Linking Rhetoric and Educational Research: The Assessment and Promotion of Secondary School Students' Presentation Competence

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ABSTRACT

Presentation competence is a core competence of the 21st century. Individuals face presentation tasks throughout their lives, starting at primary school and continuing through many different working contexts. In light of students' poor level of presentation competence upon university entry and at the beginning of their professional careers, there is a need for earlier and broad promotion of presentation competence in secondary schools. Three research areas are relevant for secondary school students' presentation competence. First, no instrument exists to measure the construct of presentation competence for the specific target group of secondary school students. Existing instruments used in the higher education context do not cover all of the relevant presentation facets based on a rhetorical foundation, and their psychometrical quality has been examined to different extents. A tool is needed to assess students' presentation competence and deduce appropriate improvement strategies based on the assessed levels. Second, it is important to identify associations with the presentation competence construct. A sophisticated assessment tool will make research on factors that undermine or strengthen presentation competence possible. Written tasks, rather than oral tasks such as delivering a presentation, are dominant in secondary school. Competently completing presentation tasks appears to be different from completing written tasks. There is a lack in research on the use of oral tests such as presentation tasks in secondary school and examining factors related to this task. Third, promoting presentation competence among this specific target group of secondary school students is relevant due to demands from higher education that presentation competence must be promoted prior to university entry. Although some training programs exist for secondary school students, effectiveness studies of such training programs have rarely been conducted.

The three studies making up the present dissertation addressed all three levels mentioned: i) the assessment of presentation competence, ii) determinants of presentation competence, and iii) the promotion of presentation competence. An interdisciplinary approach combining rhetorical and empirical educational research was applied. In doing so, the strengths of each discipline were linked in order to base presentation research on a shared understanding of presentation competence and contribute to a future interdisciplinary presentation research.

All three studies are embedded in the context of Youth Presents, the biggest national presentation contest for secondary school students in Germany. First, a new instrument to assess presentation competence was developed, the Tübingen Instrument for Presentation Competence (TIP). *Study 1* examined the quality of the TIP. It consists of 22 items subsumed under six different presentation facets derived from rhetorical theory: addressing the audience, structure,

language use, body language & voice, visual aids, and content credibility. The analysis included tests of the TIP's objectivity, reliability, and validity: Acceptable interrater reliability (objectivity) was found for 15 items. These were used for further analysis. Test-retest analyses of the instrument (reliability) indicated acceptable stability for most of the items. An exploratory factor analysis (EFA) revealed a factor structure corresponding to the assumed presentation facets. The results of correlating the TIP with other ratings of presentation competence, i.e., experts' live ratings and students' self-reports, or to other presentation competence-related constructs, such as speech anxiety and students' school grades in German language arts mainly supported the validity of the TIP.

Study 2 focused on factors associated with presentation competence. It examined the relationship between presentation competence and personality traits. In the study, presentation competence was assessed from different perspectives: external ratings (video ratings and experts' live ratings) and self-reports. The study found a stable and consistent relationship pattern between Extraversion and presentation competence measured via external ratings. When using students' self-reports of presentation competence, a stable and consistent negative relationship with Neuroticism was found.

Study 3 examined the effectiveness of a short presentation training. The study used a wait-list control group design with pretest and posttest. Students' presentation competence was measured via external ratings as well as students' self-reports. This effectiveness study found positive training effects on the addressing the audience scale as well as on one item referring to structure (closing a presentation) and one item referring to content credibility (presentation with a clear question). With respect to students' self-reported presentation competence, the study found training effects on language use and body language & voice.

In summary, this dissertation extends the perspective on presentation competence by focusing on secondary school students and applying an interdisciplinary lens. The dissertation closes with an overall discussion of the three studies' findings. Implications for research and educational practice are derived for both disciplines, rhetoric and empirical educational research. Simultaneously, the limitations of the studies suggest potential avenues for future research regarding the three research areas of assessing presentation competence, determinants of presentation competence and fostering this competence.

ZUSAMMENFASSUNG

Präsentationskompetenz ist eine Schlüsselkompetenz im 21. Jahrhundert. Sowohl in der Schule als auch im Arbeitsleben stehen Menschen vor der Aufgabe, Wissen mündlich an ein Publikum weiterzugeben. Allerdings wird bei jungen Erwachsenen häufig ein Mangel an Präsentationskompetenzen konstatiert. Deshalb ist eine Förderung von Präsentationskompetenz insbesondere in der Sekundarstufe von zentraler Bedeutung. Drei Forschungsschwerpunkte rücken dabei in den Fokus. Der erste Forschungsschwerpunkt liegt auf der zuverlässigen Erfassung der Präsentationskompetenz von Sekundarstufenschüler*innen. Ein qualitativ hochwertiges Instrument ist notwendig, um beispielsweise die Fähigkeiten der Zielgruppe einschätzen zu können und um passende Trainingsprogramme zu entwickeln und deren Effektivität zu überprüfen. Momentan vorliegende Instrumente wurden primär im Hochschulkontext entwickelt und ihre Qualität in sehr unterschiedlichem Ausmaß überprüft. Zudem gibt es kein Instrument, das als Ausgangspunkt für seine Konzeptionierung Präsentationsfacetten berücksichtigt, die aus der Rhetoriktheorie abgleitet sind. Ein zweiter Forschungsschwerpunkt konzentriert sich auf intrapersonelle Faktoren, die mit Präsentationskompetenz in Zusammenhang stehen. Für die kompetente Lösung von schriftlichen und mündlichen Aufgaben in der Schule ist anzunehmen, dass unterschiedliche individuelle Eigenschaften wie die Persönlichkeit eine Rolle spielen. Bislang gibt es kaum Forschung, die die Leistung beim Präsentieren in den Fokus nimmt und Persönlichkeitsfaktoren untersucht, die mit dieser in Verbindung stehen. Ein dritter Forschungsschwerpunkt zielt auf die Förderung der Präsentationskompetenz von Sekundarstufenschüler*innen. Obwohl bereits einige Trainingsprogramme vorliegen, gibt es nur wenige, die hinsichtlich ihrer Effektivität überprüft wurden. Mit ihren drei Studien adressiert diese Dissertation alle drei Forschungsschwerpunkte: i) Erfassung, ii) beeinflussende Faktoren und iii) Förderung von Präsentationskompetenz. Dabei wird ein interdisziplinärer Ansatz verfolgt. Die Stärken der Rhetorik und der empirischen Bildungsforschung werden miteinander verknüpft und ein gemeinsames Verständnis der Präsentationsforschung wird herausgearbeitet. Alle drei Studien fanden im Rahmen von *Jugend präsentiert* statt, einem nationalen Präsentationswettbewerb für Sekundarstufenschüler*innen in Deutschland.

Zunächst wurde ein Instrument zur Erfassung der Präsentationskompetenz entwickelt, das Tübinger Instrument für Präsentationskompetenz (TIP). *Studie 1* untersuchte dessen Qualität. Das TIP besteht aus 22 Items, die den sechs Präsentationsfacetten (Adressatenorientierung, Struktur, sprachlicher Ausdruck, Körpersprache & Stimme, visuelle Hilfsmittel und inhaltliche Glaubwürdigkeit) zugeordnet werden können. Die Qualitätsanalyse

umfasste Tests zur Objektivität, Reliabilität und Validität des TIP. Eine akzeptable Interrater Reliabilität (Objektivität) zeigte sich für 15 Items. Diese Items wurden für die weiteren Testanalysen verwendet. Eine Test-Retest-Untersuchung des TIP (Reliabilität) deutete auf eine akzeptable Stabilität des Instruments hin. Eine explorative Faktorenanalyse ergab eine Faktorenstruktur, die den angenommenen Präsentationsfacetten entspricht. Die Korrelationsanalysen des TIP mit weiteren Ratings, Experten-Live-Ratings und Selbsteinschätzungen sowie mit Redeängstlichkeit und Deutschnoten (Validität), enthalten Ergebnisse, die überwiegend die Validität des TIP stärkten.

Studie 2 untersuchte Faktoren, die im Zusammenhang mit der Präsentationskompetenz stehen. Im Fokus stand die Untersuchung des Zusammenhangs von Schülerleistungen in Präsentationsaufgaben mit Persönlichkeitsfaktoren der Schüler*innen. Es wurden sowohl Fremdeinschätzungen der Präsentationskompetenz (Videoratings und Experten-Live-Ratings) als auch Selbsteinschätzungen verwendet. Für die Fremdeinschätzungen konnte ein robustes Zusammenhangsmuster zwischen Extraversion und Präsentationskompetenz gefunden werden. Für die Selbsteinschätzungen der Schüler*innen zeigte sich ein negatives Muster zwischen Präsentationskompetenz und Neurotizismus.

Die Effekte eines kompakten Präsentationstrainings untersuchte *Studie 3*. Dazu wurde ein randomisiertes Wartekontrollgruppendesign mit Prä- und Posttest verwendet. Die Präsentationskompetenz der Schüler*innen wurde mit Fremd- und Selbsteinschätzungen gemessen. Für die Fremdeinschätzungen fanden sich positive Trainingseffekte auf der Präsentationsfacette Adressatenorientierung sowie auf zwei Einzelitems zum Präsentationsende (Facette: Struktur) und zur Fragestellung einer Präsentation (Facette: inhaltliche Glaubwürdigkeit). Für die Selbsteinschätzungen zeigten sich positive Trainingseffekte auf den Präsentationsfacetten sprachlicher Ausdruck und Körpersprache & Stimme.

Mit den drei Studien erweitert diese Dissertation die Präsentationsforschung, indem ein interdisziplinärer Ansatz verfolgt und der Fokus auf Sekundarstufenschüler*innen gelegt wurde. Die Ergebnisse der Dissertation werden diskutiert und Implikationen für die Forschung als auch für die Bildungspraxis abgeleitet. Abschließend werden anhand der Limitationen für alle drei Forschungsschwerpunkte – Erfassung, Determinanten und Förderung der Präsentationskompetenz – zukünftige Forschungsvorhaben aufgezeigt.

CONTENTS

1

Introduction and Theoretical Framework

1 Introduction and Theoretical Framework

Today, public speeches are predominantly accompanied by visual information (see Cyphert, 2007; Kramer, 2010). If this is the case, the speeches must be classified as presentations (Geldmacher, 2010). The growing relevance of such visually supported speeches is observable not only in professional but also in educational contexts (Knoblauch, 2008). This in turn means that more and more people face presentation tasks. Thus, presentation competence has become a core competence in knowledge societies (Knoblauch, 2008) of the 21st century (van Ginkel et al., 2015). The ability to competently complete presentation tasks affects individuals' success in education, their professional careers, personal lives, as well as civic participation (Morreale & Backlund, 2007).

In the educational context, presentation tasks play a role at all levels (De Grez, 2009). This is because presentation competence has been integrated into educational standards. It forms part of the curriculum not only in higher education (e.g., Langan et al., 2005; Pearson et al., 2006), but also in secondary (Australia: Board of Studies NSW, 2013; England: Department for Education, 2014; Germany: Kultusministerkonferenz, 2003; Switzerland: EDK, 2011; United States: Common Core State Standards Initiative, 2010) and primary school education (e.g., United States: Common Core State Standards Initiative, 2010; Switzerland: EDK, 2010; Germany: Ministerium für Kultus, Jugend und Sport Baden-Württemberg, 2016a). In addition, presentation competence is relevant across the curriculum and not limited to any specific school subject (e.g., Dannels & Housley Gaffney, 2009). Accordingly, schools have a responsibility to promote students' presentation competence.

Beyond the educational context, presentation competence remains relevant for many adults as it contributes to professional career advancement (Indartono et al., 2017). Frequent presentations are part of workers' job tasks in many professions. This is true for many different occupational fields, such as business (e.g., Marcel, 2014) and teaching (e.g., Apel, 2002), as well as engineering (Morton & Rosse, 2015), technology-associated workplaces (e.g., Stevens, 2005), and scientific research (e.g., Bucher et al., 2010). Hence, presentation competence is considered a key qualification for many professions (Indartono et al., 2017). Some sectors even list this competence equal to or even higher than other qualifications, such as teamwork, problem-solving skills, and technical skills (Alshare & Hindi, 2004; Beebe & Beebe, 2018; Böhme, 2015). Apart from career benefits, presentation competence is also valuable in individuals' personal lives (Morreale & Backlund, 2007). It is related to self-esteem as well as willingness to communicate (Morreale et al., 1995; Morreale et al., 1998) and leads to a higher level of speaking confidence (Hay, 1994). In addition, Emanuel (2005) reports that presentation

competence is an important factor for upward mobility. Overall, presentations have become an ongoing part of many people's jobs and lives, meaning that they need to invest resources in preparing and delivering presentations. According to Knoblauch (2008), the frequent employment of presentations across diverse contexts also shows that knowledge transmission has become more and more important in today's society.

Despite its relevance across life domains, a poor level of presentation competence has been reported among first-year students in higher education (e.g., Dorée et al., 2007; Dynkowska et al., 2012; Nippold et al., 2005; Scott & Windsor, 2000). Students have difficulties communicating clearly and demonstrating their research's relevance (Chan, 2011). Employers also report poor presentation competence among entry-level employees (see Shauki & Benzie, 2017). Thus, the promotion of presentation competence has becoming increasingly important, as employers see educational institutions as responsible for improving students' presentation competence (D. Jackson, 2014). In the higher education context, several training programs have been developed in the US and Europe to foster students' presentation competence in recent years (e.g., Morreale et al., 2010; Pearson et al., 2006). Some of these programs have been examined regarding their effectiveness, with findings indicating that they can increase students' presentation competence level (e.g., R. A. Clark & Jones, 2001; De Grez, Valcke, & Roozen, 2009a; Mitchell & Bakewell, 1995). However, while numerous training programs are available in higher education, such programs do not reach all persons for whom such training could be potentially relevant. Specifically, individuals who start working after secondary school do not receive such presentation competence training. Even students who plan to attend university later often face critical presentation situations earlier. For example, presentation tasks are part of secondary school completion exams or entrance examinations for university admissions and scholarships. Poor presentation competence might impact students' performance on these high-stakes exams and therefore their further success. In addition, the primary instructional goal of university degree programs is not to train students' presentation competence. Therefore, there has been a call for the broader and earlier promotion of presentation competence in secondary and primary school (e.g., Herbein, 2017; Hunt et al., 2014). In secondary school, several presentation training programs exist that foster basic presentation competence step-by-step (Böhme, 2015). Some have been tested in practice, but none have been examined in terms of effectiveness using a sophisticated study design. Effectiveness studies of presentation training programs often do not meet methodological standards and base their findings on post-test measures without a (randomized) control group (e.g., Cavanagh et al., 2014; Mallard & Quintanilla, 2007). Accordingly, evidence-based

approaches to improve secondary school students' presentation competence still remain the exception rather than an established standard (e.g., Böhme, 2015). This dissertation addresses this research gap by thoroughly evaluating a presentation training program for secondary school students. To increase quality, an interdisciplinary approach, linking rhetoric and educational research, was chosen. A sophisticated research design was used to examine the effectiveness of a short extracurricular presentation training program for this specific target group.

Before investigating the effectiveness of the training program under study, it is first necessary to define the competence to be promoted and discuss how to measure it. Measuring presentation competence is challenging. Definitions of presentation competence differ across disciplines and, accordingly, existing instruments differ in their theoretical backgrounds. Although, the field of rhetoric provides well-established theoretical background concerning presentation competence and looks back on a long research tradition, a sound assessment tool is missing. This makes a comprehensive, uniform assessment across disciplines difficult. In addition, existing instruments are primarily applied in higher education and with young adults. These instruments include different numbers of items focusing on different facets of presentation competence; their psychometric properties have been tested to varying extents. In summary, there is need for an instrument that a) assesses presentation competence from an interdisciplinary perspective, yet one rooted in rhetorical theories and assumptions, and b) has been empirically tested using methodological approaches from empirical educational research. Furthermore, an instrument suitable for use with secondary school students is required. This dissertation addresses these needs by developing a new instrument that builds on existing, established instruments for assessing presentation competence. This provides a starting point for further interdisciplinary research.

A sound instrument allows assessment of secondary school students' presentation competence in order to examine their development and performance level. Furthermore, identifying determinants that either positively or negatively influence presentation competence can support the development of targeted programs for specific groups of students. To date, determinants of presentation competence which have been intensively investigated include presentation self-efficacy (e.g., Amirian & Tavakoli, 2016; De Grez, Valcke, & Roozen, 2009a; Ringeisen et al., 2019) and speech anxiety (e.g., Daly et al., 1995; Marcel, 2019; Pearson et al., 2007). In contrast, personality traits are often considered as determinants of other school-related outcome variables, such as general school achievement in general. In the latter area, a stable relationship pattern has been found – for example, the importance of conscientiousness is highlighted. However, the relationship between personality traits and presentation competence

has only been examined in the context of higher education and second language learning (e.g., Liang & Kelsen, 2018), and there only to a small extent. These studies focused on speaking variables that are merely similar to presentation competence. Thus, it is an open research question whether personality traits are determinants of presentation competence in younger samples. Consequently, this dissertation examined the relationship between personality traits in terms of the well-established Big Five framework and presentation competence among secondary school students.

To investigate these research areas, this dissertation employed an interdisciplinary approach combining rhetorical and empirical educational research. This approach was chosen because both disciplines address questions related to the assessment, determinants and promotion of presentation competence using domain-specific theories and methodological approaches. Rhetorical theory looks back on a long tradition, as it is rooted in ancient times. This discipline addresses effective and appropriate communication by taking a broad, systematic view of communication processes (McCroskey, 2000). Although the format of giving a presentation is relatively new in speech-based communication, rhetorical theory, which has traditionally focused on speeches and what makes them effective, offers important considerations for today's presentation context. In contrast, empirical educational research focuses primarily on educational processes (Bromme et al., 2017; Gräsel, 2011). This perspective can contribute to examining presentation competence on a more empirical basis. Moreover, by combining rhetorical and empirical educational research, both disciplines can benefit from one another. An interdisciplinary approach can contribute to creating a common understanding of presentation competence in order to advance presentation research in a way that is accepted in each discipline.

To address the aforementioned research areas and open research questions, the present dissertation is structured as follows: the first chapter addresses the theoretical background of the three empirical studies and delineates their broader research context. The first subchapter (1.1) concerns the conceptualization of presentation competence. It aims to define presentation competence on a rhetorical basis. Based on this conceptualization of presentation competence, the second subchapter (1.2) deals with the assessment of presentation competence. This dissertation addresses the appropriateness and effectiveness of presentation competence, our ability to measure it, as well as different measurement perspectives, i.e., external ratings and self-reports. Furthermore, existing presentation competence instruments are introduced. The last subchapter (1.3) focuses on the promotion of presentation competence. It first examines relevant determinants of presentation competence among the target group of secondary school

students, before deducing relevant core components of presentation trainings. Following these theoretical considerations, the research questions addressed in this dissertation and its three empirical studies are presented in the last section (1.4). The studies themselves are presented in Chapters 2, 3, and 4. Finally, in Chapter 5, the findings of the three empirical studies are discussed and integrated into the broader research context. Implications for research and educational practice as well as future research questions are discussed.

1.1. Theoretical Conceptualization of Presentation Competence

Presentations supported by the use of visual aids are a common and widespread speech format. They are utilized in many different contexts, from school education up through to professional life. However, despite its relevance in society, there is not much education on presentation competence. Universities and companies have noted underdeveloped presentation competences among first-year university students and entry-level job candidates. Although various training programs have been implemented in higher education, complaints about poor presentation competence levels remain. Consequently, there is a need to focus on secondary school education in order to promote this important tool for first-year university students and entry-level job candidates.

Different disciplines focus on presentations, including rhetoric, empirical educational research, linguistics, instructional psychology and speech communication. Each discipline has its own body of knowledge and methods for assessing, developing and fostering presentation competence. This dissertation applies an interdisciplinary approach, focusing in particular on presentation research in the rhetorical and empirical education disciplines. Hereby, the rhetorical field can benefit from empirical education research and vice versa. The rhetorical field is included because it encompasses broad knowledge about speeches that can be transferred to presentation research. Since the beginning of this discipline in ancient times, it has dealt with capturing, developing and fostering speech skills (McCroskey, 2000). A prominent method in the rhetorical discipline is the hermeneutical approach, which refers to text interpretations (Grondin, 1996). In addition, the classical rhetorical literature from ancient times greatly affected the following centuries, up to and including the present (Ueding & Steinbrink, 2011). Thus, it provides central reference points for current considerations. Moreover, alongside the rhetorical perspective, this dissertation is rooted in empirical educational research, which primarily focuses on assessing, developing and fostering competences in educational contexts (Gräsel, 2011), specifically the learning and teaching contexts. This dissertation applies the education discipline's empirical methods to supplement existing rhetorical expertise.

The goal of this subchapter is to conceptualize presentation competence in order to create a foundation for measurement. First, the presentation task must be defined. To do so, the rhetorical perspective is considered to elucidate the meaning of different characteristics of this task. Due to similarities between the speech format and the presentation format, the rhetorical perspective gives insights into the complexity of presentation tasks. Hence, this dissertation

draws upon the rhetorical perspective on these presentation task characteristics in order to deduce demands and challenges for the speaker (see 1.1.1). In a second step, the focus lies on how to solve this presentation task, i.e., presentation competence. The presentation competence construct combines both the rhetorical and education disciplines. The rhetorical discipline highlights the quality of solutions to the presentation task and provides the basis for identifying necessary facets of presentation competence (see 1.1.2). Finally, focus shifts to the presentation task in the secondary school context. This dissertation classifies the presentation task within both oral and written education, which can be seen as two poles on a spectrum (see 1.1.3).

1.1.1. Challenges of completing a presentation task: The rhetorical perspective

There is agreement among researchers regarding the characteristics of the presentation task (e.g. De Grez, 2009; Herbein, 2017). The following description represents an interdisciplinary definition of the presentation task. The setting of the presentation task consists of the speaker's physical presence, an audience of at least one person and a subject of speech. Within this situational setting, the speaker's task is to deliver a monological oral speech, constrained by limited speaking time and limited audience interaction. Key differences to other speech formats are the use of visual aids (Geldmacher, 2010) and the main goal of informing the audience (Herbein, 2017). Furthermore, within this dissertation, the presentation task is specifically regarded from secondary school students' perspective.

The goal of this subsection is to illustrate the rhetorical relationships among the characteristics of the presentation task in order to help understand the complexity of the presentation task. Therefore, the significance of and interrelations among the different components of the presentation task are discussed from a rhetorical perspective. Since the beginning, rhetorical theory has focused on situational and communication challenges for the speaker during a speech. In this dissertation, this existing rhetorical knowledge is transferred to the presentation task. Moreover, based on a detailed rhetorical understanding of the characteristics of the presentation task, this subsection elucidates the resulting challenges for the speaker during a presentation.

The rhetorical foundation

Prima facie, the presentation task includes all three constitutive entities of a speech according to Aristotle's speech model: i) audience, ii) subject matter, and iii) speaker (Aristotle, Rhetoric, 1358b). Among these entities, the audience occupies a position of importance because the audience determines the speech. A speech's intentions are related to the audience.

Therefore, the audience is not only the starting point of speech preparation but also serves as an ongoing orientation point for a speech. According to Pepe's historical perspective on ancient rhetorical theory, Aristotle considered the audience as predominant for rhetorical actions (Pepe, 2013).

The subject matter represents the material of the speech. In a speech, the content (*res*) is realized through verbal language (*verba*). Rhetorical theory elucidates the relation between *res* and *verba* (Eggs, 2005), stressing that both poles are important: identifying the content (*res*, what is talked about) as well as shaping the content (*verba*, how it is communicated). Rhetorical theory provides differentiated systems for considering the *res* and *verba* poles: for example, a collection of rhetorical figures that transfers thoughts into forms – referring to *verba*, or *topoi,* a systematic method for finding supportive arguments – referring to the *res*. However, both poles must be related to each other. According to Quintilian (Institutio oratoria, II, 21, 1-2), words have to refer to the content matter, otherwise they are of no effect. Therefore, the rhetorical work is to express the subject matter through words. The rhetorical assumption, the union of form and content, challenges the speaker to constantly monitor the relations between the two and change the form when the content changes and vice versa (Hasle, 2006).

With regard to Aristotle's third constitutive element, Knape (2000c) notes that the speaker (*orator*) is defined as a strategic communicator. The *orator* has to anticipate the situation, make strategic calculations, and prepare plans (Knape, 2000c). In order to make the right rhetorical decisions, i.e., to select and apply suitable rhetorical means, the ideal *orator* must possess *iudicium,* a kind of practical wisdom or practical judgment (Wagner, 1998). As the user of the art of rhetoric, the speaker must be aware of his/her duties in a speech. For example, a central rhetorical concept based on the three constitutive elements of a speech is Aristotle's deduction of the three rhetorical proofs for convincing the audience in a speech (Aristotle, Rhetoric, 1356a): *logos*, *ethos*, and *pathos*. *Logos* refers to the subject of a speech and its factual argumentation, *ethos* refers to the speaker's credibility, and *pathos* is directed at the audience's emotional state. The speaker's duty is to address all three of these rhetorical proofs in a speech (Robling, 2005). This indicates that persuasive communication is not based on pure *logos* but rather takes into account the human being as a creature with both emotions and rationality.

The three components, audience, subject matter, and speaker also represent central characteristics of the rhetorical situation (Gottschling & Kramer, 2012). A speech takes place in a specific situation, encompassing a specific time and a specific place. The rhetorical situation refers to the circumstances of the speech, which involve constraints and consequently

determine the speech (Bitzer, 1968). The speaker's challenge is to center and involve the audience because it is the audience who serves as the goal and the starting point of a presentation. The speaker has to deal with both the subject matter itself and the expression of the subject matter because the two are inseparable; furthermore, the suitability of their relationship to one another must be continuously monitored, including but not limited to when content or words change. The speaker's multifaceted duties to address the audience's intellectual skills by arguing the subject matter, while simultaneously highlighting his or her own credibility and the audience's emotional state, represent the basic determinants of an effective presentation. The constitutive elements of a speech - a speaker, a subject matter and an audience - also refer to the presentation situation and its constraints to which speakers must adapt.

The development of the speech format: The role of visual aids

Presentations' inclusion of visual aids as a crucial element of their situational setting (Geldmacher, 2010) points to a further development of the classical speech format. These visual aids can include analog media, e.g., chalkboards and posters, or digital media, e.g., projected slides. These media extend both the situational speech setting and the communicative framework because they include additional (visual) information (Knape, 2000c). From a rhetorical perspective, visual aids are communicative tools in a presentation that help affect the audience in accordance with the speaker's intentions. Before using such visual aids in a presentation, the speaker must assess their impact and their underlying mechanisms (Knape, 2000c). Media has self-reinforcing tendencies; for example, when a speaker uses digital media, the digital presentation software determines whether the information is presented in a linear way (e.g., PowerPoint slides) or a non-linear way (e.g., Prezi; Casteleyn et al., 2015). Thus, the selection of software has communicative consequences for information transfer. Consequently, the role of the selected media has to be taken into account, as it increases the complexity of message transfer in the presentation task.

Although ancient rhetoricians did not study visual aids from today's point of view (e.g., digital media), they provided first considerations concerning the connection between visualization and rhetoric (Kjeldsen, 2003). Based on Gorgia's and Quintilian's reflections, Kjeldsen (2003) identified a "direct ocular rhetoric" (p. 133) approach in ancient rhetoric, i.e., presenting a direct visual to the audience's eyes through the speaker's appearance, by showing objects, or referring to the surroundings. This approach supports argumentation, evokes emotion, and contributes to understanding. However, the visual turn (Bachmann-Medieck,

2008) resulting from technological development has put visualization into increased focus. According to Foss (2005), visual artifacts become part of visual rhetoric when they are strategically presented to an audience in a communication act. Because there is no such thing as pure information in a visual aid, the speaker must start a rhetorical process and create and contextualize the visual aid in a way that supports the communicative goal (De Almeida, 2009). Transferred to the presentation task, this rhetorical perspective emphasizes that visual aids must be integrated and contextualized within a presentation in order to be supportive.

From today's point of view, presentation settings have become very complex due to visual aids such as posters or digital slides. To more precisely describe the complex presentation setting including visual aids, the terms of multimediality, multimodalitiy and multicodality are useful. Multimediality refers to the use of various media in a single presentation (Bucher et al., 2010). Not only is it possible to use manifold media, each medium provides different possibilities to visualize information. Moreover, the integration of visual aids increases the complexity of a presentation by incorporating multimodality. The term "modality" refers to sensual perception. Hence, visual aids address the visual modality, spoken language the verbal modality and body language the performative modality (Bucher & Niemann, 2012; Dynkowska et al., 2012). In a presentation, these modalities are addressed simultaneously, which is why it is crucial to take into account the interplay between them. In addition, the visual aids in a presentation also increase its multicodality. The term "multicodality" refers to the different codes a presentation includes. For example, the written code, oral code, and code of body language are all based on different code systems. Some code systems, such as body language, do not even have a grammar, which further increases the complexity of the presentation format (Argyle, 1989). Özsarigöl (2011) highlights how the simultaneity of multiple codes, modes and mediality within a presentation results in an important challenge encountered by the speaker in a presentation task. Specifically, the speaker must deal with this simultaneity and be able to coherently, i.e., meaningfully, employ it.

In summary, visual aids within presentations extend the setting and increase the complexity compared to classical speeches without visual aids. Moreover, the complexity of presentations continues to grow with the emergence of new media offering new possibilities. The complexity of a presentation, which is based on its multimediality, multimodality, and multicodality, refers to the difficulties a speaker faces in handling the presentation situation as well as the increased demands on the audience when processing a presentation. The rhetorical perspective on visual aids in the presentations context highlights the strategic use of visual aids, which includes understandings the communicative mechanisms and meanings as well as the

constraints of specific media. In addition, the speaker must give the visual aids context within a presentation using rhetorical processes.

Orality and its challenge for the speaker

Alongside the situational setting, the main task of oral monological speaking also requires detailed consideration from a rhetorical standpoint. In the rhetorical perspective, the oral dimension of a speech is considered particularly powerful and even superior to written words. According to Isocrates (Philipp, 24-26), one of the first ancient teachers of rhetoric, orality helps to improve the audience's impression because the speaker himself/herself is on stage with his/her voice and can react to sudden events. The term "delivery" refers to the performance of a speech in a speaking situation. According to Cicero (De oratore, III, 213), delivery has the most power in oral speaking situations. It is considered the most significant element of the art of rhetoric (Aristotle, Rhetoric, 1404a).

As already indicated with respect to the situational setting, the physical presence of the speaker and the audience in the same room has consequences for the oral dimension of the speech (e.g., Fiehler, 2012; Nell-Tuor, 2014). It implies interactivity between the two. This interactivity even takes place in a monological presentation setting to a limited extent, e.g., the audience nodding their heads represents communicative feedback for the speaker. Thus, the speaker's task is to form a relationship with the audience, for example through perspective-taking (Batson et al., 2016), or by taking into account politeness conventions (Nell-Tuor, 2014). Perspective-taking addresses the aforementioned fundamental rhetorical principle of connecting the speech and the audience (Knape, 2000c). The strong situational relatedness resulting from the physical presence of both parties is a further common characteristic of oral communication (Feilke, 2011). The fact that the speaker and the audience are located in the same room creates a context that the speaker can refer to. This situational relatedness enables the speaker to use incomplete sentences or repetitions (Nell-Tuor, 2014). The ancient rhetoricians already identified a specific oral style (Aristotle, Rhetoric, 1414a). Aristotle argued that oral style requires a louder voice due to the large audience, as opposed to the higher exactness of the written style. In addition, Quintilian (Institutio oratoria, X, 1, 19) identified rapidness and uniqueness as central characteristics of oral communication, in contrast to written communication, which relies on the possibility of revising the content. This in turn refers to the relevance of norms for the oral dimension. There is no fixed norm for oral speaking based on contextual criteria. Written communication can refer to orthography, but there is no equivalent for the oral dimension (Argyle, 1989). Another characteristic that is particularly significant for

this dissertation is the fact that oral communication is based on sequentiality and fluidity (Feilke, 2011). After communication is realized, oral utterances vanish (Nell-Tuor, 2014). In contrast to written texts, the only way oral utterances can be remembered and recalled is when they address the audience's listening perspective. From the rhetorical perspective, fluidity and sequentiality highlight the significance of planning and delivering a speech from the situational perspective of the audience, so that information transfer can take place. The speaker has to do something to ensure that the information is retained. Fluidity is also challenging, as we see in the conceptualization of presentation competence assessment (see 1.2.1), because assessments must take place immediately after the communication, unless they are video-recorded or audio-recorded. However, the latter two can include specific biases that must be addressed.

In conclusion, the characteristics of orality make the presentation task complex. The speaker has to not only produce a text but also deliver it within the presentation setting. This physical presence and resulting delivery of the speech can be considered a presentation's ultimate impact on the audience. Orality challenges the speaker to engage in relationship management with the audience, and to take into account that his/her utterances are rooted in situational relatedness, which requires an oral style. This relates to the rhetorical assumptions of linking the speech and the audience as well as deducing the appropriate action based on the specific oral setting.

Reaching the goal: The strategic orientation in a presentation

In a presentation, the main goal is to inform (see De Grez, 2009; Geldmacher, 2010; Herbein, 2017). Further presentation formats with potential different goals, such as pitch presentations (C. Clark, 2008) or TED talk presentations (Gallo, 2014), have emerged in recent years. However, this dissertation specifically focuses on presentations in the secondary school context with the main goal of informing the audience.

From the rhetorical perspective, a speech requires a strategy and a plan for executing this strategy. The primary precondition for the strategy is the goal, *teleos*, which serves as the central orientation of the speech (Knape, 2000a). Different classical speech formats involve different goals. In a deliberative speech, the speaker advises or dissuades; in a judicial speech, the speaker accuses or defends; and in an epideictic speech, the speaker praises or blames, to name only a few (Aristotle, Rhetoric, 1358b). Although these goals differ from the main goal of a presentation, informing also falls within an orator's repertoire. Based on the *logos, pathos, ethos* concept, Cicero identified three means of persuasion: informing, moving, and pleasing the audience (*docere*, *delectare*, and *movere;* see Cicero, De oratore, 2, 114). Consequently,

informing falls within the rhetorical consideration and creation of a speech. In addition, rhetorical theory points to secondary goals. For example, the goal of the introduction, to capture the audience's attention, is in service of the main goal (Seebert, 2017). Without attention, listening is not possible (Styles, 2006).

Transferred to the presentation task, this rhetorical orientation towards the goal means that the speaker is challenged to identify the main informative goal of the subject matter. This main goal depends on the audience, the motive of the speech, the situation, and the presentation time format. The secondary goals identified in rhetorical theory must be in service of the main goal. While subordinate, they falls within the general speech concept as they refer to fundamental rhetorical and communication principles, e.g., making sure that the audience pays attention. The speaker's challenge is to keep the main goal in sight and manage the side goals.

Persuasion in a presentation

When referring to rhetorical theory to illustrate the complexity of the presentation task, the most prominent rhetorical category cannot be neglected: persuasion. This term refers to a key category in rhetorical theory and denotes the change a speaker wants to create in the audience through rhetorical actions (see Knape, 2000b). This change can take place in terms of attitude, opinion or behavior. But does persuasion play a role in a students' presentation that aims to inform the audience?

Firstly, factual texts are not as objective as they appear to be. Based on a critical rhetoric approach, Kramer's rhetorical analysis of factual texts (2019) shows that these texts, embedded in a social and communicative context, include subjective purposes by the authors. Accordingly, factual texts aim to make the factual content accessible to the audience, motivate the audience to process the information presented or create a specific image that demonstrate the author's expertise or credibility. Thus, factual texts integrate persuasion. Based on this understanding, presentation tasks require persuasive efforts by the speaker. As persuasion is embedded even in texts that are seemingly only fact-oriented, it would be naïve to assume, that the process of informing can be strictly separated from the process of persuading.

Secondly, as described above, the audience takes on a predominant role in a presentation. From an audience's perspective, learning is always addressed when examining processes of information transmission. According to today's learning models, learning goes beyond transmission of information. The learner takes on an active part in the learning process (Wild & Möller, 2015). Learning depends on individual characteristics, such as prior knowledge, pre- or misconceptions, motivational level, or prior beliefs as well as contextual

factors such as the class, the teacher and his/her teaching unit, the school. In a learning and teaching context, it is the teacher who takes these influencing factors into account when developing a teaching unit. Hence, a teacher knows that processing information of the learner depends on the construction of the teaching unit and the learner's utilization of the learning opportunity. This approach is condensed in utilization-of-learning-opportunities models (e.g., Seidel, 2014). A presentation is comparable with the direct instruction method in the teaching context (Apel, 2002). It is the speaker who creates a presentation (comparable to the learning opportunity) which is adapted to the learners' characteristics in such a way that makes learning possible. The better the learning opportunity takes into account the learner's individual characteristics and contextual factors, the higher the likelihood that learning, i.e., processing information, takes place.

In line with the utilization-of-learning-opportunities models, persuasive pedagogy is an instructional teaching approach (Hennessey et al., 2012; P. K. Murphy & Mason, 2012) that combines rhetorical thinking, information transmission and learning. This approach highlights the relevance of prior understanding and prior beliefs for the learning process. It makes also the teacher aware of the fact that new information could be in conflict to existing knowledge, beliefs or understandings of the learner. Persuasive pedagogy shows that the teacher has to solve this conflict so that new information and or new knowledge can be accepted and integrated into the learner's system. This approach characterizes rhetorical thinking and refers to persuasive efforts in a presentation. The speaker has to adapt the message to the audience as much as possible. For anticipating and solving conflicts which can be caused by new information, persuasion is required. For example, according to Hennessey and colleagues (2012), when there are erroneous beliefs underlying the knowledge (e.g., "a parabola only opens in an upward direction", p. 198) that hinders to process or accept new information, these beliefs have to be changed. Likewise, when the audience has difficulties understanding, the speaker has to overcome these difficulties or obstacles (Rowan, 1995). In addition, when the audience signalizes boredom, the speaker has to change the audience's emotional state into a more appropriate, motivated emotional state to make information processing possible (Knape, 2000b).

