, angry, ashamed, hopeless, or bored. (p.8) Afterwards, attention is drawn to the aim of the intervention, i.e., formulating a plan for emotion-regulation. At this stage, tutees "take stock". They recapitulate on the circumstance that emotions can be regulated, that they have identified an emotion to be regulated, a situation in which to do so, and (achievement) aims that might be pursued more successfully by means of adaptive emotion-regulation. (p.9) Following, they consider how to regulate emotion best. They get to know that there are different ways of seeing one and the same thing (p.10), and they learn that in a lot of situations appraisals are made without being consciously aware of it, but that it is possible to become aware of these processes and reappraise situations in such a way as to on the one hand decrease the negative achievement emotion perceived as standing in the tutees´ way of goal attainment, and on the other hand facilitate the attainment of those (achievement) goals students have identified as being relevant to them. (p.11) The last step before formulating the actual If-Then-Plan is considering examples for firstly If-parts of plans and secondly Then-parts of plans. (p.12) Lastly, tutees formulate a plan and note it down on a file card they are asked to keep in their pencil-case to have it available in the lessons. (p.13)

4   Results

This chapter presents the results of the present study. Reference is made to the hypotheses presented in chapter 2.7. To examine the effect of the training on the ability of regulating emotions and thus the more frequent use of the emotion-regulation strategy of reappraisal after the training compared to before the training, a paired t-test was calculated against zero at a significance level of α = .05. The t-test was chosen because it is suitable for comparing two mean values based on interval-scaled data. In addition, analyses of variance were performed to investigate the moderation hypotheses. The requirements for the procedures were checked and were met (comp. appendix D1).

4.1   Hypothesis 1

It could not be confirmed that tutees used the emotion-regulation strategy of reappraisal significantly more often after training than before training (H1), $t(73)$ = 0.50, p = .618. Hence, there were no significant differences between the mean reported scores on the ERQ on the reappraisal scale in the pre-survey compared to the post-survey (descriptive values: comp. table 16).

Table 16

Mean values given in the ERQ (reappraisal) as a function of the time of measurement

time of measurement	*M*	*SD*
pre (T1)	4.02	0.76
post (T2)	3.97	0.85

Remark. The higher the mean value, the more frequently the strategy of reappraisal was used (range = 1-7).

While this aspect was not formulated as an additional hypothesis, it was expected to show that tutees in the dyadic setting report using reappraisal more often after training than tutees in the group setting. Thus, it was expected that the dyadic and group setting condition would have an influence on the mean score of the reappraisal scale of the ERQ over time. A significant interaction (B = -.33, SE = .35, p = .340) with $F(3,139)$ = .41, p = .750 and R^2 = .01 could not be shown.

4.2 Hypothesis 2

It could not be confirmed that tutees were significantly less likely to report negative achievement emotions after training than before training (H2), $t(73) = 0.52$, $p = .47$. Hence, there were no significant differences between the mean reported values in the AEQ for the emotion identified as personally significant and all negative achievement emotions (descriptive values: comp. table 17).

Table 17

Mean values given in the AEQ (negative achievement emotions) as a function of the time of measurement

time of measurement	M	SD
pre (T1)	2.53	0.39
post (T2)	2.58	0.35

4.3 Moderation hypotheses

It could not be confirmed that the associations between pre- and post-intervention reappraisal scores were moderated by the amount of social support tutors perceived themselves receiving from their tutors ($F(23,1) = 1.09$, $p = .46$) or the amount of empathy tutors believed they had ($F(41,7) = 1.51$, $p = .189$) (H3).

It could not be confirmed that the formation of If-Then-Plans, in which tutors formulate a strategy of reappraisal, is associated with a decrease in negative achievement emotion scores from T1 to T2 for all negative achievement emotions, moderated by the extent of social support tutors perceived themselves receiving from their tutors ($F(13,1) = .77$, $p = .67$) or the amount of empathy tutors believed they had ($F(41,7) = 1.89$, $p = .096$) (H4).

It could not be confirmed that in 1:1 conditions the moderating effect of tutors' perceived social support was higher than in group conditions which would be associated with a greater increase in scores for the use of reappraisal from T1 to T2 in 1:1 conditions than in group conditions (H5) - the results are significantly opposite the hypothesis ($F(5,28) = 2,66$, $p = .043$; 1:1: $M_{t1} = 3.97$, $SD_{t1} = .71$; class: $M_{t1} = 3.89$, $SD_{t1} = .61$; 1:1: $M_{t2} = 3.81$, $SD_{t2} = .82$; class: $M_{t2} =$

3.82, SD_{t2} = .81). It could not be confirmed that in 1:1 conditions the moderating effect of tutors' perceived empathy ($F(40,1)$ = 0.82, p = 776) was higher than in group conditions.

It could not be confirmed that the moderating effect of tutors' perceived social support ($F(5,28)$ = .47, p = .79) and empathy ($F(40,1)$ = 1.67, p = .142) is higher in 1:1 conditions than in group conditions, which would be associated with a greater decrease in negative achievement emotion scores from T1 to T2 in 1:1 conditions than in group conditions for all negative achievement emotions (H6).

4.4   Hypothesis 7

It could not be confirmed that tutors used the strategy they taught tutees through implicit learning, which would have been associated with an increase in scores for the use of reappraisal as an emotion regulation strategy from T1 to T2 in tutors' reports (H7), $t(73)$ = 0.52, p = .47.

