



# Emotional competence: The missing piece in school curricula? A systematic analysis in the German education system

Julius Grund<sup>\*</sup>, Jorrit Holst

Institut Futur, Freie Universität Berlin, Fabockstraße 37, Berlin 14195, Germany

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## ABSTRACT

Emotional competencies are increasingly recognized in their importance for flourishing human development. Yet, there is a lack of research examining their structural integration within education systems. The present mixed methods study systematically assesses the implementation of emotional competence and its five facets (knowledge, recognition, expression, regulation, empathy) within 422 German school curricula. About 40% of curricula do not refer to the strengthening of emotional competence at all. On average, one reference was found on every thirteenth page. No trend could be identified for more recent documents to contain more references. Negative binomial regression revealed far above-average anchoring in ethics/philosophy, whereas fewest references were found in natural sciences, information technology, and economics. The analyses are supplemented by qualitative excerpts, highlighting common and good practice examples. In light of the broad empirical base demonstrating the importance of social-emotional learning, it is argued that its current anchorage within German school curricula is insufficient.

## 1. Introduction

Human beings are always and invariably in an emotional state (LeBlanc, McConnell & Monteiro, 2015). These emotional states significantly guide attention, memory, and decision-making (Dolan, 2002) and therefore strongly influence learning processes (Immordino-Yang & Damasio, 2007). Within the history of education, the significance of emotions in learning processes and emotional traits as learning outcomes has been well understood. Yet, thinkers have drawn vastly different conclusions. On the one end of the spectrum, education of the heart has been proposed to foster gentleness, self-regulation, and empathy (Stettbacher et al., 2019). On the other, suppression of emotional needs has been used to form obedience (Francke, 1957). For example, in the conceptualization of the early German school system in the 18th and 19th century, especially the latter was highly influential: Developed by members of the military (Stübig, 2002), schools were primarily focused on skills like industriousness and discipline (Ellis, Golz & Mayrhofer, 2014). As Dwyer noted (2017), the Nazis' atrocities in the 20th century could only be seen as possible on the basis of this kind of education, leading Adorno to state that "the premier demand upon all education is that Auschwitz not happen again" (Adorno & Becker, 2020, p. 92). According to Frevert and Wulf (2012), this understanding may

have contributed to an expansion of the educational goals of German schools after the second world war to "not only impart knowledge and skills but also develop the nobleness of the heart and the character" (Free State of Bavaria, 2014, p. 30).

Today, social-emotional learning (SEL) is considered a pathway towards a more holistic understanding of education in which cognitive and affective processes are integrated. As such, it is increasingly recognized and integrated into learning environments around the globe (Schonert-Reichl, 2019). Highly influential institutions like the OECD regard social and emotional skills as fundamental for a "wide range of educational, economic and life outcomes" (Chernyshenko, Kankaraš & Dragow, 2018, p. 4). At the same time, even in preschool, an increasing focus on cognition can be observed, where "emotional development could potentially become an educational casualty, as greater literacy and numeracy outcomes are called for" (Fleer & Hammer, 2013, p. 241). Furthermore, the trend towards measurability and standardized assessments in western educational science and practice (Biesta, 2009) might further motivate a prioritization of cognition over emotion. Cognitions seem more easily and precisely expressible, and therefore immediately teachable and learnable. In contrast, emotions are often harder to grasp even for the person experiencing them, and, despite progress in the field (McKown, 2019), more difficult to assess. Considering both the high

<sup>\*</sup> Corresponding author.

E-mail address: [grund@institutfutur.de](mailto:grund@institutfutur.de) (J. Grund).

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relevance and systemic constraints for social and emotional competencies within education, we ask: To what extent has emotional learning found its way into education systems? Taking the German education system as an example, this article analyzes the structural integration of emotional competence in school curricula.

The following chapter provides a conceptualization of emotional competence and its facets, and introduces the current state of research on the integration of emotional competence within education systems. Subsequently, the methods of the empirical assessment of emotional competence within the German school curricula are introduced. In the results section, a quantitative analysis is presented that includes both descriptive statistics as well as regression analysis to develop a refined understanding of the integration of emotional competence in the different subjects, federal states, school types, and by year of publication. This systematic overview is enriched by qualitative excerpts on how emotional competence is addressed within curricula, highlighting both common and good practice examples. Finally, strengths and limitations, as well as scientific and practical implications of the study are discussed.

## 2. Theory: the five facets of emotional competence and their role in school education

Emotional competence is a central resource for flourishing human development (Hohm et al., 2017) and can be understood as “efficacy in accomplishing adaptive goals in emotionally arousing situations” (Thompson, 1999, p. vii). It is, therefore, a prerequisite for building and maintaining healthy and mutually beneficial social relationships (Garner, 2010) as well as living in accordance with one’s values (Saarni, 1999). As such, an improvement of emotional competence leads to better mental and physical health, academic success, and improves vocational opportunities (Jones & Kahn, 2017). Even though emotional competence is strongly influenced by the ways emotional communication takes place between early attachment figures and the child (Salisch, 2001), it is malleable throughout one’s lifetime (Jones & Kahn, 2017; Schonert-Reichl, 2019). Indeed, the high importance of emotional competence for qualification (e.g., academic and vocational success), socialization (e.g., healthy social relationships), and subjectification (e.g., living by one’s values) makes it vital for Bildung (see Biesta, 2020).