Concludingly, from this rhetorical perspective, persuasion remains a relevant part in a presentation task. Persuasion is interrelated with the goal of information transmission. Adapting the presentation to the audience's needs can be considered as a rhetorical action that also requires persuasive efforts. Consequently, the presentation task refers to the fact that informing the audience is complex, can fail, and requires rhetorical considerations.

In summary, considering the characteristics of the presentation task from a rhetorical perspective points to the task's complexity. Each of the constitutive elements of the situational setting – audience, subject matter, speaker – creates its own demands for the speaker. The inclusion of visual aids in presentations increases the complexity by providing additional communicative tools that require competent use and reflection concerning their communicative potential and constraints. In light of the various new digital visual aids that have been developed, complexity continues to remain part of the presentation task. Speaking within the situational setting of a presentation further adds delivery components to this complexity. From a rhetorical perspective, delivery is not only seen as challenging but also as a component with no fixed norms in the way a grammar exists for written texts. Although the main goal is to inform, secondary goals based on rhetorical functions have their place in a presentation as well and must be strategically planned for by the speaker. Persuasive considerations further highlight that change processes also take place in presentations. Moreover, these numerous components occur simultaneously, resulting in a challenging situation for the speaker. The coordination and use of different communicative components are challenging for students who make presentations. Hence, to competently solve the presentation task, a detailed view of the components relevant for competent presentation behavior is necessary.

1.1.2. Definition of presentation competence

The rhetorical perspective on the characteristics of the presentation task indicates that the presentation task is complex and reflects a challenging situation for the speaker. Hence, relevant components of the speaker's successful mastery of the presentation task are important to identify. Therefore, the goal of this subsection is to define presentation competence. In doing so, this dissertation delineates competence approaches relevant for the definition of presentation competence. The conceptualization of presentation competence provides the fundamental reference point for measurement (see 1.2). The definition of presentation competence proposed in this dissertation interlinks the traditional rhetorical approach with the conceptualization of presentation competence. Furthermore, this subsection identifies facets of presentation competence – indicative of presentation quality – based on rhetorical considerations. These presentation facets are also examined from an empirical education perspective by delineating existing empirical research supporting the relevance of these facets for the defined presentation context.

Approaches to defining competence

Different disciplines provide different concepts of competence. One of the most prominent and most-cited definitions of competence in the educational context is by Weinert (2001) who did research to developmental and educational psychology. In Weinert's conceptualization, competence comprises cognitive abilities, skills and motivational aspects. These competence aspects lead to an adequate solution to the situation. This definition also has parallels to the PISA study's conceptualization of competence. For example, the OECD defines global competence as "the ability to mobilize knowledge, skills, attitudes and values, alongside a reflective approach to the processes of learning, in order to engage with and act in the world" (OECD, 2016, p. 2). In addition to its similar differentiation between knowledge, skills and attitudes, a further common characteristic between this definition and Weinert's is the conceptualization of competence as the capacity to solve a situation. Moving beyond this broad definition of competence, an approach to defining competence that is more closely related to language is Chomsky's (1980) conceptualization of linguistic competence. In his linguistic model of competence, Chomsky differentiates between competence and performance. Competence refers to knowledge of a language and performance refers to the realization of competence insofar as it refers to language use or production in a specific situation.

A further approach focusing more on communication has been developed within communication studies (Backlund & Morreale, 2015). Scholars in this field shift the focus towards behavior in the concrete situation, resulting in a conceptualization of competence as performance. Backlund defines communication competence as "the ability of an individual to demonstrate knowledge of the appropriate communicative behavior in a given situation" (Backlund, 1978, p. 21). With respect to appropriate behavior, Backlund and Morreale (2015) conclude in their overview of communication competence that the effectiveness of behavior is also part of competent communication behavior. The term appropriateness refers to suitable behavior in line with the norms and expectations of the situation. The term effectiveness describes achieving planned goals (e.g., Morreale et al., 2007). In addition to this conceptualization of competence as simultaneously appropriate and effective behavior (e.g., Morreale et al., 2006), there is also broad consensus in communication studies on conceptualizing competence as comprising three dimensions: cognitions/knowledge, affect/motivation, and behaviors/skills (Morreale et al., 2007). According to Rubin (1994), "communication competence requires knowledge of appropriate and effective communication

behaviors, a repertoire of skills which correspond to that knowledge, and the motivation to perform those skills in a socially appropriate and effective manner" (p. 75).

In summary, the different conceptualizations of competence share a common characteristic (Blömeke et al., 2015): all of them relate competence to real-world situations. Simultaneously, the differences between these conceptualizations allow them to be categorized into two groups. One group encompasses the analytical approach, which conceptualizes competence as dispositions underlying behavior in a specific situation (Blömeke et al., 2015). The other group encompasses the holistic approach to competence, which conceptualizes competence as behavior in a concrete situation itself. Both Weinert's definition (2001) and Chomsky's (1980) definition can be classified under the analytical conceptualization of competence. The communication competence approach could be classified under the holistic approach to competence. Although there are differences between these concepts, Blömeke, Gustafsson and Shavelson (2015) propose viewing these two groups of competence conceptualizations not as a dichotomy but rather as a continuum. In addition, both the dispositional approach to competence and the performance approach to competence differentiate between individual knowledge, skills and attitudes.

In its definition of presentation competence, this dissertation is in line with the holistic approach to competence. This refers to the concept of competence as performance, i.e., behavior. Communication competence is conceptualized accordingly. Because a presentation is also communication, presentation competence is conceptualized according to the communication studies approach. Consequently, individuals can be seen as having presentation competence when their demonstrated presentation behavior is appropriate and effective. In addition, any conceptualization of presentation competence must keep individual characteristics (knowledge, attitude, skills) and the interplay among them in mind. According to De Grez (2009), who proposes an interdisciplinary definition of presentation competence, presentation competence is "the combination of knowledge, skills, and attitudes needed to speak in public in order to inform, to self-express, to relate and to persuade" (p. 5). It is not knowledge or potential ability but rather demonstrated presentation behavior in the presentation situation that represents competence.

Rhetorical perspective on presentation competence

The rhetorical perspective on presentation competence gives insights into the interplay between the traditional rhetorical approach and the conceptualization of presentation competence. The fundamental element of the presentation competence approach, that

presentation behavior determines whether or not an individual is perceived as competent, is in line with traditional rhetorical theory. Since the beginning of rhetoric, the demonstration of behavior, i.e., the delivery of a speech (*actio*), has been stressed in speech preparation and the speech situation (Cicero, De oratore, III, 2 13). Speech behavior is part of rhetorical theory and part of the power of a speech (e.g., Quintilian, Institutio oratoria, II, 3, 2-7). When the speaker is not able to exhibit appropriate and effective speech behavior, it is not possible for a speech to persuade other people (Backlund & Morreale, 2015), the core of rhetorical action (Knape, 2003). Moreover, specific speech behavior during the specific speech situation is the fundamental reference point for analyzing and interpreting the impact of a speech.

This points to a central criterion in rhetorical theory: appropriateness (*aptum;* Kramer, 2008a). Ancient rhetorical theory initiated the concept of appropriateness (*aptum*). It is considered a "super-principle" because it is a principle that concerns all rhetorical actions (Asmuth, 1992). Appropriateness determines communication success (Kramer, 2008b) and has been part of rhetorical theory since the beginning. According to Aristotle (Rhetoric, III, 1408b), appropriateness refers to the right relation between the speech and the circumstances. Cicero (Orator, 21f, 70-74, De oratore, III, 210-212) identified relational aspects referring to the situational setting (see 1.1.1), i.e., speaker, audience, and subject matter, as well as to further constitutive elements of the situation: time, place, and genre of speech (Asmuth, 1992). From a communicational and psychological point of view Christiansen and Hasle (2007), describe Ciceo's *aptum* model, which encompasses the speaker, audience, situation, message content, and expressive means, as a balance model in which all elements must be in balance. Focusing on appropriateness for the audience, Quintilian (Institutio oratoria, XI, 1) underlines the importance of taking into account the audience's expectations, (preliminary) opinions and emotional state. It is stressed that each of these situational aspects must be analyzed and taken into account if a speaker intends to fulfill the criterion of appropriateness and successfully deliver a speech (Kramer, 2008b). More modern elements must also be taken into account; for example, Bitzer (1968) differentiated between the exigence, audience and constraints of the rhetorical situation. This requires considering the intended change (exigence), the rules of the situation (constraints) and the listeners (audience). It is in turn related to the so-called rhetorical analysis of the situation (Kramer & Malaka, 2014), which is required not only in speeches but also in presentations in order to identify the external and internal circumstances that must be taken into account in the presentation. In rhetorical theory, the skill of being able to make appropriate judgments in a speech is called *iudicium* (Ueding & Steinbrink, 2011). This requires familiarity with a great number of situations. Consequently, as indicated above, rhetorical

theory provides several reference points for meeting the appropriateness criterion that could be transferred to the presentation format. Rhetorical theory also offers clues to achieving appropriateness that can help to further elaborate competent presentation behavior. Although some approaches and reference points for determining and creating appropriateness exist, the rhetorical *aptum* is a relational principle rather than a detailed scheme (Asmuth, 1992). Quintilian (Institutio oratoria, XI, 1, 91) asserted that there is no fixed measure of appropriateness.

The second element of competent presentation behavior is effectiveness, in the sense of achieving the intended goal of the presentation. In rhetorical theory, a speech's effectiveness refers to the core aspect of the discipline: persuasion (Knape, 2003). As described above (see 1.1.1), an audience is persuaded when a mental change takes place. According to Hovland and colleagues (1949; 1953), persuasion can be operationalized as a change in opinion that is also closely related to attitude change. This implies that a speech's concrete persuasion goal must be identified so that the speaker's intention can be operationalized by the audience members. At the same time, multiple changes are possible. Transferred to presentation competence, this indicates that effectiveness must be linked to the presentation goal of imparting knowledge.

According to the conceptualization of presentation competence, speakers use their resources, i.e., knowledge, attitudes and skills, to competently perform in a presentation task (see Blömeke et al., 2015). As how these resources for presentation competence can be described and developed is still an open question, rhetorical theory can contribute to shedding light on the interrelationship among these resources and its development. These resources are also compatible with traditional rhetorical theory. Specifically, rhetorical theory considers natural talent (*natura*) as relevant (Neumann, 2003) for studying rhetoric and mastering the various speech formats. This includes physical dispositions such as voice or body predispositions as well as intellectual dispositions such as memory skills. These dispositions are related to speech and vary among individuals. Rhetorical theory assumes that they are naturally endowed as well as systematically formed (Neumann, 2003). Consequently, this notion of talent corresponds to the concept of presentation skills within the presentation competence conceptualization. In rhetorical theory, talent must be formed through the systematic study of theory (*ars*) as well as practice (*exercitatio;* see Martin, 1974). According to Quintilian (Institutio oratoria, XI, 3, 11), natural talent is linked to effort and care (*cura*), a kind of self-discipline to work on oneself in order to master the art of rhetoric. Before Quintilian, Cicero (Brutus, 313-317) also underlined aspects of self-discipline by pointing to his own transformation from a mediocre to an excellent speaker through rhetorical education,

exercises and willingness, despite his frail physical constitution, i.e., natural disposition. Some parallels to the presentation competence construct are apparent. The knowledge dimension is reflected in the broad rhetorical system (Robling, 1992). The skill dimension is expressed in the importance of rhetorical practice. Finally, the attitude dimension is similar to rhetorical concepts such as self-discipline and willingness to change. There is a long tradition of rhetorical education from the rhetorical perspective (see chapter 1.3 Fostering presentation competence), indicating that continuous training is required. Hence, a theoretical and practical education on the presentation task appears important for students' presentation as well.

In summary, rhetorical theory can be applied to operationalize the construct of presentation competence. The rhetorical criterion of appropriateness highlights relational aspects. Appropriateness in presentations can be defined on the basis of this rhetorical definition. Likewise, effectiveness in rhetorical speeches is rooted in persuasion, as the specific intention of a speech, and involves an examination of the audience members. Furthermore, the rhetorical perspective on resources for competent behavior highlights the importance of rhetorical education. Hence, the rhetorical system provides insights on the description and development of resources underlying performance that is also of relevance for presentation competence.

Facets of presentation competence

To further conceptualize presentation competence, a competence model is required. Such models describe different competence levels, i.e., expectations at different age groups, and identifiy specific development steps that must be taken to further increase competence (Klieme et al., 2003). Competence models are derived from subject-specific teaching methodologies, make reference to psychological-pedagogical knowledge and are examined empirically. However, no competence model for presentation competence that has been examined empirically currently exists (Voßkamp, 2012). Consequently, this dissertation deduces facets of presentation competence from rhetorical teaching methodology. From a theoretical perspective, rhetorical theory provides a robust and well-established canon of speech preparation steps (e.g. Böhme, 2015; Hommel, 1990; Porter, 2009) that can be transferred to the presentation context (e.g., Kramer & Malaka, 2014; Lobin, 2012). In this dissertation, the rhetorical canon for a speech – preparation, invention, arrangement, style, memory, and delivery (*intellection* & *inventio*, *dispositio*, *elocutio*, *memoria*, *actio/pronuntiatio*) – is applied to identify relevant presentation facets. The memory step is combined with the delivery step because it represents internal preparation for delivery. It includes memorizing the speech for

delivery (Neubauer, 2001). In addition, proceeding from the definition of the presentation task (see 1.1.1), the presentation format requires visual aids as well as expert knowledge, which are included in the model as further presentation facets. With these modifications, this dissertation transfers the rhetorical canon framework to the presentation context, resulting in the following six presentation facets: addressing the audience, structure, language style, memorization, body language & voice, visual aids, and content credibility. Below, a more detailed overview is provided by describing the rhetorical foundation of each facet. In addition, empirical findings supporting the relevance of this facet within the presentation research context are presented.

Addressing the audience. As described above and based on Aristotle's fundamental rhetorical principle (1.1.1), the audience takes on a central position within a speech. A speech targets the audience's mind (Aristotle, Rhetoric, 1358b) and consequently has to relate to the audience. Before the audience can be addressed, an analysis of the audience is required, e.g., their knowledge or emotional connection to the topic must be identified. This is part of the first step, *inventio* of the rhetorical canon for preparing a speech as well as the supplementary very-first step *intellectio* (Ueding & Steinbrink, 2011). These concern one's thoughts about the subject matter as well as pre-identifying the circumstances of the speech. In the presentation format, addressing the audience encompasses the interaction between the speaker and the audience and is prepared for through the rhetorical analysis of the situation (Kramer & Malaka, 2014). Addressing the audience refers to involving the audience in the presentation, creating a relationship with the listener(s), and taking advantage of the audience's knowledge, needs and emotions. Despite the fundamental role of the audience in rhetoric, empirical rhetorical research on addressing the audience is currently only at its beginning, according to a review by Kjeldsen (2018).

By contrast, several empirical studies have demonstrated the relevance of addressing the audience in the learning context. Rey and Steib (2013) found that secondary school students achieve learning results when the instructional material addresses them personally and directly. Another review from the field of educational research reported that immediacy, a construct that focuses on audience closeness and interaction, correlates with students' perceived learning and affective learning (Witt et al., 2004). Within the presentation research field, studies examining addressing the audience are scarce. However, some initial attempts can be identified. In their exploratory quantitative examination of introductions to informative presentations given by 40 Belgian professionals, Van de Mieroop, Jong, and Andeweg (2008) reported that speakers neglect interpersonal introduction techniques focused on obtaining attention or evoking sympathy, referred to in rhetorical theory as *attentum parare* and *captatio benevolentiae*.

Addressing the audience techniques, such as “Good morning, Ladies and Gentlemen” (2008, p. 196), were only used in a stereotypical, inappropriate way. In contrast, a linguistic analysis of 84 TED talks from 2012 revealed that popular TED talks are audience-oriented and generate audience involvement through a predominance of inclusive “we” forms instead of exclusive “I” forms (Di Carlo, 2018, p. 139). These findings highlight the importance of addressing the audience in a presentation from an empirical perspective.

Structure. This facet refers to *dispositio*, the second rhetorical step of speech preparation, which focuses on the useful arrangement of a speech (Cicero, De inventione, 1, 9*)*. Three basic parts of a speech can be identified from classical arrangement schemes (Ernst, 2003), which often focused on speeches in court: introduction, body, and conclusion (*exordium*, *narratio*/*argumentatio*, *conclusio*). There is still broad consensus on these three major parts of a speech and their functions in rhetorical guides (Bremerich-Vos, 1991). For example, the introduction emotionally and cognitively prepares the audience for the speech's subject, the body sets out the main points, and the conclusion stresses the speech’s main concern (Kositzke, 1994). According to Quintilian, the structure of a speech ensures that its material is placed and linked appropriately; without it, the material remains incoherent (Quintilian, Institutio oratoria, VII, 1). For structuring a speech, classical rhetoric refers to transitions bridging its different parts (Henne & Zinsmaier, 2012). Rhetorical considerations regarding the structure of a speech are also of importance for presentations today (Geldmacher, 2010). Because oral speech is fading (see 1.1; Auer, 2009), the speaker has to support the memory of the audience, for example by structuring the speech.

The assumption that structure is important in communication and particularly in learning contexts has been empirically confirmed in recent research. The comprehensibility model from Heidelberg (Groeben & Vorderer, 1982; Groeben, 1978) as well as the comprehensibility model from Hamburg (Langer et al., 1974; Langer, 1971) report empirical evidence that structuring a written text results in better understanding. For example, providing an overview of upcoming content as a pre-structuring tool is effective for learning new concepts (Ausubel, 1960). In terms of presentation research, Titsworth and Kiewra (2004) underline the relevance of structure in presentations. They report that explicitly stating organizational elements in a presentation, i.e., main and subordinate points, or employing pre-organizers help students better remember the presentation’s structure and details as well as achieve better test results. In addition, text linguistics considers coherence – the relation between sentences or utterances – as a key feature for structuring. Özsariogöl (2011) indicates in her linguistic analysis of presentations that intermodality cohesion increases the structure of a presentation. This includes deictic gestures

("as you can see here") referring to visual aids as well as verbal repetitions ("as mentioned at the beginning"), which can also refer to visual aids. These results indicate the relevance of structure in a presentation.

Language use. Language use is the main focus of the third rhetorical step of speech preparation, *elocutio*, which refers to the production of words. It concerns the elaboration of the presented content (Kirchner, 2007). Rhetorical theory provides means to strengthen language use in a speech. There are four classical rhetorical principles, the so-called virtues of diction, namely correctness of language, clarity, appropriateness, and ornament (*latinitas*, *perspicuitas*, *aptum*, *ornatus*; see López, 2007). The term correctness relates to the use of words in line with language conventions and language rules; appropriateness refers to the adaptation of language use to the contextual circumstances (see 1.1.1). The term ornament highlights rhetorical figures; collections of rhetorical figures have existed since ancient times (e.g., Quintilian, Institutio oratoria, VIII and IX) and are associated with delighting the audience through the beauty of one's words and thus making the content memorable. The term clarity refers to fostering an immediate understanding of the presented content. Clarity comes into play when the speaker intends to create "a very clear and detailed picture in the audience's mind" (Kirchner, 2007, p. 183) that goes beyond merely selecting supportive arguments and precisely naming phenomena. Hence, clarity is based on the rhetorical concept of generating evidence (*evidentia;* Kemmann, 1996). Prominent rhetorical techniques to increase clarity include describing a setting in detail, i.e., detailing, and applying dynamic elements in a description through the use of vivification, i.e., vividness (Lipphardt, 2019). Transferred to the presentation context, the elaboration, i.e., production of words, must be appropriate for the context of oral communication. This includes taking into account language conventions and language rules for the oral speaking situation. For example, repetitions and redundancies are part of the oral speaking situation and thus appropriate for the presentation setting (Becker-Mrotzek, 2009). This also impacts sentence constructions, which have different underlying conditions in oral situations than in written contexts. For example, the use of some incomplete sentences can work in an oral context, but not in a written context (see Becker-Mrotzek, 2009; Pabst-Weinschenk, 2013). Furthermore, in a presentation, *evidentia* takes on a renewed emphasis (Gottschling, 2016; Lipphardt, 2019). Presentations aim to transfer knowledge that is unknown by the audience. Therefore, difficult issues and technical terms in a presentation must be identified and require more rhetorical effort in order to foster the audience's understanding. Rhetorical figures, such as comparisons or examples, can be used to create clarity. In addition, the

techniques of vividness and detailing can foster knowledge transfer. Thus, *evidentia* forms an important means of strengthening language use in a presentation.

The assumption that language use contributes to fostering understanding in a presentation has been confirmed empirically. With respect to clarity, the concreteness effect, i.e., using concrete terms for abstract phenomena, facilitates learning (Jessen et al., 2000; Schwanenflugel et al., 1992). In addition, Cameron (2002) revealed in his exploratory study that the successful use of metaphors to foster elementary school students' science learning depends on various criteria. Oliveira and Brown (2016) further revealed that the use of examples in lectures promotes science learning. In addition, Tank and Coffino (2014) found that everyday language differs from science language in terms of lexical density, with science language having a much higher amount of information per word. This complexity must be taken into account in learning settings. Within presentation research, Lipphardt (2019) showed that secondary school students can improve their vivid language use skills. In summary, these empirical findings indicate that language use plays a crucial role in presentations.

***Body language & voice*.** This refers to the fifth rhetorical production step, *actio*, i.e., the delivery of a speech (Porter, 2009). Ancient rhetorical theory differentiates between body language and voice. Accordingly, Quintilian discusses the use of gestures and facial expressions (Institutio oratoria, XI, 3, 65–84) as well as the use of the voice (Institutio oratoria, XI, 3, 15–30). Body language and voice can support the message of a speech as well as draw the audience's attention or evoke empathy and foster a self-impression (Tonger-Erk, 2012). Body language and voice are also relevant factors to be taken into consideration in the presentation format (Geldmacher, 2010). The rhetorical assumption that body language and voice can be used to express emotions, create a relationship with the audience or guide the audience are transferrable to presentations (Geldmacher, 2010). There are different classification systems for the elements of body language and voice, but there is agreement that elements of body language include facial expressions, gestures, posture, and proxemics, while elements of voice include articulation, pitch, tempo, and volume (Porter, 2009). These numerous elements make the use of body language and voice complex. The biggest problem is that there is no grammar underlying the use of this presentation facet (e.g., Berkemeier, 2006). Thus, there is no universal definition of the semantic meaning of each possible body pose; instead, they are influenced by culture and context. According to Geldmacher (2010), body language and voice must be consistent with the message of a presentation. For example, if a speaker has a sad message but uses a happy voice, this is likely to confuse the audience.

Some approaches to empirically examining body language and voice exist. For example, eye contact that is open rather than rigid and fixed is perceived as supportive of the content as well as positive for the speaker (Argyle, 2013). Empirical confirmation that the presentation facets of body language & voice contribute to understanding can be found in both the learning context and within presentation research. With regard to learning studies, Novack and Goldin-Meadow (2015) revealed in their review that the use of gestures can facilitate learning insofar as gestures ground abstract concepts in concrete objects in the environment, link concepts, or accompany and underline the speech. The use of gestures supports understanding across different subjects, from math and science (Yeo et al., 2017) to language-related subjects (e.g., Sime, 2006). Regarding voice, e.g., the use of prosodic markers (i.e., pitch, volume, melody, and speech rate) contributes to making content memorable (Nagel, 2012). Research on presentations sheds light on how gestures can be effectively used in the presentation setting. In a video-recorded teacher presentation, Rueckert and colleagues (2017) revealed that the strategic use of gestures fosters students' understanding of an abstract statistical concept. In addition, effective gestures by teachers result in better understanding among students (Alibali et al., 2013). Even preschool children benefited more from a video-recorded verbal presentation including gestures than an exclusively verbal presentation (Valenzeno et al., 2003). Consequently, these studies show that the presentation facet of body language & voice plays an important role in presentations aimed at transferring knowledge.

Visual aids. The rhetorical attention to visual aids has emerged alongside the prevalence of visuality in today's presentations. Creating visual aids is a design process that includes rhetorical considerations. Designing visual aids requires thinking about the goal message and adapting the visualization to the audience's interpretation (Casteleyn, 2013). The speaker has to consider aspects of the visual aid such as form, color, medium, and size (Foss, 2004). This process corresponds to the construction and preparation of a speech insofar as invention, arrangement and styling also play an important role (Smolarski, 2017). From a rhetorical point of view, visualization, in the sense of seeing and creating clarity, is considered a powerful technique to promote understanding (Gottschling, 2016). However, because a visual example does not result in immediate understanding, the speaker has to embed this visual aid into the speech, for example by explaining the visual message verbally. Hence, in a presentation, the speaker is responsible for designing the visual aid according to the goal of his/her presentation. The speaker is also responsible for showing and contextualizing this visual knowledge in order to make it understandable (Gottschling, 2016). Contextualizing means explaining the visualization and framing the interpretation of the visualization.

Empirical findings confirming the assumption that visual aids foster understanding within the presentation format can be found for the learning context as well as within presentation research. The impact of the construction of visualizations on students' learning was reported in a meta-analysis (Richter et al., 2016). Richter, Scheiter, and Eitel (2016) found that the design principle of signaling, i.e., highlighting text-picture correspondence through color-coding, arrows, deictic references, and zooming, resulted in improved learning effects due to reduced cognitive load and increased focus on relevant information. In addition, redundant information, as occurs, for example, when information from an animation is accompanied by information in the form of a written text, results in smaller learning effects (Rey & Buchwald, 2011). In addition to these findings regarding the design of visual aids, Mayer (2009) reported that a spoken text accompanying visual aids results in better learning outcomes. This supports the assumption that multimodality in a presentation is beneficial for knowledge transfer. Within research focusing in particular on presentations, Dynkowska, Lobin, and Ermakova (2012) found in an experimental setting that the use of visual aids in a teacher presentation supports students' comprehension and results in better recall and learning outcomes. Furthermore, the use of different presentation tools, such as the Prezi presentation software involving zooming rather than PowerPoint, could impact students' perception of the presentation in a positive way (Chou et al., 2015). Moulton, Türkay, and Kosslyn (2017) likewise reported a positive evaluation of Prezi presentations, with their zoomable user interface, in contrast to the slideshow presentations in PowerPoint; they attribute this to students' subjective communication preferences. The results of these experimental studies underline the important role of visual aids in presentations.

Content credibility. In presentations the content quality is of importance. In school presentations, for example, the content quality is part of the assessment (e.g., Geldmacher, 2010). From the rhetorical perspective the content quality cannot be assessed. The rhetorical perspective on content quality is content credibility. Thus, this facet is labbeld content credibility. This facet refers to expert knowledge about the subject matter, which is required to achieve the main goal of a presentation: informing the audience. Within rhetorical theory, Cicero underscored the value of expert knowledge. From his point of view, it is worthless to deliver a speech when one does not know much about the subject matter (Cicero, De oratore, 1, 48). In line with Cicero, Quintilian strengthened the requirement that one must know the case before debating. Otherwise, the orator cannot find the right words and should remain silent (Quintilian, Institutio oratoria, XII, 10, 59 and XI, 2, 45). Thus, according to both Cicero and Quintilian, the ideal orator is an individual who is well-educated. Cicero took this idea even

further by calling for a universal educational program for speakers that included not only acquiring knowledge in the major scientific arts of that time (*artes magnae*, *artes humanae*, *artes libero dignae*, see Pöschl, 1995, 201-2023); he also called for the speaker to read a lot, think a lot, and listen a lot (Cicero, De oratore, 1, 218). However, Ueding and Steinbrink (2011) point out that a speaker should ask for experts' advice. Consequently, from a rhetorical point of view, knowledge about the subject matter is an important requirement for a speech. When it comes to communicating knowledge, *ethos*, i.e., the speaker's credibility, is of importance. Aristotle was the first to consider credibility as a rhetorical category (McCormack, 2014). Credibility is achieved through various factors, e.g., the speaker's professional status, confidence in speech, intelligence, and also by creating a close link between the presented material and the audience (McCormack, 2014). This highlights that credibility is created rhetorically by the speaker. Transferred to presentations, the presentation facet of content credibility takes into account both knowledge about the subject matter (content) as well as credibility in conveying this subject matter in the form of a presentation. Content credibility is the communication perspective on expert knowledge (Fiske & Dupree, 2014). In the educational context, a meta-analytical review by Finn and colleagues (2009) provides first indications of the relevance of this presentation facet. They found that teachers' credibility fosters students' learning: the higher the teacher's perceived credibility, the higher the students' learning. Thereby, one dimension of credibility is the perceived competence of the teacher.

In summary, taking a holistic view of competence, the construct of presentation competence refers to presentation behavior in a given situation. Accordingly, presentation behavior is considered competent when an individual presents appropriately and effectively. Presentation knowledge, skills and attitudes are resources for competent presentation behavior. Due to a lack of competence models for presentation competence specifically, the rhetorical theaching methodology was used to deduce six facets of presentation competence. These facets are derived theoretically, but must be examined empirically and confirmed through presentation competence assessments. In the next subsection, a further specification is made. Because this dissertation focuses on secondary school students' presentations, presentation competence and the presentation task should be examined against the background of this education level.

1.1.3. Presentation task in secondary school

Previous subsections have helped characterize the complex presentation task and elaborate on presentation competence, which is required to master this task. Presentation competence is defined as a speaker's perceived performance in a presentation situation. The facets of presentation competence derived from rhetorical theory provide a differentiated view of presentation competence. They simultaneously provide a starting point for a presentation competence model, which can be used to promote the development of this competence from an educational perspective. This subsection focuses on the presentation task within secondary school practice. First, this subsection examines the integration of presentation competence into secondary school educational standards. In light of this relevance, communication education in practice forms a further area of focus. To determine the position of presentations within communication education, the relation between presentations on the one hand and written and oral communication in secondary school on the other hand is elaborated. Finally, the pedagogical benefits of presentations are illustrated.

Educational standards stipulate educational goals with respect to students' presentations. Presentation-related goals are found across subjects (e.g., Common Core State Standards Initiative, 2010) and across countries (e.g., England: Department for Education, 2014; Germany: Kultusministerkonferenz, 2012; United States: Common Core State Standards Initiative, 2010). In particular, they are frequently discussed in the language arts. In addition, presentation competence is part of educational standards for secondary school students of all ages (Gätje et al., 2016). Educational standards address the multimodal nature of the presentation format, with a focus on appropriate and effective speaking. This indicates that education policy recognizes the relevance of presentation competence and has integrated it into school educational standards. In addition, the integration of presentation competence into all subjects and for all ages highlights the ubiquity and deep relevance of this competence.

Based on the relevance of presentation competence for educational standards, teachers are obliged to include presentation tasks into their school curricula and lessons. As part of their existing education in communication skills, secondary school students must complete both oral and written tasks (Meyer et al., 2019). However, the ratio between the two is not balanced. Of primary concern in secondary school is the development of written competencies rather than the development of oral competencies (e.g., Morek, 2011). Because oral communication existed before written communication in human history, and because every individual learns oral communication before written communication, education on oral competencies in school is

emphasized less (e.g., Eriksson & Pietro, 2011; Fiehler, 2012; Helmke, 2014). A renewed emphasis on oral communication is associated with PISA competence assessments starting in the year 2000 (e.g., Morek, 2011). Likewise, the German federal states first implemented multimodal presentation assignments as part of final examinations in the German school system after the turn of the millennium and the first PISA results. For example, in the German federal state of Berlin, the middle-level school leaving certificate (Landesinstitut für Schule und Medien Berlin, 2005) and academic-track school leaving certificate (Landesinstitut für Schule und Medien Berlin, 2006) first integrated presentation assignments in the school year 2006/2007 (Berliner Senat, 2006, 2007). Nevertheless, the number of written examinations continues to dominate in secondary school final examination regulations (e.g., Land Berlin, 2007). Hence, presentation tasks contribute to shifting more emphasis to the development of oral competencies and minimize the imbalance between written and oral tasks in school.

The presentation task is one type of oral task in secondary school because presentations require students to speak. However, the process of completing the presentation task involves both orality and literacy. According to Gätje (2014), presentation assignments encompass two phases: Situation I, which comprises preparation, such as researching material or structuring the presentation, and Situation II, the delivery of the presentation. Situation I determines Situation II, i.e., preparation has a strong influence on behavior during a presentation. Thus, a presentation assignment can be classified as oral communication due to Situation II and all of the elements that go into it, but it also involves some characteristics and determinants of written communication through Situation I; i.e., it may require preparing and structuring one's thoughts by reading, writing a text, or preparing visual aids. The oral communication situation is the target framework in which the presentation is delivered. The preparation of a presentation must relate to its orality by taking into account aspects such as high interpersonal interaction, fluidity of utterances, or immediate feedback from the audience. Therefore, Gätje, Krelle, Behrens, and Grundler (2016) argue that characteristics of oral communication and written communication skills (literacy) are interwoven in student presentations. What makes presentations unique is the relationship between oral and written communication in the preparation stage on one hand and the explicit focus on oral communication on the other. Consequently, presentation assignments can fulfill a bridging function. They foster both writing as well as speaking skills among secondary school students. In addition, presentation assignments as an examination format pose a challenge that differs from purely written tasks because an additional fundamental aspect comes into play, namely facing and mastering the speech situation.

In terms of pedagogical benefits, presentation tasks in secondary school are considered an authentic challenge for students. School graduates must be able to present their ideas during job interviews or will encounter oral situations in professional life which correspond to this communication task (Hristova, 2014). Hence, presentation tasks are considered more authentic than some written examinations because the probability that graduates will encounter written tasks in professional life that are similar to written tasks in school is regarded as low (Huxham et al., 2012). Furthermore, presentation tasks are more difficult to plagiarize because presentation performance is directly related to the student himself/herself, who uses his/her own words when presenting (Hristova, 2014). In written tasks, cheating may seem easier as the written product is not directly linked to the writer. Thus, presentation tasks may increase students' responsibility and force them to really work on the task at hand. In addition, written tasks in school advantage students with strong writing skills and disadvantage students with stronger oral communication skills. The predominance of written tasks advantages just one group of students and one specific set of skills (Hristova, 2014; Huxham et al., 2012). In contrast, presentation tasks address the strengths of students with strong oral communication skills.

In summary, presentation competence is relevant for all ages and across the curriculum, as presentation competence is a part of secondary school educational standards. In secondary school, presentation tasks contribute to reducing the predominance of written education. Although the presentation task is based on oral performance in the presentation situation, presentations also require written skills, i.e., reading relevant content material or creating visual aids. The authenticity of this communication form facilitates authentic student performances and prevents giving an advantage to students skilled in writing in secondary school. Moreover, the question of assessing presentation behavior is of importance with respect to the value of presentation tasks in secondary school. In particular, the oral setting of the presentation task poses challenges for assessing students' presentation competence. There are fewer fixed norms in oral than in written communication. Therefore, issues related to assessment and measurement are discussed in the next section.

1.2. Measuring Presentation Competence

An adequate tool for measuring presentation competence is required when diagnosing or promoting students' presentation competence or examining presentation trainings. Combining two different research traditions, the rhetorical and empirical educational research, highlights an array of challenges in terms of measuring presentation competence. This dissertation sheds light on the challenges and points a way for developoing a high quality assessment tool for presentation competence of secondary school students.

Within the rhetorical research tradition, a prominent assumption is that communication takes place in a situationally unique social context. According to the hermeneutical approach, a rhetorical analysis can reveal text compositions and external settings characteristic of a speech that are useful for understanding and interpreting the speech as well as deducing successful elements (H. Mayer et al., 2009). The unique situational and social context renders measurement challenging. However, the first empirical approaches to addressing this issue stem from the rhetorical discipline. In ancient times, rhetorical theory was developed by observing successful speeches at the *agora*, the central place of assembly (Kramer, 2008a). 20th-century approaches to examining persuasion also exist, such as that proposed by Hovland and colleagues (1949) or by Petty and Cacioppo (1986). Hence, examining and evaluating communication techniques were a focus of rhetorical theory from its origin and are still relevant to today's researchers.

The education discipline has a different tradition of empirical research. In empirical educational research, measuring means translating theoretical constructs into an empirically accessible framework (Döring & Bortz, 2016). The operationalization of the theoretical construct includes observation procedures, and these observations result in data. Consequently, an instrument is a tool for quantifying the intended outcome as it relates to the theoretical constructs. Empirical educational theory encompasses its own test theory for the development of test instruments (Moosbrugger & Kelava, 2012). Within test theory, specific quality criteria stipulate the requirements an instrument has to meet.

This subchapter seeks to combine these two disciplines according to their different approximations of the construct of presentation competence. First, the measurement of the central components of presentation competence, namely appropriateness and effectiveness, are discussed from the rhetorical perspective (see 1.2.1). By contrast, the empirical educational perspective provides different ways of measuring these components of presentation competence. Both measurement approaches have advantages and disadvantages for research

results (see 1.2.1). After discussing these fundamental measurement considerations, the focus shifts to existing instruments for assessing presentation competence. Here, the most prominent forms of measurement and their assessment of appropriateness and effectiveness are highlighted (see 1.2.2). Four central instruments and their psychometric properties are presented to highlight the need for a new presentation competence instrument. From the perspective of empirical educational research, instruments for assessing presentation competence must fulfill psychometric quality criteria such as objectivity, reliability and validity (R. J. Cohen et al., 2009). The term objectivity refers to a measure's independence from the people who administer, evaluate, or interpret the test (e.g., Moosbrugger & Kelava, 2008; Cohen, Swerdlik, & Phillips, 2009). Objectivity, also called rater reliability, can be evaluated by examining statistics such as the intraclass correlation coefficient (ICC). ICCs indicate the degree of agreement among raters' independent assessments. The term reliability refers to the degree to which a test is consistent and stable in measuring of what it is intended to measure. Hintze (2005) refers to this as intrarater reliability, which can be examined via test-retest reliability, equivalent forms reliability, and split-half reliability, to name a few examples. The term validity refers to the accurate interpretation of the ratings and indicates whether the instrument measures what it intends to measure (e.g., American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). Hintze (2005) considers face, content, criterion and construct validity as different types of validity measures. Moreover, within these three quality criteria, validity presupposes reliability and reliability presupposes objectivity.

1.2.1. Conceptualizing presentation competence assessment

The definition of presentation competence is the first step for its assessment. As discussed above, appropriateness and effectiveness are integral components of presentation competence. A construct-specific discussion of whether both components are measurable and accessible for empirical research can contribute to conceptualizing presentation competence assessment. This discussion also addresses different assessment perspectives, such as self-reports or observations, because they represent different sources of information. They each have strengths and limitations regarding the assessment of appropriateness and effectiveness.