5   Discussion and prospects

As is presented above, the respective change and moderation hypotheses were not confirmed on a statistically significant level. For hypothesis 3, results take the hypothesized direction, in that the higher tutees score for perceived social support, and the higher the amount of empathy of tutors, the greater is the increase of scores for the employment of reappraisal from T1 to T2. Likewise, results are in line with the hypothesized direction for hypothesis 7. Results for the other hypotheses, on a nonsignificant level, do not take the hypothesized direction. The results for hypothesis 5 are significantly the opposite of what was assumed. The moderating effect of social support and empathy is higher in group-conditions than in 1:1-conditions. That means that it plays a more significant role in group-conditions than it does in 1:1-conditions, how much social support tutees perceive themselves receiving from their tutors, and how high tutors score for empathy. The original assumption was that social support and empathy play a more significant role in 1:1-conditions, because it comes into effect to a greater extent. (comp. chapter 2.5.4.)

Before going into details, it is important to draw attention to the circumstance again that the results of this study are comparable to other works only within limits. As stated in the introduction, most studies on emotion-regulation that have been conducted so far are non-experimental and investigate the employment of different emotion-regulation strategies and its implications in the context of secondary (Nett et al., 2010; Nett et al., 2011) and university (Gross, 2002; Gross & John, 2003b) education. A small number of interventional studies aim

at individual antecedents of achievement emotions, some in university contexts (Perry et al., 2010) and fewer in secondary education (Gaspard et al., 2019). Most interventions concerning emotion-regulation are from (adult) clinical psychology or psychotherapy (comp. chapter 5.2.4. for references). The two interventional studies that I know of as including Strategic Automation of emotion-regulation are laboratory studies (Christou-Champi et al., 2015; Schweiger-Gallo et al., 2009). Despite these limitations in comparability, I will attempt to contextualize results of the present intervention in these other works.

Generally stated, compared to other interventions in emotion-regulation, the present study is broadly conceived in various aspects. As outlined in the respective chapters of the main part of this work (chapters 2.2. - 2.4.), emotion-regulation, for example, does not focus on one or few antecedents of emotions, nor on a single emotion to be regulated. Likewise, the suggested strategy to be employed, cognitive reappraisal, could optionally be complemented by other approaches to emotion-regulation in tutees´ formations of If-Then-Plans. These aspects, on the one hand, were deliberately decided for as they facilitate the formation of individualized strategies of reappraisal (comp. chapter 2.4.4.) On the other hand, this entails that the study design does not allow for delimiting distinct mechanisms that underlie the effects of emotion-regulation. The broad conception of the study thus also entails that it is difficult to clearly identify factors to explain the study´s results. At the same time, sensible and conclusive presumptions can certainly be made. In view of the ambiguity of the study´s results, reference will be made to various factors and aspects (of the research design) that might play a role in the explanation of results. In doing so, considerations must be put into perspectives, and one needs to bear in mind that except hypothesis 5, the study´s results are statistically not significant, which means they might simply be owed to chance. Next, it will be suggested mainly in chapter 5.6. how one could proceed from here to gain more information as regards the question, how the intervention could be further implemented in a way that realizes two concerns: Firstly, to get a closer insight into the constructs, variables, and mechanisms that underly the intervention and what significance they have for its results and effects. And secondarily, based on that, to find modes of the intervention´s further implementation that make sure that it is effective, and at the same time, that its individual approach is not lost. The third concern is to suggest ways of implementation that can be integrated into every-day school routines.

In the following, sample size, power, and precision (chapter 5.1.), measures (chapter 5.2.) and research design and the interventional material (chapter 5.3.) will be discussed. Further reference will be made to difficulties that have become apparent in implementing the intervention at hand (chapter 5.4.) and to its generalizability (chapter 5.5.). Throughout these chapters, there will be references to existing research, to plans as to how the present intervention might be reimplemented and integrated into existing school structures, and to how potential future research could be attached to it. These last-named aspects will be discussed in greater detail in chapter 5.6.

5.1 Sample size, power, and precision

Concerning *sample size, power, and precision*, the number of participants (N=110) lies within the range of what we had hoped for. Even though the sample size, also when divided into tutors (N=34) and tutees (N=76), meets the conditions of the theorem defining limit values for participants (n≥30), it is relatively small. At the same time, it is not realistic to expect a bigger sample for the present intervention and study in the conditions under which it was conducted, either in terms of response rates (62% on average for tutors and 35,8% on average for tutees), nor in terms of organizing it on an (even) larger scale. Reasons for the latter aspect are discussed in chapter 5.4.

5.2 Measures

One of the measures applied in the present study, the *Berlin Social Support Scales* (*BSSS*) (Schulz & Schwarzer, 2000), was adapted to the study´s purpose. Here, reliability is questionable. The other measures that were applied do not pose a problem as regards reliability (comp. chapter 3.4.), which includes the subscales that were taken from larger measures, as is the case for the *Emotion Regulation Questionnaire* (*ERQ*) (Abler & Kessler, 2009a), which students filled in completely, but of which only those items relating to reappraisal were relevant for the present study. It is also the case for the *Achievement Emotions Questionnaire* (*AEQ*) (Pekrun et al., 2005), of which only data for class-related emotions were raised (comp. chapter 3.4.). The *Saarbrücker Persönlichkeitsfragebogen* (*SPF*) (Paulus, 2009) is the only measure with a possible inconsistency in that it measures students´ self-assessment of their capacities for empathy. There is obviously a difference between reporting to have certain capacities and really having them. Yet, the instrument is reported to be valid (Paulus, 2009) However, it might be an option in future implementations of the intervention to compare values of the SPF with those items of the subscale of the BSSS which relate to empathy as tutees perceive tutors to have provided it. All in all, the instruments that were applied proved reliable, also in adaptations, and can be used again in further implementations of the study.