### 2.1. The five facets of emotional competence

But what characterizes someone who is emotionally competent? While the literature on specific facets of emotional competence has not reached a consensus, it is possible to synthesize five core competencies that have strong intersections across different conceptualizations of emotional competence and SEL (Brackett, Bailey, Hoffmann & Simmons, 2019; Collaborative for Academic, Social, and Emotional Learning [CASEL], 2022; Garner, 2010; Saarni, 1999):

- Knowledge and attitudes about emotions
- Recognition of emotion
- Expression of emotion
- Regulation of emotion
- Empathy

In the following, each facet of emotional competence is briefly introduced.

#### 2.1.1. Knowledge and attitudes about emotions

Knowledge about emotions to some extent stands apart within the framework of emotional competence because it is in essence cognition about emotion. It is nevertheless an integral facet of emotional competence because it has been shown that education about emotions on a conceptual level can strengthen other facets of emotional competence (Lyashevsky, Cesarano & Black, 2020). Fostering knowledge about

emotions may address questions like: “What are emotions?”, “Which emotions exist?”, “How do emotions arise and how do we handle them?”. Attitudes regarding emotions influence the way one handles his or her own emotions. For example, emotions can be viewed as not merely good or bad, but as indicators of the satisfaction or frustration of one’s own and others’ needs. In addressing this informational value, positive attitudes towards emotions may be promoted. Given that emotions are a “motivational force for what is best and worse in human behavior” (Dolan, 2002, p. 1191), developing a differentiated view and a curious, exploration-driven perspective on emotions is the core educational goal of this facet of emotional competence.

#### 2.1.2. Recognition of emotion

Various sources point to emotion recognition as a fundamental emotional skill and describe it as awareness of one’s emotions (Saarni, 1999), self-awareness (CASEL, 2022), the experience of emotions, or the ability to discern and understand other’s emotions (Saarni, 1999). Recognition of emotion is the ability to identify, understand, and analyze one’s own and others’ emotions, as well as to label them (Mayer, Salovey, Caruso & Cherkasskiy, 2011). Only through this skill can we recognize the attributed relevance of stimuli and therefore get a glimpse of how a human being sees and evaluates the world. Hence, recognition of emotion does not end at What, it also addresses Why an emotion is present. The latter is crucial because “feelings elicited by the target of judgment provide valid information, feelings that are due to an unrelated influence can lead us astray” (Schwarz, 2012, p. 2). In practice, this may imply giving time to reflect and feel one’s body through self-awareness exercises or to observe other’s emotions (based on body language, facial expression, timbre etc.), especially when dealing with emotionally arousing topics. In most cases, emotion recognition is a necessary precursor of expressing emotions and is an important prerequisite to adaptive emotion regulation (Barrett, Gross, Christensen & Benvenuto, 2001).

#### 2.1.3. Expression of emotion

Expression of emotion is necessary to make the inner world accessible to the outside. It implies not only the ability but also the willingness to express emotions (Graham, Huang, Clark & Helgeson, 2008). This expression can be seen on an explicit verbal level, which benefits from a well-developed and precise vocabulary of emotions (Saarni, 1999), but also on a “physical (e.g., facial emotional expression, body movements, and behavior)” level (Mathews, Koehn, Abtahi & Kerns, 2016, p. 164). The ability to express emotions brings two direct advantages (Saarni, 1999): Firstly, we can express ourselves and therefore have the chance of being understood, which strengthens social bonds and support. Secondly, we can conceptualize our emotional reactions, reflect on them over time, compare them socially and thereby gain self-knowledge. It is essential to always view emotional expression against the background of the given cultural and social structures and norms. As such, emotional competence does not mean expressing every emotion always and completely. Instead, it means expressing emotions appropriately to the situation and in consideration of one’s own goals and the needs of others. In educational practice, the ways in which emotions can be expressed is also dependent on how “safe” the setting is. Safe, in this case, means “a space, which consists of appropriate physical aspects, trust, respect, suspension of judgment and censorship, a willingness to share, and high-quality listening” (Kisfalvi & Oliver, 2015, p. 713). For settings in which it is difficult to create such a safe space, emotional expression may also be fostered by, e.g., using arts to express emotions more abstractly (Muhr, 2020) or through expressive writing (Travagin, Margola & Revenson, 2015). Interestingly, merely putting feelings into words leads to an inhibition of those emotions (Lieberman et al., 2007) and can therefore be described as “a form of incidental emotion regulation” (Lieberman, Inagaki, Tabibnia & Crockett, 2011, p. 479).

#### 2.1.4. Regulation of emotion

Emotion regulation means to purposefully make use of strategies to influence emotions, and the associated behavior and physiological states one and others experience (McRae & Gross, 2020). It includes both deliberate emotion regulation and individuals' automatic or unconscious strategies to influence "which emotions they have, when they have them, and how they experience and express these emotions" (Gross, 1998, p. 275). Gross (2015) proposes that emotions can be regulated through selecting or modifying the situation, attentional deployment, cognitive change of appraisal, or response modulation. The acceptance of emotion can be classified as a facet of emotion regulation as well (Mathews et al., 2016). Meta-analyses show how adaptive emotion regulation strategies like cognitive reappraisal coincide with better mental health, whereas the suppression of emotions coincides with worse mental health (Hu et al., 2014). Additionally, the ability to regulate emotions has shown to be "critical to children's school readiness and later academic achievement" (Hoffmann, Brackett, Bailey & Willner, 2020, p. 105).