Measuring appropriateness

The term and the notion of appropriateness are rooted in rhetorical theory (see 1.1.2). Appropriateness relates to the uniqueness of each situation. It takes into account the

circumstances of the situation, the speaker's individuality, the audience, characteristics of the speech location as well as the subject of the speech. A behavior is appropriate when it matches social rules or norms. Appropriateness remains relevant in modern communication theories focused on interpersonal communication (Westmyer et al., 1998). According to Asmuth (1992), appropriateness is a rather flexible criterion. When the situation changes, the requirements of appropriateness change too (Hoffmann, 2009). Acting according to simple, fixed rhetorical rules – such as always keep your hands above your waist – does not meet the complex requirements of changing presentation situations (Kramer, 2012). In addition to this flexibility, violations of or deviations from appropriateness are also included in rhetorical theory. A deviation is accepted when it is useful and generally supports the goal of the speech (Stroh, 2014). Consequently, the rhetorical *aptum* is a relational principle that goes beyond any detailed schema (Asmuth, 1992). Quintilian (Institutio oratoria, XI, 1, 91) asserted that there is no fixed measure for appropriateness. It is hard to define appropriateness because of the diverse aspects it is related to (Hannken-Illjes, 2013). Hence, from this point of view, appropriateness is very challenging to measure.

Nevertheless, some approaches to assessing appropriateness have been developed based on the rhetorical conceptualization of appropriateness. While appropriateness implies a kind of flexibility, it is not an arbitrary construct (Hannken-Illjes, 2013). According to Hannken-Illjes, knowledge and adaption of behavior to align with social conventions and social rules that are not codified contribute to appropriate performance. To assess whether a behavior is appropriate, rhetoricians considered *iudicium* and *consilium* to be relevant (Ueding & Steinbrink, 2011). *Iudicium* refers to practical wisdom and relates to the competence to judge which part of rhetorical theory is useful in the specific situation (Wagner, 1998). *Consilium* relates to strategic considerations (Ueding & Steinbrink, 2011). Both can be trained through practice. Hence, measuring appropriate presentation behavior involves two aspects: i) appropriateness includes (subjective) experience and/or knowledge and ii) appropriateness is directed towards others. First, experience and/or explicit and tacit knowledge are required to assess whether social norms are met. This is also relevant for other appropriateness-related aspects, such as text composition, presentation location, and audience. By identifying recurrent situations, i.e., standard situations, the rhetorical theory provided a key for assessing appropriate presentation behavior. For example, genre of speeches, such as political speech, forensic speech or epideictic speech are defined as recurrent situations (see Gottschling & Kramer, 2012). Each gerne of speeches is characterized by specific recurrent features such as the specific purpose, setting, length, subject matter (Rossette-Crake, 2019). Based on these characteristics expectations to the speech can be

deduced. This approach can be transferred to contemporary speeches such as students' presentations. When keeping specific features of a presentation constant, e.g., defining the same length of presentation, same scientific topic of presentation or same situational settings, the speaker as well as the person who assess the presentation can deduce appropriate behaviors. Thus, knowledge about the standardized situation of the presentation task makes it easier for implications of appropriate presentation behavior. People without experience and/or knowledge of the situational and social circumstances of the delivered presentation cannot assess its appropriateness. They would base their judgments on an incorrect derivation of appropriateness. Second, appropriateness is critically linked to the fact that a presentation is directed at others. This indicates that assessment by others is crucial.

In educational settings, when students start learning the basics of presentation competence, including the basics of appropriateness, the teacher's perspective is of interest. It can be assumed that teachers are familiar with presentation situations in the school context. They create presentation situations for their students and possess experience and knowledge of the audience. On the one hand, teachers themselves form the target audience. On the other hand, they have knowledge about the rest of the class, which also represents part of the target audience. Thus, teachers can take into account community rules in the students' peer group, even though uncertainty remains. They are able to take into account the class's social expectations from an external point of view without disregarding their own subjective expectations. Based on this dual orientation, teachers as experts can take a meta-perspective. This goes beyond a mere subjective point of view, which causes problems because it takes the teacher's subjective perspective as representative of the universal audience perspective. In contrast, a meta-perspective evaluates appropriateness more broadly than based only on the teacher's own perspective (Hugenberg & Yoder, 1996).

In summary, the construct of appropriateness cannot be uniformly defined across all situations, as it requires the explicit or implicit knowledge and/or experience of social norms, the addressed community, and the situation. This suggests that experts must be involved in measuring appropriateness.

Measuring effectiveness

Effectiveness is also an integral part of presentation competence. As described above, the term effectiveness refers to achieving the goals of a presentation (see 1.1.2). In order to assess effective presentation behavior, one must know the goal as well as examine whether it has been achieved or not. Both highlight the difficulties of assessing effectiveness. For example,

Hugenberg and Yoder (1996) argue that there might be not only one but multiple goals within a given presentation. Informing, catching the audience's attention, and/or entertaining might all be goals pursued at the same time. In addition, the goals can change over the course of a presentation. Therefore, the goal cannot be identified from an external perspective unless it is determined a priori. For example, teachers might specifically ask their students to inform the audience in a presentation task in school. After specifying the goal of informing, knowledge tests for the audience could be developed in order to assess effectiveness. However, a new test would be necessary for each presentation, which is neither efficacious nor feasible, as each test would be limited to a fixed presentation condition. Consequently, measurement approaches for effectiveness depend on the definition of the presentation goals. With respect to self-reports, Parks (1994) argued that actors focus on achieving their goals. One reason for this can be that speakers themselves know their multiple goals within a presentation and thus can monitor their goal achievement better than the audience. However, the main focus in effectiveness measurement must be on the audience, because only the audience has access to their knowledge, reactions and emotions, which the speaker addresses with his/her presentation goals.

In summary, measuring effectiveness first requires the identification of one or multiple presentation goals set by the speaker or external individuals. These goals are not accessible from an external point of view, because the speaker's goals can change during a presentation. Focusing on the goal of informing the audience would lead to developing knowledge tests for each presentation. Including this component of presentation competence shifts the focus of assessing presentation competence to examining the audience's knowledge and feelings, which would help to advance presentation competence research.

Multi-perspective assessment

In addition to proceeding from a construct-specific discussion in the measurement context, one can also approach both constructs from an empirical perspective. Specifically, both constructs can be captured using different measurement perspectives. The goal of this section is to show the advantages and disadvantages of each data collection method. Parks (1994) differentiates between the actor's own perspective (in this case: self-reports) and the observer's perspective.

Self-reports are considered a quick way to obtain data from many people (Abernethy, 2015). The self-report perspective provides information about the actor himself/herself and his/her feelings, experiences or thoughts that are only available through direct questioning (Abernethy, 2015). With respect to communication competence, self-reports refer not to

competence itself but to the individual's perception of how competent he/she is (McCroskey & McCroskey, 1988). Their validity for actual communication competence performance is low (McCroskey & McCroskey, 1988). Nevertheless, the self-report perspective is of relevance. According to McCorskey and McCroskey (1988), self-perceived communication competence determines future communication decisions more than actual communication competence. However, when assessing self-report data, biasing factors must be taken into account and minimized to the greatest extent possible (Döring & Bortz, 2016). For example, a central biasing factor for self-reports is social desirability response bias, in which people answer in line with social expectations in order to appear in a favorable light instead of providing true personal information (Abernethy, 2015). One way to reduce this bias is to ensure anonymization during data collection in order to reduce social pressure (e.g., Gottfredson et al., 2015; Hager, 2000). Applied to the assessment of presentation competence, the self-report perspective can reveal information about self-perceived presentation competence that is powerful for future presentation behavior. However, when interpreting self-report data, self-serving bias must be taken into account. In addition, self-report data are not necessary compatible with actual presentation competence as assessed via external observation due to the self-focused view. As already discussed with respect to appropriateness, it is assumed that individuals have a hard time going beyond their own self-perspective and assessing appropriateness from an external perspective. Carrell and Willmington (1996) argue that students in learning contexts have difficulties perceiving both the environment as well as their own behavior. They focus either on the environment or on their own presentation behavior.

In contrast, external observation requires a further individual apart from the actor himself/herself. This perspective reveals information about behavior as it appears to an observer (Abernethy, 2015). In the communication context, this perspective is required to assess an individual's actual communication competence (McCroskey & McCroskey, 1988). It is considered a valid method for assessing performance (Abernethy, 2015). Thus, this perspective provides accurate measurements and is utilized, for example, in educational settings. Nevertheless, the accuracy of observer assessments is not always ensured. Central biasing factors are rater agreement and observer expectancy effects (Abernethy, 2015). Statistical methods and study design procedures exist to prevent, minimize or control assessment bias to the greatest extent (see Abernethy, 2015; Podsakoff et al., 2003). For example, the ICC can be used to measure interrater agreement and intrarater reliability (Hintze, 2005). Applying this to presentation competence, external observer ratings provide information regarding actual presentation competence. To obtain accurate measurements from external observers, the

implementation of both procedural and statistical control methods is required. Furthermore, the observer perspective can further be divided into direct observation (i.e., live ratings) as well as indirect and controlled observation (i.e., video ratings; Ryan et al., 1995). The next subsection provides a detailed overview of both external observation formats to shed light on the opportunities and risks of this data collection method.

(Dis)advantages of live ratings and video ratings

Both observation perspectives, live ratings as well as video ratings, are commonly used in presentation trainings for secondary school students, as Böhme (2015) reveals in their analysis of lesson plans published by teachers in established journals in Germany. Examining both types of observer ratings from an empirical perspective highlights their advantages and disadvantages for presentation competence assessment.

The live rating perspective refers to the assessment of behavior at the time of performance or immediately after performance by an external observer. The rater is present in the field, i.e., part of the situation and is thus physically present when the behavior is exhibited. Hence, the live rating perspective gives the observer a direct impression of the performance and reveals information about the actual situation. It is considered a form of real-time data collection. However, live ratings also have some pitfalls threatening their accuracy. First, the rater's mere presence, behavior and/or reactions may affect the behavior of the ratee, increasing the noise in the data (Ryan et al., 1995). In addition, the live situation can attract the rater's attention and shift their focus to aspects apart from evaluation. This risk of distraction is higher in live situations than in video-recorded situations (Ryan et al., 1995). Furthermore, the live rater must process a continuous stream of behavioral information. This requires continuous attentional focus on relevant aspects (Ryan et al., 1995). Transferring this to presentation competence assessment, the live rating perspective provides a direct impression of the observed behavior. It reflects the authentic presentation situation and is close to the audience perspective. However, interactions with the ratee, i.e., nodding or shaking one's head, can strengthen the speaker's anxiety and undermine his/her performance of presentation competence. The rater's interactions must be standardized to control for this factor.

In contrast to live ratings, in video ratings, the rater is not physically present in the actual performance situation. This perspective is a form of indirect observation, as the assessment is based on video-recorded material. The video rating approach is characterized by the repeatability of the material, as the raters can view, pause and replay these videos multiple times. However, this indirect observation in the form of watching the video decreases the

amount of available information about the real situation. For example, the video rater can only perceive information via the visual and auditory channels. It is not possible to feel the temperature of the room or smell the environment (Nagel, 2012). In addition, the information available via visual and audio signals is predetermined. For example, the camera angle is prearranged and the video raters can only observe what this angle reveals, while live raters can turn their head to change their point of view. In addition, the video is two-dimensional, while the real situation is perceived as three-dimensional, which could affect notions of space, e.g., gestures might become more or less observable (Ryan et al., 1995). In terms of audio signals, playing the videos can make the speaker's voice more salient even though in the actual situation context the speaker's volume was low and vice versa (Nagel, 2012). Therefore, video-recording a performance may affect the salience and distinctiveness of behavior (Hintze, 2005). Moreover, the repeatability of the video-recorded presentation can both positively and negatively affect ratings. On the one hand, raters might pay less attention when they know that they can replay the video an unlimited number of times (K. R. Murphy & Cleveland, 1991). On the other hand, repeatability can reduce encoding bias, i.e., the pause and play button helps the rater better focus on the relevant behavior without distractions, which is seldom the case for a continuous performance in a live situation (Hauenstein, 1992). In addition, repeatability makes it possible for different raters to observe the performance with different observation goals (see Curby et al., 2016). Moreover, the video-recorded material prevents rater interactions or rater reactions from influencing the ratee's behavior because the rater is not physically present in the performance situation. This can also reduce the need for accountability, which is higher in direct observation settings such as live ratings (Gordon et al., 1988; Longenecker et al., 1987). However, obtaining data via video-recording devices might also influence the ratee's behavior; for example, the presence of a camcorder might increase the ratee's anxiety and undermine their performance (see Bush et al., 1972; Nielsen & Harder, 2013). Transferring this to the presentation competence context, the video rating perspective provides information via a strongly standardized assessment procedure. It enables a detailed view of presentation competence due to the repeatability of the video recordings. However, contextual information is needed for the assessment process, and watching the presentation several times can also change the rater's first impression of the presentation.

When comparing the two external observation perspectives, it is assumed that both live ratings as well as video ratings impact the observer in a similar way. When the speaker addresses the audience directly, the human brain does not differentiate between live or medium-based communication, meaning that the effect of being addressed is the same in both scenarios

(Nagel, 2012). In addition, Ryan, Daum, Bauerman, and Grisez (1995) found no difference in rating accuracy between live and video ratings. They only found some differences in observation accuracy; namely, observer accuracy was higher for video ratings than live ratings when raters used the pause and replay possibilities of video recordings (Ryan et al., 1995).

In summary, the central components of presentation competence, appropriateness and effectiveness, are measurable in the presentation context. The different perspectives on assessing presentation competence all provide different but beneficial information. The self-report perspective reveals self-perceived presentation competence, which drives future presentation competence decisions; the live rating perspective provides information about the audience's direct impression after the presentation; and the video rating perspective allows for a detailed view of presentation competence because more factors can be assessed than in live ratings. Hence, the selection of the assessment perspective depends on the research goals. These content-specific and fundamental considerations must be taken into account when collecting and interpreting presentation competence data from secondary school students via presentation competence instruments. Additionally, a thorough investigation of the psychometric properties of presentence competence instruments is required to determine the utility of the data collected from them (Hintze, 2005). Hence, the quality of existing presentation competence instruments is an important question for this dissertation. Only if the existing instruments are of sufficiently high quality in terms of development and psychometric quality can they be used to address the further research topics in this dissertation.

1.2.2. Existing instruments: Strengths and limitations

The goal of this subsection is to determine whether existing presentation competence instruments are appropriate for continued use in presentation research. To meet this goal, their strengths and limitations are analyzed in order to highlight the need for a new instrument. Instruments for assessing presentation competence operate with rubrics identifying behaviors considered relevant for a successful presentation (Schreiber et al., 2012). An individual's characteristics, in this case their possession of a specific presentation competence level, is rated on a Likert-type scale (Hintze, 2005). Four central instruments were selected to illustrate the current state of existing instruments with regard to psychometric properties. These four presentation competence instruments were chosen because their psychometric properties have already been examined and because they are widely cited and have been recently published. Namely, they are the Public Speaking Competence Rubric (PSCR; Schreiber et al., 2012), the Competent Speaker Speech Evaluation Form (CSSEF; Morreale et al., 2007), the Public

Speaking Instrument (De Grez, 2009), and the Public Speaking Competency Instrument (PSCS; Thomson & Rucker, 2002). In discussing these instruments, the focus lies on external ratings, especially video ratings, because they are considered more objective (Carrell & Willmington, 1996). In addition, the discussion on assessing appropriateness concluded that appropriateness can be assessed via external raters. Examining the effectiveness of presentation behavior is not the focus of this section because, as indicated above, it requires approaches other than evaluation forms, which goes beyond the scope of this dissertation.

Background of the instruments

Existing presentation competence instruments focus on assessing appropriate presentation behavior. Effective presentation behavior is not included in published instruments (see Herbein, 2017). The instruments and their psychometric examinations rely on the use of observers. In most studies, presentation competence is deduced from one presentation situation taking place in a defined setting; presentation behavior in other presentation situations is not taken into account (Hugenberg & Yoder, 1996). However, the definition of presentation competence involves the demonstration of skills in various situations. Considering just one situation in assessment means that the assessment of presentation competence is based on a very limited range of situations (Hugenberg & Yoder, 1996). Nevertheless, there are specific presentation situations in secondary school that occur only once: for example, presentations within German academic-track secondary school leaving exams (Abitur). In such cases, presentation behavior in this single situation is what matters for one's grade. This is why even a single situation can be meaningful for assessing presentation competence. Moreover, the rubrics are developed on the basis of different references. That is, the authors of the four instruments draw upon theoretical frameworks such as communication theories (e.g., Morreale et al., 2007), didactic principles (e.g., Schreiber et al., 2012) and previous instruments (e.g., De Grez, 2009). It is notable that explicit references to rhetorical theory were not part of the instruments' development. In the rest of this subsection, the psychometric properties of the four central instruments are summarized. The strengths and limitations of this psychometric examination process are also addressed.

Psychometric properties of the instruments

The psychometric examinations of the four instruments occurred using samples of higher education students (e.g., Thomson & Rucker, 2002). The PSCR instrument (Schreiber

et al., 2012) was used in introductory speech classes at the university, for example. The sample sizes varied between $N = 1$ (Thomson & Rucker, 2002) and $N = 219$ (De Grez, 2009).

With respect to objectivity, the assessment procedure as well as rater procedures are described to facilitate standardized rater assessments (e.g., Morreale et al., 2007). Schreiber and colleagues (2012) reported ICCs, an indicator of interrater reliability, between .54 and .93 for their instrument items. This indicates satisfactory to excellent interrater reliability and interrater agreement (Cicchetti, 1994).

Several measures have been established to assess instruments' reliability (Hintze, 2005). In the presentation context, the test-retest reliability, also called stability, indicates whether the same rater will assess the same presentation behavior by the same speaker highly similar in two separate sessions (Hintze, 2005). Test-retest measures for the four instruments were not reported; however, the selection of adequate reliability measures depends on the study design. Cronbach's alpha can be considered the final step of reliability testing and reveals the internal consistency of the scales (Hintze, 2005). Cronbach's alpha was reported for the Public Speaking Instrument (De Grez, 2009), with values of $\alpha = .83$ up to $\alpha = .89$, indicating that the scale has good internal consistency. Further reliability measures for the four presentation competence instruments were not reported.

With respect to validity, content and face validity is given when the presentation behavior that is observed and focused on and therefore the observational system as a whole are representative of what the authors intended, i.e., presentation competence (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). Construct validity is indicated when constructs that are interrelated in theory, for example, presentation competence and speech anxiety, are also correlated empirically in the expected way. A common method of examining the content and face validity of the presentation competence instruments was to have the items reviewed by an expert panel (e.g., De Grez, 2009). Construct validity was examined in terms of convergent validity. For example, the correlation between the presentation competence instrument and the communication apprehension instrument was examined, with the results indicating acceptable to good validity (e.g., Morreale et al., 2007). In addition, construct validity was investigated through exploratory factor analysis (e.g., Thomson & Rucker, 2002) This analysis revealed different factor dimensions depending on the item pool used in the exploratory factor analysis. Because the item pools considered do not cover the six facets of presentation competence identified in this dissertation, the findings are limited to those specific configurations.

Requirements for future instruments

This dissertations' critical examination of four central presentation competence instruments revealed common approaches in terms of instrument development. The strengths of these instruments lie in their psychometric examinations, which provide a starting point for the development and psychometric evaluation of further instruments. In addition, the four instruments based their conceptualizations of presentation competence on didactic principles and theories. However, their theoretical foundations are not linked to rhetoric. Moreover, secondary school student samples are underrepresented in the psychometric evaluations, and the German versions of the presentation competence instruments were not part of the discussion. Furthermore, the development of the items making up these instruments could be more transparent, perhaps by elucidating their relationship to concrete theories. This could also address the fact that rhetorical theory was not explicitly considered. In addition, existing psychometric examination approaches can be supplemented by a broader validation procedure, for example, one that takes into account experts' live ratings. On a similar note, the psychometric examinations could also include test-retest measures (reliability) indicating the stability of the instrument. In conclusion, this critical examination of existing instruments indicates that there is a need for a new instrument. There appears to be no instrument covering all of the facets of presentation competence deduced form rhetorical theory. In addition, test-retest measures could indicate the instruments' stability, and the use of experts' live ratings to validate the instruments could contribute to a more robust psychometric examination procedure.

1.3. Fostering Presentation Competence of Secondary School Students

Different target groups can be focused on with respect to fostering presentation competence. Because secondary school students represent the main concern of this dissertation, the current discussion of fostering presentation competence is limited to secondary school students. Before going into more detail on this issue, it is worth addressing the question of why presentation competence should be promoted at the secondary school level. Firstly, secondary school students encounter presentation tasks during their secondary school careers, because numerous final school exams include presentation tasks within their examination procedures (e.g., Freie und Hansestadt Hamburg, Behörde für Schule und Berufsbildung, 2018). Secondly, competently completing presentation tasks in secondary school influences students' school achievement and increases personal success, e.g., by strengthening self-confidence (Hay, 1994). In addition, presentation experiences at the secondary school level make it easier for students to develop this complex competence and can prevent later problems such as speech anxiety in students' professional lives and higher education (van Ginkel et al., 2015). Thirdly, explicit promotion is required when a competence does not develop without training (Bailey et al., 2017). Higher education has identified a need for better presentation competences among students. University entrants at the beginning of their studies often fail to successfully prepare a talk (Dorée et al., 2007) or have problems delivering information (Nippold et al., 2005; Scott & Windsor, 2000). In addition, employers complain about the poor presentation competence of young professionals. Thus, it seems reasonable to seek to promote presentation competence earlier and more broadly, i.e., already at the secondary school level. Another reason for fostering presentation competence is its inclusion in educational standards for secondary school students across countries (e.g., England: Department for Education, 2014; Germany: Kultusministerkonferenz, 2003; United States: Common Core State Standards Initiative, 2010).

By now, more and more presentation training programs have been initiated in schools at all educational levels (e.g., Böhme, 2015; Herbein, 2017; Morreale et al., 2016). They are mainly practically tested and studies examining their effectiveness are scarce. However, identifying effective presentation training programs provides a valuable starting point for (further) developing training programs for secondary school students. Thus, for critical examination of existing programs, this dissertation provides an overview of training programs that were extracted from highly cited reviews (see 1.3.1).

Besides, a presentation training program that adequately fosters secondary school students' presentation competence has to take the intervention's target group into account and

identify core components of the applied teaching methods. Analyzing the characteristics and individual prerequisites of the target group is of crucial importance, because these factors crucially determine and influence further steps of the training development process: defining the goals of the training program, framing and specifying the content of the program, and selecting the training activities (e.g., Humphrey et al., 2016; Herbein, 2017; see 1.3.2). In addition, the core methodological components provide a basic framework for conceptualizing training activities for secondary school students (see 1.3.3). Both secondary school students' characteristics and core methodological components are essential to consider with respect to fostering presentation competence in secondary school.

1.3.1. Suceess of presentation training programs: Educational practice under study

Existing presentation trainings programs in school education provide useful insights to implementations into the school context. To reveal training programs' effectiveness, studies are needed. Consequently, the goal of this subsection is to provide an overview of evaluated presentation training programs implemented in the school context and examine their success. Before depicting the overview of these studies, the role of rhetoric in education needs to be discussed from the historical perspective to understand the current status quo of training programs in school.

There is a long rhetorical history of educational thinking. Its roots go back to the beginning of rhetoric in ancient times. The first professional rhetoric teachers, the sophists, were also the first to reflectively consider rhetorical instruction (see Ockel, 1998) and started professional training on demand. One of the first sophists, Protagoras, argued that the art of rhetoric is based not on birth but rather on learning and teaching (Platon, Protagoras, 323c, 326e, 328c.). Quintilian, the first professor of rhetoric in Rome to receive a state salary, postulated a lifelong education from birth through school and up to older age in his work *Institutio oratoria* (I, 6). Since then, rhetoric has become an established part of education. Rhetoric was one of the *septem artes liberales*, the seven subjects relevant for education. Consequently, rhetoric was long considered a fixed part of school and university education (Ueding & Steinbrink, 2011). In the 19th century, rhetoric lost its stand-alone status and became part of different disciplines, including psychology, language arts, philosophy, and science. In school education, the language arts included rhetoric and dealt in particular with text analyses (Dietz, 2008; Ueding & Steinbrink, 2011). In modern times, near the end of the 20th century, a large vocational training market developed, with rhetorical education as one prominent topic (Dietz, 2008). In school education, rhetoric played only a minor role. However, in recent

decades, schools and universities have once again recognized the relevance of rhetorical education. Today, presentation competence is promoted in various ways (e.g., Morreale et al., 2010). Numerous training programs, in particular in the higher education context, exist (see Herbein, 2017; van Ginkel et al., 2015). Böhme (2015) identified teaching concepts focused on fostering rhetorical skills in prominent educational publications in recent decades. Thereby, she reported a shift from training programs in schools focused on speaking and speeches to training programs focused on speaking in multimedia presentation contexts. Overall, the number of training programs for secondary school students appears small in contrast to trainings in the higher education context. The small number could also be due to the minor role of rhetoric in teacher training education, where rhetoric is not included (Voßkamp, 2012).

In order to obtain information whether presentation training programs successfully promote the intended outcome variables, effectiveness studies are necessary. Thus, as part of this dissertation it was searched for studies examining the effectiveness of presentation training programs published in the fields of German rhetoric and German linguistic research as well as in highly-cited international communication journals. In addition, highly cited papers focusing on the assessment and/or promotion of presentation competences were included, together with key publications from their reference list. The overview of the studies extracted is depicted in Table 1. The training programs were categorized to central characteristics such as sample size, target group, study design, treatment, assessment of presentation competence, and effects, in order to examine program’s success.

Table 1

Effectiveness Studies on Presentation Competence Training Programs

No	Study	Sample size	Target group	Study design			Treatment		Assessment of presentation competence				Effects
				Rando-mization	Groups	Measure ment points	Length	Type of treatment	Self-report	Ex-ternal	Instrument	Over-all	Fa-cets	Results
1	Herbein, Golle, Tibus, Schiefer et al., 2018	*N* = 65	Elementary school	Yes	EG (*n* = 33) CG (*n* = 32)	Pre- and posttest	12 course units of 90 min each	Presentation training program	X	X	Self-reports: German version of the performance questionnaire (child version; PQ-C; Cartwright-Hatton et al., 2005). External: Self-developed observation sheet		X	Self-reports: Effects on speech performance External: Effects on nonverbal visual behavior, nonverbal auditory behavior, organizational skills and global performance
2	Herbein, Golle, Tibus, Zettler, & Trautwein, 2018	*N* = 61	Elementary school	Yes	EG (*n* = 28) CG (*n* = 33)	Pre- and posttest	11 course units of 90 min each	Public speaking training program		X	Observation sheet (Herbein, Golle, Tibus, Schiefer et al., 2018)		X	Effects on global performance and organization (length of speech, length of introduction, length of conclusion, reference to listener)
3	Herbein et al., 2020	*N* = 65	Elementary school	Yes	EG (*n* = 29) CG (*n* = 36)	Pre- and posttest	11 course units of 90 min each	Public speaking training program		X	Observation sheet (Herbein, Golle, Tibus, Schiefer et al., 2018)			Effects on posture (nonverbal public speaking skill) and addressing audience (language use)

Note. The summarized results in this table are deduced from the stated references. The instruments are ordered according to target group and publication date. n.a. = not available, X = true, EG = experimental group, CG = control group. (continued)

No	Study	Sample size	Target group	Study design				Treatment	Assessment of presentation competence					Effects
				Rando-mization	Groups	Measure ment points	Length	Type of treatment	Self-report	Ex-ternal	Instrument	Over-all	Fa-cets	Results
4	Parr & Cartwright-Hatton, 2009	*N* = 36	Secondary school	Yes	EG (*n* = 18) CG (*n* = 18)	Pre-, pre- and Posttest	10min	Guided video feedback after presentation and then delivering second presentation vs. no video feedback	X	X	Self-reports: Performance Questionnaire (PQ-C; Cartwright-Hatton et al., 2003) External: Objective Performance Questionnaire (OPQ-C; Cartwright-Hatton et al., 2003)	X		Self-reports: Effects on speech performance External: No effects
5	Bankston & Terlip, 1994	*N* = 84	Higher education	No	EG1 (*n* = 27) EG2 (*n* = 31) CG (*n* = 26)	Posttest	n.a.	Low (watching video-recorded presentation) vs. high feedback (watching video-recorded presentation plus audience reaction) vs. no treatment		X	Instructor's grade of student performance	X		No effects
6	Clyde et al., 1994	Study 1: *N* = 39 Study 2: *N* = 44 Study 3: *N* = 39	Higher education	No	Study 1: EG (*n* = 20) CG (*n* = 19) Study 2: EG (*n* = 22) CG (*n* = 22) Study 3: EG (*n* = 18) CG (*n* = 21)	Posttest	n.a.	Study 1: watching excellent model vs. no model speech Study 2: Self-observation vs. no self-observation Study 3: same vs. multiple evaluation forms		X	Competent Speaker Speech Evaluation Form (Morreale et al., 1992)	X		No effects
7	Mino & Butler, 1997	*N* = 634	Higher education	No	Pre-change group (*n* = 298), Post-change group (*n* = 336)	Posttest	Semester	Traditional lecture vs. collaborative approach		X	Self-developed based on Carlson and Smith-Howell (1995)	X	.	Overall effects

Note. The summarized results in this table are deduced from the stated references. The instruments are ordered according to target group and publication date. n.a. = not available, X = true, EG = experimental group, CG = control group. (continued)

No	Study	Sample size	Target group	Study design			Treatment		Assessment of presentation competence			Effects		
				Rando-mization	Groups	Measure ment points	Length	Type of treatment	Self-report	Ex-ternal	Instrument	Over-all	Fa-cets	Results
8	Ayres et al., 1998	*N* = 166	Higher education	Yes	EG (*n* = 56) CG (*n* = 59) Placebo (*n* =51)	Pre- and posttest	n.a.	Practicing speeches vs. no practicing vs. small group discussions (placebo)	X		Self-perceived communication competence (SPCC) (James C. McCroskey & McCroskey, 1988)	X		No effects
9	Gring & Littlejohn, 2000	*N* = 158	Higher education	No	EG	Pre- and posttest	n.a.	Instructor's feedback on first video-recorded presentation		X	The Competent Speaker instrument (Morreale et al., 1992)		X	Effects on all items (highest improvement on purpose, organization, and visual aids)
10	King et al., 2000	*N* = 91	Higher education	Yes	EG1, EG2 CG (group sample sizes were not available)	Posttest	n.a.	Immediate feedback vs. delayed feedback vs. control group		X	Self-developed		X	Effects on eye contact (immediate feedback), effects on introduction (delayed feedback)
11	R. A. Clark & Jones, 2001	*N* = 61	Higher education	No	EG1 (*n* = 40) EG2 (*n* = 21)	Posttest	eight weeks	EG1: traditional vs. EG2: online public speaking course	X	X	Self-developed		X	Self-reports: no effect External: no effects
12	T. Brown & Morrissey, 2004	*N* = 65	Higher education	Yes	CG (*n* = 32) EG (*n* = 33)	Pre- and posttest	75 min	Verbal self-guidance		X	Self-developed based on Whetten and Cameron (1998)	X		No effects
13	Dupagne et al., 2007	*N* = 72	Higher education	No	EG (*n* = 35), CG (*n* = 37)	Posttest	n.a.	Video feedback (watched their five individual speeches online)	X		Self-perceived communication competence (McCroskey & McCroskey, 1988)	X		No effects
14	Mallard & Quintanilla, 2007	*N* = 116	Higher education	No	EG (*n* = 59) CG (*n* = 57)	Posttest	n.a.	Self-assessment after giving the speech vs. self-assessment after viewing their video-recorded presentation	X		Self-developed	X		No effects

Note. The summarized results in this table are deduced from the stated references. The instruments are ordered according to target group and publication date. n.a. = not available, X = true, EG = experimental group, CG = control group. (continued)

No	Study	Sample size	Target group	Study design				Treatment	Assessment of presentation competence			Effects		
				Rando-mization	Groups	Measure ment points	Length	Type of treatment	Self-report	Ex-ternal	Instrument	Over-all	Fa-cets	Results
15	Fellenberg, 2008	*N* = 71	Vocational school students (post-secondary school)	No	Class 1 (*n* = 22) Class 2 (*n* = 19) Class 3 (*n* = 30)	Pre- and posttest	8-10 weeks	Class 1: Speech training lessons Class 2: Speech training lessons including rhetorical practices Class 3: Learning by teaching		X	Self-developed		X	Class 2: Most effective treatment; Within Class 2: effects on overall presentation, voice, body language, visual aids, moderation.
16	De Grez, Valcke, & Roozen, 2009b	*N* = 101	Higher education	Yes	EG1, EG2, EG3, EG4 (group sizes were not reported)	Pre- and posttest	n.a.	Communication course, then divided into four conditions 1) Presentation of a general presentation goal and no self-reflection 2) Presentation of a general presentation goal and self-reflection 3) Triggering personal specific presentation goal setting and no self-reflection 4) Triggering personal specific presentation goal setting and self-reflection		X	Self-developed based on Carlson and Smith-Howell, 1995; Daly et al., 1995; Wiertzema & Jansen, 2004	X	X	For all participants: overall effects, largest effects on introduction and conclusion Effects on specific goal setting; No effects on self-reflection.
17	De Grez, Valcke, & Roozen, 2009a	*N* = 57	Higher education	Yes	EG1, EG2, EG3	Pre- and posttest	n.a.	All students: oral presentation skills training via multimedia instruction, then assigned to three different feedback conditions (expert, peer, and self-assessment)		X	Self-developed	X	X	No effects of feedback condition. For all students: overall effects, highest effects on introduction, conclusion, structure, contact audience

Note. The summarized results in this table are deduced from the stated references. The instruments are ordered according to target group and publication date. n.a. = not available, X = true, EG = experimental group, CG = control group. (continued)

No	Study	Sample size	Target group	Study design			Treatment		Assessment of presentation competence			Effects		
				Rando-mization	Groups	Measure ment points	Length	Type of treatment	Self-report	Ex-ternal	Instrument	Over-all	Fa-cets	Results
18	Bower et al., 2011	*N* = 22	Higher education	No	EG	Pre- and posttest	Six weeks	Peer feedback	X		Self-developed and interviews	X	X	Overall effects; qualitative effects on body language and voice, connection to the audience
19	Mowbray & Perry, 2013	*N* = 11	Higher education	No	EG	Pre- and posttest	Six weeks at two hours per week	Public speaking program for lecturers	X		Self-developed		X	Effects on 11 of the 12 items (largest for liveliness in delivering material and interesting material)
20	Cavanagh et al., 2014	*N* = 41	Higher education	No	EG	T1, T2, T3, T4	n.a.	Use of a video reflection system → review and reflection on one's own and peer presentations		X	Self-developed		X	Effects on all facets (highest for confidence, lowest for body language and engagement)
21	Mitchell & Bakewell, 1995	*N* = 45	Higher education	No	EG1 (*n* = 15) EG2 (*n* = 15) CG (*n* = 15)	T1, T2, T3	20 weeks	Marketing seminar EG1: Presentation guidelines (PG) plus tutor and peer feedback EG2: PG plus tutor feedback CG: PG		X	Self-developed based on presentation guidelines		X	EG1 was most effective: greatest improvement on mannerisms, confidence and visual aids
22	Nespital, 2016	*N* = 141	Higher education	No	EG	Pre- and posttest	Semester	Communication course (conversations, argumentation, speeches, rhetorical confidence)	X		Self-developed		X	Effects on all items
23	Ritchie, 2016	*N* = 39	Higher education	No	EG (*n* = 20) CG (*n* = 19)	Posttest	n.a.	Feedback plus self-assessment vs. feedback and optionally watch video-recorded presentation		X	Rubric based on previous studies (De Grez, Valcke, & Roozen, 2009b; Langan et al., 2005; Smith & Sodano, 2011)	X	X	Effects on overall score, explaining graphs, timing, correct grammar/spelling, clarity of speaking style

Note. The summarized results in this table are deduced from the stated references. The instruments are ordered according to target group and publication date. n.a. = not available, X = true, EG = experimental group, CG = control group.

With regard to the target group and the treatment effects, the vast majority of previous work had been conducted in higher education. Only a small number of studies focused on training programs for elementary school students (e.g. Herbein, Golle, Tibus, Schiefer et al., 2018; Herbein, Golle, Tibus, Zettler, & Trautwein, 2018) or on training programs for secondary school students (e.g., Parr & Cartwright-Hatton, 2009). The findings nevertheless indicate that presentation competence can be promoted through presentation training programs at different educational levels (e.g., De Grez, Valcke, & Roozen, 2009b; Herbein, Golle, Tibus, Schiefer et al., 2018; Parr & Cartwright-Hatton, 2009; van Ginkel et al., 2015; Yurong, 2015).

With regard to the study design and chosen assessment approach of presentation competence, the studies provide first important steps on which future studies can build. However, their generalizability might be constrained due to methodological limitations, leading to some research gaps. Firstly, most previous studies did not have a randomized control group, which limits the interpretation of causal effects. Secondly, with respect to the measures used to assess presentation competence, only a few studies reported treatment effects for specific facets rather than overall scores. Only the former enables more differentiated insight into effects on presentation competence. Thirdly, the studies common use either self-reports or external ratings. Only three studies used both assessment approaches (Herbein, Golle, Tibus, Schiefer et al., 2018; Parr & Cartwright-Hatton, 2009; R. A. Clark & Jones, 2001). Studies using only one of the two approaches might be limited in their estimation and interpretation of the results (e.g., Dupagne, Stacks, & Giroux, 2007; Gring & Littlejohn, 2000). While self-perceived presentation competence is a major factor driving future communication decisions, self-reports must be interpreted cautiously because they are subjective and can be biased by factors such as social anxiety (e.g., Carrell & Willmington, 1996; Parr & Cartwright-Hatton, 2009). Previous findings on presentation competence revealed a low congruence between self-reports and external ratings (e.g., De Grez, Valcke, & Roozen, 2012). Examining a presentation training program's effectiveness solely using self-reports provides only limited evidence for potential treatment effects. In contrast, studies based on external assessments offer a more objective way to evaluate effectiveness.