5.3 Research design and interventional material

5.3.1 Research design

It is obvious that the study has no control-group. Focusing on the technique that was employed to implement goal-intentions for emotion-regulation (If-Then-Plans with Mental Contrasting), one or more control-conditions could have been included. One option would have been a control-condition in which students receive information on emotion-regulation and related aspects to the extent that all students who took part in the intervention did, without receiving actual training. To test the effectivity of Implementation Intentions (with Mental Contrasting), tutees in another control-group could have formed mere goal intentions without implementation-intentions. To control for the effects of social support and empathy in peer-to-peer tutoring - which to some extents are due not so much to the presence of peers, but the absence of teachers, because with them, detrimental factors such as anxiety, e.g., disappear - a control group in which teachers instead of peers conduct the training with students could have been set up. However, our focus in the present intervention lay on the comparison of dyadic and group conditions in peer-to-peer tutoring structures, with the concrete perspective of implementing emotion-regulation training in concrete school contexts, and it was clear that either of the two conditions or both would be realistic options (comp. chapter 5.6.). This is owed not only to the fact that the overall positive effects of peer-to-peer tutoring are well documented in the respective literature (comp. chapter 2.5.2.), but also to lacking capacities in teaching stuff available for extracurricular activities. Another reason for a missing control group is the size of the sample of the intervention. It is already larger than can be expected in studies of the present kind, yet, including a control-group, numbers in the dyadic and group conditions would have been too small for statistically significant results. Another challenge to face when setting up control groups in schools is the ethical concern of justifiability. Students and parents might see research´s claim to come to valid results, but at the same time might not see it as a justification for missing classes and investing capacities in taking part in an intervention from which they cannot profit, or of which they profit to a lesser extent than other students who take part. A solution to that could be interventions taking place at different times. Students belonging to a control group in the first run of the intervention could participate in the actual intervention later. In my estimation, it would be possible, but challenging, to integrate such long-scale measures into every-day school contexts, and concerning the intervention at hand, it would have exceeded capacities as regards time and teachers´ capacities for cooperation.

Time is a relevant factor in two more aspects of the design of the present intervention. One is the number and length of the actual training-sessions, and the other relates to the time span between T1 and T2. As regards the number and duration of training-sessions, tutors, with whom we discussed their impressions and suggestions as to the design of the intervention and

its material as well as difficulties they felt themselves to have faced in the two conditions after the intervention[32], suggested that it might be necessary for tutors and tutees to get to know each other before the interventional sessions start. This appears to be quite a reasonable point, as providing and accepting social support, part of which is showing and receiving empathy, presupposes that both know about each other, to see where support is most needed, and that they respectively trust in each other enough to tell or show the partner. Tutors, to a certain extent, need to get to know about tutees´ personalities, their social surroundings, their position in class and moreover their living environments beyond school-contexts, to be able to form a realistic impression of the situations and conditions which tutees identify for reappraisal. The better tutors and tutees can recognize what causes the emotion that tutees identify as impeding goal-attainment in the selected situations, the better reappraisal can be individually adjusted. That there was no opportunity to meet and get to know each other before the intervention started, might contribute to explaining the unexpected results of hypothesis 5: That the same amount of perceived social support was thought to have a greater effect on how much the employment of reappraisal increases from T1 to T2 in dyadic than in group-conditions, was expected to be connected to the circumstance that social support and empathy might have a more favourable effect on the formation of plans, and with it, presumably on the employment of reappraisal in dyadic conditions, because these facilitate a more individualized approach than group-conditions (comp. chapter 2.5.4.). However, if tutees do not know their tutors, and as they are - other than in the group-condition - totally "exposed" to the other, because there is no option of "hiding in the crowd", they might refrain even more than in a group from talking about themselves openly, which in turn would make it more difficult to identify the factors that are crucial for the formation of effective If-Then-Plans (comp. chapters 2.5.2 and 2.5.4.). Moreover, the circumstance that dyadic conditions might put tutees under pressure more than group-conditions do, might results in the fact that tutees could perceive their dyadic tutor as very supportive and empathic, but nevertheless not feel quite at their ease. The situation in that aspect could be compared to an oral exam-situation: There is only one student to be addressed, and for this student there is no time to lean back and let the others talk until he/she has sorted out thoughts and feeling. And even though peers are reported not to evoke anxiety in tutees, the dyadic situation might put the described pressure on them, and the outlined effects of negative (achievement) emotions on motivation and cognition might come into effect (comp. chapter 2.1.5.). On the other hand, in the case that a tutor is not perceived as being very supportive and is not too emphatic, this might be taken less personally in a group situation than it might when only two people interact. Imagining a tutee observes that the tutor seems a bit disinterested, he/she might not be affected by it as much as this could be the case in the dyadic condition in which the tutee has no "corrective" in the other students (in so far as the

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[32] This was mostly done in regular classes directly after the intervention in 2019, and once more in July of 2021, when the former tutors of then grade ten were presented the results of the intervention in an extracurricular meeting, on which occasion they again expressed their impressions and suggested improvements as regards study-design and interventional material.

group-tutee can see that the tutor´s lack of interests relates to all group-members). Implementing the intervention in existing school structures would reduce the problem of unfamiliarity, because it would make tutees and tutors work together on a more regular basis. Conducting the large-scale intervention again, at least one "icebreaker-session" should be arranged before it starts.