#### 2.1.5. Empathy

The four competencies introduced until this point are free of morality: A human being can be highly skilled in recognizing, expressing, and regulating emotions and still exert antisocial manipulation (Akamatsu & Gherghel, 2021) or act in a sociopathic way (Saarni, 1999). Empathy explicitly comprises a moral dimension through feeling responsibility, compassion and "a sense of obligation to promote others' well-being" (Saarni, 1999, p. 186). Campos, Camras, Lee, He and Campos (2018) postulate that empathy involves one person, a "witness, observing the emotional reactions of another person, typically someone in a state of suffering, with the witness reacting either to the emotional expressions of the sufferer or to the plight, the situation that the suffering person is in" (p. 720). An empathic reaction therefore builds upon and goes beyond simply perceiving others' emotions: It "enables us to resonate with them emotionally and cognitively" (Riess, 2017, p. 74). This can also take place in *sensu* through imagination (*ibid.*) and involve living beings who one never encountered before and never will. In this way, it "helps us to develop relationships with others that anchor us not just in self-serving reciprocal support systems but in greater endeavors of caring and collective well-being" (Saarni, 1999, p. 185). Empathy builds an "emotional bridge that promotes pro-social behavior" (Riess, 2017, p. 74) and is thus crucial to strengthening social bonds. Yet empathy is also likely the most challenging dimension of emotional competence to deliberately foster in educational settings. Here, the impact of the teacher as a role model is vital (Kisfalvi & Oliver, 2015). Besides that, creating empathy through action (e.g., service learning [Everbart, 2016]) is a tangible way of expressing empathy towards those who are in close proximity.

Although the five facets of emotional competence have been introduced separately, it is important to note that they are not perfectly distinct (Mathews et al., 2016), but rather overlap and depend on one another (Saarni, 1999). For example, an awareness of one's bodily feelings (recognition of emotion) is "of central importance for the effective regulation of emotional responses" (Pinna & Edwards, 2020, p. 1). Also, it is important to note that emotional competence is dependent on social context, which is why it needs to be viewed against the background of culture and in constant interplay with social interactions (Campos et al., 2018; Loinaz, 2019).

#### 2.2. Emotional competence within school education

While the benefits of emotional competence are undisputed, the question remains as to whether these essential competencies are currently part of education systems. In more concrete terms: Do school systems structurally aim at fostering emotional competence? Here, a general distinction can be made between anchoring through single activities or specific programs (add-on) and cross-cutting integration (as a

standard in curricula and teacher education/or even a guiding principle for school development; see Elias, 2019). One approach to strengthening emotional competence is social-emotional learning (SEL), which has received growing interest within schools over the last decades (Weissberg, Durlak, Domitrovich & Gullotta, 2015), as well as increasing political support (Cefai, Bartolo, Cavioni & Downes, 2017).

SEL programs (add-on) are the focus of various studies and show wide-ranging positive effects: SEL sharpens social and emotional skills (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011; Sande et al., 2019), and improves mental health as well as school performance (Sklad, Diekstra, Ritter, Ben & Gravesteyn, 2012). These effects are evident throughout a diverse range of geographical regions as well as cultural, socioeconomic, and ethnic groups (Cefai et al., 2017). Controlled studies with follow-up measurement after 0.5 - 3 years revealed that these positive effects persist over time (e.g., Taylor, Oberle, Durlak & Weissberg, 2017). Even from a strictly economic perspective, these broad benefits make SEL programs a highly attractive investment for society, returning between \$2–12 for each \$1 spent (Belfield et al., 2015).

To "move beyond just implementing SEL programs" (Schonert-Reichl, 2019, p. 222), it is advised to promote the integration of socio-emotional competence within every subject and through everyday school life (Jones & Bouffard, 2012). One 'soft' mode of governance (Moos, 2009) is to implement SEL standards that serve as an orientation but are not obligatory. In the U.S., SEL standards for kindergarten are found in all states, while "only 11 states have freestanding SEL standards at the K-12 level" (Eklund, Kilpatrick, Kilgus & Haider, 2018, p. 316). Making SEL mandatory in formal curricula and teacher education would be a 'harder' mode of governance (Moos, 2009). Loinaz (2019) found in four European countries that SEL is rarely present in teacher education, and is "more likely to be introduced in schools by teachers themselves (...) rather than by educational policy" (p. 31). Similar results were seen in the U.S., where teachers identified "the lack of explicit instruction and lack of professional development as the main obstacles" for implementing SEL (Martínez, 2016, p. 11). An anchoring of SEL in all curricula would make it mandatory and perhaps "extend the long-term benefits of SEL to all children and across varied contexts" (Jones, McGarrah & Kahn, 2019, p. 140). Yet while the benefits of curricular integration seem clear from a theoretical point of view, we found no empirical studies that actually assessed the extent to which emotional competence is integrated within school curricula across different subjects and school forms.

In summary, though the importance of SEL is well documented and increasingly recognized, there is currently little systematic knowledge on the extent to which emotional competence is an integral component of education systems. While the cognitive dimension of learning is already strongly represented within educational curricula, this research focuses on assessing the affective dimension of learning therein. Based on the conceptual demarcation of the five core facets of emotional competence discussed above (knowledge, recognition, expression, regulation, empathy), we now turn to the German education system and explore the extent to which emotional competencies are integrated within its curricula.