In sum, based on this overview of existing presentation training programs, effectiveness studies of secondary school training programs are lagging behind effectiveness studies in higher education. Reasons could be the under-valued status of rhetoric in secondary school, for example, in teacher education. Previous controlled intervention studies, particularly in higher education, have established that presentation competence can be promoted in principle. However, randomized controlled trials of training programs in the field of secondary education

are scarce. A proper assessment of presentation competence should address different facets of presentation competence rather than the total score pf presentation competence and include both external ratings and self-reports. This dissertation links to that gaps by focusing and evaluating a presentation training program for secondary school students. Before, the target group has to be analyzed in detail because this forms the foundation of a successful training (Humphrey et al., 2016).

1.3.2. Requirements when presenting at school

Analyzing the target group is the starting point for the development of every training program (Gottfredson et al., 2015; Humphrey et al., 2016). In addition to its relevance for conceptualizing the training program, examining the target group also forms a crucial reference point for interpreting the findings of the training evaluation. Thus, this subsection analyzes secondary school students as the target group of the presentation training. Moreover, the goal of the presentation training is deduced from existing literature regarding secondary school students' presentation competence levels and teaching methodologies for rhetoric. Additional focus is laid on related factors that undermine or strengthen secondary school students' presentation competence.

Instructional goal of a presentation training

Two key questions are important when examining the aforementioned target group of the presentation competence training program: What is the presentation competence level of secondary school students? And what competence level should students acquire in the course of their secondary school careers? Because no existing empirical studies have examined secondary school students' presentation competence, this subsection focuses on the second question. Students' expected presentation competence level before leaving secondary school corresponds to the presentation training goal for this target group. The description of secondary school students' final level of presentation competence just before graduation must be based on a presentation competence model. According to Klieme, Avenarius and Blum (2003), a competence model differentiates among different competence levels and is based on teaching methodology. However, no empirically tested presentation competence models identifying different presentation competence levels exist (Geldmacher, 2010). In addition, no generally accepted teaching methodology for presentation competence exists, as the research report by Geldmacher (2010) reveals. Thus, this dissertation applies a variety of different sources to develop an adequate description of the intended final presentation competence level among

secondary school students: i) educational standards related to presentation competence (e.g., Common Core State Standards Initiative, 2010; Kultusministerkonferenz, 2003) ii) teaching methodologies, such as Geldmacher's discussion (2010) of teaching methodologies for presentation competence in the highest track of the German school system (Gymnasium), as well as iii) previous research addressing presentation competence in school education (e.g., Herbein, 2017).

i) Educational standards delineate educational goals for secondary school students at each grade level. Educational standards regarding presentation competence (see also 1.1.2) exist for all grades (Common Core State Standards Initiative, 2010). Thus, they can provide an orientation for promoting the identified presentation facets. Educational standards refer to these presentation facets either explicitly (e.g., visual aids) or implicitly (e.g., body language and voice). There is a tendency for educational standards regarding presentation competence to exhibit increasing complexity at different age levels. For example, with respect to complexity in terms of the use of visual aids in presentations, in 4th grade, the focus is on appropriately selecting and integrating visuals into presentations, while the 12th grade standards stress the strategic use of digital media, implying the creation of visual aids. In addition, students are expected to focus more on appropriateness as they grow older. In 4th grade, appropriateness is not neglected but it is related to the content, e.g., appropriateness is measured in terms of whether the facts included strengthen the presented idea. In contrast, for 12th grade students, appropriateness is embedded within a larger framework, e.g., the appropriateness of structure or style is related to the purpose, audience and task. There is a parallel tendency in German educational standards focusing on presentation competence (e.g., Kultusministerkonferenz, 2003, 2004, 2012). In 4th grade, students should be able to present self-chosen text using visual media (Kultusministerkonferenz, 2004). At the end of secondary school, just before university entry (Kultusministerkonferenz, 2012), students should address sophisticated topics in an appropriate way using different presentation techniques. Although these educational standards reflect different levels, they do not elaborate competence levels for each presentation facet in detail. Moreover, some presentation facets, such as body language and voice, remain implicit. However, a more detailed differentiation of each presentation facet is required to conceptualize a presentation training, and this detailed perspective is not characteristic of educational standards, but rather of teaching methodology (Geldmacher, 2010).

ii) Geldmacher (2010) provides a detailed overview of first teaching methodology approaches for presentation competence from a German language arts perspective. She sought to design a teaching methodology for presentation competence for students in highest-track

German secondary schools (Gymnasium). Her requirements for secondary school students were based on teaching methodologies for German language arts and with references to a broad interdisciplinary literature. With respect to the presentation facet of body language and voice, Geldmacher also argues that there is no universal rule. According to her, students need behavioral options so that they can select appropriate behaviors in each specific context. Berkemeier (2006), for her part, lists different categories of gestures: gestures that point to something; gestures that structure; gestures that substitute for a message, such as greeting gestures; and gestures that underline the message. These gesture categories can help illustrate behavioral options.

iii) With regard to existing research on presentation competence, Herbein's framework for presentation competence development indicates several intermediate stages (Herbein, 2017). The first step involves building up a skill repertoire as well as being able to apply these skills in a presentation. For example, static use of gesture – for example, putting one's hands into one's pockets throughout the entire presentation – and continuous use the same gesture over and over again in a presentation both indicate a strongly limited skill repertoire in terms of gesture. A skill repertoire, or the possession of a variety of different gestures and the ability to apply them, forms the basis for the second development step. This second step focuses on appropriate use of one's skill repertoire to achieve the highest presentation competence level. The speaker should be able to select skills from his or her repertoire that are appropriate for the presentation situation and the speaker's own personality. This second step ensures that presentation competence behavior does not induce robotic and artificial behaviors (Herbein, 2017; Rubin & Morreale, 1996) and takes into account rhetorical theory emphasizing the need to adapt one's speaking to the circumstances (e.g., Gottschling & Kramer, 2012) in order to meet appropriateness demands (see 1.1.1). This framework for the development of presentation competence implies that younger secondary school students should work on their basic presentation competence skills, i.e., extend and apply their skill repertoire, by learning and demonstrating a broad range of gestures, for example (see 1.1.2). Consequently, they require stronger pre-structuring of presentation tasks. With respect to the other presentation facets, this might involve learning basic structures using templates, or learning the basics of visual aids with analog visual aids and later transferring the acquired skills to digital visual aids (Geldmacher, 2010).

In conclusion, all three of the consulted sources make clear that the main educational goal regarding presentation competence is for students to be able to present appropriately within the limited framework of presentation formats in secondary school (e.g., addressing the student

audience appropriately). Taking a differentiated view, aspects of competent presentation behavior on an adult level (students at the end of their secondary school career are young adults) are identified for the different facets of presentation competence: addressing the audience, structure, language use, body language & voice, visual aids, and content credibility. Also part of the education goal for secondary school students is building a repertoire of skills and knowledge and ensuring the appropriateness of their presentation behavior in a given situation, e.g., with respect to the audience, location, subject matter, etc. At the end of secondary school, students should have competently mastered the school presentation format and be prepared for future presentation formats. The latter requires students to be able to adapt to new presentation tasks. For example, students have to deal with more complex content and meet scientific standards in academic presentations tasks (e.g., Barrett & Liu, 2019; Kobayashi, 2016; Zareva, 2009). Moreover, in academic contexts, poster presentations at academic conferences, where speakers must take into account disciplinary norms and values (e.g., MacIntosh-Murray, 2016) come into play. Likewise, case presentations in the medical field (e.g., E. H. Green et al., 2013) and pitch presentations in the business context (e.g., C. Clark, 2008) have their own characteristics that differ from the school presentation format. These examples highlight that secondary school students need presentation competence education in school to be prepared for future presentations. These types of future presentation tasks will require extending their existing skill repertoires and training on appropriate presentation behavior. Being able to develop and adapt one's presentation competence to future presentation formats and to one's own personality are needed in order to prevent helpless presentation behavior. Without a profound education in presentation competence during secondary school, appropriate transfer and adaptation to these various presentation tasks poses a challenge and might result in graduates exhibiting poor presentation competence levels in these presentation tasks.

Personal factors related to presentation competence

The previous subsection focused on appropriate presentation behavior for secondary school students referring to the six presentation facets: addressing the audience, structure, language use, body language and voice, visual aids, and content credibility. Specifically, the delineated behaviors refer to two of the three dimensions of presentation competence: knowledge and skill. The third dimension of presentation competence (see 1.1.2), attitude, is also influenced by external factors outside of the presentation facets. Presentation attitudes are linked to individual personality characteristics such as motivation, self-efficacy (Amirian & Tavakoli, 2016; De Grez, Valcke, & Roozen, 2009b; Ringeisen et al., 2019), speech anxiety

(e.g., Daly et al., 1995; Marcel, 2019; Pearson et al., 2007), goal orientation (e.g., De Grez, Valcke, & Roozen, 2009b), and personality traits (e.g., Liang & Kelsen, 2018). Recent literature on presentation attitudes has particularly focused on self-efficacy and speech anxiety. Speech anxiety has been particularly broadly examined in higher education research. Speech anxiety, also termed stage fright, speaker anxiety or communication apprehension (see Nash et al., 2015), is defined as a fear of public speaking, manifested by "physiological arousal, negative cognitions, or behavioral responses to real or anticipated presentations" (Dwyer & Davidson, 2012, p. 100). Some degree of speech anxiety can be beneficial for presentation behavior because it serves to stimulate the presenter, but a high degree of speech anxiety overwhelms the presenter and results in poor presentation performance (Nash et al., 2015). A high degree of speech anxiety is also related to poor speech preparation and poor speech decision-making (Daly et al., 2009). Although speech anxiety is a prominent fear for many people (e.g., Dwyer & Davidson, 2012; Tillfors et al., 2011), it reaches its climax among secondary school students (Stein et al., 1996). Research has examined diverse aspects related to speech anxiety. Training programs to reduce speech anxiety have been developed and evaluated in higher education (e.g., Hunter et al., 2014), and even among secondary school students (e.g., Rickards-Schlichting et al., 2004; Tillfors et al., 2011). Three methods have been identified as effective for decreasing speech anxiety: conditioned anxiety reduction interventions, negative thought interventions, and skills training (see Pribyl et al., 2001). In addition, research has focused on further aspects, such as whether popular public speaking books reflect recent speech anxiety research and help readers overcome it (e.g., Pearson et al., 2007), or subjective explanations of what causes speech anxiety, which is valuable for designing training programs (Bippus & Daly, 1999).

Presentation self-efficacy refers to the students‘ beliefs to successfully complete a presentation task (see Ringeisen et al., 2019; Tucker & McCarthy, 2001). Presentation self-efficacy determines the individual effort to the presentation task and is related positively to presentation performance (Tucker & McCarthy, 2001). Different training programs have been examined that aimed to increase presentation self-efficacy. Treatments such as the verbal self-guidance-training program that aims to replace negative self-statmeents with positive self-statemens (T. Brown & Morrissey, 2004), the use of peer model performanc (Adams, 2004) or service learning (McNatt, 2019) foster students' presentation self-efficacy.

Further factors possibly influencing presentation competence are personality traits. Although they are considered equally important as cognitive skills (Anger & Dahmann, 2015), they have seldom been the focus of previous presentation research. The term "personality traits" refers to individual dispositional traits that can be attributed to consistent patterns of feelings,

thoughts, and behavior that individuals demonstrate across situations and over time (Roberts & Davis, 2016). One of the most widely used personality frameworks is the Big Five framework of personality (McCrae & Costa, 1999). It consists of five personality dimensions: Openness to experience, Conscientiousness, Extraversion, Agreeableness, Neuroticism. Focusing on personality traits in presentation research appears valuable for several reasons. Firstly, achievements on oral tasks such as delivering a presentation differ from achievements on written tasks in school education. Achivements on oral tasks might be predicted by a different set of personality traits than achievements on written tasks. Conscientiousness has been found to predict school achievement on written or a mix of written and oral tasks (Poropat, 2009). It can be assumed that other personality traits, such as Extraversion, are more relevant for achievements on oral tasks, including presentation tasks. Secondly, the focus on personality traits among secondary school students is of particular interest, because adolescence is considered a life period during which students‘ individual personality traits play a crucial role in their school careers and lives (Heaven & Ciarrochi, 2012). Thirdly, from an instructional perspective, teachers in secondary school education are encouraged to develop students' personality traits and to recognize and accept each student's individual personality, with all its strengths and weaknesses (see Kultusministerkonferenz, 2000; Ministerium für Kultus, Jugend und Sport, Baden-Württemberg, 2016b). Accordingly, students' individual personality traits could affect their acquisition of presentation competence and impact their presentation behavior. Examining the relationship between secondary school students' personality traits and presentation competence could yield insights for personalized instruction to adequately promote students' presentation competence.

In summary, secondary school students must be prepared to complete student presentation tasks. Acquiring this form of presentation competence can make it easier for students to develop presentation competence for completing future presentation tasks. The educational goal with respect to fostering presentation competence at secondary school must take into account that developing presentation competence includes establishing a skill repertoire regarding all six presentation facets - addressing the audience, structure, language use, body language & voice, visual aids, and content credibility - and subsequently focusing on the appropriate use of these presentation skills. The goal is to develop and impart appropriate presentation behaviors for the student presentation format. Among the factors influencing presentation competence, particularly with respect to presentation attitudes, individual prerequisites appear especially relevant for presentation training programs and instructors. Whereas speech anxiety has been widely examined in presentation research among secondary

school students, the relationship between personality traits and presentation competence has been relatively neglected. Both issues – teaching sufficient presentation skills and the relation between personality traits and presentation competence – must be taken into account when designing training activities to foster secondary school students' presentation competence. For a first step, this dissertation deduced, and later took up, the need for studies that focus explicitly on the relationship between presentation competence and personality traits.

1.3.3. Conceptualizing presentation training program

A change model provides an appropriate framework for conceptualizing a presentation training program. A change model includes the mechanisms that are assumed to have the intended effects on the outcomes, in this case on presentation competence (Nelson et al., 2012). These mechanisms, also labeled core components, represent the essential, evidence-based principles of an effective program (Blase & Fixsen, 2013).

Based on two central publications, Böhme's rhetorical didactics (2015) and van Ginkel, Gulikers, Biemans, and Mulder's design principles for developing presentation competence (2015), mechanisms for presentation training can be classified under the following core components: theoretical input, transfer, model learning, practice, feedback, and teaching self-regulated learning. Both publications reviewed existing training research on the target group of adults and young adults. Böhme (2015) deduced core components from her review of rhetorical teaching programs. These core components are not meant to be exhaustive, but must nevertheless be taken into account in rhetorical trainings. Van Ginkel, Gulikers, Biemans, and Mulder (2015) focused on training research from an empirical education perspective. Their design principles were deduced from a set of fifty-two relevant publications from the higher education context in the last 20 years and provide "a comprehensive, but concrete perspective for the design of education courses aiming at oral presentation competence development" (van Ginkel et al., 2015, p. 63). Generally speaking, these core components are described on an abstract level and must be concretized in the specific training context. They are also in line with recent conceptualizations of presentation training among school students (e.g., Herbein, 2017).

Theoretical input. This refers to teaching fundamental knowledge to provide an orientation for acting in relevant situations. This knowledge should be generally applicable in numerous situations, but should at the same time be specificied by discussing examples so that students can recognize characteristics of specific situations (Böhme, 2015). Theoretical input also needs to relate new knowledge to learners' existing knowledge. Previous evidence-based research (see the overview by van Ginkel et al., 2015) has revealed that presentation knowledge

can be expanded through teacher-centered talks or learning materials outside the classroom (Mino & Butler, 1997). This theoretical input seeks to foster cognitive learning goals (Böhme, 2015).

Transfer. This core component supports the learner's application of what he/she has learned to the context he/she faces after training. In this context, the authentic construction of presentation tasks (van Ginkel et al., 2015) as well as the reflection phase after an exercise (Böhme, 2015) play important roles. Several studies provide empirical evidence for this mechanism in the presentation context. Regarding authentic task construction (see an overview by van Ginkel et al., 2015), for example, practicing in front of a real audience (e.g., Chan, 2011; Tucker & McCarthy, 2001) and selecting a presentation topic students found relevant and interesting led to better presentation competence (De Grez, Valcke, & Roozen, 2009b). Regarding the reflection phase, for example, Böhme (2015) points to teachers' demonstrations of alternative presentation behaviors when situations change.

Model learning. The model learning process begins with observing a given behavior and ultimately results in modeling that behavior. Role models can be non-experts, such as peers, or experts, such as teachers or professionals (see overview by van Ginkel et al., 2015, pp. 70–71). Empirical examples reveal that both peer models and expert models positively affect presentation competence (e.g., Adams, 2004; De Grez, Valcke, & Roozen, 2009a; Pittenger, 2004). In ancient rhetorical training, the term *imitatio* refers to this kind of learning, in particular to imitations of rhetorical speeches (Kaminski & De Rentiis, 1998). Contemporary rhetorical training also uses dynamic ideal models, for example, by showing videos of model speeches (Böhme, 2015). Dynamic visualized models in rhetorical training are considered suitable for improving body language and voice, while static models such as text examples are considered suitable for strengthening language use. In addition, teachers must verbally comment on the models' actions; pointing to positive and negative models can make learning from models more clear (Dennen & Burner, 2008).

Practice. Providing practice opportunities is a further core component. Practicing results in better presentation performance (van Ginkel et al., 2015). Previous presentation research has reported empirical evidence on the effectiveness of practicing (e.g., Smith & Sodano, 2011). Although the optimal amount of rehearsing is still debated, research findings indicate that great progress in presentation competence takes place even from the first to the second run-through (De Grez, Valcke, & Roozen, 2009a). In ancient rhetorical training, Quintilian identified practice (*exercitatio*) as a crucial component of speaker training in his *Institutio oratoria* (IV, 1, 3–4). Contemporary rhetorical trainings also emphasize this core component (Böhme, 2015).

Feedback. This refers to assessing a learner and communicating this assessment in a way that allows learning progress to take place (Hattie & Timperley, 2016). Thereby, feedback that is explicit, contextual (appropriate to the situation) and tactful (taking into account students' presentation level, motivation level, personality level and feedback sensitivity) appears to be effective in enhancing presentation competence (van Ginkel et al., 2015). In addition, Böhme (2015) underlines that the timing of feedback is important. Feedback can be either immediate and simultaneous or delayed. In addition, feedback from both teachers and peer group members can foster presentation competence; however, peers should learn how to assess presentation competence beforehand (van Ginkel et al., 2015). Empirical studies (for an overview see van Ginkel et al., 2015) have revealed that explicit and contextual feedback is effective (Haber & Lingard, 2001). Further studies have reported that delayed feedback is most suitable for content-related aspects of the presentation, such as the introduction, because changing the content requires careful reflection. Immediate feedback is most suitable for behavior-based aspects of a presentation, such as eye contact (see; Böhme, 2015; King et al., 2000).

Teaching self-regulated learning. Self-regulated learning is based on continuously monitoring the status quo level with an eye to the desired goal (De Grez, 2009). Previous research has revealed that within this framework, goal setting is effective when the learner formulates and creates specific, directed goals, because presentation competence cannot be learned by focusing on all components at the same time (van Ginkel et al., 2015). Setting specific presentation goals was found to result in better oral presentations than setting general presentation goals (De Grez, Valcke, & Roozen, 2009b). Previous research regarding self-assessment, including self-monitoring and self-evaluating one's own performance and developing strategies to improve performance (see an overview by van Ginkel et al., 2015), has also demonstrated the effectiveness of this mechanism (e.g., Bourhis & Allen, 1998; Smith & Sodano, 2011). In traditional rhetorical training, this aspect was not explicitly stressed. However, contemporary rhetorical trainings integrate self-assessments and also include video-recording as a tool for self-assessment (Böhme, 2015).

However, some limitations must also be taken into account when considering these core components of presentation competence trainings. Although they are based on empirical evidence, presentation research lacks large datasets (Böhme, 2015). Moreover, in several areas there is only a single existing empirical study. Furthermore, combinations of these core components have not been empirically tested for effectiveness. It is even not possible to name the most effective teaching method – the realization of the core components – because research on presentation trainings have hardly not yet tested these methods against each other (Böhme,

2015). Certain constructs behind these methods could also be relevant in presentation trainings, making these core components non-exhaustive. However, although some open questions remain and future research appears necessary, these core components have been found to be effective in evidence-based research on presentation trainings for university students and young professionals. Because no equivalent examinations have been conducted among secondary school students, and corresponding studies in the context of secondary education are scarce, transferring these core components from the higher education context to the secondary school context appears reasonable. The overlap between core components for higher education and secondary school education supports this transfer. For example, the core component of feedback is effective not only in higher education but also for secondary school students (Hattie, 2009, 2011). In addition, from a practical point of view, core components such as practice and model learning were part of ancient rhetorical trainings (Kaminski & De Rentiis, 1998) and continue to be part of contemporary trainings for secondary school students (Böhme, 2015). Consequently, practical tests have been conducted supporting the transfer of these core components to secondary school students.

These core components illustrate mechanisms that must be operationalized in concrete teaching methods within a presentation training manual. A practical example is the presentation training program Youth Presents. Youth Presents is the largest presentation contest for secondary school students in Germany, involving more than 4500 participants in 2019 (Jugend präsentiert, 2019). The contest consists of several rounds and culminates in the national final, in which six presenters compete against each other. A presentation training program called Presentation Academy takes place before the finals. This two-and-a-half-day training is an example of a short extracurricular presentation training program for secondary school students. It is divided into different modules addressing the following content: "Addressing the audience", "Language use and structure", “Visual aids”, “Body language & voice". The training is conducted by six rhetoric trainers, rhetoric graduates and experts in presentation competence from the presentation research center at the University of Tübingen.

1.4. Research Questions of the Present Dissertation

The present dissertation focuses on a core competence of the 21st century, which is relevant for educational, professional, and personal life: presentation competence. Three main research areas emerged. First, in order to assess this competence, it is necessary to define and conceptualize it. Second, which factors determine and relate to this competence is of interest. Third, it is relevant to ask how this competence can be fostered, that is, whether and how presentation competence can be promoted.

Existing assessment instruments for presentation competence address higher education students as the target group. The central existing instruments examined have different bases and have been psychometrically evaluated in different extend. There is a lack of instruments targeting secondary school students that address facets derived from rhetorical theory. The call for an instrument specifically designed for secondary school students has remained unanswered in educational and rhetorical research. This dissertation transfers previous presentation competence instruments for higher education to the secondary school context and develops a new presentation instrument for this target group based on rhetorical theory and in line with empirical educational approaches. It combines and extends previous examinations of instruments' psychometric properties and includes further valuable approaches. In doing so, the relations between different measurement perspectives on presentation competence, i.e., external ratings and self-reports (e.g., Carrell & Willmington, 1996), are taken into account for the validation process.

Alongside the assessment of presentation competence, factors determining presentation competence are of interest because they can undermine or strengthen presentation performance. One determinant that has been extensively researched is speech anxiety (e.g., Daly et al., 1995; Marcel, 2019). De Grez, Valcke, and Roozen (2009b) examined individual characteristics related to the motivational dimension of presentation competence, including self-efficacy, self-concept, and goal orientation. They called for more research effort examining individual student characteristics related to presentation competence. This dissertation sought to extend the research on individual characteristics as determinants of presentation competence by relating personality traits to presentation competence. In schools, educational determinants are of particular interest because they can provide a basis for adapting instruction in order to promote this competence. Written tasks predominate secondary school education, while oral tasks are less prominent. This dissertation contributes to providing a more detailed view on how achievements on oral tasks, specifically presentation tasks, are related to student characteristics.

In addition, this dissertation takes advantage of the benefits of multi-perspective measurement in the secondary school context. External ratings are considered more objective, while self-reports can measure self-perceived competence, a key determinant of future presentation behavior. Both are relevant for the development of presentation competence.

Focusing on the promotion of presentation competence involves asking questions related to whether presentation competence can be changed and if so, how it can be fostered. Universities and employers complain about students' inability to successfully complete presentation tasks (e.g., Dorée et al., 2007; Dynkowska et al., 2012) and call for the earlier promotion of this competence. In contrast to higher education, in secondary school, only a few didactical programs exist aimed at fostering rhetorical and presentation competences (Böhme, 2015), and their effectiveness has not yet been examined. This dissertation answers the call to focus more on presentation training in the secondary school context and examined the effectiveness of a presentation training for secondary school students. The specific focus was a short extracurricular presentation training that closely aligns with the training reality in secondary school (Böhme, 2015) and thus can be easily implemented in secondary schools. In addition, Smith and Sodano (2011) discussed the necessity of using external and self-reported measures. Both perspectives are seldom used in evaluation studies of presentation research. Furthermore, there is a standard in educational effectiveness for a robust study design (see Caspari et al., n.d.; Gottfredson et al., 2015). This dissertation transfers these standards to the under-researched field of presentation training programs for secondary school students.

Specifically, the present dissertation includes three studies, which link the open research questions and take the next research steps. *Study 1* (*Towards a psychometrically sound assessment of students' presentation competence: The development of the Tübingen Instrument for Presentation Competence [TIP]*) focuses on the definition, operationalization, and empirical testing of this construct. First, a detailed review of existing instruments was conducted with the goal of identifying and exploiting the strengths of existing instruments as well as examining their limitations in order to identify potential improvements in future instruments. Based on the fact that none of the instruments were based on a rhetorical foundation, a new instrument, the Tübingen Instrument for Presentation Competence (TIP), was developed with a focus on secondary school students in Germany. The conceptualization of presentation competence was based on rhetorical theory and educational research. The goal of this first study was to test the new instrument's objectivity (interrater reliability), reliability (stability), as well as validity (factor analysis and relationship between TIP constructs and experts' live ratings, students' self-assessments, speech anxiety, and school grades in German language arts). Video ratings were

used for this research. Further measurements, such as experts' live ratings and self-assessments of presentation competence, were also part of the study.

The second study shifted the focus to student characteristics related to presentation competence. *Study 2* (*Presentation competence and personality praits: The role of Extraversion and Neuroticism*) focused on secondary school students' personality traits and their relationship to presentation competence. Secondary school students encounter oral presentation tasks in their school careers and need to complete them competently. Whereas previous research has revealed that the Big Five personality traits (Conscientiousness, Extraversion, Neuroticism, Agreeableness, and Openness to experience) are related to school achievement in general, the pattern of relationships with achievements on the presentation task, is under-researched. This study employed a multi-perspective approach to measure presentation competence across four measurement points that included different presentation tasks. External video ratings and experts' live ratings as well as self-assessments of presentation competence were included in this investigation.

The third investigation concerned fostering presentation competence. *Study 3* (*One step closer to successful 21st century skills use: Effects of a presentation training program for secondary school students*) identified and filled a need for presentation trainings for secondary school students. Both universities and employers have recognized that students and employees have poor presentation competence levels. Thus, fostering presentation competence in secondary school is becoming increasingly important. There is a lack of studies on the effectiveness of presentation competence trainings with sophisticated designs including pre- and posttests, a control group, and randomization (Böhme, 2015). *Study 3* evaluated a short presentation training program for secondary school students with respect to its effectiveness for fostering secondary school students' presentation competence using a wait-list control group design with pretest and posttest. The short presentation training took place as part of Youth Presents, a national presentation contest for secondary school students in Germany. The training, the Youth Presents Presentation Academy, was based on the research conceptualization underlying this dissertation. Its target group included students from 5th to 13th grade from all over Germany.

2

Study 1:

Towards a Psychometrically Sound Assessment of Students' Presentation Competence: The Development of the Tübingen Instrument for Presentation Competence (TIP)

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Abstract

Giving oral presentations is omnipresent during students' school careers. However, there are few instruments to assess high school students' presentation competence with high psychometric quality. The present study describes the development and examination of the psychometric qualities of the Tübingen Instrument for Presentation Competence (TIP). The TIP is grounded in rhetorical theory and comprises 22 items covering six facets of presentation competence: addressing the audience, structure, language use, body language & voice, visual aids, and content credibility. Data were collected within Youth Presents, a German presentation contest for secondary school students. Four trained raters assessed a total of 254 video-recorded student presentations. Findings indicate satisfactory interrater reliability and retest stability. Exploratory factor analyses yielded a multidimensional structure resembling the theoretically proposed structure. Correlations with presentation competence assessed via experts' live ratings, students' self-reports, speech anxiety, and students' school grades were largely in support of the validity of the TIP.

Keywords: assessment, oral presentation, presentation competence, public speaking, video rating

Towards a Psychometrically Sound Assessment of Students' Presentation Competence: The Development of the Tübingen Instrument for Presentation Competence (TIP)

Presentation competence is positively associated with success in education, research, and business, and contributes to long-run professional success (Morreale, Valenzano, & Bauer, 2016). The increased importance of presentations in schools is reflected in educational standards, where delivering good presentations is frequently listed as a core student competence in various subjects (van Ginkel, Gulikers, Biemans, & Mulder, 2015). The high-quality assessment of presentation competence is of central importance for three reasons. First, when used as a formative assessment, it can support the further development of students' presentation competence. Second, teachers must recurrently evaluate presentations that influence students' grades. Third, sound assessments are necessary for research on presentation competence, its development and its promotion in different contexts (Morreale & Backlund, 2007).

However, current means of assessing presentation competence in educational contexts tend to be subjective. They are often self-developed and demand-orientated, focusing on self-defined criteria of presentation competence (Geldmacher, 2010). Similarly, in research, there is a lack of established, theory-driven instruments with psychometric evaluation. To address this gap, we developed an instrument that is based on rhetorical theory, the Tübingen Instrument for Presentation Competence (TIP). To examine the TIP's psychometric properties, external raters used it to independently assess a fairly large number of student presentations, video-recorded at two measurement points. We tested the instrument's interrater reliability and retest stability. Besides, we ran exploratory factor analyses and examined the relations between the TIP and further assessments of presentation competence, i.e., expert ratings and students' self-reports, as well as speech anxiety and school grades in German language arts.

Presentation Competence

Presentation competence refers to speeches made in a formal setting with the primary goal of informing the audience (e.g., Herbein, 2017; van Ginkel et al., 2015). A presentation setting includes specific characteristics: i) limited interaction between the speaker and the listener(s) due to the monological speech situation (De Grez, 2009), ii) an audience of at least one person (De Grez, Valcke, & Roozen, 2009), iii) a limited speaking time, and iv), the use of media in the form of either digital or analog visual aids (Geldmacher, 2010). The ability to present competently is rooted in three dimensions and their interplay: the speaker's knowledge on how to prepare and deliver a presentation; the speaker's presentation skills; and the speaker's motivation, which is associated with phenomena such as speech anxiety (van Ginkel et al.,

2015). Overall, a speaker is perceived as competent if the exhibited presentation behavior is (i) effective, i.e., when the speaker meets the main goal of the presentation to inform; and (ii) appropriate, i.e., when the speaker meets the norms and expectations of the specific presentation situation (Backlund & Morreale, 2015). Here, appropriateness refers to a fundamental rhetorical concept that was already posited by Quintilian (Institutio oratoria, I, 5, 1). Whether or not a person exhibits effective and appropriate presentation behavior depends on his/her ability to apply various presentation skills based on his/her knowledge about presentations and motivation to actually present competently.

In terms of motivational factors, speech anxiety is defined as a specific form of social anxiety caused by presentation situations (Bodie, 2010). It is accompanied by physiological arousal and influences cognition and behavior. Speech anxiety is negatively correlated with speech delivery (Menzel & Carrell, 1994) and can undermine presentation competence.

Assessing Presentation Competence in Educational Settings: An Overview

There are a number of notable reviews (De Grez, 2009; Morreale & Backlund, 2007; Schreiber, Paul, & Shibley, 2012) that describe available presentation competence instruments in educational settings[1]. The instruments described there either had practical relevance for certain pedagogical contexts, or were developed for research purposes. All of them have certain similarities, most likely because some later tools were developed on the basis of earlier ones. The reviews also indicate that there are many valuable approaches for assessing presentation competence. The instruments are all implementable tools grounded in different frameworks, with various steps taken to examine their psychometric characteristics (see Table 1). However, an in-depth analysis revealed that several limitations apply to the majority of instruments.

Firstly, almost all of the instruments reviewed were based on educational standards (Morreale, Moore, Taylor, Surges-Tatum, & Webster, 2007). However, the authors seldom explicitly referred to the theoretical background of these standards or grounded the instruments in theories of rhetoric or communication, for example. Moreover, there are differences in the breadth and depth of the presentation behaviors considered resulting from the instruments' different backgrounds. For example, some instruments summarize different behaviors in a single item (e.g., one item assessing body language; Morreale et al., 2007), whereas others consider a specific selection of behaviors (e.g., several items related to body language, i.e., one item each for eye contact, gestures, etc.; Thomson & Rucker, 2002).

[1] Across different instruments and studies various terms are used when talking about a person speaking in front of a group. Some common ones are *oral presentation*, *public speaking*, and *presentation skills* (see De Grez, 2009; Ginkel et al., 2015).

Secondly, with regard to psychometric properties, only some instruments report indicators for objectivity, reliability, and validity (e.g., Schreiber et al., 2012). In terms of objectivity, several instruments report interrater reliability, with mostly acceptable values (see Table 1; e.g., Morreale et al., 2007; Schreiber et al., 2012). In terms of reliability, the subscales' internal consistency is typically reported (e.g., De Grez, 2009; Rubin, Welch, & Buerkel, 1995). With regard to validity, some studies conducted factor analyses (e.g., Schreiber et al., 2012; Thomson & Rucker, 2009) and/or correlated the outcomes with other instruments assessing constructs related to presentation competence, such as speech anxiety (Morreale et al., 2007) or school grades (Schreiber et al., 2012). Furthermore, most instruments evaluated the items with expert panels (Illinois Speech and Theatre Association and the School of Communication, 2002) or expert surveys (De Grez, 2009).

However, it must be stated that many instruments were not examined thoroughly for objectivity, reliability, and validity. A stepwise, priority-based psychometric examination would be necessary to better understand the instruments' psychometric properties. The reported analyses lack some indicators one might expect to be examined in the process of psychometric validation, such as the instruments' stability, a crucial indicator of the accuracy of ratings (Congdon & MeQueen, 2000). Another example is the use of experts' live ratings, which are a valuable tool for examining validity. Because it takes a great deal of expertise and practical experience to conduct adequate presentation appraisals, experts in the field of rhetorical or communication education are highly qualified to conduct these ratings (see Reilly et al., 1977). Apart from expert ratings, self-reports are often used as an external criterion to examine validity. Previous research has indicated that teachers' post-presentation assessments and students' self-reports are weakly to moderately correlated across different presentation facets (Hung, Samuelson, & Chen, 2016). The reasons for the low correlations are, firstly, that students were not trained in using the self-assessment tool (e.g., Ritchie, 2016), and secondly, that self-reports are influenced by individual factors regardless of the behavior assessed (Carrell & Willmington, 1996). Thus, video ratings represent a relevant assessment tool that cannot be replaced by self-reports.

In sum, reviews of the available instruments for assessing presentation competence reveal that this research field is "under-assessed, especially compared with traditional assessment items that examine written communication" (Chan, 2011, p. 73). There is still no generally accepted instrument (De Grez, 2009). Therefore, our goal was to develop a presentation competence instrument that combines a clear theoretical foundation with an empirically sound evaluation of psychometric properties.

Table 1

Overview: Instruments for Assessing Presentation Competence

Instruments	Target level	Background			Item number / answer format	Sample	Objectivity	Reliability	Validity
		Emp.	Di.	Th.					
Communication Competency Assessment Instrument – High School (CCAI-HS) (Rubin et al., 1995)	K-12 students		X		15 items / 5-point scale	*N* = 88 speeches	Interrater reliability: - Raters were trained until a defined interrater reliability was reached: Simple percentage of agreement > .70 - Kendall's W coefficient for concordance > .80	Internal consistency: - Cronbach's alpha: α = .77 - Guttman split-half reliability coefficient = .66.	Content validity: - Developed to align with SCA competencies for high school graduates Convergent validity: - Skills that were taught generally improved over time Discriminant validity: - Skills that were not taught did not change over time
Speaking and Listening Assessment Project (Illinois Speech and Theatre Association and the School of Communication, 2002)	P-12 students		X		32 items / 4-point scale	n.a.	n.a.	n.a.	Content Validity: - Developed by P-12 teachers throughout Illinois - Forms were tested in a large number of classrooms
Public Speaking Competence Rubric (PSCR) (Schreiber et al., 2012)	Higher education				11 items / 5-point Likert scale	$45 \leq n \leq 50$ speeches	Interrater reliability: - Intraclass correlations: ICC = $.54 \leq r \leq .93$	n.a.	Concurrent /convergent validity: - Positive correlation with students' speech grades (r = .72, $p \leq .001$) Construct validity: - Exploratory factor analysis: three-factor structure (topic adaptation, speech presentation, nonverbal delivery). But adding item referring to visual aids changed factor loading of two other speech presentation items

Note. The results summarized in this table are drawn from the stated references. The instruments are ordered according to target group and publication date. Abbreviations: Emp.= empirical evidence referring to existing instruments, Di = teaching methodology und didactics, Th. = references to theory, n.a. = not available, X = true. (continued)

Instruments	Target level	Background			Item number / answer format	Sample	Objectivity	Reliability	Validity
		Emp.	Di.	Th.					
Competent Speaker Speech Evaluation Form (CSSEF) (Morreale et al., 2007)	Higher education		X	X	8 items / 3-point Likert scale	$N = 12$ speeches	Interrater reliability: - Ebel's coefficient: from .90 to .94. - Cronbach coefficient (interrater reliability test for GTAs): from .76 to .84	n.a.	Content validity: - Extensive literature review - Panel of 11 communication educators Convergent validity: - Negative correlation with the Personal Report of Communication Apprehension (McCroskey, 1970) - Positive correlation with the Communication Competency Assessment Instrument (Rubin, 1982)
The Oral Communication Value Rubric (Association of American Colleges & Universities, 2007)	Higher education				5 items / 5-point Likert scale	n.a.	n.a.	n.a.	n.a.
Public Speaking Instrument (De Grez, 2009)	Higher education	X			10 items / 5-point Likert scale	$114 \leq N \leq 219$ speeches	Interrater reliability: - satisfactory (further information n.a.)	Internal consistency: - Cronbach's alpha: $\alpha = .83$ up to $\alpha = .89$	Content validity: - Based on six other questionnaires - Positive comments by four experts (semi-structured interviews) Construct validity: - Exploratory factor analysis: two-factor model (content factor, delivery factor, and three variables loaded in a balanced way)
Public Speaking Competency Instrument (PSCS) (Thomson & Rucker, 2002)	Higher education	X	X		20 items / 5-point scale	$N = 1$ speech	n.a.	n.a.	Construct validity: - Exploratory factor analysis: Best results for a one-factor maximum likelihood analysis

Note. The results summarized in this table are drawn from the stated references. The instruments are ordered according to target group and publication date. Abbreviations: Emp.= empirical evidence referring to existing instruments, Di = teaching methodology und didactics, Th. = references to theory, n.a. = not available, X = true.