As regards the time span between T1 and T2, it might, in the case at hand, not have been long enough to employ If-Then-Plans often enough to effectively make use of the initiated process of automation, as the situations identified in the plans are rather specific, and they might not have occurred frequently enough. At the same time, there are no reliable data as to how long *is* long enough for a solid implementation of If-Then-Plans. Research data vary greatly in this respect. In the laboratory study on the automatic control of negative emotions conducted by Christou-Champi et.al. (2015) that I already referred to (in chapter 1.2.5.), only two weeks lie in between three laboratory training trials (T1) and T2. No information is given if participants were supported in employing reappraisal within these two weeks, besides the "structured practice" (Christou-Champi et al., 2015) in the training sessions. Schwarz and Gawrilow (2019) in a WOOP intervention in secondary education assessed self-regulation abilities on a day-to-day basis over a time span of 18 days. Every day, participating children were reminded of employing their If-Then-Plans via mobile telephone messages. Interventions in healthcare often last much longer, as for example in supporting people in implementing their intentions of doing more sports. Oettingen (2015) reports that effects of a WOOP intervention were measured a week after the start of the intervention, and finally four months later. The examples show that the present intervention´s time span to apply If-then-Plans was neither comparatively short, nor long. What might be a more influential factor is supporting tutees in monitoring the employment of their If-Then-Plans. Both could presumably be realized better if the intervention was included in routine school structures, as especially the aspect of monitoring would necessitate, that tutors and tutees regularly communicate.

The present intervention, as already addressed in the introduction of this chapter, is broadly conceived in several aspects. An overview of these aspects will be given in the following section, with references to how the individual approach of the intervention is realized:

One broadly defined aspect of the intervention is the individualized strategy of reappraisal in the Then-parts of tutees´ If-Then-Plans and what constructs or variables it focusses on. As outlined in chapter 6.2.3.1. and in greater detail in chapter 6.4.4., the obvious constructs to reappraise in the case of achievement emotions are control and value of achievement activities and outcomes, along with their proximal (e.g., attributional patterns) and distal (e.g., goal structures and expectations) antecedents. When social emotions interplay with achievement emotions, the intentions of peers, for example, can be reappraised. Moreover, individual adaptations of reappraisal for the situations chosen by tutees can include more than one objects of reappraisal. As stated above in the introduction of this chapter, this makes it difficult to identify exactly which of the constructs a tutee chooses to reappraise lead to

declining values for the negative emotion connected to the identified situation, in those cases in which it happens. As stated in the introduction of this chapter, the present study´s design does not facilitate delimitating distinct mechanisms that underlie the effects of emotion-regulation from one another and allocate effects to distinct antecedents of control or value, as is done, for example, in a study by Perry et al. (2010), in which the effects of attributional retraining on achievement were investigated in undergraduate students. However, the aim of the present study is to investigate, whether the employment of reappraisal as individually adopted to tutees´ personal conditions in situation that they identify as personally relevant could help them to feel less of a negative (achievement) emotion that impedes personal school context goals and well-being. Predefining a construct to be reappraised would not agree with that aim, as tutees´ personalities as well as environments that set the conditions for reappraisal differ, and every If-Then-Plan set up will differ as much in its objects or focal constructs to be reappraised, as situations in which reappraisal is planned to be employed, will differ.

Broad conceptions are also given as regards levels of abstraction on which Then-parts of plans are constructed. Drawing on examples from chapter 2.4.4. for illustration *Every time I have to present something in front of the class, I take a deep breath and tell myself that I can manage the situation*. is less specific than *Every time I feel ashamed to present something in front of the class, I try practicing presenting to become better and more confident at it so that I do not have to feel ashamed*. Considering different levels of abstraction in If-Then-Plans, Gollwitzer and Sheeran (2006) suggest that further research on Implementation Intentions might integrate responses that are less specific than have been so far suggested to make plans effective, but instead, Then-components that "facilitate multiple and various goal directed responses" (Gollwitzer & Sheeran, 2006). The way tutees are introduced to constructing Then-components of plans in the intervention at hand leaves open how specifically reappraisal relates to its object/s, and whether what is reappraised is the emotion as such, or its antecedents. Depending on, among other factors, the personality of the tutee, reappraisal will be formulated on a more, or less abstract level. Also, the situations that tutees identify as relevant for the occurrence of "their" achievement emotion will vary in how specifically they are (formulated). Yet, it might be interesting for future research to compare the effects of less specific If-Then-Plans that improve, for example, self-efficacy beliefs (Gollwitzer & Sheeran, 2006) with more specific plans that determine a specific goal-directed response.

Another aspect in which the present study is broadly designed are the emotions that tutees reappraise, respectively the situations in which they occur. They choose among all five negative achievement emotions that have been identified as occurring most frequently in educational contexts (Pekrun et al., 2002). This on the one hand accounts for the premise underlying this work, that training emotion-regulation in school contexts needs to leave room for approaches as individual as possible. If the aim of the present intervention is that students feel less of a negative emotion and greater well-being, additionally to more successfully pursuing achievement or social aims they have in school contexts, they need to be given room

enough to decide what they feel to be most burdening emotions and situations when the intervention begins. For future research, nevertheless, it is certainly interesting to investigate individual (achievement) emotions, their causes and effects, and adaptive strategies for regulation, especially in the case of such emotions that have not been in the focus of research so much yet. Such an emotion could be anger, which in the correlational study presented here (comp. chapter 2.1.7), and indeed, from what the students report, has shown to be a relatively frequent emotion in school contexts. Another such emotion would be hopelessness, for its comparatively high correlations with self-regulation, according to the results of the correlational study conducted (comp. chapter 2.1.7.) More detailed research on anger as a negative achievement emotion and adaptive strategies for regulation would also be interesting, because - as the contents of the If-Then-Plans that students made in the present intervention and students´ reports reveal - often (we) teachers are the reason for students´ anger. Whether this be justified or not, finding adaptive ways to regulate this form of anger would necessitate starting far more productive discourses on learning and teaching (conditions) than are commonly led, and in which students and teachers would be on par.