### 3. Materials and methods: mixed methods assessment of school curricula

To better understand the extent to which emotional competence is part of the German school system, we systematically assessed curricula using a combination of lexical searches for keywords and qualitative

content analysis (Mayring, 2014). For this, we used and updated a dataset from the national Monitoring on Education for Sustainable Development in Germany (Holst, Brock, Singer-Brodowski & Haan, 2020), which includes 422 current curricula from all 16 federal states (cut-off date: 6th of December 2021) for grade 4 (primary education) and 9 (secondary education, all school forms<sup>1</sup>). To cover a wide range of disciplines, documents were included from three subjects in primary education (German, English, general studies) as well as ten subjects in secondary education (German, English, economics, politics, ethics/philosophy, geography, chemistry, biology, information technology, natural sciences<sup>2</sup>; see Holst et al., 2020).

To identify text segments referring to emotional competence and its facets, lexical searches were conducted in MAXQDA 2020.2, using the German equivalents of “emot,” “empath,” and “feel.” After coding the respective sections (details on the coding procedure follow below), four curricula were randomly chosen from the dataset for full text screening to explore whether important keywords were missing. This led to additional lexical searches for the German equivalents of “self-control,” “self-regulation,” “frustration tolerance,” “change in perspective,” “mood/atmosphere,” and “emoj.” Throughout coding (2863 text segments in 422 documents), a strong saturation effect was observed with regard to the relevant keywords.

For coding references to emotional competencies, a deductive scheme was developed based on the conceptual framework introduced in the theory section (see supplemental material). For each of the five facets, the literature-based definition was further specified with examples from curriculum-texts which were inductively derived from the 422 curricula. Throughout collaborative training, a set of coding rules was defined along a set of 60 exemplary text segments (see supplemental material). Thereafter, all retrieved text segments which specifically related to emotional competence or its facets were separately coded by both authors for the keywords “emot\*” and “empath\*” (667 text segments). Text segments which solely referred to emotion, but not to emotional competencies or any of its facets were not coded as emotional competence. After separate coding of the first set of keywords, all text segments with differing allocations were discussed to reach a consensus. After extensive collaborative training, the remaining search results were coded by the first author (2194 segments), who assigned all unclear segments to an extra category, which was again collaboratively coded to reach a consensus. Additionally, each coded text-segment was assigned to a category representing its positioning within the document, whether it was located in the preamble (introduction, educational aims, competency frameworks) or specific descriptions of subject-related competencies and contents.

The resulting code-system was analyzed descriptively (regarding differences between subjects, school forms, years of publication, and position within the document) as well as inferentially by regression analyses to predict the frequency of references to emotional competence and its facets. Here, it should be noted that the frequency of references to emotional competence is not normally distributed but is characterized as zero-inflated count data (Green, 2021). As linear models would not provide robust results (Gardner, Mulvey & Shaw, 1995), negative binomial regression was used (Coxe, West & Aiken, 2009) to identify the predictive power of each independent variable (subject, federal state, year, school type) on the number of references to emotional competence. All categorical variables were transformed using effect coding (Alkharusi, 2012) to interpret effect sizes in comparison to the grand mean. The number of words in a given curriculum was additionally included as a

predictor to statistically control for document length. To interpret effect size, incidence rate ratio  $Exp(B)$  was used. Due to the good implementation of these models in IBM SPSS 28, this was used for data analysis. In addition to the quantitative analysis, exemplary qualitative insights are highlighted from the data on the specific ways that emotional competence is embedded in German school curricula.

#### 4. Results: emotional competence in German school curricula

In the following sections, we first introduce descriptive analyses of the integration of emotional competencies within German school curricula (4.1). This is deepened and extended by a regression analysis (4.2). Subsequently, we offer qualitative insights on how the different facets are being addressed, highlighting common as well as good practice examples (4.3).

##### 4.1. Descriptive overview

Of the 422 curricular documents assessed for this study, 58.1% included at least one reference to emotional competence. In total, we found 1214 text segments that explicitly or implicitly call for a strengthening of emotional competence and its facets ( $M = 2.88$  per document). Considering the total length of documents, approximately one reference is made on every thirteenth page.

##### 4.1.1. Emotional competence within different subjects

Major differences concerning the integration of emotional competence were observed between the different subjects. With one reference to emotional competence in around every third curriculum, economics (28.9%,  $M = 0.39$ ), computer science (30.4%,  $M = 0.65$ ), chemistry (32.3%,  $M = 0.74$ ), and natural sciences (37.5%,  $M = 0.75$ ) are situated at the bottom of the distribution. References were found in less than half of the curricula in the subjects politics (42.5%,  $M = 0.88$ ), biology (43.3%,  $M = 1.33$ ), and geography (48.4%,  $M = 1.23$ ). With integration in more than four out of five documents, emotional competence is most frequently aimed for within German (81.7%,  $M = 4.90$ ), English (82.8%,  $M = 4.61$ ), ethics/philosophy (86.4%,  $M = 6.77$ ), and general studies (88.2%,  $M = 3.88$ ).

##### 4.1.2. Differences among facets of emotional competence

The comparison of the different facets of emotional competence reveals clear tendencies (see Fig. 1). The most frequently addressed emotional competence within curricula is the expression of emotion, which was referred to in 30.8% of documents at least once ( $M = 0.90$  per document). Empathy and emotion recognition were addressed somewhat less frequently, at least once in 29.6% and 23.9% of documents ( $M_{Empathy} = 0.56$  per document,  $M_{Recognition} = 0.62$  per document). In

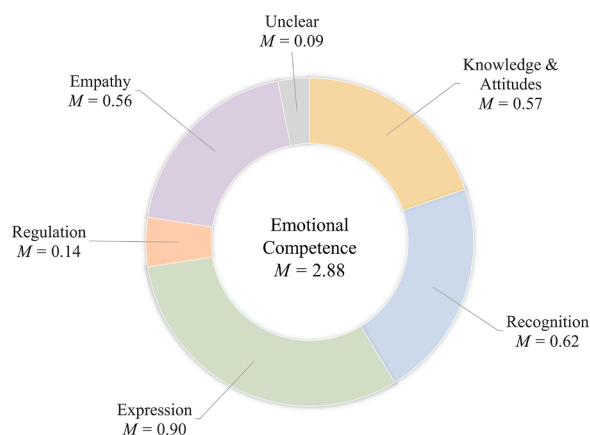


Fig. 1. Average number of references (per document) to emotional competencies in German school curricula.