Presentation Facets in the Assessment of Presentation Competence

As part of the process of assessing presentation competence, different categorizations of presentation behaviors have been proposed, depending on the research field (e.g., Schreiber et al., 2012). Based on a rhetorical framework, namely the classic five steps of preparing and delivering a speech: invention, arrangement, style, memory, and delivery (for an historical overview of the ancient rhetorical system, see Hommel, 1990), facets of presentation competence were identified which are relevant in the presentation setting and form presentation behaviors. For example, the step of arrangement continues to be relevant in the presentation context and leads to the specific presentation behavior of structuring a presentation.

We first integrated memory into the facet of body language & voice because memorization is an internal preparation process for the delivery of a presentation that results in certain behaviors, e.g., smooth transitions. In addition, the rhetorical framework was checked rhetorically whether it needs adaptions as the presentation format has specific characteristics/requirements (and differs from the classical speech). Adapting this framework, we added a facet on visual aids because these are a necessary element of presentations. Lastly, we added the facet of content credibility, i.e., the communication of the speaker's expert knowledge, because knowledge transfer is considered the central goal of a presentation and the facet differentiates it from other speeches. Lastly, we added the facet of content credibility, i.e., the communication of the speaker's expert knowledge, because knowledge transfer is considered the central goal of a presentation and the facet differentiates it from other speeches. Finally, we compared these theoretically derived facets with those assessed in other presentation competence instruments (e.g., Schreiber et al., 2012; Morreale & Backlund, 2007) to check for completeness. The resulting six facets of presentation competence were then adjusted to align with the demands placed on secondary school students when giving a presentation by referring to educational standards (e.g., Common Core State Standards Initiative, 2010). The final six facets (see Appendix A) form the foundation of the mission of Youth Presents (Kramer & Malaka, 2014), a German educational initiative to foster presentation competence among secondary school students.

The first presentation competence facet, *addressing the audience*, follows the central rhetorical approach that speeches must be audience centered. This goes back to Aristotle's Rhetoric (1358b) and can be found in contemporary rhetorical theories, e.g., by Foss and Griffin (1995) who posit that the speaker has a responsibility to consider the audience's perspective. Addressing the audience represents the interactive side of a presentation (De Grez, 2009) and requires analyzing the audience, which is a part of *inventio*, the first step of presentation

preparation. The second facet, *structure*, refers to the organization of a presentation. A speaker has to compose the introduction, body, and conclusion of a presentation as well as appropriate transitions. This includes the selection of connectors between sentences and between different parts of the presentation (Watson Todd, Khongput, & Darasawang, 2007). Related to this, the third facet, *language use*, deals with using sentences appropriate for oral communication and employing vivid language, e.g., using examples to make phenomena clear (Saussure & Rocci, 2016). The fourth facet, *body language & voice*, incorporates the speaker's physical presence. It includes nonverbal, visual and auditory communication aspects (Hall & Knapp, 2013), such as stressing important aspects with gestures or a higher volume. The fifth facet, *visual aids*, comprises the selection, organization, and style of visual aids in a way that contributes to a successful presentation (Machin, 2014). The sixth facet, *content credibility*, refers to the speaker's portrayal of his/her expert knowledge. Expert knowledge is required to present content correctly and to transfer knowledge. Diverse factors influence the credibility of content, such as communicating one's sources or familiarity with the content (McCormack, 2014).

As part of the TIP's development and psychometric validation, external raters were trained to assess competent behavior on these six presentation facets. More specifically, they rated whether the presentation behavior was appropriate for the communication goal and the presentation situation. Effectiveness, the second necessary aspect of perceived competence, can be measured by questioning the audience: for example, by conducting a knowledge test on the topic presented. However, most studies do not examine this aspect (e.g., van Ginkel et al., 2015). We followed this approach in the current examination of the TIP, focusing our assessment on appropriateness only.

Present Study

Having identified a need for a theoretically-grounded assessment tool that has been examined for objectivity, reliability, and validity, we developed a new instrument, the TIP, and examined its psychometric characteristics. The TIP aims to provide a measure of presentation competence that is usable both in research and in the school context. We followed a progressive, stepwise approach to instrument development and examination to assure quality. First, the instrument's theoretical foundation was laid, using rhetorical theory to define presentation competence and including specific components assessed in other presentation competence instruments, such as visual aids. This conceptualization of presentation competence was then used to derive appropriate measurement indicators and the actual items for each presentation facet. Next, we successively examined the quality criteria of objectivity, reliability, and validity. To check objectivity, we tested the interrater reliability (IRR) for each item (Wirtz & Caspar,

2007). To this end, four raters rated 254 video-recorded student presentations recorded at two measurement points during a presentation contest. We expected acceptable to excellent intraclass correlation coefficients (ICCs > .60; Cicchetti, 1994), which would meet IRR requirements (Hypothesis 1). Moreover, acceptable to excellent ICCs, as a measure of satisfactory objectivity (as well as reliability), provide a justification for further examining the TIP. Next, we examined reliability by assessing the stability of scores at the two measurement points. We expected moderate stability because the presentation tasks at the two measurement points slightly differed (H2). Finally, we followed a multi-step process to examine validity. First, we conducted an exploratory factor analysis (H3.1). Next, we looked at the ratings of experts, who had judged the video-recorded presentations live, as an external criterion. We hypothesized high correlations between the trained raters applying the TIP and the experts' live ratings (H3.2). While live ratings by experts might have higher ecological validity, they cannot replace potentially more objective video ratings. Moreover, the TIP was correlated with other constructs. We expected moderate to small relations between the TIP and students' self-assessments (H3.3) and small negative correlations between the TIP and speech anxiety, because fear of speaking in public undermines presentation competence (H3.4). Finally, we assumed moderate correlations between the TIP and school grades in German language arts, because speaking skills, which are closely related to presentation competence, are part of German educational standards (Kultusministerkonferenz, 2012; H3.5).

Method

Design and Sample

This study applied a design with two measurement points. Data were collected during Youth Presents, a nationwide German presentation contest for secondary school students aged 12 to 20. The first measurement point (T1) took place during the qualification round. All students who had successfully applied for the contest by submitting a video presentation could participate. During the qualification round they had to deliver a presentation in front of a pair of judges on a topic of their choice. Participants who proceeded past this round took part in the second measurement point (T2). Youth Presents invited them to an event a few weeks later where they delivered a second presentation on a predetermined topic. The sample consisted of 161 students with a mean age of 15.63 years (SD = 1.91). Fifty-nine percent were female. Overall, there were 254 video-recorded student presentations. Due to the two measurement points, we had a maximum of two video-recorded presentations per student. Students from 6th to 13th grades participated. They came from all over Germany. It should be noted that the study

used a rather selective sample, and students with high presentation competence might be clearly overrepresented.

Presentation Tasks

At each measurement point, the students had to prepare and deliver a three minutes presentation, using visual aids, in front of a two-person audience. There were two different presentation tasks: a semi-standardized presentation at T1 and a fully standardized presentation at T2. The presentation tasks differed in the choice of topic, the preparation time available, and the materials for visual aids. At T1, students were allowed to present on a scientific topic of their choice. They had unlimited preparation time and prepared their analog visual aids (e.g., poster, experiments, and objects) at home. In contrast, at T2, students had to present on a topic determined by the study administrators (i.e., the scientific problem of microplastics in the environment), which they were not notified of beforehand. To help them prepare for their presentations, the students received a set of text materials on the topic and visualization materials (i.e., three colored pens and six white papers for a bulletin board). The preparation time was 40 min.

Instruments

Presentation competence: Tübingen Instrument for Presentation Competence. The TIP was developed to assess students' presentation competence on the basis of video-recorded presentations. It captures all six presentation competence facets and consists of several theoretically-grounded items for each facet: addressing the audience (3 items), structure (3 items), language use (3 items), body language & voice (6 items), visual aids (4 items), and content credibility (3 items; see Table 2; for the German items see Appendix B). The raters used a high inference approach (Chávez, 1984) in that the observed presentation behaviors needed to be interpreted by the raters. The 22 items were answered on a 4-point Likert-type scale (1 = *not true at all* to 4 = *very true*). Four raters, two rhetoric students and two students of education sciences, were trained to assess presentation competence. They were between 19 and 27 years old and were in their second to ninth semester of university studies. Before rating the video-recorded presentations, all raters participated in a 36-hour training. The training was based on a rating manual and consisted of an introduction to the theoretical foundations of presentation competence, familiarization with the items, and anchor examples from video-recorded presentations that were not part of the present study. During the training, the raters discussed their ratings to establish a common understanding of the items. After the training, the raters

assessed all 254 videos ($N_{videos\text{-}T1}$ = 160; $N_{videos\text{-}T2}$ = 94). They rated independently and each rater assessed the videos in a different randomized sequence to avoid order effects.

Table 2

Intraclass Correlation Coefficients (ICCs) of the TIP

Scale and item (item stem: "The speaker…")	ICC_{T1}	ICC_{T2}
Addressing the audience		
…addresses the audience.	.68	.66
…has a motivating introduction.	.76	.79
…takes the listeners' questions and expectations into account.	.65	.61
Structure		
…introduces the presentation convincingly.	.53	.65
…structures transitions convincingly.	.63	.58
…ends the presentation convincingly with a conclusion.	.80	.85
Language use		
…uses examples to create a tangible portrayal of the topic.	.61	.55
…uses appropriate sentence structures for oral communication.	.37	.38
…uses technical terms appropriately.	.45	-.19
Body language & voice		
…has an effective posture.	.57	.51
…employs gestures convincingly.	.78	.78
…makes eye contact with the audience convincingly.	.74	.62
…uses facial expressions convincingly.	.74	.64
…uses the voice effectively (intonation, tempo, volume).	.71	.64
…uses the voice convincingly (articulation, fluency, pauses) to present clearly and comprehensibly.	.29	.74
Visual aids		
…uses an appropriate amount of visual information.	.66	.70
…structures visual elements appropriately and functionally.	.57	.46
…constructs an effective interplay between the speech and visual aids.	.69	.69
…creates visual aids which are visually attractive.	.70	.60
Content credibility		
…has formulated an appropriately clear scientific question.	.69	.49
…appears confident in handling information.	.70	.72
…'s reasoning is comprehensible.	.46	.57

Note. ICC = Intraclass correlation coefficient, calculated as average measure, one-way random, type absolute model.

Presentation competence: students' self-assessment. The self-assessment evaluation form was designed to be parallel to the TIP to the greatest degree possible. The items used were adapted to be appropriate for self-assessment ("I …" instead of "The speaker …") and to ensure that they were comprehensible without further explanations. Some items were excluded because they could not be assessed from the speaker's perspective (e.g., content credibility). Thus, the self-assessment instrument measured five facets of presentation competence: addressing the audience (5 items), structure (4 items), language use (5 items), body language & voice (9 items), and visual aids (5 items; Appendix C). Students judged their presentation competence immediately after the presentations at T2 on a 4-point Likert-type scale (from 1 = *not true at all* to 4 = *very true*). The subscales exhibited acceptable to good internal consistencies, with Cronbach's alphas between .67 and .85 (Appendix D).

Presentation competence: experts' live ratings. Experts conducted live ratings using the official Youth Presents evaluation form, because their assessments determined whether a student qualified for the next round. This evaluation form is similar but not identical to the TIP. Like the TIP, the live rating instrument covers all six presentation facets (Gottschling, Lipphardt, Susanka, & Wichan, 2016). It has been field-tested for facilitating quick assessments and was developed by the Presentation Research Center at the University of Tübingen. The 6 items (see Appendix E) are answered on an 8-point Likert-type scale (from 1 = *unsuccessful presentation* to 8 = *very successful presentation*). Overall, 25 experts conducted the live ratings. They were either experienced teachers who had participated in a two-day teacher training program conducted by Youth Presents, or rhetoric experts from the University of Tübingen and the Youth Presents project. They participated in a 60-min training in which they were introduced to the theoretical foundations and received anchor examples for each item. Afterwards, they assessed students' presentations in situ at T1 (N_{videos} = 160). Note that no live ratings were conducted at T2. The experts were subdivided into pairs. Each rater independently assessed the presentation immediately after it was conducted. ICCs above .60 were reached for all items: .73 for the addressing the audience item, .75 for structure; .67 for language use, .77 for body language & voice, .78 for visual aids, and .76 for content credibility.

Speech anxiety. Speech anxiety was measured with the speech anxiety scale by Spitznagel, Schlutt, and Schmidt-Atzert (2003). This self-report instrument consists of 16 items. Each item was answered on a 4-point Likert-type scale (from 1 = *strongly disagree* to 4 = *strongly agree*). The items refer to emotional (e.g., "I have a strange feeling in my stomach.") and cognitive components (e.g., "I worry about negative consequences.") of speech anxiety.

The participants filled out the questionnaire immediately after delivering their presentation. The internal consistency was good (α_{T1} = .91; α_{T2} = .92).

School grades. Self-reported school grade in German language arts was collected at T2 ("Which school grade did you get last semester in German?"). The German grading system was used, which ranges from 1 = *very good* to 6 = *unsatisfactory*. This item was inverted for the analyses so that higher scores indicated better school grades.

Data Analysis

To address the first hypothesis, we analyzed the interrater reliability for each TIP item using a one-way, mixed, absolute, average-measures intraclass correlation coefficient (ICC; McGraw & Wong, 1996). High ICC values indicate high interrater reliability and imply that the criteria were rated similarly across raters. To examine the second hypothesis—the stability of the TIP—we used Pearson correlations coefficients of the TIP measures between the two measurement points. To the best of our knowledge, there is no literature classifying correlation coefficients for presentation or communication studies. Therefore, we refer to the most commonly used guidelines by Cohen (1988), who labeled a correlation of .10 small, a correlation of .30 medium, and a correlation of .50 large. With regard to the third set of research questions, we conducted an exploratory factor analysis (EFA), including only those items that had an ICC above .60 at T1. In cases where only one or two items remained for a certain theoretically defined subscale, we excluded these items from the EFA as a small number of indicators per factor in small sample sizes are problematic in factor analyses (see Marsh, Hau, Balla, & Grayson, 1998). For the EFA, we conducted a principal component analysis using promax rotation because we assumed the factors were correlated. After excluding the items with a low ICC and scales with fewer than three items, the remaining items belonged to three theoretically defined scales; thus, we specified that three factors should be extracted. For all subsequent analyses, we used the three scales that could be confirmed using factor analysis. Items with an ICC above .60 that did not belong to these three scales were considered as single items. To examine Hypotheses 3.2 to 3.5, we examined the correlations between the TIP and the experts' live ratings, the students' self-assessed presentation competence, the students' speech anxiety, and the students' school grades in German. All analyses were conducted in SPSS version 22.

Missing data. Out of 161 participants at T1, missing data ranged from 0.6% to 1.2%. One exception was the visual aids subscale, which had a missing data rate of 12.4%. This value occurred because visual aids were not used in every presentation. At T2, the number of participants dropped to 94 because this measurement point was part of the Youth Presents

contest and only 94 students were invited to participate in the second round. Missing data at the item level at T2 ranged from 0% to 6.4% (see Appendix D).

Results

Objectivity of the TIP

In terms of objectivity, the first question was whether the TIP meets interrater reliability requirements and exhibits acceptable ICCs (≥ .60; Cicchetti, 1994). Of the 22 items, 15 items at T1 and 14 items at T2 exhibited an ICC above .60 (Table 2). Comparing the results at T1 and T2, we found a stable pattern of ICC values above .60 for all items on the addressing the audience subscale and for the majority of items referring to visual aids and body language & voice. The items on the structure and content credibility subscales exhibited adequate ICCs at one of the two measurement points. However, low ICCs were found for almost all items referring to language use.

Reliability of the TIP

We calculated two scores to evaluate the reliability of the TIP. First, we assessed the internal consistency of the theoretically defined subscales. Therefore, we again only used items that could be assessed with sufficient agreement between raters (i.e., ICC > .60) and scales with more than two remaining items. Three subscales met these criteria: addressing the audience, body language & voice, and visual aids (α between .67 and .83; Appendix D). The other five items with ICCs above .60 were treated as single items.

Second, to analyze stability, we examined the correlations of each TIP subscale at T1 and T2 and found significant correlations ranging from .25 (visual aids) to .73 (body language & voice). Correlations of single items at T1 and T2 ranged from .14 (“clear question” item for content credibility) to .50 (“confident handling of information” item for content credibility; see Table 3). These findings are partly in line with our expectations. We had expected to find moderate stability levels because our study design involved two different presentation tasks. Overall, the results indicated that the TIP had small to large stabilities (see Table 3).

Table 3

Stability of the TIP

	T2
T1	*r*
Subscales	
Addressing the audience	.53*
Body language & voice	.73*
Visual aids	.25*
Single item level (intended facets)	
Transitions (structure)	.26*
End (structure)	.27*
Use of examples (language use)	.23*
Clear question (content credibility)	.14*
Confident handling of information (content credibility)	.50*

Note. *r* = Pearson correlation coefficients. *n* = 91–94. * $p < .05$.

Validity of the TIP

Factor analysis. The third set of hypotheses addressed the validity of the TIP. Within this set of hypotheses, Hypothesis 3.1 concerned the structure of the TIP. To address this hypothesis, we conducted an EFA using the items from the three remaining subscales (addressing the audience, body language & voice, and visual aids). The suitability of the data for conducting an EFA was examined and confirmed. We extracted three factors in the EFA on theoretical grounds, which accounted for 65.63% of the variance. Two factors had eigenvalues greater than 1 (4.427 and 1.275), while the third had an eigenvalue of .861. With regard to the factor loadings, Items 1, 2, and 3 (addressing the audience) loaded highest on the first factor, Items 11, 12, 13, and 14 (body language & voice) loaded highest on the second factor, and Items 16, 18, and 19 (visual aids) loaded highest on the third factor (see Table 4). Hence, the assignment of the items to factors in the EFA corresponded to theory.[2]

[2] We conduceted an additional exploratory factor analysis that included all items with an ICC above .60 (and thus also considering the five single items in the same analysis). After confirming the suitability of the data for conducting a factor analysis, we found the same three factors as in the model presented above. The three factors all had eigenvalues above 1 and explained 58.22% of the variance. Four of the five additional items loaded highest on the first factor (adressing the audience). The fifth single item, “confident handling of information”, loaded on all three factors equally.

Table 4

Exploratory Factor Analyses

TIP	Factor 1	Factor 2	Factor 3
Addressing the audience			
…addresses the audience.			**.895**
…has a motivating introduction.		.272	**.649**
…takes the listeners' questions and expectations into account.			**.737**
Body language & voice			
…employs gestures convincingly.	**.841**		
…makes eye contact with the audience convincingly	**.571**	.257	
…uses facial expressions convincingly.	**.863**		
…uses the voice effectively (intonation, tempo, volume).	**.862**		
Visual aids			
…uses an appropriate amount of visual information.		**.860**	
…constructs an effective interplay between the speech and visual aids.		**.711**	
…creates visual aids which are visually attractive.		**.682**	

Note. Total variance explained was 65.63 %. Factor loadings above .25 are reported. Item stem: The speaker …

Association with additional presentation competence measures. To further examine the TIP's validity, we then investigated other measures of presentation competence. Hypothesis 3.2 was whether the TIP was correlated with experts' live ratings (see Table 5). The correlations between the TIP subscales addressing the audience, body language & voice, and visual aids and the corresponding items in the experts' live ratings ranged between .64 and .67 and were all statistically significant. The single TIP items for structure, language use, and content credibility had significant correlations with the experts' live ratings ranging from .43 to .63. Thus, in line with our expectations, we found high correlations between all TIP subscales and the corresponding items in the live ratings, as well as moderate to high correlations between the single TIP items and the experts' ratings. To strengthen this result, we looked at the correlations between nonmatching subscales, e.g., between addressing the audience and the experts' ratings of the other facets. For all three subscales and for two (structure items) out of the five single items, we found descriptively lower correlations than the matching subscale correlations. Moreover, the patterns of intercorrelations for the experts' live ratings ($.46 \leq r \leq .78$) were

higher than those for the TIP video ratings ($.28 \leq r \leq .67$; Appendix F and G). This indicates that TIP ratings tend to be more differentiated than experts' live ratings.

Hypothesis 3.3 was whether the TIP was correlated with students' self-assessed presentation competence. At T2, the correlations between the TIP subscales and the corresponding subscales in self-reports ranged between .13 and .28. Significant correlations were found for all subscales except visual aids (r = .13; see Table 6). The correlations between the single TIP items and students' self-reports ranged between .23 and .31. In line with our expectations, the correlations were small to moderate.

Other indicators related to presentation competence. Finally, the last two hypotheses concerning the validity of the TIP referred to indicators that are related to presentation competence. Hypothesis 3.4 was whether the TIP was correlated with speech anxiety. All correlations between the TIP subscales and speech anxiety were significantly negative, except for the correlation between speech anxiety and visual aids at T2. The correlations with the single TIP items ranged from -.12 to -.45. The only exception was the single item "clear question" (content credibility), which did not correlate with speech anxiety (T1: -.04; T2: -.09; see Table 6). With few exceptions the results are generally in line with our expectations, as we assumed small negative correlations.

In Hypothesis 3.5, we asked whether the TIP was correlated with school grades in German language arts. We found positive correlations between .12 and .31 for the TIP subscales, and between .05 and .40 for the single TIP items (see Table 6). This was partly in line with our expectations. We expected moderate correlations, which we found for some subscales and single items. Most of the correlations were small, but above .20 and thus close to moderate correlations.

Comparing the correlations between the TIP and experts' ratings to the other sets of correlations (TIP – self-assessment, TIP – speech anxiety, and TIP – school grades), the results revealed that the TIP had the descriptively strongest correlation with experts' ratings.[3]

[3]We also tested whether these differences were statistically significant. This was the case for all comparisons except for the correlation between TIP and students' self-reports for language use and the correlation between TIP and grade in German language arts for content credibility. We conducted these calculations with formula by Steiger (1980) and included only the 94 cases with data available for both measurement points.

Table 5

Correlations Between the TIP and Experts' Live Ratings at T1

	Experts' live ratings (single items)					
	Motivates listening	Body language & voice	Visual aids	Structure	Language use	Content credibility
TIP: subscales						
Addressing the audience	.64*	.55*	.54*	.56*	.53*	.57*
Body language & voice	.55*	.66*	.38*	.36*	.50*	.40*
Visual aids	.45*	. 39*	.67*	.51*	.45*	.51*
TIP: single item level (intended facets)						
Transitions (structure)	.58*	.54*	.57*	.63*	.60*	.61*
End (structure)	.42*	.33*	.40*	.61*	.49*	.46*
Use of examples (language use)	.46*	.39*	.48*	.49*	.45*	.45*
Clear question (content credibility)	.36*	.27*	.37*	.45*	. 37*	.43*
Confident handling of information (content credibility)	.44*	.49*	.49*	.54*	.51*	.54*

Note. $n = 160$. * $p < .05$.

Table 6

Correlations Between the TIP and Other Measures

	Self-assessed presentation competence	Speech anxiety		School grade in German language arts	
	T2	T1	T2	T1	T2
TIP: subscales					
Addressing the audience	.23*	-.20*	-.23*	.22*	.27*
Body language & voice	.28*	-.27*	-.24*	.12	.31*
Visual aids	.13	-.22*	-.13	.23*	.31*
TIP: single item level					
(intended facets)					
Transitions (structure)	.29*	-.29*	-.24*	.16*	.22*
End (structure)	.31*	-.21*	-.21*	.29*	.23*
Use of examples (language use)	.23*	-.21*	-.12	.05	.12
Clear question (content credibility)	n.a.	-.04	-.09*	.12	.20*
Confident handling of information	n.a.	-.32*	-.45*	.31*	.40*
(content credibility)					

Note. Sample size: for speech anxiety n_{T1}= 159, n_{T2} = 94; for school grades n_{T1} = 88, n_{T2} = 80; n.a. = not assessed. Sample difference occurred because school grades were assessed three months after T2. * $p < .05$.

Discussion

This study examined the psychometric quality of the video rating instrument TIP, which was designed to assess students' presentation competence. The TIP was developed on the basis of well-founded theories in the rhetorical literature. The examination of the TIP's psychometric quality focused on the objectivity (interrater reliability), reliability (stability), and validity of the instrument. For the latter, we conducted an EFA and examined correlations between the TIP and the external criteria of experts' live ratings, students' self-reports, and students' speech anxiety and grades in German language arts. The TIP is sophisticated in terms of psychometric quality and has already been examined with some steps that previous instruments did not include. However, the instrument is still under development, and is expected to be refined further.

Objectivity of the TIP

In terms of interrater reliability, we found good to excellent values for most of the TIP items. This suggests that the TIP can be considered an objective measurement. However, the low IRR for language use despite the raters' thorough training need to be discussed. This pattern of results is not surprising, but rather in line with other studies (see Herbein et al., 2018). According to them, raters had problems assessing proficiency in language use because they i) lacked knowledge of what is considered high or low language use, and ii) they had little experience in actually rating this facet. To enable a more objective assessment of language use, future studies may wish to adjust the item wordings and intensify the raters' training by providing more anchor examples to clarify these items and ensure a common understanding. Furthermore, seven further items from different presentation competence facets (structure, body language & voice, visual aids, content credibility) exhibited low IRR and require further refinement.

Reliability of the TIP

One important aspect of reliability is the question of whether an instrument yields similar scores when it is used to rate the same presenter several times. With regard to stability over time, we found a pattern of both high and low values for the TIP. Two crucial aspects of our study design have to be considered when interpreting these results (Allen & Yen, 1979). First, there was a relatively short timeframe of five to 32 days (M = 20.00, SD = 9.17 days) between T1 and T2. Second, the conditions of the presentation tasks differed slightly across measurement points. Whereas the first presentation task was semi-standardized (unlimited preparation time at home and self-chosen topic), the second task was fully standardized, as each student had the same amount of time to prepare the presentation and worked with a standardized set of information and visualization materials. Furthermore, the items' ICCs, which were acceptable but far from perfect, could have contributed to the lower than expected stability values. For example, the low stability and non-significant correlation for visual aids might be due to the study design differences. Higher correlations might have been found in the absence of these differences. In a similar stability study, Simmenroth-Nayda, Heinemann, Nolte, Fischer, and Himmel (2014) found a correlation of .75 between measurement points within three months for an assessment of medical students' communication skills based on video ratings. Furthermore, the weak stability of the single item for language use (r = .23) in this study could be due to this item's ICC, which is acceptable but far from excellent. Nevertheless, although the findings indicate only weak stability for the visual aids subscale and for four single

items, two TIP subscales (addressing the audience and body language & voice) and one single item (content credibility) had high stability.

Validity of the TIP

Exploratory factor analysis. A factor analysis is important for structural validation, i.e., to examine the dimensions of an instrument (Bortz, 1999). Factor analyses for previous presentation competence instruments had yielded a somewhat inconsistent pattern. Thomson and Rucker (2009) found that a one factor-solution had the best fit for their instrument. De Grez (2009) found a two-factor solution, with three variables that loaded on both factors in a balanced way. He labeled these two factors "delivery" and "content", which are similar to the facets of body language & voice and the aggregation of other facets in this study. However, neither of these instruments covered all facets of presentation competence; for instance, De Grez did not include any items for language use. Schreiber, Paul, and Shibley (2012) also explored a three-factor model. They labeled the factors topic adaptation, nonverbal delivery, and speech presentation. These factors show similarities to our facets of addressing the audience, body language & voice, and the aggregation of the other facets. In our study, when using the set of items with acceptable ICCs, we obtained a three-factor structure that paralleled the theoretically-deduced facets (addressing the audience, body language & voice, visual aids). Hence, our analyses indicate that it is important and possible to define and assess sub-components of presentation competence, and we believe that the empirical identification of dimensions of presentation competence is an important direction for future research. At the same time, at the present stage of the TIP's development, we were able to empirically identify this structure for only three of the six theoretically assumed facets.

Other presentation competence measures. Regarding validity, the study revealed moderate to high correlations between the TIP and the external criterion of experts' live ratings. These experts were persons with sophisticated knowledge and specialized experience in the field of presentations (see Reilly et al., 1977). Due to their expertise, the experts' assessments provide a strong indication of the validity of the video ratings. In the present study, the experts and the trained video raters assessed presentation competence in a similar way: All raters rated independently and assessed presentation competence on all six facets. In contrast to the video raters using the TIP, the experts completed single-item ratings for each facet. This rating approach has some advantages and resulted in acceptable ICCs for all items despite the expert raters' short training; however, this approach also has the disadvantage that the factors cannot be examined. The highest correlations between the TIP and live ratings were found for ratings of the same facet, which is a strong indicator for convergent validity. In comparison, the lowest

correlations were found between different presentation competence facets, which provide evidence for the TIP's discriminant validity (Campbell & Fiske, 1959). There were three exceptions. For the single item on language use assessed with expert ratings, the highest correlation was not with the video ratings for language use, but with three other facets of the TIP. Furthermore, both single items for content credibility on the TIP were slightly more highly or similarly correlated with the expert ratings for structure than with the expert ratings on content credibility.

Furthermore, the small to moderate correlations between the TIP and students' self-assessed presentation competence are in line with the low congruence between observer and self-ratings (see Carrell & Willmington 1996). According to Carrell and Willmington (1996), this can result from different information being available to the two rating perspectives and variation in the validity of the students' self-reports. A further reason for the low congruence might have been the students' poor understanding of what specific criteria lead to a good presentation (Ritchie, 2016). Furthermore, this study's findings are based on two different evaluation forms. Although the TIP and the self-report measure targeted the same presentation competence facets, they did not have the same wording and number of items. This might have also reduced the congruence. Overall, the results show that self-ratings are not sufficient for assessing presentation competence and that more effortful video ratings are required.

Other outcomes related to presentation competence. The robust pattern of negative correlations between the TIP and speech anxiety is consistent with other studies. For example, Brown and Morrissey (2004) found correlations ranging from -.36 (before training) to -.27 (after training) based on video ratings. The small significant correlations for all subscales and all single items except the single items for content credibility in the present study imply that presentation competence measured by the TIP differs from the established construct of speech anxiety. This is a strong indicator of the TIP's discriminant validity. However, the null correlation between speech anxiety and the item "clear question" as well as the moderate correlation between speech anxiety and the item "confident handling of information" (both content credibility) warrant more exploration in future studies.

The correlations between the TIP and grades in German language arts exhibited a stable pattern of small to moderate correlations. However, these correlations are not as high as in Schreiber, Paul, and Shibley's study (2012), which included a reference measure more aligned to presentation competence: student's speech grades. School grades in German include a plethora of aspects apart from presentation competence. Hence, the results indicate the concurrent validity of the TIP.

Overall, the TIP was most highly correlated with experts' live ratings. Lower correlations were found for the other external criteria. This shows that the deployment of experts and trained video raters to assess presentation competence results in more congruent judgments than self-reports do. Furthermore, the experts' live ratings indicated a higher halo effect (higher intercorrelations) than the video ratings, further underscoring the relevance of video ratings. Thus, self-assessments cannot replace the very costly video-rating approach.

Strengths, Limitations, and Future Research

A major strength of the present study is the derivation of the TIP from rhetorical theory and the use of different indicators for objectivity, reliability, and validity. With regard to the former, the six TIP presentation facets are rooted in the rhetorical framework of the phases of speech development (Murphy & Wiese, 2016). With respect to reliability and validity, the study considered stability over time and experts' live ratings. Furthermore, it is noteworthy that the study used a sample of 254 video-recorded presentations to analyze the TIP. However, despite the strong empirical support for the TIP, some limitations also need to be considered when interpreting the results.

Firstly, a preselected sample was used as the study was embedded within a contest. The Youth Presents contest—an extracurricular event in which participation was voluntary—was likely to have attracted motivated and high-performing students who like to speak in front of others. Consequently, our sample is not representative of secondary school students in general. One can assume that it was primarily students with high academic performance who took part in the contest. This might in turn have reduced the variance in presentation competence found in this study. Nevertheless, at T1, the sample included both the best students participating in the contest and the students who did not qualify to move on to the second round. This might have increased the variance in presentation competence to some extent as not only the most successful students were included. Hence, due to the specialized characteristics of this study, we might have underestimated the quality of the TIP. Future studies will have to use more representative samples to verify the psychometric properties of the TIP on a broader basis.

Secondly, we intended to examine all six facets of presentation competence measured by the TIP in the factor analysis and thus include all items for all facets in the EFA. However, not all items were reliable enough for analysis. Consequently, we used only items with an ICC above .60 in the EFA. Although we found a three-factor structure for the three remaining scales corresponding to the three facets, due to the lack of items representing the other three theoretically assumed dimensions, we were not able to test for the TIP's full six-factor structure. Future steps are required to include more reliable items and thus cover all facets.

Conclusion

The TIP makes an important contribution to closing a research gap regarding the assessment of secondary school students' presentation competence. This study went beyond subjective measurement approaches and the analyses examining the psychometric quality of the TIP focused on strong indicators. Overall, this study results indicate that presentation competence of secondary school students is measurable via the TIP on an objective, reliable and valide basis. However, the items require further examination in future studies. Analyzing the TIP with a student sample with larger performance differences and adjusting items and optimizing rater training can further improve the quality of the TIP. Factor analyses with more items can shed light on the factor structure of the entire instrument and all presentation facets. Furthermore, replicating the results could increase confidence in the TIP's validity, and increasing the standardization of the presentation tasks could shed additional light on the instrument' reliability. These study results indicate that the TIP can be used in its current form in future research, such as presentation effectiveness studies of presentation training programs in secondary school context, due to a lack of adequate alternatives.

References

Allen, M. J., & Yen, W. M. (1979). *Introduction to measurement theory*. Brooks/Cole.

Association of American Colleges & Universities. (2007). *College learning for a new global century*. http://www.aacu.org/leap/documents/GlobalCentury_final.pdf

Backlund, P. M., & Morreale, S. (2015). Communication competence: Historical synopsis, definitions, applications, and looking to the future. In A. F. Hannawa & B. H. Spitzberg (Eds.), *Handbooks of Communication Science: Vol. 22. Communication Competence* (pp. 11–38). De Gruyter Mouton.

Bodie, G. D. (2010). A racing heart, rattling knees, and ruminative thoughts: Defining, explaining, and treating public speaking anxiety. *Communication Education, 59,* 70–105. https://doi.org/10.1080/03634520903443849

Bortz, J. (1999). *Statistik: Für Sozialwissenschaftler* [Statistics. For social scientists] (5th ed.). Springer.

Brown, T., & Morrissey, L. (2004). The effectiveness of verbal self-guidance as a transfer of training intervention: Its impact on presentation performance, self efficacy and anxiety. *Innovations in Education and Teaching International*, *41*, 255–271. https://doi.org/10.1080/14703290410001733302

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56,* 81–105. https://doi.org/10.1037/h0046016

Carrell, L. J., & Willmington, S. C. (1996). A comparison of self-report and performance data in assessing speaking and listening competence. *Communication Reports*, *9*, 185–191. https://doi.org/10.1080/08934219609367650

Chan, V. (2011). Teaching oral communication in undergraduate science: Are we doing enough and doing it right? *Journal of Learning Design*, *4*(3), 71–79. https://doi.org/10.5204/jld.v4i3.82

Chávez, R. C. (1984). The use of high-inference measures to study classroom climates: A review. *Review of Educational Research, 54,* 237–261. https://doi.org/10.3102/00346543054002237

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences.* Lawrence Erlbaum Associates.

Common Core State Standards Initiative. (2010). *Common core state standards for English language arts & literacy in history/social studies, science, and technical subjects.* http://www.corestandards.org/wp-content/uploads/ELA_Standards.pdf.

Congdon, P. J., & MeQueen, J. (2000). The stability of rater severity in large-scale assessment programs. *Journal of Educational Measurement, 37*, 163–178. https://doi.org/10.1111/j.1745-3984.2000.tb01081.x

De Grez, L., Valcke, M., & Roozen, I. (2009). The impact of goal orientation, self-reflection and personal characteristics on the acquisition of oral presentation skills. *European Journal of Psychology of Education, 24*, 293–306. https://doi.org/10.1007/BF03174762

De Grez, L. (2009). *Optimizing the instructional environment to learn presentation skills* [Doctoral dissertation, Ghent University]. https://biblio.ugent.be/publication/7051516/file/7051518.pdf

Foss, S. K., & Griffin, C. L. (1995). Beyond persuasion: A proposal for an invitational rhetoric. *Communication Monographs, 62*, 2–18. https://doi.org/10.1080/03637759509376345

Geldmacher, M. (2010). *Präsentationskompetenz im gymnasialen Deutschunterricht: Ziele, Inhalte und Methoden* [Presentation competence in academic-track secondary school German classes: Objectives, contents and methods]. Schneider-Verlag Hohengehren.

Gottschling, M., Lipphardt, C., Susanka, T., & Wichan, Y. (2016). Grundlagen; Schritte zur erfolgreichen Präsentation; Unterrichtsmodelle und Lehrpläne [Foundations; steps to a successful presentation; instrutional models and lesson plans]. In O. Kramer (Ed.), *Jugend präsentiert KOMPAKT: Eine Einführung für Lehrkräfte der Sekundarstufe I und II.* Klaus Tschira Stiftung.

Hall, J. A., & Knapp, M. L. (Eds.). (2013). *Nonverbal communication*. De Gruyter Mouton.