Another broadly conceived aspect of the interventions is the number and kind of emotions that tutees are introduced to in the interventional material. Tutees choose "their" negative emotion which they consider central to situations to be reappraised from the five negative achievement emotions that are measured in the *Achievement Emotions Questionnaire* (Pekrun et al., 2005). This decision was mainly made due to reasons of practicability. So far, there has been little systematic research on social emotions in school contexts, and the publications that exist rather investigate individual aspects (Linnenbrink-Garcia et al., 2011; Linnenbrink-Garcia & Barger, 2014) than in a survey mode offer for example taxonomies for orientation or instruments for measuring them. Such an instrument with the *AEQ* was available for achievement emotions. However, we decided against disregarding social emotions altogether in the interventional material, as achievement aspects and social aspects of school-context situation are hardly separable from one another (Pekrun & Perry, 2014; also comp. chapter 2.4.2.). This is also obvious considering the moderating role of social support in peer-to-peer tutoring structures (for an overview comp. chapter 2.2.3.4., and for more detailed information chapter 2.5.2.1). And as the intervention´s aim is to consider tutees´ individual conditions as much as possible in the formation of If-Then-Plans, the share of social and achievement aspects in situations that are relevant will also differ individually, and for emotion-regulation to be successfully applied, it is necessary to account for that.

The last aspect to be addressed as regards the breadth of the present intervention´s design is the circumstance that it is left to tutees´ decisions if and how to complement reappraisal by additional strategies of emotion-regulation in their If-Then-Plans. (comp. chapter 2.4.4.) Indeed, they often did add additional strategies to reappraisal. This conforms with findings from research, that in practice, not only different strategies of emotion-regulation interplay and occur simultaneously, but also processes of emotion-regulation cannot be seen in isolation from processes of the regulation of action. (Gross, 2014) The findings that individuals

in real-life situations on average combine three different coping strategies are moreover referred to in a recent publication by Rosenbaum et al. (in press) investigating the impact of different emotion-regulation strategies on coping-efficacy, rumination and stress. Due to these findings, and the individualized approach of the intervention we, decided against categorically excluding regulation strategies other than reappraisal from the interventional material, with a focus clearly set on cognitively reappraising the situation that gives rise to an emotion or reappraising the effects that emotion can have.

5.3.2   Interventional material

The feedback of tutors after the intervention, besides the aspect that tutees and tutors should get to know each other more closely (comp. chapter 5.3.1. above), addressed some passages in the interventional material that need to be revised for future implementations. Reading tutees´ plans and how they proceeded through the material closely, it becomes apparent that some tutees did not form their If-Then-Plans with the negative achievement emotion which they ranked first at an earlier stage of the material. This applies to 5 tutees, all of which took part in the group-condition. In three of these cases, anxiety (once additionally anger and hopelessness) ranked before boredom, yet these tutees formed If-Then-Plans for boredom. This might partly be due to social motives and processes which I presumed to be more relevant in group than in dyadic conditions. (They will be addressed below). It might also be due to some formulations in the material that could be optimized. As it is, tutees are asked to rank the five negative achievement emotions from the *AEQ* according to which of them occur *most frequently* in school contexts on p. 5 of the interventional material. On page 6, they are asked to write down the emotion again, this time it is referred to as the emotion that they consider *stand[ing] in their way [of goal attainment] most frequently*. The first formulation should be like the second. The most crucial point, however, is probably that tutees are asked to focus on the *one* situation for which they are supposed to make plans relatively late in the material, namely when they are asked to formulate their If-Then-Plans. From what can be seen in tutees´ materials, and from what tutors reported, this one situation should be explicated at an earlier stage of the material. Besides the five plans that are formed with another emotion than is ranked first, we found another five with inconsistencies in so far as they related to more than one negative achievement emotion. Interestingly, this applies to four group-condition plans and only to one plan from the dyadic condition. It is possible that some of the established If-Then-Plans suffer from the addressed inconsistencies, and that tutees consequently could not apply them often enough for an increase in values for the employment of reappraisal from T1 to T2.

5.4   Difficulties in implementing the intervention

One such difficulty could be that not all tutees might have chosen the negative achievement emotion they perceive as standing in their way of goal attainment and/or well-being most frequently to form their If-Then-Plans with, which could also play a role in explaining the study´s results, for if tutees make plans to reappraise an emotion that does not quite concern them, motivation will be low, and plans maybe not so effective. A presumed reason for such an "alternative" choice is social processes in the interaction between tutors and tutees and among tutees in several aspects. The first is the high number of students that chose boredom as an achievement emotion. This is coherent with findings from research. Academic boredom is reported to be as common, sometimes to be even more frequently experienced than anxiety in school contexts. (Pekrun et al., 2002) Yet, the percentage of plans that are made with boredom in the present intervention is still comparatively high with M = 79,6 % for tutees in group conditions and M = 62,6 % for tutees in dyadic conditions. The difference between conditions might be associated with the fact that of all negative achievement emotions from the *AEQ* the students could choose from, boredom is the one that is socially most compatible. The social desirability and acceptance of anxiety, hopelessness and shame is, especially among 7 and 8 graders, likely to be much lower. Anger might be more desirable than anxiety, hopelessness, and shame, as it is probably associated with less "weakness" by peers. Here, gender might play a role, too, as emotions like anger are more positively assessed in males than in females, which might influence female students towards not openly displaying it - i.e., forming If-Then-Plans with it in the intervention at hand, but instead choosing boredom as the more compatible emotion. Gross (2003b) reports these associations between distinct achievement emotions and social acceptance in the context of correlations between gender and the employment of emotion-regulation strategies. The social desirability of the emotions to choose from in the interventional material are presumed to take greater effect in group than in dyadic conditions. In groups, working through the material involves talking in front of seven to nine peers, if tutees volunteer to interact with their tutors as the material suggests. Even if they do not, peers would want to see what the seatmate is doing, which emotion he/she has chosen, and in which situations in school contexts the emotion occurs - for one reason because this might serve as an orientation for how to proceed towards making one´s own plan, for another out of sheer curiosity. On the other hand, tutees in 1:1-conditions might also not want to admit to their tutor that they are often ashamed, for example. Other than in the group-conditions, what tutees write down is always apparent for tutors, which tutees might not always like.