<sup>1</sup> In Germany, there are four types of schools in secondary education: comprehensive secondary schools (Gesamtschule), selective secondary schools (Gymnasium - to prepare for higher education - and Realschule) as well as non-selective secondary schools (Haupt-/Mittelschule).

<sup>2</sup> In some federal states, chemistry, biology, and physics are jointly addressed as one subject (natural sciences).



about one fifth of the documents (21.3%), text references were found that refer to improving knowledge and attitudes about emotions ( $M = 0.57$ ). The competence of regulating emotions is addressed in every tenth document (10.0%,  $M = 0.14$  per document).

Strong differences between subjects can be observed here as well. Especially curricula within ethics/philosophy aim to improve knowledge and attitudes about emotions ( $M = 2.77$  while avg. is 0.57), emotion regulation ( $M = 0.64$  while avg. is 0.14), as well as empathy ( $M = 1.16$  while avg. is 0.56). Recognition of emotion, in contrast, was strongly implemented within general studies ( $M = 1.12$  while avg. is 0.62), while expression of emotion is especially implemented in the languages ( $M_{\text{English}} = 2.63$  and  $M_{\text{German}} = 1.97$  while avg. is 0.90).

4.1.3. Emotional competence within different school types

Differences were also observed with regard to school types. By far, the strongest implementation was found in primary school curricula. Here, in 75.0% of curricula, at least one reference to emotional competence was found ( $M = 3.80$ ). After primary school, the most references to emotional competence were found in comprehensive secondary school (Gesamtschule, 56.1%,  $M = 2.12$ ), selective secondary education (Gymnasium, 55.0%,  $M = 2.74$ , and Realschule, 53.3%,  $M = 2.92$ ), closely followed by non-selective secondary education (Haupt-/ Mittelschule, 52.2%,  $M = 2.46$ ).

4.1.4. Emotional competence by year of publication

The underlying database of currently valid curricula dates back to 1993. Due to possible variance-based biases when looking at years where only a few documents were published, the time spans were compared as follows: 1993–2005 ( $n = 31$ ), 2006–2010 ( $n = 31$ ), 2011–2015 ( $n = 145$ ), and 2016–2021 ( $n = 215$ ). Between 1993–2005 (74.2%,  $M = 5.03$ ) and 2006–2010 (74.2%,  $M = 3.74$ ), more curricula had at least one reference to the promotion of emotional competence than between 2011 and 2015 (60.0%,  $M = 2.98$ ) and 2016–2020 (52.1%,  $M = 2.37$ ).

4.1.5. Differences between preamble and specific descriptions of content/ competencies

For the five facets, we compared where in the text emotional competence was referred to: either in the preamble or in the specific descriptions of contents and competencies. Knowledge and attitudes about emotions, recognition of emotion, and expression of emotion are predominantly found within the specific descriptions of competencies to be acquired (90%, 68% and 88% respectively, see Fig. 2). In contrast, around half of all references to regulation of emotion and almost two thirds of text segments relating to empathy are located in the preamble of curricula (49% and 63% respectively).

4.2. Regression analysis

A statistically significant model was built that predicts the number of references to emotional competence in the analyzed documents ( $n = 422$ ) through the independent variables subject, federal state, year of publication, and school type ( $df = 35$ ;  $\chi^2 = 327.978$ ;  $p < .001$ ). The results are shown in Table 1/ Fig. 3 and are sorted by the four different categories of independent variables and effect size.

Table 1

Parameters of statistically significant predictors predicting the number of references to emotional competence in German school curricula.

Predictor	B ( $\pm$ SE)	p-value	Exp(B)
Ethics/Philosophy	1.697 $\pm$ 0.1577	< 0.001	5.460
General studies	1.164 $\pm$ 0.2881	< 0.001	3.203
English	1.048 $\pm$ 0.1339	< 0.001	2.853
German	0.928 $\pm$ 0.1425	< 0.001	2.530
Chemistry	-0.960 $\pm$ 0.2551	< 0.001	0.383
Natural science	-0.897 $\pm$ 0.3714	.016	0.408
Economics	-0.883 $\pm$ 0.2828	.002	0.414
Information technology	-0.776 $\pm$ 0.3067	.011	0.460
Biology	-0.468 $\pm$ 0.2225	.035	0.626
Saxony	1.081 $\pm$ 0.2448	< 0.001	2.948
Hesse	0.921 $\pm$ 0.1997	< 0.001	2.511
Lower Saxony	-0.727 $\pm$ 0.2309	.002	0.484
Bavaria	-0.721 $\pm$ 0.2502	.004	0.486
Year of publication 2006–2010	0.450 $\pm$ 0.1954	.021	1.568