Herbein, E. (2017). *Public speaking training as an enrichment program for elementary school children: Conceptualization, evaluation, and implementation* [Doctoral dissertation, University of Tübingen]. https://doi.org/10.15496/publikation-17711

Herbein, E., Golle, J., Tibus, M., Schiefer, J., Trautwein, U., & Zettler, I. (2018). Fostering elementary school children‘s public speaking skills: A randomized controlled trial. *Learning and Instruction, 55*, 158–168. https://doi.org/10.1016/j.learninstruc.2017.10.008

Hommel, H. (1990). Rhetorik [Rhetoric]. In C. Andresen (Ed.), *Lexikon der alten Welt* (pp. 2611–2627). Artemis Verlag.

Hung, Y.-J., Samuelson, B. L., & Chen, S.-C. (2016). The relationships between peer- and self-assessment and teacher assessment of young EFL learners' oral presentations. In M. Nikolov

(Ed.), *Assessing Young Learners of English: Global and Local Perspectives* (pp. 317–338). Springer.

Illinois Speech and Theatre Association and the School of Communication. (2002). *Speaking & Listening Assessment Project*. Illinois State University.

Kramer, O., & Malaka, R. (Eds.). (2014). *Jugend präsentiert Multiplikatorenhandbuch* [Youth Presents. Multiplier‘s handbook]. Klaus Tschira Stiftung.

Kultusministerkonferenz (Ed.). (2012). *Bildungsstandards im Fach Deutsch für die Allgemeine Hochschulreife. Beschluss der Kultusministerkonferenz* [Educational standards for German for the general university entrance qualification. Decisions of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany]. https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2012/2012_10_18-Bildungsstandards-Deutsch-Abi.pdf

Machin, D. (Ed.). (2014). *Visual communication*. De Gruyter Mouton.

Marsh, H. W., Hau, K. T., Balla, J. R., & Grayson, D. (1998). Is more ever too much? The number of indicators per factor in confirmatory factor analysis. *Multivariate Behavioral Research, 33*, 181–220. https://doi.org/10.1207/s15327906mbr3302_1

McCormack, K. (2014). Ethos, pathos, and logos: The benefits of aristotelian rhetoric in the courtroom. *Washington University Jurisprudence Review*, *7*, 131–155.

McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods, 1*, 30–46. https://doi.org/10.1037/1082-989X.1.1.30

Menzel, K. E., & Carrell, L. J. (1994). The relationship between preparation and performance in public speaking. *Communication Education, 43*, 17–26. https://doi.org/10.1080/03634529409378958

Morreale, S., Moore, M., Taylor, K., Surges-Tatum, D., & Webster, L. (2007). *Competent Speaker Speech Evaluation Form. SCA publication program in education and instructional development*. National Communication Association.

Morreale, S. , & Backlund, P. M. (2007). *Large scale assessment in oral communication: P-12 and higher education* (3rd ed.). National Communication Association.

Morreale, S., Valenzano, J. M., & Bauer, J. A. (2016). Why communication education is important: A third study on the centrality of the discipline’s content and pedagogy. *Communication Education, 66*, 402–422. https://doi.org/10.1080/03634523.2016.1265136

Müller, J. D. (2011). *Decorum: Konzepte von Angemessenheit in der Theorie der Rhetorik von den Sophisten bis zur Renaissance* [Decorum: Concepts of appropriateness in rhetorical theory from the sophists to the Renaissance]. De Gruyter.

Murphy, J. J., & Wiese, C. (2016). The didactic phase: Learning about Quintilian. In J. J. Murphy & C. Wiese (Eds.), *Quintilian on the teaching of speaking & writing: Translations from books one, two, and ten of the "Institutio Oratoria"* (pp. ix–lviii). Southern Illinois University Press.

Reilly, R., Churchill, R., Fletcher, A., Miller, M., Pendergraass, J., Stutz, J. P., & Clark, J. (1977). *Expert assessment of experiential learning: A CAEL Handbook*. Cooperative Assessment of Experiential Learning.

Ritchie, S. M. (2016). Self-assessment of video-recorded presentations: Does it improve skills? *Active Learning in Higher Education*, *17*, 207–221. https://doi.org/10.1177/1469787416654807

Rubin, R. B., Welch, S. A., & Buerkel, R. (1995). Performance-based assessment of high school speech instruction. *Communication Education*, *44*, 30–39. https://doi.org/10.1080/03634529509378995

Ruth, F. (2020*). Linking rhetoric and educational research: The assessment and promotion of secondary school students' presentation competence* [Doctoral dissertation, University of Tübingen].

Saussure, L. de, & Rocci, A. (2016). Verbal communication. An introduction. In A. Rocci & L. De Saussure (Eds.), *Handbooks of Communication Science: Vol. 3. Verbal Communication* (pp. 3–20). De Gruyter Mouton.

Schreiber, L. M., Paul, G. D., & Shibley, L. R. (2012). The development and test of the public speaking competence rubric. *Communication Education*, *61*, 205–233. https://doi.org/10.1080/03634523.2012.670709

Simmenroth-Nayda, A., Heinemann, S., Nolte, C., Fischer, T., & Himmel, W. (2014). Psychometric properties of the Calgary Cambridge guides to assess communication skills of undergraduate medical students. *International Journal of Medical Education*, *5*, 212–218. https://doi.org/10.5116/ijme.5454.c665

Spitznagel, A., Schlutt, S., & Schmidt-Atzert, L. (2003). Redeängstlichkeitsfragebogen: Entwicklung eines mehrdimensionalen Verfahrens [Speech anxiety questionnaire: Development of a multidimensional procedure]. In J. Hoyer & J. Margraf (Eds.), *Angstdiagnostik* (pp. 450–453). Springer. https://doi.org/10.1007/978-3-642-18976-0

Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin*, *87*, 245–251. https://doi.org/10.1037//0033-2909.87.2.245

Thomson, S., & Rucker, M. L. (2002). The development of a specialized public speaking competency scale: Test of reliability. *Communication Research Reports*, *19*, 18–28. https://doi.org/10.1080/08824090209384828

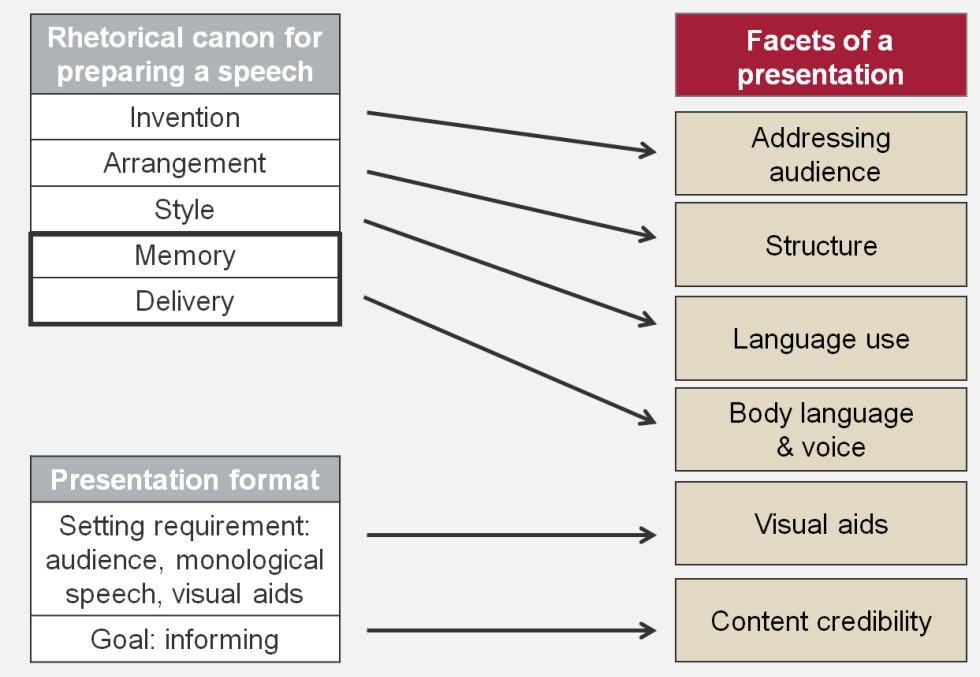
Van Ginkel, S., Gulikers, J., Biemans, H., & Mulder, M. (2015). Towards a set of design principles for developing oral presentation competence: A synthesis of research in higher education. *Educational Research Review*, *14*, 62–80. https://doi.org/10.1016/j.edurev.2015.02.002

Watson T., R., Khongput, S., & Darasawang, P. (2007). Coherence, cohesion and comments on students' academic essays. *Assessing Writing*, *12*, 10–25. https://doi.org/10.1016/j.asw.2007.02.002

Wirtz, M. A., & Caspar, F. (2007). *Beurteilerübereinstimmung und Beurteilerreliabilität: Methoden zur Bestimmung und Verbesserung der Zuverlässigkeit von Einschätzungen mittels Kategoriensystemen und Ratingskalen* [Rater agreement and rater reliability: Methods for determining and improving the reliability of assessments using category systems and rating scales]. Hogrefe.

Appendix A

TIP Facets of Presentation Competence



Appendix B

Tübingen Instrument for Presentation Competence (TIP)

	No	German original items Item stem: Der Präsentierende …	Translated items Item stem: The speaker …
Addressing the audience	1	… spricht das Publikum an.	… addresses the audience.
	2	… hat einen motivierenden Einstieg.	… has a motivating introduction.
	3	… berücksichtigt Fragen und Erwartungen der Zuhörer.	… takes the listeners' questions and expectations into account.
Structure	4	… führt überzeugend in die Präsentation ein.	… introduces the presentation convincingly.
	5	… gestaltet Übergänge überzeugend.	… structures transitions convincingly.
	6	… beendet die Präsentation überzeugend mit einem Schluss.	… ends the presentation convincingly with a conclusion.
Language use	7	… erzeugt mit Beispielen überzeugend greifbare Vorstellungen des Sachverhaltes.	… uses examples to create a tangible portrayal of the topic.
	8	… verwendet passende Satzkonstruktionen für die mündliche Kommunikation.	… uses appropriate sentence structures for oral communication.
	9	... setzt Fachbegriffe angemessen ein.	… uses technical terms appropriately.
Body language & voice	10	… hat eine wirkungsvolle Körperhaltung.	… has an effective posture.
	11	… setzt seine Gestik überzeugend ein.	… employs gestures convincingly.
	12	… stellt überzeugend Blickkontakt mit dem Publikum her.	… makes eye contact with the audience convincingly.
	13	… setzt seine Mimik überzeugend ein.	… uses facial expressions convincingly.
	14	… setzt die Stimme (Sprechmelodie, Geschwindigkeit, Lautstärke) wirkungsvoll ein.	… uses the voice effectively (intonation, tempo, volume).
	15	… nutzt die Stimme überzeugend (Artikulation, Sprechflüssigkeit, Pausen), um klar und deutlich zu präsentieren.	… uses the voice convincingly (articulation, fluency, pauses) to present clearly and comprehensibly.
Visual aids	16	… verwendet eine angemessene visuelle Informationsmenge.	… uses an appropriate amount of visual information.
	17	… gestaltet angemessen Visualisierungselemente funktional.	… structures visual elements appropriately and functionally.
	18	… gestaltet das Zusammenspiel von Vortrag und Visualisierung wirkungsvoll.	… constructs an effective interplay between the speech and visual aids.
	19	… gestaltet die Visualisierung optisch ansprechend.	… creates visual aids which are visually attractive.
Content credibility	20	… hat eine angemessen klar umrissene naturwissenschaftliche Fragestellung.	… has formulated an appropriately clear scientific question.
	21	… wirkt sicher im Umgang mit Informationen.	… appears confident in handling information.
	22	… begründet nachvollziehbar.	…'s reasoning is comprehensible.

Appendix C

Self-Assessment Instrument

Category	German original items	Translated items
Addressing the audience	Die Einleitung erregte Aufmerksamkeit und war motivierend.	The introduction caught the audience's attention and was motivating.
	Das Thema habe ich für die Zuhörer relevant gemacht.	I made the topic relevant for the audience.
	Meine Präsentation hat zum Zuhören motiviert.	My presentation motivated the audience to listen.
	Meine Präsentation war unterhaltsam.	My presentation was entertaining.
	Ich habe für das Thema begeistert.	I made the audience enthusiastic about the topic.
	In meiner Präsentation habe ich einen Bezug zum Publikum hergestellt.	In my presentation, I addressed the audience.
Structure	Meine Präsentation hatte einen klaren Aufbau.	My presentation had a clear organization.
	Einleitung, Hauptteil und Schluss waren klar in meiner Präsentation vorhanden.	Introduction, body, and conclusion were clearly presented.
	Meine Überleitungen haben die Teile meiner Präsentation gut verbunden.	My transitions connected the parts of my presentation.
Language use	Mein sprachlicher Ausdruck war leicht verständlich.	My use of language was easy to understand.
	Wichtiges habe ich hervorgehoben.	I highlighted important aspects.
	Wenn nötig habe ich Fachwörter klar und verständlich erklärt.	I explained technical terms clearly and comprehensibly if necessary.
	Meine Sprache war lebendig.	I used vivid language.
	Das Thema habe ich anschaulich vermittelt.	I conveyed the topic vividly.
Body language & voice	Meine Gestik hat die Aussagen unterstützt.	My gestures supported my statements.
	Ich habe Blickkontakt mit den Zuhörern aufgenommen.	I made eye contact with the audience.
	Blickkontakt habe ich gleichmäßig aufrechterhalten.	I kept consistent eye contact.
	Meine Körperhaltung war den Zuhörern zugewandt.	My posture was directed towards the audience.
	Mein Standort war günstig für die Präsentation.	My location was appropriate for the presentation.
	Mein Sprechtempo war angemessen.	My speech tempo was appropriate.
	Ich habe verständlich gesprochen.	I spoke comprehensibly.
	Pausen habe ich angemessen eingesetzt.	I used pauses appropriately.
	Meine Mimik war entspannt und echt.	My facial expressions were relaxed and authentic.
Visual aids	Meine Visualisierung war übersichtlich.	My visual aids were easy to understand.
	Meine Visualisierung war aussagekräftig.	My visual aids were informative.
	Meine Visualisierung war ansprechend gestaltet.	My visual aids were attractively arranged.
	Ich habe für die Zuhörer einen klaren Bezug zur Visualisierung hergestellt.	I referred clearly to the visual aids.
	Ich habe die Visualisierung zielführend in die Präsentation eingebunden.	I meaningfully integrated the visual aids into the presentation.

Note. 4-point Likert-type scale.

Appendix D

Descriptive Statistics for the TIP, Self-Assessment, and Experts' Live Ratings

		T1				T2			
	Items	*n*	*M*	*SD*	α	*n*	*M*	*SD*	α
TIP: subscales									
Addressing the audience	3	160	2.26	0.54	0.74	94	2.31	0.49	0.72
Body language & voice	4	160	2.78	0.45	0.80	94	2.68	0.39	0.83
Visual aids	3	141	2.90	0.47	0.67	93	2.72	0.42	0.71
TIP: single item level (intended facets)									
Transitions (structure)	1	160	2.18	0.51		94	2.23	0.48	
End (structure)	1	160	2.30	0.67		94	2.41	0.66	
Use of examples (language use)	1	160	2.58	0.57		94	2.41	0.45	
Clear question (content credibility)	1	160	2.37	0.63		94	2.07	0.43	
Confident handling of information (content credibility)	1	160	3.13	0.50		94	2.78	0.52	
Self-assessment									
Addressing the audience	5					91	2.83	.54	.83
Structure	3					93	3.00	.58	.67
Language use	5					94	2.97	.52	.79
Body language & voice	9					93	2.95	.42	.79
Visual aids	5					89	3.02	.60	.85
Experts' live rating									
Addressing the audience	1	160	4.98	1.21					
Structure	1	160	4.87	1.37					
Language use	1	160	4.92	1.16					
Body language & voice	1	160	4.58	1.26					
Visual aids	1	146	4.71	1.47					
Content credibility	1	160	4.87	1.35					

Note. Self-assessment = students' self-perceived presentation competence. α = Cronbach's alpha. ICC = Intraclass correlation coefficient. The empty fields indicate that there were no assessments at these measurement points.

Appendix E

Experts' Live Rating Instrument

No	Category	German original items	Translated items
1	**Addressing the audience**	Präsentation motiviert zum Zuhören und für das Thema	Presentation motivates to listen and increases interest.
2	**Structure**	Präsentation überzeugend strukturiert (Einleitung, Hauptteil, Schluss)	Structure of the presentation is convincing (introduction, body, conclusion).
3	**Language use**	Sprachliche Gestaltung ist verständlich und anschaulich	The use of language is comprehensible and vivid.
4	**Body language & voice**	Performanz (Körpersprache und Stimme) unterstützt die Präsentation.	Body language and voice support the presentation.
5	**Visual aids**	Medieneinsatz ist funktional	The use of visual aids is functional.
6	**Content credibility**	Thema inhaltlich gut erarbeitet	The topic is well-elaborated.

Note. 8-point Likert-type scale.

Appendix F

Intercorrelations of the TIP at T1

	Subscales			**Single item level** (intended facets)				
TIP	Addressing the audience	Body language & voice	Visual aids	Transitions (structure)	End (structure)	Use of examples (language use)	Clear question (content credibility)	Confident handling of information (content credibility)
Subscales								
Addressing the audience	-							
Body language & voice	.60*	-						
Visual aids	.49*	.43*	-					
Single item level (intended facets)								
Transitions (structure)	.67*	.53*	.59*	-				
End (structure)	.52*	.35*	.42*	.51*	-			
Use of examples (language use)	.48*	.38*	.41*	.50*	.35*	-		
Clear question (content credibility)	.43*	.28*	.32*	.40*	.28*	. 35*	-	
Confident handling of information (content credibility)	.53*	.59*	.54*	.66*	.44*	.41*	. 37*	-

Note. n = 141-160. * $p < .05$.

Appendix G

Intercorrelations of the Experts' Live Ratings at T1

Experts' live ratings (single items)	Motivates listening	Body language & voice	Visual aids	Structure	Language use	Content credibility
Motivates listening	-					
Body language & voice	.73*	-				
Visual aids	.63*	.46*	-			
Structure	.71*	.53*	.69*	-		
Language use	.78*	.68*	.64*	.76*	-	
Content credibility	.68*	.52*	.68	.73*	.67*	-

Note. n = 146-160. * $p < .05$.

3

Study 2:

Presentation Competence and Personality Traits:

The Role of Extraversion and Neuroticism

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Abstract

Presentation competence impacts educational and professional success. For promoting this competence, identifying relevant determinants enables to develop need-based training programs. Determinants that have proven to be important for school achievement in general, are students' personality traits. With regard to the association between Big Five personality traits and presentation competence, only few studies, located in higher education, exist. Thus, the present study investigated this relationship among secondary school students. The study was embedded in the presentation contest Youth Presents. Eighty-eight secondary school students were included. They gave presentations at four measurement points, thereby the presentation task varied along key characteristics. To operationalize presentation competence a multi-assessment approach, i.e., external ratings via video ratings and experts' live ratings, as well as self-reports, was used. The Big Five personality traits were measured via self-reports. The findings indicate a positive relationship between Extraversion and presentation competence across the different presentation tasks. A negative pattern of associations was found between Neuroticism and students' self-perceived presentation competence.

Keywords: Big Five, Extraversion, presentation competence, school achievement, secondary education

Presentation Competence and Personality traits: The Role of Extraversion and Neuroticism

The ability to successfully present information to others impacts a person's school and professional achievement (van Ginkel et al., 2015). This is due to the fact that not only in professional life, but already in primary and secondary school, people need to complete presentation tasks (England: Department for Education, 2014; Germany: Kultusministerkonferenz, 2003; United States: Common Core State Standards Initiative, 2010). Thus, presentation competence, as part of communication competence, is seen as a core competence for 21st century (van Ginkel et al., 2015). Identifying determinants of this competence is crucial in order to tailor training programs to the needs of specific target groups (see van Laar et al., 2020). So far, speech anxiety (e.g., Bodie, 2010) and self-efficacy (e.g., De Grez, Valcke, & Roozen, 2009) are examples for determinants which have proven to be meaningful in relation to presentation competence. In addition, further determinants might be relevant, because giving a presentation places unique demands on the speaker. In particular, the speaker has to stand and speak alone in front of others who judge the speaker continuously.

A well-known framework for describing individual characteristics are the Big Five personality traits. To date, only a limited number of studies have examined the relationship between presentation competence and personality traits. These studies investigated samples in the fields of higher education and second language learning. Research focusing on personality traits from the Big Five framework and secondary school students' achievement, differentiated by content or certain methods of assessment, has recently gained increased attention in educational research. The results revealed that the relationship pattern between personality traits and school achievement differs when school achievement is assessed in different kinds of ways, e.g., school achievement in a specific subject (e.g., Brandt et al., 2020) or assessed via a specific type of task, such as tasks associated with creativity versus tasks associated with analytical skills (e.g., Chamorro-Premuzic, 2006). Based on these results, the exact relationship between presentation competence and personality traits cannot be deduced a priori for secondary school students.

The present study focused on this sample. We examined the relationship between personality traits and presentation competence among secondary school students in order to gain further knowledge about these learners' specific needs and to promote students' presentation competence from a more differentiated perspective in the future. Thereby, we examined four different situations in which students had to give a solo presentation in their native language. As in everyday life, presentation tasks varied with respect to basic

characteristics such as freedom of choice on the topic (predetermined versus self-selected topic) or the visual aids used (analog versus digital visual aids). In addition, we applied a multi-perspective assessment approach to operationalize presentation competence, consisting of external ratings (video ratings and experts' live ratings) and students' self-reports. Students' personality traits according to the Big Five framework were assessed via self-reports. The study took place within a national presentation contest for German secondary school students.

Presentation Competence

Speaking in front of others while using visual aids to convey information (De Grez, 2009; Ruth et al., 2020; van Ginkel et al., 2015) is required of secondary school students (Common Core State Standards Initiative, 2010) in class as well as on final exams (e.g., Hristova, 2014; Joughin, 2009). This task plays a role in subjects across the curriculum and at all educational levels (Common Core State Standards Initiative, 2010). Due to the fact that giving a presentation is part of many tasks in school, presentation competence is assumed to impact students' school achievement.

Presentation competence is required to successfully complete a presentation task. It is defined as being able to act effectively (e.g., the presentation behavior achieves the presentation goal) and appropriately (e.g., the presentation behavior meets the social standards of the specific situation; Backlund & Morreale, 2015), when speaking in front of others. Various individual characteristics of a speaker have proven to be relevant for presentation competence. Speech anxiety and self-efficacy are two well-researched determinants. Speech anxiety forms one of adults' most prominent fears (Bodie, 2010; Dwyer & Davidson, 2012) and is already reported by secondary school students (Stein et al., 1996). It refers to a speaker's fear to present and manifests itself through symptoms on the cognitive-affective, behavioral, and physiological levels (Bodie, 2010). Speech anxiety is negatively correlated with presentation competence. In contrast, self-efficacy and presentation competence are positively related (e.g., De Grez, Valcke, & Roozen, 2009). Presentation self-efficacy refers to the expectation that one will be able to successfully complete a presentation task on one's own and is relevant at all educational levels. Based on these findings and resulting needs, there are many interventions that aim at the reduction of speech anxiety (e.g., Pearson et al., 2007) and/or the promotion of self-efficacy (e.g., Brown & Morrissey, 2004), today.

However, when attempting to understand presentation competence from a broader perspective, the relationship of presentation competence and further non-cognitive skills are worth considering. This seems sensible, because recent research on academic achievement from primary to higher education showed their importance in educational settings (e.g., Brandt et al.,

2020; Vedel & Poropat, 2017). Furthermore, identifying determinants which are strongly related to presentation competence is of instructional value. The findings can help to deduce specific needs of different target groups and to develop corresponding need-based training programs.

One of the most prominent non-cognitive skills is the framework of the Big Five personality traits (John & Srivastava, 1999) which classifies students' personality into central categories. Research on the relationship between Big Five personality traits and presentation competence in general is scarce. There are only a small number of studies which are primarily located in the context of higher education. Corresponding research focusing on secondary school students is, to the best of our knowledge, missing so far.

Presentation Competence of Secondary School Students and Personality Traits

The Big Five personality traits are a widely applied and accepted personality framework (Richardson et al., 2012; Zhang & Ziegler, 2016). Each of the five dimensions is characterized by specific personality characteristics (John & Srivastava, 1999) along which individuals differ with regard to their emotional, interpersonal, experiential, attitudinal, and motivational styles (McCrae & John, 1992). The personality traits belong to this framework: *Conscientiousness* characterizes organized, self-disciplined, and dutiful individuals (McCrae & Costa, 2003). *Openness to experiences* refers to curiosity regarding challenging material or people (Digman, 1990). *Extraversion* describes people who tend to be sociable, talkative, and energetic (McCrae & John, 1992). *Neuroticism* characterizes individuals with emotional instability, such as being anxious, depressed, or hostile (Digman, 1990; Raad & Schouwenburg, 1996). *Agreeableness* reflects the tendency to be altruistic, cooperative, and trusting (Digman, 1990).

In comparison to the lack of research on the relationship between personality traits and presentation competence of secondary school students, the association of personality traits with general school achievement is well examined. Highly cited reviews found a robust and prominent relationship pattern (e.g., Poropat, 2009). In summary, the personality traits Conscientiousness and Openness to experience are the strongest predictors of secondary school students' general school achievement. There are zero-correlations for the other three personality traits, namely Agreeableness, Neuroticism, and Extraversion. However, these studies mainly assess school achievement via students' GPA (Meyer et al., 2019). To counter this, latest studies used a more differentiated and finer perspective to assess school achievement. They focused on and distinguished between, for example, students' achievements in different school subjects (e.g., Brandt et al., 2020; Rosander & Bäckström, 2014; Spinath et al., 2010; Zhang & Ziegler, 2016) or achievements assessed via different types of tasks, for example, creative tasks versus

analytical tasks (e.g., Chamorro-Premuzic, 2006; Meyer et al., 2019). The findings indicate diverse patterns of relationships depending on the specific operationalization of school achievement.

Although the studies differentiated more precisely between school achievements of secondary school students in different tasks, the association between presentation competence and personality traits remains open. First hints concerning this relationship can be found in research in higher education. The small amount of studies conducted looked at outcome variables related to presentation competence in a broader sense. They used, for example, speech grades (see Kim, 2015) or achievement in group presentation tasks in the context of second language acquisition (e.g., Liang & Kelsen, 2018). In addition, some studies used all Big Five personality traits in their analyses (Kim, 2015; Liang & Kelsen, 2018), while others examined only a few of the Big Five and/or further personality traits apart from the Big Five (Dewaele & Furnham, 2000; Dow, 1941; Richmond et al., 1989). Overall, the few existing findings indicate positive associations with Extraversion and Openness to experience and a negative association with Neuroticism when using presentation competence related variables. However, the generalizability is constrained due to the specific research context and the chosen approaches for the assessment of presentation competence and personality traits.

In summary, only a limited number of studies, all located in the field of higher education, focused on the relationship between presentation competence related outcomes and personality traits. The studies in the context of secondary school, which however did not use presentation competence but different kind of school achievement outcomes, found that the correlation pattern with personality traits vary. Thus, the question of the relationship between personality traits and presentation competence of secondary school students remains open and worthy of investigation.

The Present Study

The main objective of this study was to examine the relationship between secondary school students' personality traits and their presentation competence. We examined a sample of secondary school students who participated in a nationwide student presentation contest in Germany known as Youth Presents. Because students face different presentation tasks at school, we also put the participants through different presentation situations in this study. Specifically, the participants' presentation tasks differed regarding the choice of topic (i.e., predetermined or self-selected), the use of visual aids (analog or digital), and the required speaking time (3 minutes or 10 minutes). In this study, we only examined students' solo presentations.

We took a multi-perspective approach to assessing students' presentation competence. The participating students gave short presentations that were assessed in three ways: First, experts rated the given student presentations in situ (experts' live ratings); second, a video-recorded version of the presentation was rated by trained observers; and third, students reported their self-perceived presentation competence in a questionnaire. Within this multi-perspective assessment, we considered the video ratings by trained observers to be the most objective and trustworthy assessment format (Carrell & Willmington, 1996).

This study's overarching research question addressed how each of the Big Five personality traits is related to presentation competence measured via the different assessment approaches. Thereby, the presentation competence shown in different presentation tasks is considered in order to approach real-life requirements. In addition it is examined, whether the predictive quality of each single personality trait on presentation competence remains stable, when controlling for the other traits.

Method

Design of the Study

The study applied a design with four measurement points. It took place within Youth Presents, the largest nationwide presentation contest for secondary school students in Germany. Each measurement point was embedded within one round of the contest and involved students presenting on a scientific topic in front of an audience with the help of visual aids. The first-round presentations, in which participants applied for the contest by uploading an individual presentation, were not part of this study. A panel of judges assessed these videos and the best students were invited to the second or qualifying round of Youth Presents, where the first measurement point took place (T1; May 2015). After these presentations were evaluated, the best students were invited to the third round. This round again included a live presentation, the second measurement point (T2; June 2015). Some months later, all third-round participants were invited to the finals of Youth Presents, where the third and fourth measurement points took place in a single day (T3 and T4; September 2015). The contest winners were selected based on both presentations on this day.

The presentation task at each measurement point involved a different situation. At T1, students decided themselves what scientific topic they would like to present on, prepared at home and delivered their 3-minute presentation using analog visual aids ("semi-standardized T1"). At T2, the presentation task was standardized by limiting the preparation time to 40 minutes. All students had to present on a single scientific topic that was not announced

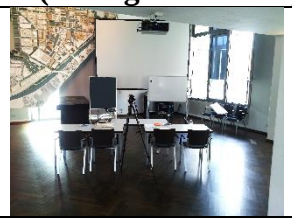
beforehand—microplastics in the environment. During the preparation time, they received a set of text materials on the topic as well as analog materials to prepare a visualization (three colored markers, six white papers for a bulletin board; "standardized T2"). In contrast, at T3 und T4, the presentation tasks were semi-standardized, as participants could themselves select a scientific topic to present on related to the finals' main theme of "light" and prepare their 10-minute presentation at home. The selected topic remained the same for both presentations. However, the two final-round presentation tasks differed in the use of visual aids. Digital visual aids were used in the morning ("digital visual aids T3"), and analog visual aids in the afternoon ("analog visual aids T4"). All presentations were video-recorded. At T3, before the participants delivered their presentations, they filled out a questionnaire assessing their personality traits. Table 1 exhibits the similarities and differences among the presentation tasks.

Sample

Written consent to participate in the study was received from all 91 students taking part in the last round of the Youth Presents contest. Three students did not fulfill the inclusion criterion as they did not answer the questionnaire on personality traits. On average, the 88 students included in this study were 15.40 years old (SD = 1.94). Sixty-eight percent were female. The participants most frequently attended Grade 8 or 11 (20% each), followed by Grade 9 or 10 (16.5% each). The percentage of participants in Grades 6, 7, and 12 ranged from 4.7% to 12.9%. Students came from all over Germany. Informed consent was obtained from all students and their parents before the study began.

Table 1

Characteristics of the Presentation Tasks and the Instruments Applied at T1, T2, T3, and T4

	T1 (semi-standardized)	**T2 (standardized)**	**T3 (digital visual aids)**	**T4 (analog visual aids)**
				
Presentation tasks				
Audience	2-person audience	2-person audience	3-person audience	3-person audience
Visual aids	Analog visual aids	Analog visual aids	Digital visual aids	Analog visual aids
Choice of topic	Self-selected scientific topic	Predetermined topic “microplastics”	Self-selected scientific topic related to the main theme “light”	Self-selected scientific topic related to the main theme “light”
Preparation	Unlimited preparation time	40-min preparation time	Unlimited preparation time	Unlimited preparation time
Presentation	3-min presentation	3-min presentation	10-min presentation	10-min presentation
Instruments				
Presentation competence	Video rating	Video rating	Video rating	Video rating
	Live rating		Live rating	Live rating
			Self-reports	Self-reports
Personality traits			Self-reports	

Instruments

Presentation competence: experts' video ratings. We used the Tübingen Instrument for Presentation Competence (TIP; Ruth et al., 2020) to evaluate the video-recorded presentations. The raters assessed presentation competence in a high inference approach, i.e., students' presentation behavior had to be interpreted to make a rating. The raters were trained with a detailed rating manual. The 22 TIP items were answered on a four-point Likert-type scale ranging from 1 = *not true at all* to 4 = *very true*.

Four raters, two rhetoric students and two educational science students, completed the video ratings. They had been enrolled at university for two to nine semesters and received a 36-hour rater training. After the training, they independently assessed 250 video-recorded presentations (88 videos from T1, 80 from T2, 41 from T3, and 41 from T4). The raters assessed the video-recorded presentations in different randomized orders. They were blinded to the measurement point.

We assessed interrater reliability using the average measure, one-way random model, type absolute intraclass correlation coefficient (Table 2). The analyses were based on the ratings of all videos available from the year's Youth Presents contest in order to obtain a more reliable estimation of the ICCs. In total, 15 out of 22 items (Ruth et al., 2020) had good or excellent interrater reliability (above .60; Cicchetti, 1994). In the present study, each item was assessed by four raters and we used the mean of these scores in the further analyses. The 15 items with sufficient interrater reliability were averaged and this total score was used in the further analyses.[4] This scale had good internal consistency (α_{T1} = .89, α_{T2} = .87, α_{T3} =.92, α_{T4} = .90; Table 4).

Raters also evaluated the videos on a further single item. This item referred to their overall impression of the students' presentation behavior ("The presentation is convincing."). This item for overall impression had acceptable to excellent interrater reliability (ICCs: .75 at T1, .72 at T2, .63 at T3, .57 at T4).

[4] The ICCs at T1 ranged between .61 and .81 for the items we used in the analyses among the sample we used in the study.

Table 2

Intraclass Correlation Coefficients of the Video Ratings

Scale and item (item stem: "The speaker…")	ICC_{T1} 88 videos (sample of this study)	Items excluded from this study
Addressing the audience		
…addresses the audience.	.71	
…has a motivating introduction.	.75	
…takes the listeners' questions and expectations into account.	.68	
Structure		
…introduces the presentation convincingly.	.57	X
…structures transitions convincingly.	.64	
…ends the presentation convincingly with a conclusion.	.81	
Language use		
…uses examples to create a tangible portrayal of the topic.	.61	
…uses appropriate sentence structures for oral communication.	.41	X
…uses technical terms appropriately.	.43	X
Body language & voice		
…has an effective posture.	.58	X
…employs gestures convincingly.	.78	
…makes eye contact with the audience convincingly.	.70	
…uses facial expressions convincingly.	.75	
…uses their voice effectively (intonation, tempo, volume).	.73	
…uses their voice convincingly (articulation, fluency, pauses) to present clearly and comprehensibly.	.20	X
Visual aids		
…uses an appropriate amount of visual information.	.66	
…structures visual elements appropriately and functionally.	.57	X
…constructs an effective interplay between the speech and visual aids.	.71	
…creates visual aids which are visually attractive.	.68	
Content credibility		
…has formulated an appropriately clear scientific question.	.69	
…appears confident in handling information.	.69	
…'s reasoning is comprehensible.	.41	X

Note. ICC = Intraclass correlation coefficient. An average measure, one-way random model, type absolute intraclass correlation coefficient was used to calculate ICCs. The ICC analyses are based on 88 videos rated by 4 video raters. The items are translated from the original German version of the evaluation form.

Table 3

Intraclass Correlations of Experts' Live Ratings

Item	ICC_{T1}	$ICC_{T3\ \&T4}$
Addressing audience		
Audience's previous knowledge is taken into account.	n.a.	.31
Picking up the audience's motivation and interest.	n.a.	.61
Time management is convincing.	n.a.	.73
Addressing the audience/making eye contact	n.a.	.71
Presentation motivates the audience to pay attention.	.71	.70
Structure		
Structure of the presentation is convincing (introduction, body, conclusion).	.68	.67
Language use		
The use of language is comprehensible and vivid.	.61	.62
Visual aids		
The use of visual aids is functional.	.75	.71
Body language and voice		
Body language and voice support the presentation.	.63	.73
Content credibility		
Question of presentation is clear.	n.a.	.54
The topic is well-elaborated.	.66	.66
Content-related information is appropriate.	n.a.	.56
Content/argumentation is correct.	n.a.	.44
Argumentation is convincing.	n.a.	.65

Note. ICC = Intraclass correlation coefficient. An average measure, one-way model, type absolute intraclass correlation coefficient was used to calculate ICCs. n.a. = not available due to different instruments at T1 and T2.

Presentation competence: experts' live ratings. A group of experts affiliated with Youth Presents—teachers and university rhetoric experts—rated the presentations in the live situations at T1, T3, and T4. They used the contest evaluation form. This form differed between T1 and T3/T4. First, different numbers of items were included (6 items at T1 and 14 items at T3/T4). Furthermore, the number of experts assessing each presentation varied. At T1 the audience consisted of two experts (a teacher and a university rhetoric expert), while at T3 and T4 three experts listened (a university rhetoric expert, a teacher who had participated in a teacher training offered by Youth Presents, and a winning student from the previous year's contest). All experts received a 60-minute training on using the contest evaluation form. Each expert team had its own room. They independently assessed each student's presentation immediately after the presentation ended. The items were assessed on an 8-point Likert-type scale (0 = *unsuccessful presentation* to 7 = *very successful presentation*). Interrater reliability was assessed by ascertaining ICCs using a one-way, mixed consistency, average-measure approach (McGraw & Wong, 1996). At T1, the ICCs were above .60 for all six items, while at T3/T4 ten out of 14 items had an ICC > .60 (Table 3). For each measurement point, all items

with an ICC > .60 were averaged into a scale. These scales were used for further analyses. Both scales showed good internal consistency (α_{T1} = .90, α_{T3} =.96, α_{T4} = .95; Table 4).

Presentation competence: students' self-perceived presentation competence. The Youth Presents contest evaluation form was used to assess students' self-perceived presentation competence. It corresponded to the T3 and T4 experts' live rating form and consisted of 14 items. The items were assessed on an 8-point Likert-type scale (0 = *unsuccessful presentation* to 7 = *very successful presentation*). The students assessed their T3 and T4 presentations immediately after each presentation. The total score consisted of the averaged items and had good internal consistency (α_{T3} =.93, α_{T4} = .92; Table 4).