The aspect of discipline proved to also make a difference between group and dyadic conditions as to how far the intervention could be conducted as planned. Depending on the constellation of the groups and the social roles that tutees take in their classes, it was more or less difficult for the tutor to ensure that all tutees could work undisturbedly and concentrate on preparing

and forming their If-Then-Plans. Indeed, tutors reported that it was quite a challenge at stages to keep concentration and discipline in the groups.

This might have been due to age difference between tutors and tutees. 8 graders are not always prepared to accept 10 graders as authorities, and the function of disciplining is naturally connected to working with groups. Nothing speaks against younger tutees in the case of a replication of the intervention. From the point of view of developmental psychology, children from about the age of 8 begin to understand that not only external factors, but also thoughts, can change emotions and emotional responses. (Duckworth & Carlson, 2013) Accordingly, also 5 and 6 graders would understand the functioning of reappraisal as an emotion-regulation strategy. As explained in chapter 3.2., for the present study it was partly determined by external factors which classes tutees could be recruited from.

Discipline-problems play a much smaller role in dyadic settings, which from this perspective would be preferable. Nothing, from my point of view, would speak against an even smaller difference in age in dyadic conditions. It is well imaginable that a 10-grade student having difficulties in regulating emotions in specific situations can work together and be supported by another 10 grader who comes with the necessary prior knowledge and the respective motivation, (social) competencies and engagement. However, the study´s results suggest that both dyadic and group conditions should be implemented again to find out more about the advantages and disadvantages of both. One way of making the intervention more effective could be a condition-specific training of tutors to prepare them for difficulties that come up in the two conditions, as possibly having to discipline tutees in group-conditions. For dyadic conditions, it would be even more important than in group-conditions not to put tutees too much under pressure or show too high expectations. What might reduce possible inhibitions or tendencies to withdraw is setting up pairs and groups according to gender. A female 8 grade tutee might be more prepared to be open about her anxiety, for example, to a female than a male tutee, and vice versa.

Having focussed presumed difficulties in the implementation of the intervention, it is important to state that the tutors filled their role wholly excellently, being well equipped with the necessary knowledge, well organized and quite motivated. The latter was also the case for many tutees, but according to our impressions resulting from the study of the interventional material and the organization of the interventional procedure, this could not be claimed for all of them. This is certainly another point to be regarded in future interventions. Tutees should be motivated to take part. Lacking motivation themselves, and possibly being persuaded by their parents to take part in the intervention, they cannot be expected to concern themselves wholeheartedly with preparing and finally formulating If-Then-Plans for reappraisal.

5.5   Generalizability of the intervention

As already addressed (in chapter 5.3.) there are limitations to the generalizability of the present intervention. These, however, do not mean that it cannot principally be replicated in its present form, taking account of the obstacles that could be identified in its first implementation.

Organizational efforts and social aspects are, to my estimation, the major reasons why the present study is generalizable only to a limited extent. Any extracurricular measure that is not part of an existing school-structure, highly depends on the cooperation of teaching stuff to support, even facilitate it. It moreover highly depends on the cooperation of students - on the one hand of potential tutees and their willingness and motivation to take part in the intervention, and on the other hand and to a greater extent, on the motivation and engagement of tutors who are prepared to invest their time in getting familiar with new contents (as for example the background knowledge for their roles in the intervention). Taking on tutors´ roles is not only connected to quite an amount of time and effort to be invested, but also to taking on responsibility in supporting younger students. To motivate students to take tutors´ roles is probably easier if the persons who conduct the intervention are personally known to the students, which was the case in the present intervention, as the author of the study is a teacher in the school in which the intervention took place.

A study of the scope of the present one is feasible in every-day school contexts, but at the same time it is connected to quite an amount of (re)organization in a school´s every-day structures and routines. One reason for that is that it would be unrealistic to conduct the intervention outside the time of regular lessons, for compliance can be expected to be too low, understandably. For all the effort that especially tutors take, the extra work of adapting the necessary psychological background knowledge, studying the interventional material, and taking part in a trial intervention to be able to fill their roles, for all the extra time they spent in preparing and taking over the introduction of the intervention to tutees, it would neither have been realistic, nor fair, to schedule extracurricular time for conducting the intervention. As far as tutees are concerned, compliance can always be expected to be much higher when extracurricular activities take place in regular lessons. However, if the intervention is conducted within regular lessons, its implementation depends on teachers who are prepared to place "their" lessons at its disposal, for both the introduction of the intervention to potential tutees as well as the acquisition of data and the actual two training sessions (comp. chapter 3.2.). Moreover, the school´s management´s and parents´ consent is a necessary condition for the study´s implementation. According to my perception, as a teacher one is part of a system of solidarity and mutual support, and being able to rely on one another, includes a great willingness to support others in what appears to be a reasonable project. Hence, as stated above, replicating the intervention at hand in other schools appears most practicable if persons that are part of the school´s routines and structures introduce it, and support its

organization and implementation. In my estimation, there is rising awareness among teachers of the significance of research-cooperation between universities and schools, which is increased by the possibility that larger studies can be conducted at schools in some form of established connection, for example, through a research network as LEAD[33] of Tübingen University.