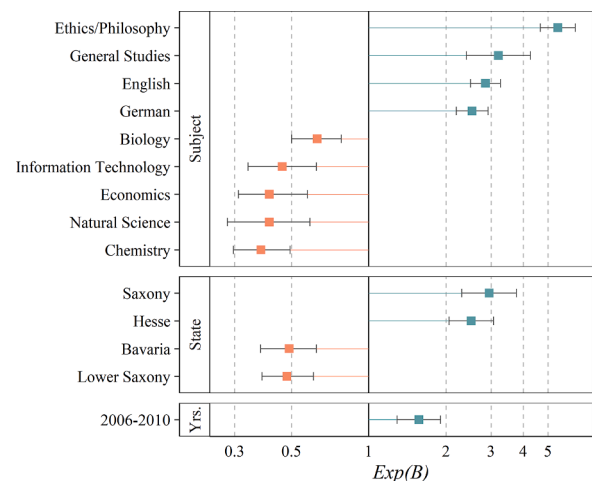


Fig. 3. Effect sizes and standard errors of statistically significant predictors predicting the number of references to emotional competence in German school curricula.

By far, the best predictor is the subject ethics/philosophy, which - ceteris paribus - predicts nearly 5.5 times more references to emotional competence than if the subject was not ethics/philosophy. The subjects general studies, English, and German are connected to an increase in references to emotional competence by a factor of 2.5–3.2. In contrast, chemistry, economics, information technology, natural science, and biology are negative predictors, reducing the references to emotional competence by a factor of 0.4–0.6.

Clear differences could also be identified among the federal states. While Saxony and Hesse predict an increase of 2.5–3 times in references to emotional competence, Lower Saxony, and Bavaria are associated with a halving of references.

Concerning the year of publication, curricula from the timespan 2006–2010 coincided with an increase in references by a factor of 1.6. It

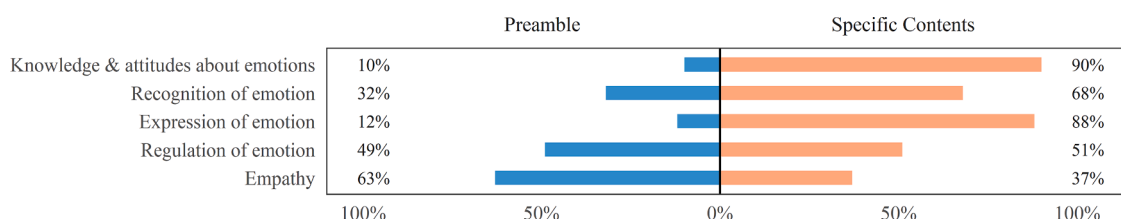


Fig. 2. Proportion of references to emotional competencies in German school curricula within either the preamble, or the specific contents.

is important to note here that the high number of references reported descriptively for the 1993–2005 curricula were relativized in the regression model by the above-average number of words that these documents contained. School type was not found to be a significant predictor.

### 4.3. Qualitative insights

Based on selected implementation examples, the following paragraphs provide qualitative insights into the ways in which the five facets of emotional competence are referred to within German curricula.

#### 4.3.1. Knowledge and attitudes about emotions

Regarding knowledge and attitudes about emotions, we found that the text segments were characterized by high heterogeneity. As a straightforward example of knowledge regarding emotions, some curricula aimed for learners to develop a vocabulary of emotions, e.g., to habitualize the use of “adjectives of feeling and sensation” (BW.En.GY.16, p. 33) and to be able to “distinguish between the content and the emotional level of communication” (SL.Eth.Gy.18, p. 11). Other documents addressed an exploration of attitudes towards emotions, e.g., by asking learners to “explain the importance of mindfulness towards one’s own feelings for health and well-being” (BY.SU.GS.16, p. 3). More notable references went further, intertwining emotional competencies with subject-specific learning. For instance, one biology curriculum refers to the ability of students to “analyze their own learning processes based on models of brain function and explain the importance of emotions on the learning process” (NW.Bio.RS.11, p. 35). In another example, an ethics curriculum states that “not only experience-based and logical thinking (...) are made conscious as the basis of one’s own decisions and actions, but also the influence of needs as well as conscious and unconscious emotions” (BE.Eth.Sek1.15, p. 3). In practical terms, the integration of knowledge about emotions into curricula is also approached through questions like “How does our environment create emotions, thoughts, feelings, and reactions in us?” (MV.Eth.GY.02, p. 43) or “Where and with whom do I feel comfortable, can I laugh and be the way I am?” (HE.All.GS.95, p. 47).

#### 4.3.2. Recognition of emotion

Curricula which address emotion recognition usually frame the competence as a set of abilities that learners possess to both “perceive their feelings and needs in a differentiated way” (SH.SU.GS.19, p. 22) and “record and describe the feelings, desires, and opinions of people in their living and working environments” (NW.Eth.GY.08, p. 19). While in many documents, emotion recognition relates to explicitly communicated emotions, some notable documents also refer to an ability to “identify essential implicit feelings” (NW.En.HS.21, p. 24), in this case, also in another language. Only in comparably few documents do references to emotion recognition directly connect self and others. For example, in an ethics curriculum, it is stated that “students perceive a situation or an issue as morally relevant, also taking into account others’ and their own feelings.” (BW.Eth.RS.16, p. 6). In terms of its practical application, different subjects integrate emotion recognition in varying ways (e.g., “listening to and talking about moods and emotional states in music” [Music, HE.All.GS.95, p. 207], “unlocking a feeling portrayed in role play” [Philosophy, SL.Eth.GMS.18, p. 94], to “reflect on the handling of natural objects [pig’s eyes] by perceiving and evaluating feelings, e.g., including reactions of disgust” [Biology, HB.NaSc.GY.06, p. 24]).