Personality traits. The short version of the Big Five Inventory (BFI-S) by Gerlitz and Schupp (2005; English: John, Donahue, & Kentle, 1991) was used to measure personality traits. This questionnaire consisted of 15 items, three items for each of the Big Five personality traits (e.g., Extraversion: "I see myself as someone who is talkative."). Due to the unreliability of the Agreeableness scale (Hahn et al., 2012), Rammstedt (1997) added two further items, and we followed this approach. The students filled out the questionnaire before delivering their first presentation at T3. The items were assessed on a 7-point Likert-type scale (1 = *strongly disagree* to 7 = *strongly agree*). Four out of the five scales exhibited acceptable internal consistency ($\alpha_{Extraversion}$ = .81; $\alpha_{Neuroticism}$ = .62; $\alpha_{Openness\ to\ experience}$ = .58; $\alpha_{Agreeableness}$ = .66; $\alpha_{Conscientiousness}$ = .68; Table 4, see also Appendix A).

Missing data

There were no missings at T1. Missing data was 9 % at T2. This is because missing values occurred for reasons such as illness or premature departure. Thus, we assumed that missing values were missing at random. A crucial inclusion criterion for the study was presenting alone and not in a group. Excluding group presentations, the number of participants, i.e., video-recorded solo presentations, dropped to 41 at T3 and T4. This is because half the students presented in a group of two, three, or four students. We chose this procedure because group presentations differ from solo presentations in various respects.

Table 4

Descriptive Statistics for the Video Ratings and Personality Traits: Means, Standard Deviations, Internal Consistencies, and Numbers of Items

	T1 (semi-standardized)				T2 (standardized)				T3 (digital visual aids)				T4 (analog digital aids)					
	n	*M*	*SD*	α	*n*	*M*	*SD*	α	*n*	*M*	*SD*	α	*n*	*M*	*SD*	α	*No. Items*	*Likert Scale*
Presentation competence																		
Video ratings																		
Overall impression (single item)	88	2.89	0.50		80	2.60	0.49		41	3.05	0.51		41	2.96	0.51		1	4-point
Total score	88	2.78	0.35	.89	80	2.51	0.32	.87	41	2.97	0.41	.92	41	2.89	0.39	.90	15	4-point
Experts' live ratings																		
Total score	88	5.34	0.90	.90[a]					41	5.26	1.06	.96	41	5.37	0.88	.95	10	8-point
Self-reports																		
Total score									39	5.18	1.14	.93	40	5.32	0.85	.92	14	8-point
Personality																		
Conscientiousness									88	5.25	1.18	.68					3	7-point
Extraversion									88	5.15	1.36	.81					3	7-point
Neuroticism									88	4.03	1.22	.62					3	7-point
Agreeableness									86	5.22	1.02	.66					5	7-point
Openness to experience									87	5.29	1.00	.58					3	7-point

Note. *n* = number of participating students, α = Cronbach's alpha. Missing data is missing by design, because we did not assess these variables at this measurement point. Measurement points: T1 = May 30 or 31, or June 6 or 13, 2015; T2 = June 18-20 or July 1-3, 2015, T3 and T4 = September 26, 2015. Personality traits were measured before the presentations started on the morning of T3. [a] = due to the use of a short version of the contest evaluation form, the number of items is 6 at T1.

Statistical Analyses

To examine our research question—the association between personality traits and presentation competence—we first conducted correlation analyses using Pearson correlation coefficients in IBM SPSS (version 22) with two-tailed significance testing. Second, to examine the predictive quality of each individual personality trait for presentation competence (video ratings, experts' live ratings, and self-perceived), we used multiple linear regressions analyses in Mplus (Muthén & Muthén, 1998–2012). We included all five personality traits as predictors in the analyses. In addition, we also added gender (0 = *female*, 1 = *male*) and age as predictors. The dependent variables were i) mean of the overall impression (single item) across all video raters, ii) total score of the video ratings consisting of the means across all video raters and items, iii) total score of the experts' live ratings consisting of the means of the experts' live ratings and items, and iv) total score of the self-reports consisting of the means of all items that student assessed by themselves. We used two-tailed significance testing (α set at .05). All multiple linear regression analyses used the full information maximum likelihood (FIML) estimation, which handles missing values by estimating corresponding sample parameters.

Results

Descriptive Statistics

Descriptive statistics and internal reliability estimates for each measure are reported in Table 4. Based on these descriptive statistics, there were no ceiling or floor effects. With regard to the video ratings, the scores of the overall impression (single item) and the total scores are descriptively similar at the four measurement points. The scores of the overall impression are consistently slightly higher than the total score of the video ratings.

Correlations Between Personality Traits and Presentation Competence

The research question focused on the relationship between presentation competence and personality traits. Correlation analyses revealed a significant positive relationship between presentation competence and Extraversion at all measurement points across both external ratings, namely video ratings and experts' live ratings (see Table 5). The size of the correlation coefficient ranged from .27 to .55. Thus, students with high values in Extraversion also had high presentation competence scores. With regard to Openness to experience, there seems to be a tendency in the direction of a positive correlation with presentation competence due to mixed findings across the measurement points with respect to significance level. The findings for Neuroticism, Conscientiousness, and Agreeableness were not significant.

With regard to self-reports, a significant positive correlation was found with Extraversion at both measurement points (T3, T4). Thus, students who reported a high value on Extraversion also had a high self-perceived presentation competence score. In addition, we found a negative correlation between self-perceived presentation competence and Neuroticism at T3 (r = -.38) and a positive correlation between self-perceived presentation competence and Openness to experience at T4 (r = .38).

In summary, with regard to video ratings and experts' live ratings, we found a robust correlation pattern between Extraversion and presentation competence. The findings for Openness to experience were mixed in terms of the significance level. In terms of self-reported presentation competence, we also found a robust relationship with Extraversion as well as tendencies towards a negative association with Neuroticism and a positive association with Openness to experience due to mixed findings in terms of significance.

Personality Traits as Predictors for Presentation Competence

The second analysis took a holistic perspective on personality traits and presentation competence by examining each personality predictor's unique contribution when controlling for the other personality traits as well as for age and gender. When taking the video ratings of presentation competence (both overall impression and total score) as outcome variable, Extraversion was a significant positive predictor for presentation competence across all measurement points and both types of video ratings (see Table 6). The sole exception concerned the total video rating score at T1, which was not significant. When taking experts' live ratings as the dependent variable, Extraversion was again a significant predictor for presentation competence, but only at one of the measurement points (T3; β = 0.41, p = .003; see Table 7). Overall, the results for Extraversion as a positive predictor correspond to the bivariate correlation analysis results.

Table 5

Correlation Between Personality Traits and Presentation Competence Assessed via Video Ratings, Experts' Live Ratings, and Self-reports

	Conscientiousness				Extraversion				Neuroticism				Agreeableness				Openness to experience			
	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4	T1	T2	T3	T4
Presentation Competence																				
Video ratings																				
Overall impression (single item)	.05	.06	.14	.28	.31*	.33*	.45*	.42*	-.12	-.19	-.19	-.16	-.17	-.12	-.14	-.09	.22*	.14	.25	.34*
Total score	.08	.09	.23	.28	.27*	.33*	.43*	.44*	-.11	-.13	-.22	-.18	-.09	-.20	-.09	-.06	.23*	.13	.21	.32*
Experts' live ratings	.07	n.a.	.27	.30	.31*	n.a.	.55*	.34*	-.16	n.a.	-.24	-.04	-.01	n.a.	.09	-.03	.28*	n.a.	.40*	.27
Self-reports	n.a.	n.a.	.17	.19	n.a.	n.a.	.36*	.40*	n.a.	n.a.	-.38*	-.13	n.a.	n.a.	-.05	-.10	n.a.	n.a.	.18	.38*

Note. n.a. = not available. Personality traits were assessed only once, prior to the presentation at T3. Sample sizes: n = 39-41 at T3 and T4 (we had to exclude group presentations), n = 78-88 at T2 and T1 (all students had to present solo). * $p < .05$ (two-tailed).

Openness to experience was also a significant positive predictor across both video ratings and experts' live ratings, but only at T1. We did not find significant results at the other measurement points. These findings at T1 correspond to the bivariate correlation results, while the findings at the other measurement points stand in contrast to the correlation pattern.

Moreover, we found Agreeableness to be a negative predictor for the video rater's overall impression scores at all measurement points available (T1, T2, T3) and for total video rating scores at one measurement point (T2). No significant results were found for experts' live ratings. These results for Agreeableness as a negative predictor of presentation competence were unlike the correlation analyses.

When taking students' self-perceived presentation competence as outcome variable, the personality trait Neuroticism was a negative predictor at T3 ($\beta = -0.38$, $p = .003$), but not at T4 (see Table 7). This corresponds to the bivariate correlation pattern. In addition, Extraversion was a positive predictor at T4 ($\beta = 0.32$; $p = .034$), but not at T3. This corresponds to the bivariate correlation results for T4.

In summary, the regression analyses for the video ratings yielded robust findings that Extraversion is a positive predictor for presentation competence when controlling for the other Big Five personality traits, age, and gender. This is in accordance with the correlation results. These findings are partly also in line with the findings for experts' live ratings. Due to mixed findings at the different measurement points, Openness to experience might be a positive predictor for presentation competence. For the personality traits Conscientiousness and Neuroticism, we also found results corresponding to the pattern from the correlation analysis: none of them was a significant predictor. For Agreeableness we found no results corresponding to the pattern from the correlation analysis. Turning to self-reports, Neuroticism is a negative predictor for self-perceived presentation competence when controlling for the other personality traits, age, and gender, in accordance with the results from the correlation analysis. In addition, Extraversion is a positive predictor of self-perceived presentation competence, in close alignment with the correlation analysis results. For the other personality traits, we found no results which corresponds to the pattern from the correlation analysis.

Table 6

Multiple Regression Analyses for the Video Ratings for Presentation Competence

	Video ratings: Overall impression (single item)											
	T1 (semi-standardized)			**T2 (standardized)**			**T3 (digital visual aids)**			**T4 (analog visual aids)**		
	β	*SE*	*p*	β	*SE*	*p*	β	*SE*	*p*	β	*SE*	*p*
Conscientiousness	0.08	0.10	.455	0.11	0.10	.242	0.18	0.14	.446	0.22	0.14	.106
Extraversion	0.28 *	0.10	.008	0.33 *	0.10	.001	0.42 *	0.15	.006	0.30 *	0.15	.043
Neuroticism	-0.02	0.10	.863	-0.12	0.09	.194	-0.13	0.14	.332	-0.16	0.13	.239
Agreeableness	-0.28 *	0.10	.007	-0.22 *	0.10	.020	-0.28 *	0.13	.035	-0.24	0.13	.065
Openness to experience	0.24 *	0.10	.020	0.13	0.11	.243	0.08	0.16	.610	0.19	0.15	.203
Age	0.33 *	0.09	.001	0.45 *	0.08	.001	0.24	0.13	.061	0.25 *	0.12	.042
Gender	0.13	0.10	.163	0.12	0.09	.179	-0.05	0.13	.716	-0.09	0.13	.502
Explained variance (R^2)	.32			.44			.36			.39		
	Video ratings: Total score											
Conscientiousness	0.09	0.11	.403	0.05	0.10	.616	0.22	0.14	.122	0.25	0.14	.067
Extraversion	0.21	0.11	.056	0.40 *	0.10	.001	0.39 *	0.15	.009	0.35 *	0.15	.018
Neuroticism	-0.04	0.10	.692	-0.06	0.10	.559	-0.18	0.14	.181	-0.16	0.13	.223
Agreeableness	-0.20	0.11	.063	-0.29 *	0.10	.003	-0.25	0.13	.061	-0.24	0.13	.076
Openness to experience	0.23 *	0.11	.033	0.09	0.11	.389	0.04	0.15	.811	0.16	0.15	.276
Age	0.26 *	0.10	.007	0.43 *	0.08	.001	0.25 *	0.13	.044	0.25 *	0.12	.040
Gender	0.11	0.10	.293	0.04	0.09	.666	-0.02	0.13	.862	0.01	0.13	.952
Explained variance (R^2)	.23			.42			.37			.40		

Note. Missing data is missing by design, because we did not assess these variables at this measurement point. Sample sizes: n =39-41 at T3 and T4 (we had to exclude group presentations), n = 80-88 at T2 and T1 (all students had to present solo). Gender was dummy-coded (0 = *female*, 1 = *male*). Two-tailed significance levels are reported. * $p < .05$.

Table 7

Multiple Regression Analyses for the Experts' Live Ratings and Self-reports for Presentation Competence

	Live Ratings: Total score											
	T1 (semi-standardized)			**T2 (standardized)**			**T3 (digital visual aids)**			**T4 (analog visual aids)**		
	β	*SE*	*p*	β	*SE*	*p*	β	*SE*	*p*	β	*SE*	*p*
Conscientiousness	0.05	0.11	.636				0.20	0.13	.138	0.22	0.15	.141
Extraversion	0.20	0.11	.073				0.41 *	0.14	.003	0.25	0.16	.132
Neuroticism	-0.08	0.10	.445				-0.17	0.13	.182	-0.06	0.15	.699
Agreeableness	-0.11	0.11	.319				-0.08	0.13	.549	-0.16	0.15	.283
Openness to experience	0.27 *	0.11	.015				0.20	0.14	.139	0.10	0.16	.543
Age	0.16	0.10	.102				0.20	0.12	.095	0.14	0.14	.306
Gender	0.17	0.10	.097				0.08	0.12	.532	-0.17	0.14	.238
Explained variance (R^2)	.21						.44			.25		
	Self-reports: Total Score											
Conscientiousness							0.35 *	0.13	.007	0.24	0.14	.098
Extraversion							0.26	0.15	.083	0.32 *	0.15	.034
Neuroticism							-0.38 *	0.13	.003	-0.09	0.14	.523
Agreeableness							-0.21	0.13	.110	-0.23	0.14	.093
Openness to experience							0.11	0.14	.449	0.26	0.15	.083
Age							-0.19	0.12	.101	0.03	0.14	.808
Gender							0.39 *	0.12	.001	0.32 *	0.13	.011
Explained variance (R^2)							.47			.36		

Note. Missing data is missing by design, because we did not assess these variables at this measurement point. Sample sizes: n = 39-41 at T3 and T4 (we had to exclude group presentations), n = 80-88 at T2 and T1 (all students had to present solo). Gender was dummy-coded (0 = *female*, 1 = *male*). Two-tailed significance levels are reported. * $p < .05$.

Discussion

To uncover meaningful determinants of secondary school students' presentation competence, we investigated the relationship between presentation competence and the Big Five personality traits. We applied a multi-perspective measurement approach for presentation competence (external ratings in the form of video ratings and experts' live ratings, as well as students' self-reports) across four measurement points involving different presentation situations. This study supports the argument that a specific correlation pattern exists between personality traits and presentation competence that likely differs from the well-established correlation pattern between personality traits and school achievement in general.

The following discussion particularly focuses on two robust findings from the present study. The first robust results pattern indicates that students with high values of Extraversion also have high presentation competence examined via video ratings. This finding is robust to the four different presentation situations and different operationalizations of presentation competence, namely overall impression or total video rating scores. The findings also suggest robustness to the measurement perspective because we found similar results for experts' live ratings and self-reports. The second robust pattern of results indicates that high values of Neuroticism are associated with low self-perceived presentation competence.

Personality Traits and Presentation Competence via External Ratings

The first robust pattern refers to Extraversion. Secondary school students who strongly agreed that they were talkative and sociable exhibited presentation behavior that external raters judged as highly competent. It seems that students' enjoying of talking in social groups is beneficial for completing presentation tasks. This is in line with existing studies conducted in higher education. They found a positive correlation between Extraversion and semester grades in a public speaking course (r = .17; Dow, 1941), speech ratings (r = .47; Kim, 2015), and group presentation performance in the context of second language learning (r = .25; Liang & Kelsen, 2018). The size of the correlation in the present study was in a similar range. Furthermore, the finding that Extraversion is a significant positive predictor for presentation competence or variables related to it when controlling for the other personality traits, age, and gender also corresponds with previous studies (Kim, 2015; Liang & Kelsen, 2018). However, the set of control variables differed across studies and from the present study, including in addition, for example, situational factors such as level of rehearsal and communication apprehension (Kim, 2015) or motivational variables (Liang & Kelsen, 2018).

Reasons for the relevance of Extraversion in the present study could be that people scoring high on Extraversion appear more willing to speak, like being in public speaking settings, report less public speaking anxiety, and expect more positive audience evaluations (see Dewaele & Furnham, 1999; MacIntyre & Thivierge, 1995). This might lead to a self-fulfilling prophesy. In line with Beatty, McCroskey, and Valencic (2001), this finding might also support the assumption that Extraversion forms a "superfactor" in language production. According to Dewaele and Furnham (1999), psychological studies indicate that individuals scoring high on Extraversion possess superior verbal skills. For example, they were able to speak more fluently in word association tasks when stressed and under time pressure (Eysenck, 1974). In addition, extraverts' stress resistance and low level of social anxiety might also contribute to their better speech production. In contrast, people scoring low on Extraversion might be more stressed in speaking situations. This reduces their short-term memory recall and results in a breakdown of fluency in second language production (Dewaele & Furnham, 1999).

Transferring these findings from psychology and/or language learning in higher education to presentation competence in secondary school, the same rationales might explain why extraverted students exhibit higher presentation competence. It can be assumed that students scoring high on Extraversion have better verbal skills, speak more fluently when presenting, and cope better with the social stress induced by the presentation task. Thus, students scoring low on Extraversion might be disadvantaged when presentation competence is assessed. This makes Extraversion to a meaningful and important personality factor for the oral task of delivering presentations.

The study found no similarly robust patterns for the personality traits of Conscientiousness, Agreeableness, and Neuroticism. There are some indicators that Openness to experience is related to presentation competence, but the mixed findings in terms of significance levels mean that further studies are needed to further examine this relationship.

When considering pedagogical implications, the instructor's perspective is important. The findings imply that using presentation tasks in class in secondary school could advantage students scoring high on Extraversion and disadvantage students low on Extraversion. Therefore, personalized instruction (Kim, 2015) depending on students' personality traits seems beneficial. For example, a supportive environment for introverts could include more time for reflection and more opportunities to practice speaking in front of others in a protected learning environment.

Personality Traits and Presentation Competence via Self-reports

Similar to the Extraversion pattern in the previous section, the findings for self-reports also imply that Extraversion plays an important role. We found that students who reported that they are highly sociable and talkative also reported high self-perceived presentation competence. The reasons for this pattern could be similar to those for the relationship between Extraversion and externally rated presentation competence despite low correlations between self-reports and external ratings (Appendix B). For example, extraverts' stress resistance and low level of social anxiety might also contribute to their self-perception of higher presentation competence. Future studies are required to examine the role of Extraversion in more detail with regard to self-perceived presentation competence.

The second robust pattern relates to Neuroticism. Specifically, there was a robust negative relationship between Neuroticism and self-perceived presentation competence in both the correlation and regression analyses at T3. This indicates that students scoring high on Neuroticism, i.e., who are more anxious and emotionally unstable, had lower self-perceived presentation competence. This is in line with other studies revealing a negative correlation between Neuroticism and self-perceived communication competence in public speaking of -.18 (not significant) and -.13 (Richmond et al., 1989). Richmond and colleagues (1989) also found Neuroticism to be a significant negative predictor for self-perceived presentation competence when controlling for several personality-type variables such as communication apprehension and self-esteem, as well as Introversion and Neuroticism as Big Five personality traits in one of their two studies. This corresponds to this study's results. However, the study focused on university rather than secondary school students.

There are several explanations for why individuals with high values on Neuroticism perceive that they have lower presentation competence. Such individuals tend to feel insecure, nervous, or experience negative thoughts and feelings (Frederickx & Hofmans, 2014; Yu et al., 2011). It can be assumed that they might be in a permanent state of anxiety, associated with a higher level of public speaking anxiety. Neuroticism might be crucial for such students and dominate their feelings, leading them to expect negative reactions from the audience (MacIntyre & Thivierge, 1995). This could lead them to underestimate their presentation competence, resulting in low self-perceived presentation competence. A further explanation might be that individuals with high values on Neuroticism cannot regulate and control their emotions (see Kokkonen & Pulkkinen, 2001), which is also important for delivering a presentation successfully. Consequently, our study expanded upon previous research by confirming the importance of Neuroticism in the context of secondary school students' self-perceived

presentation competence. However, reasons that the negative correlation was only found for T3 and not for T4 could be that both presentations took place at the same day. For their second presentation in the afternoon (T4), the students already knew the presentation setting, which could have led to a lower level of uncertainty and nervousness.

There were no additional robust patterns in the study with respect to self-perceived presentation competence and the other personality traits, namely Conscientiousness, Agreeableness, and Openness to experience. Based on these findings, one implication is that students with high values on Neuroticism might need special attention and support to foster their presentation competence. Teachers might wish to provide emotional support to these students to increase their presentation competence. In addition, with respect to instructional implications in the secondary school context, students' achievement in presentation tasks should be compared to their pattern of achievement in written tasks, for example.

Educational Implications for Secondary School Students

This study's findings with the under-researched group of secondary school students exhibit a similar pattern as in the higher education context with regard to speaking outcomes. However, the findings differ to the pattern of relationships found between secondary school students' personality traits and general school achievement. The latter indicate that Conscientiousness and Openness to experience are strong predictors of general school achievement (Poropat, 2009), while this study's findings indicate that Extraversion is strongly related to secondary students' presentation competence and also Neuroticism plays a role. This implies that further research into the differential relations between personality and various types of school performance is necessary to develop specific forms of individualized instruction promoting specific forms of school achievement, such as successfully completing presentation tasks.

This differential relationship pattern might be explained by the different demands of different school tasks. The demands of presentation tasks are primarily monological (Herbein, 2017), and the speaker is responsible for knowledge dissemination by speaking continuously, creating interactions, and taking breaks. Time to think things through is limited (see King & Finn, 2016). Furthermore, similar to other oral tests (Sparfeldt et al., 2013), presentation tasks are characterized by a strong social component. An audience of at least one person (De Grez, 2009) is necessary and forms a constitutive element of the setting. This social aspect can result in social pressure (e.g., Ben-Chaim & Zoller, 1997) and pose a risk to self-esteem (Sparfeldt et al., 2013). The social presence of the audience and continuous feedback a speaker receives by observing the audience's facial expressions, for example, can increase negative emotions such

as stress and fear (Huxham et al., 2012). Students' individual characteristics could influence their ability to cope with these demands, e.g., their thoughts, feelings, and behaviors in the situation and whether they perceive the presentation task as stressful or not (e.g., Lazarus, 1956, 1993; Lazarus & Baker, 1956). Students with specific characteristics and preferences, such as a high level of talkativeness and sociability, might be able to cope with these presentation task demands in a way that results in better presentation competence.

In contrast, in written tasks, students remain separate from the examiner during the evaluation process. They need to find written expressions or write their opinions in a way that is comprehensible for the examiner in the absence of immediate feedback. This could increase the likelihood that other individual characteristics play a role. Both Conscientiousness, associated with a strong work ethic, dutifulness, and a structured way of working, and Openness to experience, associated with a high degree of intellectualism and imagination, seem to be beneficial for performance in written tasks (e.g., McCrae & Costa, 2013).

In addition, to the best of our knowledge, self-perceived achievement in school tasks has seldom been examined in previous studies. Thus, in contrast to previous efforts, this study included a self-report measure of presentation competence. The findings revealed that Neuroticism is a consistent predictor of self-perceived presentation competence that needs to be considered in instructional settings.

In terms of pedagogical implications, including presentation tasks in school could contribute to a greater emphasis on and development of other personality traits, such as Extraversion. Furthermore, helping students discover their own personality traits through personality trait tests (Kim, 2015) and explore how the personality traits influence different elements of school performance could represent a more self-adaptive and self-regulated learning approach for achieving better results in specific school tasks. However, more research on causal indicators with respect to personality traits and presentation competence is necessary. In addition, more research on factors that influence presentation competence beyond personality traits could be beneficial for individualized instruction.

Nevertheless, the present study provides initial insights on the relationship between presentation competence and personality traits among secondary school students. It provides impulses for a more differentiated perspective on personality traits that supports the successful completion of presentation tasks. Furthermore, the focus on presentation competence makes this research relevant for students in all subjects and grade levels because presentation competence is a necessary competence for all school subjects. In addition, the present study extends prior research's focus on second language learning to students' L1.

Limitations and Strengths

The present study has some limitations that must be kept in mind. In this study, we examined a small, highly selective sample of students, i.e., finalists of the German presentation contest Youth Presents. This small and non-representative sample limits the generalizability of the results. However, this study examined an important target group within educational and presentation competence research that had not been investigated before.

This study does not allow for causal inferences. Richmond, McCroskey, and McCroskey (1989) call for considering reciprocal or external causality in studies like this one. Nevertheless, the findings help to identify a pattern of relationships concerning a specific form of school achievement among secondary school students. By examining presentation tasks, the study provides evidence for a specific relationship pattern between personality traits and achievement in oral tasks.

In addition, we assessed students' personality traits at T3 only. This might limit the interpretability. However, previous research reported a 2-week stability of .86 to. 90 and a 1-year stability of .55 in adolescent students' personality traits (see Lounsbury et al., 2016). Thus, we assume that the personality traits used in our study are robust and therefore meaningful at all measurement points in which presentation competence was measured.

Concerning the assessment of the outcome variables, one limitation might be the assessment of personality traits via students' self-reports, as these are prone to self-bias (see John & Robins, 1993; Paulhus, 2002). According to Trapmann and colleagues (2007), this might limit the validity by simulating or adapting to social desirability. Alternative methods, such as peer ratings, have not been sufficiently examined in terms of validity evidence. Thus, in the present study we took steps to minimize self-bias, such as pseudonymizing the surveys and ensuring participants that their answers would not influence their success within the contest. In addition, we used a well-established Big Five questionnaire (Gerlitz & Schupp, 2005) in this study that referred to different personality traits (see also Appendix A).

The strength of this study lies in its differentiated perspective on the relationship between personality traits and the school-related task of giving a presentation in a sample of secondary school students. Previous research has mostly focused on speaking variables among university students in the second language learning context (Dewaele & Furnham, 1999). This study transferred this perspective to the task of giving a presentation in one's native language, which is relevant for secondary school students in many subjects and especially in oral examinations. In addition, alongside widely-examined external assessments of school

achievement by teachers, this study examines a self-report measure because self-perceptions are also relevant for learning processes.

Conclusion and Future Studies

This study examined the relationship between personality traits and presentation competence within a secondary school student sample to uncover meaningful determinants of presentation competence. Existing studies in this area are limited and mostly involve higher education samples. This study's findings illustrated that the personality trait Extraversion seems to be an important predictor for presentation task performance when controlling for the other Big Five personality traits, gender, and age. No other student personality trait predicted presentation competence in such a robust way. With regard to self-reports, Neuroticism was a significant negative predictor of self-perceived presentation competence when controlling for the other Big Five personality traits, gender, and age. These findings have implications for promoting presentation competence. It might be useful to inform instructors of the correlation pattern between personality traits and presentation competence. They can use this information to better understand specific students' behavior in class, better adapt their instruction to students' abilities, and better prepare students for oral examinations.

This study shed lights on one specific form of school achievement. Such examinations of presentation tasks are rare in the secondary school context. The study's findings allow us to assume that personality development and the development of presentation competence are interrelated; however, future studies examining causal effects are necessary to create better instructional interventions to promote students' presentation competence and to support personality development.

References

Backlund, P., & Morreale, S. (2015). Communication competence: Historical synopsis, definitions, applications, and looking to the future. In A. Hannawa & B. Spitzberg (Eds.), *Communication competence* (pp. 11–38). De Gruyter Mouton.

Beatty, M. J., McCroskey, J. C., & Valencic, K. M. (2001). *The biology of communication: A communibiological perspective.* Hampton Press.

Ben-Chaim, D., & Zoller, U. (1997). Examination-type preferences of secondary school students and their teachers in the science disciplines. *Instructional Science*, *25*(5), 347–367. https://doi.org/10.1023/A:1002919422429

Bodie, G. D. (2010). A racing heart, rattling knees, and ruminative thoughts: Defining, explaining, and treating public speaking anxiety. *Communication Education*, *59*(1), 70–105. https://doi.org/10.1080/03634520903443849

Brandt, N. D., Lechner, C. M., Tetzner, J., & Rammstedt, B. (2020). Personality, cognitive ability, and academic performance: Differential associations across school subjects and school tracks. *Journal of Personality*, *88*(2), 249–265. https://doi.org/10.1111/jopy.12482

Brown, T., & Morrissey, L. (2004). The effectiveness of verbal self-guidance as a transfer of training intervention: Its impact on presentation performance, self efficacy and anxiety. *Innovations in Education and Teaching International*, *41*(3), 255–271. https://doi.org/10.1080/14703290410001733302

Carrell, L. J., & Willmington, S. C. (1996). A comparison of self-report and performance data in assessing speaking and listening competence. *Communication Reports*, *9*(2), 185–191. https://doi.org/10.1080/08934219609367650

Chamorro-Premuzic, T. (2006). Creativity versus conscientiousness: Which is a better predictor of student performance? *Applied Cognitive Psychology*, *20*(4), 521–531. https://doi.org/10.1002/acp.1196

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment*, *6*(4), 284–290. https://doi.org/10.1037/1040-3590.6.4.284

Common Core State Standards Initiative. (2010). *Common Core State Standards for English language arts & literacy in history/social studies, science, and technical subjects.* http://www.corestandards.org/assets/CCSSI_ELA%20Standards.pdf

De Grez, L. (2009). *Optimizing the instructional environment to learn presentation skills* [Doctoral dissertation, Ghent University]. https://biblio.ugent.be/publication/7051516/file/7051518.pdf

De Grez, L., Valcke, M., & Roozen, I. (2009). The impact of goal orientation, self-reflection and personal characteristics on the acquisition of oral presentation skills. *European Journal of Psychology of Education*, *24*(3), 293–306. https://doi.org/10.1007/BF03174762

Department for Education. (2014). *The national curriculum in England: Key stages 3 and 4 framework document*. www.gov.uk/dfe/nationalcurriculum

Dewaele, J.-M., & Furnham, A. (1999). Extraversion: The unloved variable in applied linguistic research. *Language Learning*, *49*(3), 509–544. https://doi.org/10.1111/0023-8333.00098

Dewaele, J.-M., & Furnham, A. (2000). Personality and speech production: A pilot study of second language learners. *Personality and Individual Differences*, *28*(2), 355–365. https://doi.org/10.1016/S0191-8869(99)00106-3

Digman, J. M. (1990). Personality structure: Emergence of the five-factor model. *Annual Review of Psychology*, *41*(1), 417–440. https://doi.org/10.1146/annurev.ps.41.020190.002221

Dow, C. W. (1941). The personality traits of effective public speakers. *Quarterly Journal of Speech*, *27*, 525–532.

Dwyer, K. K., & Davidson, M. M. (2012). Is public speaking really more feared than death? *Communication Research Reports*, *29*(2), 99–107. https://doi.org/10.1080/08824096.2012.667772

Eysenck, M. W. (1974). Extraversion, arousal, and retrieval from semantic memory. *Journal of Personality*, *42*(2), 319–331.

Frederickx, S., & Hofmans, J. (2014). The role of personality in the initiation of communication situations. *Journal of Individual Differences*, *35*(1), 30–37. https://doi.org/10.1027/1614-0001/a000124

Gerlitz, J.-Y., & Schupp, J. (2005). *Zur Erhebung der Big-Five-basierten Persönlichkeitsmerkmale im SOEP: Dokumentation der Instrumententwicklung BFI-S auf Basis des SOEP-Pretests 2005* [The measurement of the Big Five personality traits in the SOEP: Documentation of the BFI-S instrument development based on the SOEP pretest 2005]. DIW Berlin.

Hahn, E., Gottschling, J., & Spinath, F. M. (2012). Short measurements of personality – Validity and reliability of the GSOEP Big Five Inventory (BFI-S). *Journal of Research in Personality*, *46*(3), 355–359. https://doi.org/10.1016/j.jrp.2012.03.008

Herbein, E. (2017). *Public speaking training as an enrichment program for elementary school children: Conceptualization, evaluation, and implementation* [Doctoral dissertation, University of Tübingen]. https://doi.org/10.15496/publikation-17711

Hristova, Z. (2014). Using peers to assess oral presentations to foster learning. *International Journal of Innovation in Science and Mathematics Education (Formerly CAL-Laborate International)*, *22*(3), 74–80.

Huxham, M., Campbell, F., & Westwood, J. (2012). Oral versus written assessments: A test of student performance and attitudes. *Assessment & Evaluation in Higher Education*, *37*(1), 125–136. https://doi.org/10.1080/02602938.2010.515012

John, O. P., & Robins, R. W. (1993). Determinants of interjudge agreement on personality traits: The Big Five domains, observability, evaluativeness, and the unique perspective of the self. *Journal of Personality*, *61*(4), 521–551. https://doi.org/10.1111/j.1467-6494.1993.tb00781.x

John, O. P., & Srivastava, S. (1999). The Big Five trait taxonomy: History, measurement, and theoretical perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (2nd ed., pp. 102–138). Guilford Press.

Joughin, G. (2009). Orality and learning in oral presentations. https://pdfs.semanticscholar.org/cdfe/ec882897fe83d4d9cbdf422d2e4d0e062e49.pdf

Kim, J.-Y. (2015). The effect of personality, situational factors, and communication apprehension on a blended communication course. *Indian Journal of Science and Technology*, *8*(S1), 528–534. https://doi.org/10.17485/ijst/2015/v8iS1/60760

King, P. E., & Finn, A. N. (2016). A test of attention control theory in public speaking: Cognitive load influences the relationship between state anxiety and verbal production. *Communication Education*, *66*(2), 168–182. https://doi.org/10.1080/03634523.2016.1272128

Kokkonen, M., & Pulkkinen, L. (2001). Extraversion and Neuroticism as antecedents of emotion regulation and dysregulation in adulthood. *European Journal of Personality*, *15*(6), 407–424. https://doi.org/10.1002/per.425

Kultusministerkonferenz (Ed.). (2003). *Beschlüsse der Kultusministerkonferenz. Bildungsstandards im Fach Deutsch für den Mittleren Schulabschluss* [Decisions of the

Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany. Scholastic standards for German for the middle school certificate]. http://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2003/2003_12_04-BS-Deutsch-MS.pdf

Lazarus, R. S. (1956). Psychology. *Progress in Neurology and Psychiatry, 11*, 253–271.

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of changing outlooks. *Annual Review of Psychology, 44*, 1–21. https://doi.org/10.1146/annurev.ps.44.020193.000245

Lazarus, R. S., & Baker, R. W. (1956). Personality and psychological stress - A theoretical and methodological framework. *Psychological Newsletter, 8*, 21–32.

Liang, H.-Y., & Kelsen, B. (2018). Influence of personality and motivation on oral presentation performance. *Journal of Psycholinguistic Research*, *47*(4), 755–776. https://doi.org/10.1007/s10936-017-9551-6

Lounsbury, J. W., Hutchens, T., & Loveland, J. M. (2016). An investigation of Big Five personality traits and career decidedness among early and middle adolescents. *Journal of Career Assessment*, *13*(1), 25–39. https://doi.org/10.1177/1069072704270272

MacIntyre, P. D., & Thivierge, K. A. (1995). The effects of speaker personality on anticipated reactions to public speaking. *Communication Research Reports*, *12*(2), 125–133. https://doi.org/10.1080/08824099509362048

McCrae, R. R., & Costa, P. T. (2003). *Personality in adulthood: A five-factor theory perspective*. Guilford Press.

McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, *60*(2), 175–215. https://doi.org/10.1111/j.1467-6494.1992.tb00970.x

McCrae, R. R., & Costa, P. T. (2013). Introduction to the empirical and theoretical status of the five-factor model of personality traits. In T. A. Widiger & P. T. Costa (Eds.), *Personality disorders and the five-factor model of personality* (3rd ed., pp. 15–27). American Psychological Association. https://doi.org/10.1037/13939-002

McGraw, K. O., & Wong, S. P. (1996). Forming inferences about some intraclass correlation coefficients. *Psychological Methods*, *1*(1), 30–46. https://doi.org/10.1037/1082-989X.1.1.30

Meyer, J., Fleckenstein, J., Retelsdorf, J., & Köller, O. (2019). The relationship of personality traits and different measures of domain-specific achievement in upper secondary education. *Learning and Individual Differences*, *69*, 45–59. https://doi.org/10.1016/j.lindif.2018.11.005

Paulhus, D. L. (2002). Socially desirable responding: The evaluation of a construct. In H. I. Braun, D. N. Jackson, & D. E. Wiley (Eds.), *The role of constructs in psychological and educational measurement* (pp. 49–69). Erlbaum.

Pearson, J. C., DeWitt, L., Child, J. T., Kahl, D. H., & Dandamudi, V. (2007). Facing the fear: An analysis of speech-anxiety content in public-speaking textbooks. *Communication Research Reports*, *24*(2), 159–168. https://doi.org/10.1080/08824090701304923

Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin*, *135*(2), 322–338. https://doi.org/10.1037/a0014996

Raad, B. de, & Schouwenburg, H. C. (1996). Personality in learning and education: A review. *European Journal of Personality*, *10*(5), 303–336. https://doi.org/10.1002/(SICI)1099-0984(199612)10:5<303::AID-PER262>3.0.CO;2-2

Rammstedt, B. (1997). *Die deutsche Version des Big Five Inventory (BFI): Übersetzung und Validierung eines Fragebogens zur Erfassung des Fünf-Faktoren-Modells der Persönlichkeit* [The German version of the Big Five Inventory (BFI): Translation and validation of a questionnaire to assess the five-factor model of personality]. Universität Bielefeld.

Richardson, M., Abraham, C., & Bond, R. (2012). Psychological correlates of university students‘ academic performance: A systematic review and meta-analysis. *Psychological Bulletin*, *138*(2), 353–387. https://doi.org/10.1037/a0026838

Richmond, V. P., McCroskey, J. C., & McCroskey, L. L. (1989). An investigation of self-perceived communication competence and personality orientations. *Communication Research Reports*, *6*(1), 28–36. https://doi.org/10.1080/08824098909359829

Rosander, P., & Bäckström, M. (2014). Personality traits measured at baseline can predict academic performance in upper secondary school three years late. *Scandinavian Journal of Psychology*, *55*(6), 611–618. https://doi.org/10.1111/sjop.12165

Ruth, F., Herbein, E., Fauth, B., Trautwein, U., & Kramer, O. (2020). *Towards a psychometrically sound assessment of students' presentation competence: The development of the Tübingen instrument for presentation competence (TIP)*. Manuscript in preparation.