5.6 Adaptation of the intervention to existing school-structures and suggestions for further research

There are several points of reference for considerations as to these aspects. As stated in the introduction of this chapter (5.1.), one point of reference is to investigate individual factors that possibly play a role in the explanation of the study´s ambiguous results, i.e., to get a closer insight into the constructs and mechanisms that underlie the intervention and their significance for its results and effects. If one were to consider the perspectives of research and pedagogic practice as separate and not integrative ones (which can be done only hypothetically) this first concern would tend towards the side of research. At the same time, the individualized approach of the intervention, its strengths that emotion-regulation can be adapted to the situational and personal conditions of every tutee, are a great advantage. To further pursue and develop it, would tend towards the side of pedagogics. The other element that is connected to this side is practicability. For the intervention at hand this means that even though it is feasible to conduct such large-scale studies as the one presented here in secondary education, there should be "leaner" and smaller scale solutions to implement training emotion-regulation in every-day school routines, because conducting interventions as the one presented here on a regular base would (as outlined above in chapters 5.5.) go beyond a school´s capacities.

All these addressed concerns and perspectives could serve one another if different and at the same time complementary research directions were further pursued: Firstly, future projects could focus on single constructs that are part of the (functioning of the) present intervention. Secondly, findings from this kind of research could be integrated into the present more complex intervention, which could repeatedly be implemented in more schools – not on a day-to-day basis of school-routines certainly, but also not only once (comp. chapter 1.5.). Here, too, individual constructs or mechanisms could be adapted or changed. Thirdly, adapting the intervention to every-day school routines could also be combined with further research, which would be of qualitative rather than quantitative nature. I will concretize these

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[33] LEAD (Learning, Educational Achievement, and Life Course Development) is an interdisciplinary research network of Tübingen University that conducts educational research with the aim to transport it to the public in a transparent way. It was found in 2012.

suggestions in the following, drawing on examples that were already addressed in this chapter and on new suggestions.

For investigating individual constructs and their effects on emotion-regulation, smaller studies could focus on regulating selected antecedents of achievement-emotions, as Christou-Champi et al. (2015) focused on attributional retraining, and Gaspard et al. (2019) on value appraisals. From theoretical perspectives, types of (achievement) goals can be assumed to also be a significant factor in the perception of control and value of achievement activities and outcomes, in particular the difference between learning and performance goals could be investigated. One could, however, also investigate the effect of social support - not only in the form of the interventional method of peer-to-peer tutoring, but in every-day school contexts, and what differences it makes, for example, if students form If-Then-Plans on an individual or on a dyadic basis, in that they for example integrate a friend´s support in the Then-part of plans. (On the effects of dyadic compared to individual behaviour change interventions comp. also Scholz et al. (in press).)

What certainly should be investigated when implementing the present intervention again is the presumed positive effect that the benefits of peer-to-peer tutoring as regards cognition, motivation, and social functioning, and as moderated by social support and empathy, have on the adaptivity of tutees´ If-Then-Plans, because it is further assumed that a hypothesized increase of the employment of reappraisal from T1 to T2 is connected to it. These relations were furthermore the basis for hypotheses 5 and 6 in assuming that the presumed effects would be stronger in dyadic conditions than in group-conditions (comp. chapters 2.5.2. – 2.5.4.) I will briefly outline what was hypothesized again: In dyadic conditions, tutors have more time for tutees than in group conditions. Consequently, the involvement of tutees as well as the intensity of working together through the interventional material is expected to be higher, and communication can be individualized to a greater extent, for example, in identifying and considering significant causes of (achievement) emotions, and generally tutees´ situations and personalities. As well, greater participation of tutees, more personal involvement and a decrease in anxiety positively affect intrinsic motivation. Social support and empathy are equally expected to take greater influence in dyadic than in group conditions. The described differences were expected to manifest themselves in more adaptive plans. That social support and empathy were found to moderate the changes in the employment of reappraisal more strongly in groups than in dyads, does not alter that it would be a sensible, if very complex, project to investigate if the effects of peer-to-peer tutoring as outlined in the literature (comp. chapter 2.5.2.) indeed manifest themselves in more adaptive plans (and in a second step, if these manifest themselves in an increase in the employment of reappraisal). To know that, one would have to investigate if If-Then-Plans are indeed more adaptive in dyadic, or group, conditions, which in turn would necessitate that adaptivity is operationalized (for example, in terms of how specifically situations are defined in If-parts of plans, how frequently such situations occur, how realistic it is that the strategy formulated in Then-parts of plans is compatible with the situation and the personality of the tutee). Apart from being a

complex project, it would be qualitative more than quantitative research, yet it might contribute much towards explaining the present study´s results.

A similar project of rather qualitative nature would be that of investigating how the effects of tutors´ self-regulative capacities and the adaptivity and effectivity of tutees´ If-Then-Plans correlate. I would assume that the better tutors can regulate their feelings, thoughts, and actions, the better they can pursue the aim of supporting the tutees in constructing adaptive If-Then-Plans. The task is quite complex, as tutors need to motivate themselves for the task, focus attention on the respective steps in working with the material and the background material that is relevant in the different steps, and not let themselves be diverted from the task. Working memory capacities are needed, as tutors must be aware of how various steps in the material are connected to the overall aim of forming Implementation Intentions, and how the background knowledge they have attained relates to these steps, and how it is relevant to and for the tutee they are working with. Tutors moreover must shift attention between all these aspects and more situational stimuli as for example organizational issues or focusing on the social aspects of the interaction with the tutee. The operationalization of "adaptivity" would be as necessary here as outlined above.