#### 4.3.3. Expression of emotion

While the average reference to emotional expression simply demands that learners “express their emotions and feelings” (e.g., BW.De.RS.16, p. 15), we found a number of notable references that are more specific. In terms of methodological approaches, some curricula asked students to “freely write texts (...) to express their own feelings” (NW.

De.GS.21, p. 14), or encouraged the use of “symbols like Emoticons” (TH.En.GY.19, p. 102). Others referred to artistic or activity-based expressions of emotions, e.g., to “to translate one’s own feelings into colors and pictures, dance, and movement when listening to music” (HE.All.GS.95, p. 207), or mentioned role plays as a particularly fruitful way to develop a capacity to express emotions. Here, learners may “express role-appropriate feelings” (SL.De.GS.09, p. 39), allowing for an exploration of emotional expression without sharing personal feelings. An interesting connection between the expression of role-appropriate emotions and emotions of oneself was found in politics/social studies: Learners “embody themes through freeze frames, take on roles in role plays and then report on their own feelings” (NI.Pol.GMS.08, p. 26).

#### 4.3.4. Regulation of emotion

Generally, emotion regulation is referred to in a very abstract manner, e.g., the educational aim that a learner “deals appropriately with their own feelings, criticism, and failure” (HH.En.GS.11, p. 11). Most of the references found do not provide more detailed guidance concerning what “appropriately” means in which context and how to regulate feelings precisely. One document adds examples for techniques that could be used for emotion regulation, giving educators more, but still quite abstract guidance: “What strategies for avoiding violence are known to the children and are regularly tried out (for example, non-violent communication, stress management strategies, strategies for regulating emotions, extracurricular partners)?” (BW.SU.GS.16, p. 31). Here, the focus on already present skills is a suitable methodological suggestion. Additionally, in one ethics curriculum (SL.Eth.GMS.18, p. 95), the balancing of the rational and the emotional is advanced by offering experiential exploration: “Self-experiment: realization of individual rules of prudence for balancing emotion and reason in certain situations over a predefined time.”

#### 4.3.5. Empathy

Empathy and a change of perspective are referred to in most of the analyzed documents in rather abstract terms (e.g., recurrently in preambles of curricula in Schleswig-Holstein: “The classes contribute to the development of readiness for empathy” [SH.En.Sek1.14, p. 9]). In some cases, text segments in curricula are specifically oriented towards the training of tolerance: “This ability to change perspectives also includes empathizing with the role of another person and developing an understanding for the fact that someone thinks differently and therefore decides differently than you do” (HH.Bio.GMS.14, p. 17). Here, the understanding of empathy is rather cognitively oriented. In another curriculum, emotional empathy is addressed specifically: “Students should not only be able to formulate their position regarding an issue but also to imagine the emotional consequences for a different actor and to express them” (BY.Eth.GY.17, Pos. 34). In the subject of politics, one curriculum also requires students to “empathize with historical roles and personalities; shielded by the role, they can transfer their feelings and experiences into the socio-historical conditions” (HB.Pol.GY.06, p. 24). This is firstly meant to practice empathy towards people who are spatially or temporally distant from oneself. Secondly, it shows a sensitivity to the challenge of communicating personal emotions in the classroom using the detour via the historical personality as a projection. Lastly, we found that almost all of the analyzed documents aim to encourage empathy exclusively towards other humans; only one curriculum also explicitly called for “empathizing with animals” (BW.SU.GS.16, p. 12).

#### 4.3.6. Connecting facets of emotional competence

In a few cases, the different facets of emotional competence were addressed jointly. For example, one document describes the ability of learners to “perceive and describe moral emotions (for example, indignation, pity, shame, sympathy) and depict their significance for human coexistence” (BW.Eth.GY.16, p. 32). In another case, a primary school curriculum includes “learning to perceive, distinguish, allow, and share

feelings" (HB.SU.GS.07, p. 20). In these cases, the interlinked and, to some extent, sequential facets of emotional competence are integrated.

## 5. Discussion

Emotional competencies are increasingly recognized in their importance for flourishing human development. The present mixed-methods study aimed to systematically assess the structural integration of emotional competence and its five facets (knowledge, recognition, expression, regulation, empathy) in the German school system. Of the 422 assessed school curricula, ~ 40% do not mention any intent to strengthen emotional competence. On average, we found less than three references to emotional competence per document (~ one reference every thirteen pages). There was no visible trend for more recent documents to contain more references; rather, documents published in the late 2000s predicted more references than those published in other years. Considering the striking relevance of emotional competence for quality education, the current level of integration within curricula clearly does not live up to its importance for human development. In contrast to the strong prevalence of cognitive competencies in education, the few references to emotional competence reveal a considerable need to rethink how emotion and cognition are jointly addressed in education.

Looking more closely at the five facets of emotional competence, several clear differences were identified: While almost one third of all references refer to emotional expression, not even 5% refer to an improvement of emotion regulation. Indeed, emotion regulation is a pedagogically challenging facet of emotional competence. Yet, as competent emotion regulation significantly contributes to a successful life, it is critical to make it part of everyday learning by integrating it into "academic content, school routines, and regular practices" (Hoffmann et al., 2020, p. 105). Regarding the more challenging facets of emotional competence, we found that with increasing complexity (e.g., emotion regulation and empathy compared to knowledge and expression), references are located more frequently in the preamble of curricula and not in the specific content descriptions. In combination with the insufficient preparation of teachers in teacher training (Schoenert-Reichl, Hanson-Peterson & Hymel, 2015), this makes the concrete training of emotion regulation and empathy in class even less likely. Because of the unquestionable high demand that emotional education entails for teachers, it is important to keep in mind that the depth of emotional engagement can be steered by them. To work with personal emotions in the here and now, a classroom climate is required in which learners feel safe to share aspects related to their inner worlds with others (Kisfalvi & Oliver, 2015). If this is not given, alternatives can be to approach emotions from an impersonal distance through teaching about emotions (emotion knowledge), or speaking about what non-present others may feel (emotion recognition, e.g., via literature).

The regression analysis moreover revealed significant differences among school subjects: Ethics/philosophy, predicts a 5.5 times higher implementation of emotional competence. Likewise, an above-average number of references was predicted by general studies, German, and English. In contrast, information technology, economics, and natural sciences were negative predictors. However, singular references from the natural sciences were found that optimally combine subject content with the training of emotional competence. For example, in one biology curriculum, learning about the brain was combined with analyzing one's own learning processes and the impact of emotions therein. This is in line with research that shows that emotional competencies can be well developed within biology (Ferreira González, Hövel, Hennemann, Schlüter & Osipov, 2019) and in fact, teachers evaluated the implementation as a success and "observed that the pupils were motivated and showed a high level of active involvement and participation" (Ferreira González, Hennemann & Schlüter, 2019). Emotions are also central to actors' decision-making in economics theories, and therefore strongly influence market behavior (Rick & Loewenstein, 2008). In class, the

functioning of modern attention economy could be critically discussed (Zulli, 2018), e.g., recognizing and reflecting on how our own emotions influence media consumption, which again exemplifies possibilities to connect emotional competence with subject-specific content as well as self-reflection to create meaningful *Bildungs*-experiences.

### 5.1. Methodological strengths and limitations

The present study stopped at the level of curriculum analysis and therefore cannot provide information on the actual fostering of emotional competence in German schools. Nevertheless, with high relevance for the design of lessons, curricula are central input indicators of education systems, and contain strong systemic leverage to prioritize certain perspectives over others. In terms of data reliability, the comprehensive set of curricula (all federal states, primary and secondary education, all school forms, a wide range of subjects) can be assumed to well represent the total set of curricula in Germany. While the core subjects of the German education system are considered in the study, future studies could also look at other smaller subsidiary subjects as a supplement. For example, a tendency toward greater integration of emotional competence could be expected in the subjects of music and art, which, however, would not change the central conclusions of the present study with regard to the core curriculum. While no line-by-line analysis was conducted, the systematic lexical searches and rule-bound coding scheme allowed for the analysis to gain insight into the overall status of the integration of emotional competence within curricula. Also, although it would be possible to search for various other word combinations (e.g., specific emotions or social competence), we observed a strong saturation throughout our coding. Regarding our interpretation of the results, it is important to point out that it is not possible from an empirical point of view to define an ideal degree to which emotional competence should be integrated within curricula. Instead, such (normative) interpretations must rely upon comparative judgements in light of the above outlined importance of emotional competence. Quantitatively, the introduced count data is zero-inflated, considering that ~ 40% of all documents showed no reference to emotional competence whatsoever. The negative binomial regression was chosen accordingly. As for the qualitative analysis, it is important to note that the presented insights are explorative, and should not be interpreted as representative of all curricula.

### 5.2. Conclusion

Though there is a broad empirical base in modern science demonstrating the importance of SEL for a flourishing human development, the present study found insufficient anchoring of emotional competence in German school curricula. Comprehensive integration across the different subjects, age-groups and school forms would however serve as an important basis for educators to promote the social-emotional development of learners through their educational practice. This cross-sectional anchoring in curricula would then apply to all facets of emotional competencies and concern the various elements of a curriculum (in our example, the preamble and the specific content descriptions). Naturally, this has to be complemented by building the necessary skills of educators to teach emotional competence (Hoffmann et al., 2020). Teachers need to be equipped with knowledge and tools on how to address emotions in class and also embody a role model for social-emotional competent behavior. One important condition for this to happen is already given: Educators rate SEL as relevant and useful (Hamilton, Doss & Steiner, 2019). To strengthen the structural anchoring of emotional competencies in curricula and teacher education, clear and, as far as possible, binding political frameworks are required. There are plenty of such frameworks for the fostering of cognitive competencies. Considering its evident importance and current underrepresentation, it is time to strengthen emotional competencies through appropriate educational policies. As a concrete example, there

could be a requirement to involve or at least consult individuals with specific expertise regarding emotional competencies in curriculum development processes. In practice, SEL is optimally realized through a whole-school approach, enabling all stakeholders in everyday school life to contribute to a school climate of collaboration and openness for emotions (Hoffmann, Ivcevic & Brackett, 2018). Such an approach could enable meaningful learning experiences surrounded by people one (learns to) care about. Considering that optimal social-emotional functioning requires a balanced distribution of attention between the outside and inside world (Immordino-Yang, Christodoulou & Singh, 2012), high-quality education needs to equally address looking out and looking in. In the words of one curriculum assessed for this study, this could lead to a pedagogy that is “consistent with the newer understanding of the interaction of cognitive and affective processes” (BE.Eth.Sek1.15, p. 3).

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## Data availability statement

Raw data were collected and coded at Institut Futur. Derived data supporting the findings of this study are available from the corresponding author J.G. on request.

## Declaration of Competing Interest

The authors declare no conflict of interest.

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## Supplementary materials

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