Another interesting and presumably central aspect to focus on when implementing the present intervention is gender. As addressed before in chapter 1.4., gender-specific dyads and groups might be advantageous. A slight reduction in complexity would be connected to focusing on only one (frequently occurring) achievement emotion, as for example anger, as suggested in chapter 1.3.1. Conducting the intervention again, it should also certainly be arranged for at least one, better two, "icebreaker meetings" between tutors and tutees. Moreover (comp. chapter 1.4.) condition-specific training is assumed to contribute to greater effects of the intervention.

As mentioned in the introduction of this subchapter, one more measure could be taken to assure that students can profit from the individualized approach of the present intervention and its further development, in that research results can be integrated in the above-described manner: Of the further possible ways to adapt the intervention to existing school structures, I will outline one in detail, as the idea has concrete reference to existing structures that are familiar, on which grounds I would consider its implementation a feasible option. Reference has been made to the fact that to become part of school routines, such an implementation would need to take fewer resources, and that its organisation should be leaner than that of the present intervention. The idea is the following: Almost every school has a concept for the individual promotion of students, i.e., supporting high performing and (especially) gifted students by helping to organize measures to promote their (special) interests, knowledge, and competencies. Low performing students are supported in subjects and areas in which they need help. As is the case for the school in which the present intervention was conducted, some schools´ concepts of individual promotion include projects in which elder students support younger students. The program in the present intervention´s school is called "students as

tutors". So far, these student tutors have supported younger students with difficulties in specific subjects. It is well imaginable that the dyadic condition of the present intervention and possibly also small groups could be integrated in this program. In that case, one might reckon with three to five tutor-tutee dyads in a school year, and maybe a small group of three or four students. From the aspect of organization, it would be necessary to introduce the measure to potential tutors and tutees, and teachers would have to be informed of the intervention, and briefly of its background and aims so that they could recommend students for it. Tutors would need to be qualified, which could happen outside regular lessons. The qualification of tutors is an important aspect and could integrate the condition-specific aspects addressed above (comp. chapter 1.4.) Scholz et al. (in press) mention that the training of tutors is most significant for the effects of dyadic behaviour change interventions. If (highly) gifted and interested students take on tutors 'roles, their talents and competencies can be promoted not only in subject-specific, but also in social regards. Both tutors and tutees would profit from their roles in a way that illustrates how a system depends on the social responsibility of its members. From an organizational perspective, if tutors and tutees are not recruited in numbers of half class-sizes, it might be feasible to either excuse them from regular lessons, or have the interventional sessions take place outside regular lessons. Compliance in the suggested structure would presumably be higher than in the present intervention (even), as personal connections between tutors and tutees are stronger, and tutors volunteer for their role. To implement the intervention in the suggested way, it might also be possible that tutors communicate with teachers, or one teacher who functions as a contact person. This would be sensible in cases when, for example, individual causes of (achievement) emotions lie in environmental antecedents of control and value as, e.g., the quality of tasks (matching demands and competencies), or motivation (meeting individual needs) in the lessons. That stated, it is equally important to be aware of limits of the role of the tutor and the intervention. As important as I would consider fostering cooperative communication between teachers and students at eye level, tutors should not be overburdened with too much responsibility. It would be crucial that there is a teacher who is responsible for the measure and who would also be available for tutors (and tutees) to support them whenever difficulties occurred. Likewise, limits would have to be set in implementing training emotion-regulation in school contexts generally in so far as students cannot take on the roles of therapists in cases where one would be needed. For that reason alone, such an intervention would have to be monitored by a responsible teacher. It would probably not always be easy to see the point at which training emotion-regulation as conceptualized in the present intervention had better be changed into professional psychological support. Apart from a responsible teacher´s assessment of the situation, a certain indicator of the intervention´s limits would be that tutees or tutors, or both, feel out of their depth with their tasks and in their roles.

5.7 Conclusion

The present intervention was supposed to contribute to research in pedagogic psychology by investigating how highly individualized measures of training emotion-regulation, supported by the positive effects of peer-to-peer tutoring structures in dyadic and group conditions that are moderated by the social support students perceive themselves receiving from their tutors, and the empathy tutors report to have, can effect that firstly students increasingly employ reappraisal as an adaptive strategy of emotion-regulation, and secondly negative (achievement) emotions decrease, which eventually should lead to an increase in well-being. It has been shown that such a necessarily complex intervention is indeed implementable in real-life secondary education contexts. However, results could not be confirmed on a statistically significant level, nor do all take the hypothesized direction. Possible explanations for this have been discussed and suggestions as to further research have been made. Suggestions have also been made as to how especially the dyadic, but also the group condition of the present intervention can be adapted to existing school structures with the aim to promote students´ achievement, well-being, mental health, and eventually happiness - which, as has been argued in this work, can best be done through individualized measures of intervention - entirely in the sense of Karl-Josef Laumann´s (NRW´s minister of Labour, Health, and Social Affairs) statement that a happy childhood is possible only if one is healthy, and that a successful career is only possible if one is healthy (Qualitäts- und UnterstützungsAgentur - Landesinstitut für Schule NRW, 2021).

The present work is concluded on a personal note with an expressed hope that school development, school structures, and teaching will increasingly consider young people´s happiness in promoting their personal development in all its facets outlined in curricula and educational mandates.

Going on a very small literary detour again, I would conclude with the conforming hope that what the Irish poet, playwright and Nobel Prize laureate William Butler Yeats is supposed to have said[34] about the Irish at a certain stage of history, might not universally pertain and be read with an even stronger ironic twinkle in the eye than at the time it was stated for his countrymen: "Being Irish, he had an abiding sense of tragedy, which sustained him through temporary periods of joy."

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[34] The source of this quotation is unknown (Diadiun, 2019)

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