Sparfeldt, J. R., Rost, D. H., Baumeister, U. M., & Christ, O. (2013). Test anxiety in written and oral examinations. *Learning and Individual Differences*, *24*, 198–203. https://doi.org/10.1016/j.lindif.2012.12.010

Spinath, B., Freudenthaler, H., & Neubauer, A. C. (2010). Domain-specific school achievement in boys and girls as predicted by intelligence, personality and motivation. *Personality and Individual Differences*, *48*(4), 481–486. https://doi.org/10.1016/j.paid.2009.11.028

Stein, M. B., Walker, J. R., & Forde, D. R. (1996). Public-speaking fears in a community sample. Prevalence, impact on functioning, and diagnostic classification. *Archives of General Psychiatry*, *53*(2), 169–174. https://doi.org/10.1001/archpsyc.1996.01830020087010

Trapmann, S., Hell, B., Hirn, J.-O. W., & Schuler, H. (2007). Meta-analysis of the relationship between the Big Five and academic success at university. *Zeitschrift für Psychologie / Journal of Psychology*, *215*(2), 132–151. https://doi.org/10.1027/0044-3409.215.2.132

van Ginkel, S., Gulikers, J., Biemans, H., & Mulder, M. (2015). Towards a set of design principles for developing oral presentation competence: A synthesis of research in higher education. *Educational Research Review*, *14*, 62–80. https://doi.org/10.1016/j.edurev.2015.02.002

van Laar, E., van Deursen, A. J. A. M., van Dijk, J. A. G. M., & Haan, J. de (2020). Determinants of 21st-century skills and 21st-century digital skills for workers: A systematic literature review. *SAGE Open*, *10*(1), 1–14. https://doi.org/10.1177/2158244019900176

Vedel, A., & Poropat, A. E. (2017). Personality and academic performance. In V. Zeigler-Hill & T. K. Shackelford (Eds.), *Encyclopedia of Personality and Individual Differences* (pp. 1–9). Springer International Publishing. https://doi.org/10.1007/978-3-319-28099-8_989-1

Yu, H., Li, H., & Gou, X. (2011). The personality-based variables and their correlations underlying willingness to communicate. *Asian Social Science*, *7*(3), 253–257. https://doi.org/10.5539/ass.v7n3p253

Zhang, J., & Ziegler, M. (2016). How do the Big Five influence scholastic performance? A Big Five-narrow traits model or a double mediation model. *Learning and Individual Differences*, *50*, 93–102. https://doi.org/10.1016/j.lindif.2016.07.011

Appendix A

Correlations Between Personality Traits and Speech Anxiety at T3

	Conscientiousness	Extraversion	Neuroticism	Agreeableness	Openness to experience	Speech anxiety
Conscientiousness	-	.22*	.22*	.35*	.27*	-.13
Extraversion		-	-.17	.25*	.46*	-.30
Neuroticism			-	-.06	.08	.27*
Agreeableness				-	.27*	-.16*
Openness to experience					-	-.13
Speech anxiety						-

Note. * $p < .05$ (two-tailed).

Appendix B

Correlations Between External Ratings and Self-reports at T3

	Video ratings: overall impression (single item)	Video ratings: total score	Live ratings: total score	Self-reports: total score
Video rating: overall impression (single item)	-	.91*	.76*	.30
Video rating: total score		-	.76*	.32
Live rating: total score			-	.36*
Self-reports: total score				-

Note. * $p < .05$ (two-tailed).

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4

Study 3:

One Step Closer to Successful 21st Century Skills Use: Effects of a Presentation Training Program for Secondary School Students

Ruth, F., Herbein, E., Fauth, B., Trautwein, U., & Kramer, O. (2020). *One step closer to successful 21st century skills use: Effects of a presentation training program for secondary school students.* Manuscript in preparation.

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Abstract

Presentation competence is widely acknowledged to be a 21st century skill that is associated with short and long-term benefits, and it has found entry into educational standards for secondary school students in numerous countries. However, at the secondary level, there is an almost complete lack of empirical evidence on whether and how presentation competence can be improved via educational interventions. In the present study, we therefore created a short (two day) extracurricular training program for improving six facets of presentation competence (addressing the audience, structure, language use, body language & voice, visual aids, and content credibility). Eighty-nine students, attending the training program for the first time, participated in a wait-list control group design. We used video ratings of trained observers and student self-reports to gauge the effectiveness of the program. Positive effects were found for three observer rating outcomes (addressing the audience, structure, content credibility). Students' self-reports exhibited effects on language use and body language & voice.

Keywords: effectiveness, presentation competence, wait-list control group, video rating

One Step Closer to Successful 21st Century Skills Use: Effects of a Presentation Training Program for Secondary School Students

Presentation competence is commonly defined as a personal resource to successfully present information to at least one other person in a primarily monological speaking situation (Herbein, 2017), using visual aids (Geldmacher, 2010). The goal of a presentation is to transfer knowledge to the audience (De Grez, 2009). Presentation competence is widely believed to be a core competence for the 21st century and it is associated with personal, educational, and professional success (van Ginkel et al., 2015). It is required across contexts as diverse as business, medicine, and academia because giving presentations is an inherent part of many jobs (Campbell et al., 2001). Reflecting the importance of presentation competence, presentation competence has become part of the educational standards for secondary school students in numerous countries (e.g., England: Department for Education, 2014; Germany: Kultusministerkonferenz, 2003; United States: Common Core State Standards Initiative, 2010) and a key competence across the curriculum (Chan, 2011).

In stark contrast, presentation competence continues to be largely ignored by empirical research on learning and instruction. In fact, whereas there has been a tremendous effort to shed light on broad set of domain-specific (e.g., math, reading) and domain-general (e.g., self-regulation) competences in secondary school students, perhaps best exemplified in the Programme for International Student Assessment (OECD, 2019), there is an almost complete lack of studies on achievement levels and, perhaps even more problematic, evidence-based practices to improve presentation competence (e.g., Slavin, 2002) at the secondary school level. There are some plausible reasons for the lack of empirical research on presentation competence. First, there is the need to conduct interdisciplinary research (Böhme, 2012) that brings together expertise in both rhetoric and research on learning and instruction; whereas interdisciplinary research is often a challenge in itself (Böhme, 2012), this challenge might be further aggravated in fields that lack a firm social science tradition. Second, any studies on the effectiveness of presentation competence interventions need to be based on some observer ratings, and it is well-know that the use of observer ratings typically necessitates fairly complex and demanding research designs (Praetorius et al., 2012).

To overcome this unsatisfactory situation and in what we believe is a starting point for more systematic investigations into how presentation competence can be improved, the present study examines the effects of a short extracurricular training program for secondary school students. We used a wait-list control group design and an extracurricular training program, the so-called Presentation Academy which is part of a nation-wide presentation contest in

Germany, to gauge potential effects of this short training on six theoretically deduced facets of presentation competence.

Conceptualizing Presentation Competence

A speaker completes a presentation task competently when he/she exhibits effective and appropriate – for the situational context and the presented topic – presentation behavior. In our research, we use a multi-facet model of presentation competence. It is derived from the classical rhetorical steps of preparing and delivering a speech which were adapted to the specific presentation context (see Ruth, Herbein et al., 2020). Based on these considerations, we differentiate between six presentation facets: i) addressing the audience, ii) structure, iii) language use, iv) body language & voice, v) visual aids, and vi) content credibility (Ruth, 2020). Of note, the majority of the facets used in our model are also reflected in several other prominent conceptualizations (e.g., Morreale et al., 2016; Schreiber et al., 2012) of presentation competence.

Addressing the audience includes the ability to adapt the presentation to the audience's knowledge and life circumstances (Morreale et al., 2016). It explicitly takes the dialogic and interactive aspect of a presentation into account (McKerrow, 1989). *Structure* refers to the organizational pattern of the presented content (Morreale et al., 2013). *Language use* involves explaining complex phenomena with the help of examples and vivid language (Lipphardt, 2019). *Body language & voice* covers the nonverbal part of a presentation (Hall & Knapp, 2013). *Visual aids* support the presentation by visualizing information through the use of a medium and the functional use of visual elements. The interplay between the visual aids and the speech is also part of this facet (Machin, 2014). *Content credibility* refers to the confident handling of expert information. To effectively integrate expert information into a presentation, one must convincingly convey the credibility of this information, for example, by demonstrating one's own familiarity with it (McCormack, 2014).

Overall, a speaker's ability to appropriately use the different presentation behaviors assigned to the six facets, depends on his/her knowledge on how to prepare and deliver a presentation, his/her presentations kills, and motivation (De Grez, 2009). Although expert knowledge can certainly have an influence on, for example, the confidence in giving a presentation, a speaker's knowledge on the presentation topic does not form a separate component in this conceptual model of presentation competence. Consequently, presentation competence is defined as a non-domain-specific competence in the following.

Treatment Effects on Presentation Competence Facets

Despite presentation competence's relevance for the students, secondary schools appear to be neglecting its systematic promotion. University students are often unable to successfully prepare a talk (Dorée et al., 2007) or have problems delivering information (Nippold et al., 2005; Scott & Windsor, 2000). Thus, an earlier promotion in secondary school appears necessary.

A recent overview of existing effectiveness studies regarding presentation training programs showed that the vast majority of the effectiveness studies were conducted in higher education (Ruth, 2020). Effectiveness studies targeting secondary school students were the exception (Parr & Cartwright-Hatton, 2009). Overall, the findings show that students' presentation competence can be improved across the different educational levels (e.g., Herbein et al., 2018; Parr & Cartwright-Hatton, 2009; van Ginkel et al., 2015; Yurong, 2015). Regarding the facets of presentation competence, the studies found exhibited the following pattern of results in general. De Grez, Valcke, and Roozen (2009a) found positive effects on addressing the audience, which they called *contact audience*. Mowbray and Perry (2013) also found improvement on addressing the audience, which they named *encourages participation*. In addition, studies identified positive effects on structure (De Grez, Valcke, & Roozen, 2009a; De Grez, Valcke, & Roozen, 2009b; Herbein et al., 2018), language use (Ritchie, 2016), body language & voice (De Grez, Valcke, & Roozen, 2009a; Herbein et al., 2018), and content credibility (called *confidence in the terminology;* Mitchell & Bakewell, 1995). Comparing the size of the treatment effects for the different facets, larger effects were found for structure than for body language & voice or language use (e.g., De Grez, Valcke, & Roozen, 2009a).

The effectiveness studies provide first valuable hints on how to foster students' presentation competence. However, the studies exhibit methodological limitations which is why the findings must be interpreted with cautions. Most studies did not use randomized control study designs. In addition, the approaches of examining effects on specific facets are scarce. Finally, most of the studies assess presentation competence either via observer ratings or self-reports. Although observer ratings are considered as more objective (Carrell & Willmington, 1996), self-reports are also important for the promotion of presentation competence (McCroskey & McCroskey, 1988).

In conclusion, existing training programs indicate that students' presentation competence can be increased. However, to obtain more meaningful and solid results, further steps are necessary. First, regarding the examination of a program's effects on secondary school students' presentation competence, randomized controlled studies are needed. Second, the

assessment of the outcome variables should cover all facets of presentation competence, using observer ratings as well as self-reports.

The Present Study

Based on the relevance of presentation competence as a core competence for the 21st century, the requirements already secondary school students face when presenting, and the need for a thoroughly evaluated presentation training program for this age group, a corresponding short extracurricular presentation training program was implemented and evaluated. The aim of the program was to foster secondary school students' presentation competence on all six presentation facets. It was embedded in a presentation contest for secondary school students in Germany, Youth Presents. A randomized wait-list control group design was applied to assess the program's effectiveness. Both observer ratings of the students' video-recorded presentations and students' self-reports were used to capture presentation competence. We had two major research questions (RQ):

RQ1: Do students in the intervention group who attended the presentation training program exhibit higher presentation competence, assessed via observer ratings, in comparison to students in the control group? In line with de Grez et al. (2009a), we expected to find the largest effects on structure and smaller effects on addressing the audience, visual aids, body language & voice, and content credibility.

RQ2: Do students participating in the presentation training program report higher self-perceived presentation competence than students in the control group? We expected to find positive treatment effects on all presentation facets.

Method

Sample and Procedure

All participants were students participating in the Youth Presents contest, a presentation contest for secondary school students in Germany which is supported and recommended by the Conference of the Ministers of Education and Cultural Affairs (Kultusministerkonferenz, 2018). All students had applied for the contest with a home-made video presentation, first. A Youth Presents expert group of teachers and rhetoric researchers rated these videos to select the best students for the next qualification round. The qualification formed the pretest and the starting point of the study. Ninety-four students participated in this round. Because only students participating in the contest for the first time were included in the study, five students had to be excluded as they did not fulfill this eligibility criteria. The resulting full sample of our study consisted of 89 students from all over Germany. The youngest participant was eleven, the

oldest was 20 years old (M = 15.58 years, SD = 1.99). Sixty-seven percent of students were female. Before the study started, the students and parents gave their written consent to participate.

This study applied a randomized wait-list control group design with pretest and posttest. All measurement points as well as the training program were embedded in the natural procedure of the contest (see Figure 1): The qualification round formed the pretest, during which the students delivered a presentation in front of a two-person expert panel. The students with the highest scores on the judges' ratings were invited to participate in a Presentation Academy, the presentation training program under study, and the Youth Presents national finals. The pretest took place in four cities across Germany and four to 19 days before the first of two *Presentation Academies*. After the pretest, the students were randomly assigned either to the intervention (the first Presentation Academy) or the control group (the second Academy). We conducted a stratified clustered randomization per school to prevent spillover effects. To balance the number of participating students per school across the two conditions, we formed one stratum for schools with few participants in the contest ($n < 4$) and one for schools with many participants ($n \geq 4$). Half of the schools in each stratum were randomly selected for the intervention group. In the intervention group, the posttest took place immediately after the students participated in the program. The control group took the posttest first and then received the program. The students did not know whether they were part of the intervention or the control group.

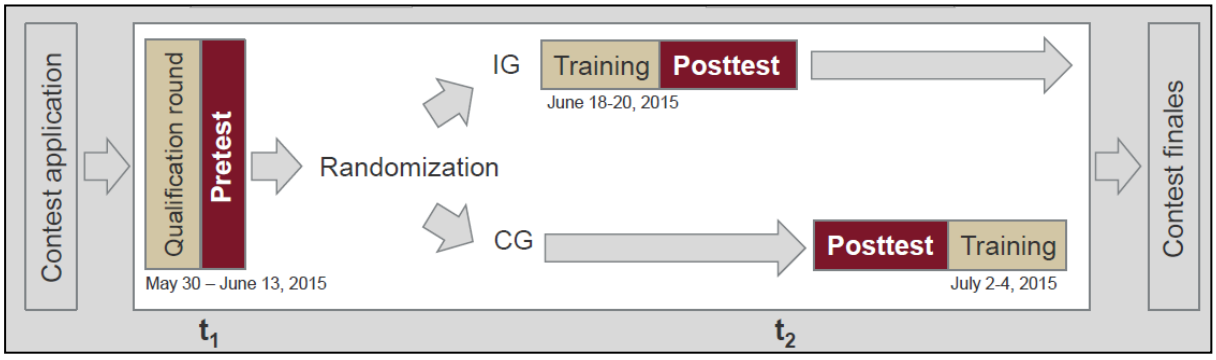

Figure 1. Measurement points of the study. T1 = May 30th, May 31st, June 6th, and June 13th 2015; T2 = June 18th-20th and July 2nd-4th 2015, IG = intervention group, CG = control group.

During the study, unforeseen adjustments were necessary that influenced the randomization plan. First, 21 students were not able to attend their assigned Presentation Academy group due to conflicting commitments at their school or sports clubs. Second, 29 students were manually assigned to the control group due to the contest's tight timeline. Specifically, the pretests (qualifying rounds) took place over a period of four weeks, with the

last pretest held just five days before the first Presentation Academy. Because this would have been too short notice, students who participated in the last pretest were assigned to the control group, i.e., the second Academy. Consequently, two samples were available for analysis: the randomized sample (n = 39) which excluded all students who could not be randomly assigned, and the full sample (n = 89) including all participants who attended the contest for the first time. Consequently, ensuring baseline equivalence, the full sample can be described as a sample that meets the What Works Clearinghouse group design standards with reservations (What Works Clearinghouse, 2020). In contrast, the randomized sample meets the What Works Clearinghouse group design standards without reservations.

Each of the two samples has its advantages and disadvantages. The main advantage of the randomized sample is that randomization is considered the best method for obtaining unbiased estimates of treatment effects (Humphrey et al., 2016). This is because randomization decreases the likelihood that students' assessed or unknown characteristics will covary with the treatment (Nelson et al., 2012). However, the size of the randomized sample in this study is quite small. To achieve statistically significant results with this small sample, the size of the expected treatment effects would need to be large.

The main advantage of the full sample is the bigger sample size. However, in order to assume baseline equivalence, all key characteristics that could potentially influence the outcome need to be assessed at the pretest (What Works Clearinghouse, 2020). We included pretest measures for all dependent variables measured after the intervention. The one exception was students' self-reported presentation competence, which was only available as a posttest measure. In addition, we added covariates that we expected to be relevant at the pretest. The test of baseline equivalence with the full sample showed that the intervention group did not differ from the control group with regard to pretest scores on presentation competence or demographic characteristics.[5] Consequently, and for reasons of transparency, we report the results for both samples.

The Presentation Training Program

The Presentation Academy was conceptualized specifically with reference to the target group's needs. The training content was derived from our theoretical conceptualization of presentation competence and thus covered all six facets. The content was subdivided into four modules "addressing the audience", "language use and structure", "body language & voice",

[5] The randomized sample was 80% female. Participants' ages ranged between 11 and 18 years (M = 15.03 years, SD = 2.16). The grade level distribution was also very similar and students from all grades, i.e., 6th to 12th grade, were represented. The participants came from all over Germany.

and "visual aids". For an overview of the context, content, and overall instructional goals of the program, see Figure 2. The resulting ten-hour presentation training program was conducted in a professional seminar setting over two consecutive days. The instructors were four rhetoric trainers with university degrees in rhetoric. The training activities were based on core components that had exhibited positive effects on presentation competence when applied in higher education (see van Ginkel et al., 2015). To illustrate how these core components were integrated into the instructional process, Appendix A illustrates the application of three core components (practice, feedback, and theory input) in the module "addressing the audience".

Context	Content		Outcome: presentation competence
- Presentation Academy in a professional seminar setting - From Thursday (4 p.m.) to Saturday (1 p.m.) - Four professional rhetoric trainers (2 male, 2 female university graduates) - Four small groups - Ten-hour training program on presentation competence	1 h 15min 2 h 3 h 45 min 3 h 3 h	"Addressing the audience" module "Language use and structure" module "Visual aids" module "Body language & voice" module Social interaction (getting to know each other, visiting a scientific institution/exhibition)	Addressing the audience Language use Structure Visual aids Body language & voice

Figure 2. Context, Content, and Overall Instructional Goals of the Training Program. Students were allocated to small groups (up to 15 students per group) based on age. For the visual aids training module, the students could choose between learning about the following visual aids: i) explanation video, ii) poster presentation, or iii) presentation software (www.prezi.com). Due to this self-selected workshop, the small groups completed the training modules in slightly different orders. For all students, the first module was "addressing the audience" and the second module was "language use and structure". Afterwards, some students first attended the "visual aids" module followed by the "body language & voice" module and some vice versa. Moreover, the table does not include time spent on organizational matters (30 min per day; 90 min in total).

Presentation Tasks and Measurements

During the pretest and posttest, the students filled out questionnaires and completed presentation tasks (see Appendix B). Each time they had to design and deliver a 3-minute presentation on a scientific topic in front of a two-person audience. The use of visual aids was required for all presentations. The pretest and posttest tasks differed in some regards. The posttest was standardized for a better comparability. At the pretest, students had unlimited preparation time and presented a self-selected scientific topic. They could prepare their analog

visual aids (e.g., poster, experiments, and objects) at home. At the posttest, in contrast, students had to present on a previously unannounced topic determined by the training program developers (*microplastics in the environment*). The preparation time was limited to 40 minutes and included a set of text materials on the topic (one A4 page) as well as visualization materials (three colored pens and six white papers for the bulletin board).

Instruments

Presentation competence: observer ratings. The TIP (Ruth, Herbein et al., 2020) was used to measure students' presentation competence via observer ratings. This 22 item instrument (see Appendix C) uses a four-point Likert-type scale (1 = *not true at all* to 4 = *very true*). The items cover the six facets of presentation competence[6]. Four observers, two rhetoric and two education sciences students, rated the video-recorded presentations. All of them participated in a 36-hour observer training. After the training, each observer independently judged 178 videos (89 pretest and 89 posttest videos) in a different randomized sequence. They were blinded to the participants' group membership and the measurement point. The ratings took place on a laptop computer with headphones in a room without disturbances. A study by Ruth and colleagues (2020) examined the TIP's psychometric properties. They used one-way, absolute, average-measure ICCs to examine the interrater reliability and revealed that some items did not exhibit a satisfactory ICC above .60 (Schneider et al., 1998). Based on their findings, we used only items with an acceptable interrater reliability (ICC >.60). In case where only one or two items remained for a certain theoretically defined subscale, we used the single items. Thus, subscales were used for the three facets of addressing the audience (three items), body language & voice (four items), and visual aids (three items). Five single items were included belonging to the facets of structure (two items), language use (one item), and content credibility (two items). All items used had an ICC above .60.

Self-perceived presentation competence. We used an instrument similar to the TIP to assess self-perceived presentation competence. This questionnaire (see Appendix D) consisted of five scales referring to the presentation facets of addressing the audience (five items), structure (four items), language use (five items), body language & voice (nine items), and visual aids (five items). Students answered the questionnaire on a four-point Likert-type scale (1 = *not*

[6]A person is perceived as competent if the show presentation behavior is effective and appropriate. Appropriateness can be assessed by trained observers; effectiveness can be rated by the presentation's audience. Due to the fact that the latter is excluded in most studies we followed this approach and focused on the appropriateness of the shown behavior.

true at all to 4 = *very true*) immediately after their presentation during the posttest. The scales had acceptable to good internal consistency ($.65 \leq \alpha \leq .85$).

Covariates. We included the following variables expected to influence presentation competence based on theoretical models and available empirical results as covariates in the analyses: speech anxiety (Bodie, 2010; Croucher, 2013), self-efficacy (Amirian & Tavakoli, 2016), age, and gender. Furthermore, we used the students' pretest scores as a predictor to control for pre-existing differences (Cohen et al., 2003).

The self-efficacy measure was based on instruments used in the PISA studies and adapted to presentation competence. It consisted of four items (e.g., "If I try really hard, I can deliver a successful presentation.") answered on a four-point Likert-type scale (1 = *strongly not agree* to 4 = *strongly agree*). Internal consistency ranged from acceptable to good (α_{T1} = .59 and α_{T2} =.77; Table 1). In addition, we applied the speech anxiety scale by Spitznagel, Schlutt, and Schmidt-Atzert (2003). The students answered the 16 items on a four-point Likert-type scale (1 = *strongly not agree* to 4 = *strongly agree*). Eight items assessed emotional components of speech anxiety (e.g., "I have a strange feeling in the stomach.") and eight cognitive components (e.g., "I worry about negative consequences."). The participants filled out the questionnaire immediately after delivering their presentations. Cronbach's alpha was excellent at T1 (.91) and T2 (.92; Table 1).

Statistical Analyses

To examine baseline equivalence, we conducted *t*-tests in IBM SPSS (version 22). The effectiveness of the presentation training program was examined using multiple regression analyses in Mplus (Muthén & Muthén, 1998–2012). All dependent variables, i.e., the observer ratings and self-perceived presentation competence, were z-standardized prior to analysis. We included group assignment (0 = *control*, 1 = *intervention*), gender (0 = *female*, 1 = *male*), and the z-standardized variables age, self-efficacy, and speech anxiety as predictors in the analyses. In addition, for each dependent variable assessed via observer ratings, the corresponding z-standardized pretest score was included as a further covariate (Enders & Tofighi, 2007). This was not possible for the analyses of self-perceived presentation competence because corresponding pretest measures were not available.

Due to the standardization of the dependent variables, the regression coefficient for the group variable indicated the standardized treatment effect (effect size). Due to a lack of literature classifying correlation coefficients for presentation or communication studies, we used Cohen's (1988) benchmarks to classify the effect sizes as small (d = 0.2), medium (d =

0.5), or large (d = 0.8). We used one-tailed significance testing as we clearly expected the intervention to have positive effects (α set at .05).

Missing Data

Due to contest regulations, students' participation in the first assessment day, i.e., the pretest, was necessary for them to reach the next round of the contest and thus the posttest. Consequently, all participants attended the pretest. However, missing values occurred for both the observer ratings and self-reports due to non-responses to single items (between 0% and 3.4% at T1 and 0% and 6.7% at T2).[7] There were some missing values for one observer who assessed only 87 of the T1 and 87 of the T2 videos due to illness. Chi-square tests showed that missing values on the dependent variables were not related to the group variable (all p-values > .05). As the missing values were assumed to be missing at random (Enders, 2010), we analyzed the treatment effects using the full information maximum likelihood approach implemented in Mplus (Muthén & Muthén, 1998–2012).

Results

Randomization Check

Baseline equivalence was examined in the full sample with regard to presentation competence, speech anxiety, self-efficacy, gender, and age. No differences between the intervention and control groups were found (all p-values > .10) except for speech anxiety ($t(73) = 2.53$, $p = .014$) and self-efficay ($t(83) = -1.90$, $p = 0.061$). In the randomized sample, no group differences were found for any of the variables (all p-values > .10). Due to baseline imbalance, we included speech anxiety and self-efficacy as predictors in the regression analyses (What Works Clearinghouse, 2015).

Descriptive Statistics

Table 1 depicts descriptive statistics for the full sample. Equivalent results were found in the randomized sample. Small to moderate correlations between the observer ratings and students' self-reports were found (r ranged between .18 and .34; Table 2).

[7] In the randomized sample, missing values occurred at rates between 0% and 7.7% (up to 5.1% at T1, up to 7.7% at T2).

Table 1

Descriptive Statistics for the TIP Scales, Self-Reports, and Covariates (Full Sample)

		T1					T2			
		n	*M*	*SD*	α	Items	*n*	*M*	*SD*	α
Dependent variables										
Observer ratings										
Addressing the audience	CG	53	2.42	0.49	.73	3	53	2.18	0.49	.72
	IG	36	2.59	0.50			36	2.47	0.44	
Body language & voice	CG	53	2.89	0.39	.77	4	53	2.62	0.40	.81
	IG	36	2.94	0.43			36	2.76	0.34	
Visual aids	CG	50	3.00	0.45	.80	3	53	2.67	0.38	.78
	IG	35	3.06	0.38			35	2.77	0.47	
Structure	CG	53	2.38	0.49		1	53	2.17	0.50	
(item "transitions")	IG	36	2.41	0.45			36	2.30	0.47	
Structure	CG	53	2.41	0.63		1	53	2.25	0.66	
(item "end")	IG	36	2.59	0.56			36	2.58	0.65	
Language use	CG	53	2.82	0.48		1	53	2.45	0.48	
(item "using examples")	IG	36	2.80	0.60			36	2.41	0.40	
Content credibility	CG	53	2.52	0.61		1	53	1.99	0.37	
(item "clear question")	IG	36	2.59	0.63			36	2.20	0.47	
Content credibility	CG	53	3.22	0.50		1	53	2.70	0.52	
(item "confident handling of information")	IG	36	3.34	0.44			36	2.85	0.54	
Self-reports										
Addressing the audience	CG					6	50	2.73	0.51	.84
	IG						36	2.94	0.55	
Structure	CG					3	52	2.91	0.54	.65
	IG						36	3.12	0.61	
Language use	CG					5	53	2.81	0.45	.80
	IG						36	3.17	0.52	
Body language & voice	CG					9	52	2.81	0.38	.78
	IG						36	3.11	0.39	
Visual aids	CG					5	50	2.95	0.57	.85
	IG						34	3.08	0.64	
Covariates										
Speech anxiety	CG	53	2.47	0.53	.91	16	53	2.43	0.55	.92
	IG	36	2.17	0.56			36	2.07	0.51	
Self-efficacy	CG	51	3.43	0.42	.59	4	52	3.45	0.42	.77
	IG	35	3.58	0.33			36	3.51	0.54	

Note. *n* = number of participating students, α = Cronbach's alpha. IG = intervention group, CG = control group.

Table 2

Presentation Competence Correlations between the TIP and Self-Reports

TIP	T2 (self-reports)
Addressing the audience	.31*
Body language & voice	.34*
Visual aids	.14
Structure (item "transition")	.32*
Structure (item "end")	.33*
Language use (item "use of examples")	.27*
Content credibility (item "clear question")	n.a.
Content credibility (item "confident handling of information")	n.a.

Note. Pearson correlation coefficients are reported. Due to occasional missing values, *n* ranges from 84 to 89. One-tailed significance levels are reported. *$p < .05$.

Treatment Effects on Presentation Competence—Observer Ratings

Regarding RQ1, we expected positive treatment effects on all facets and the largest effects on structure. The treatment effects assessed via observer ratings revealed that students in the intervention group exhibited significantly higher scores on addressing the audience than students in the control group ($B = 0.32$, $p = .041$; Table 3), controlling for pretest score, speech anxiety, self-efficacy, age, and gender. Further significant treatment effects were found on one of the two single items for structure (item "end"; $B = 0.36$, $p = .042$) and one of the two single items for content credibility (item "clear question"; $B = 0.44$, $p = .018$; Table 4). The study revealed no significant treatment effects on body language & voice, visual aids, and the remaining single items referring to language use (item "using examples"), structure (item "transitions"), and content credibility (item "confident handling of information").

These findings were largely confirmed in the analyses using the randomized sample. The size of the treatment effects on addressing the audience (.32 in full sample vs. .41 in randomized sample), structure (36. vs. .36), and content credibility (.44 vs. .29) were similar to those for the full sample. However, due to the reduced size of the randomized sample ($n = 39$ vs. $n = 89$ in the full sample), the effects on structure (item "end") and content credibility (item "clear question") were no longer statistically significant. Contrary to our expectation, we did not find effects on all presentation facets. In addition, for the treatment effects we found the effect sizes were rather similar and did not show the hypothesized order.

Table 3

Treatment Effects on Presentation Competence Subscales (Posttest) Assessed Using the TIP

	Full sample (n = 89)								
	Addressing the audience			Body language & voice			Visual aids		
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Treatment	0.32*	0.18	.041	0.19	0.15	.101	0.13	0.21	.261
Pretest score	0.45*	0.09	.001	0.64*	0.08	.000	0.14	0.11	.185
Speech anxiety	-0.14	0.10	.158	-0.11	0.08	.197	-0.23*	0.12	.044
Self-efficacy	0.07	0.09	.459	0.05	0.08	.557	0.16	0.11	.125
Age	0.11	0.09	.242	0.16*	0.08	.037	0.12	0.11	.284
Gender	-0.21	0.21	.334	-0.20	0.18	.244	-0.75*	0.24	.002
Explained variance (R^2)		.34			.56			.18	
	Randomized sample (n = 39)								
Treatment	0.41*	0.23	.038	0.02	0.17	.461	0.28	0.22	.106
Pretest score	0.51*	0.11	.001	0.68*	0.09	.001	0.36*	0.11	.001
Speech anxiety	-0.47*	0.13	.001	-0.27*	0.10	.005	-0.48*	0.12	.001
Self-efficacy	-0.05	0.12	.643	-0.04	0.10	.701	0.22*	0.11	.048
Age	0.25*	0.12	.042	0.42*	0.09	.001	0.41*	0.12	.001
Gender	-0.46	0.29	.115	-0.18	0.22	.407	-0.60*	0.27	.028
Explained variance (R^2)		.54			.73			.60	

Note. One-tailed significance levels are reported for the treatment. Treatment was dummy-coded (1 = *intervention*, 0 = *control group*). Gender was dummy-coded (0 = *female*, 1 = *male*). *$p < .05$.

Table 4

Treatment Effects on Single Presentation Competence Items (Posttest) Assessed Using the TIP

	Structure (item: transitions)			Structure (item: end)			Language use (item: use of examples)			Content credibility (item: clear question)			Content credibility (item: confident handling of information)		
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Full sample (n = 89)															
Treatment	0.06	0.21	.393	0.36*	0.21	.042	-0.26	0.21	.112	0.44*	0.21	.018	0.01	0.18	.482
Pretest score	0.15	0.10	.136	0.20	0.10	.050	0.15	0.11	.146	0.10	0.10	.324	0.32*	0.09	.001
Speech anxiety	-0.20	0.12	.080	0.04	0.12	.754	-0.14	0.12	.248	-0.26*	0.12	.026	-0.01	0.10	.896
Self-efficacy	0.09	0.11	.388	0.10	0.11	.354	0.08	0.11	.459	-0.16	0.11	.136	0.20*	0.09	.034
Age	0.25*	0.10	.013	0.19	0.10	.064	0.08	0.11	.458	0.12	0.10	.251	0.30*	0.09	.001
Gender	-0.10	0.24	.678	0.01	0.25	.985	0.31	0.25	.205	-0.38	0.25	.123	0.21	0.20	.312
Explained variance (R^2)		.18			.15			.14			.14			.40	
Randomized sample (n = 39)															
Treatment	0.14	0.27	.298	0.36	0.28	.104	-0.50	0.31	.057	0.29	0.32	.187	-0.32	0.23	.083
Pretest score	0.33*	0.13	.013	0.44*	0.15	.003	0.18	0.15	.243	0.20	0.16	.227	0.25*	0.12	.036
Speech anxiety	-0.43*	0.15	.003	0.05	0.17	.779	-0.12	0.17	.493	-0.15	0.18	.420	-0.15	0.13	.255
Self-efficacy	0.07	0.13	.588	0.18	0.14	.210	-0.07	0.16	.683	-0.13	0.16	.415	0.02	0.13	.891
Age	0.40*	0.14	.005	0.20	0.15	.177	0.24	0.17	.150	-0.08	0.17	.647	0.65*	0.13	.001
Gender	-0.19	0.34	.574	-0.51	0.36	.157	0.45	0.40	.253	-0.27	0.41	.501	0.36	0.30	.224
Explained variance (R^2)		.40			.31			.15			.11			.53	

Note. One-tailed significance levels are reported for the treatment. Treatment was dummy-coded (1 = *intervention*, 0 = *control group*). Gender was dummy-coded (0 = *female*, 1 = *male*). *$p < .05$.

Treatment Effect on Self-Perceived Presentation Competence

In RQ2, we predicted positive treatment effects on students' self-perceived presentation competence. Controlling for the baseline level of speech anxiety, self-efficacy, age, and gender, we found significant effects on the presentation facets language use (B = 0.53, p = .004) and body language & voice (B = 0.54, p = .004; Table 5). These findings were partially confirmed with the randomized sample. Due to the reduced sample size, the treatment effect on body language & voice was no longer significant (B = 0.40, p = .107), but the effect size was similar. However, the treatment effect on language use (B = 0.26, p = .205) differed between the randomized and the full sample. In the randomized sample, the effect was only half as large and thus not significant.

Table 5

Treatment Effects on Self-Perceived Presentation Competence (Posttest)

	Addressing the audience			Structure			Language use			Body language & voice			Visual aids		
Full sample (n = 89)															
	B	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*	*B*	*SE*	*p*
Treatment	0.36	0.22	.053	0.20	0.22	.181	0.53 *	0.20	.004	0.54 *	0.20	.004	0.06	0.23	.397
Speech anxiety	0.01	0.12	.960	-0.14	0.12	.256	-0.06	0.11	.573	-0.25 *	0.11	.025	-0.11	0.13	.374
Self-efficacy	-0.01	0.12	.953	0.06	0.11	.568	0.19	0.10	.056	0.13	0.10	.191	0.14	0.12	.238
Age	0.12	0.11	.289	0.07	0.11	.485	0.22 *	0.10	.024	0.11	0.10	.287	0.09	0.12	.452
Gender	0.19	0.26	.454	0.27	0.25	.281	0.12	0.23	.596	-0.09	0.24	.719	-0.01	0.27	.982
Explained variance (R^2)		.07			.10			.24			.23			.06	
Randomized sample (n = 39)															
Treatment	0.31	0.33	.180	-0.19	0.31	.275	0.26	0.32	.205	0.40	.32	.107	0.13	0.17	.222
Speech anxiety	-0.08	0.18	.656	-0.27	0.17	.117	-0.08	0.18	.649	-0.29	.17	.099	-0.11	0.20	.562
Self-efficacy	0.01	0.17	.936	-0.10	0.17	.544	0.02	0.16	.902	0.21	.16	.195	0.25	0.16	.103
Age	0.11	0.18	.519	0.28	0.16	.084	0.29	0.17	.088	0.14	.17	.410	0.03	0.19	.882
Gender	0.04	0.42	.923	0.52	0.39	.186	-0.24	0.40	.557	-0.75	.42	.073	0.15	0.18	.412
Explained variance (R^2)		.05			.16			0.11			.18			0.14	

Note. One-tailed significance levels are reported for the treatment. Treatment was dummy-coded (1 = *intervention*, 0 = *control group*). Gender was dummy-coded (0 = *female*, 1 = *male*). *$p < .05$.

Discussion

This study examined the effects of a short extracurricular presentation training program conducted as part of Youth Presents, a national presentation contest for secondary school students. Previous intervention studies in higher education had found treatment effects on presentation competence. Using a randomized wait-list control group design, the present study uncovered first evidence that a short extracurricular presentation training program leads to improvement in secondary students' presentation competence. The study measured presentation competence in two ways: observer ratings and student self-reports. After participating in the program, students were better able to interact with the audience, conclude their presentation, and make their presentation question clear than the control group (assessed via observer ratings). When presentation competence was measured via students' self-reports, students' perceived improvements in their use of body language & voice as well as language use. Self-reports play a different role than observer ratings in effectiveness studies.

Effects on Presentation Competence—Observer Ratings

This effectiveness study found treatment effects for some presentation facets. Students participating in the short training program learned how to appropriately interact with and address the audience. This effect on addressing the audience is in line with De Grez et al. (2009a) that conducted their study in higher education. Reason for our findings might be the fact that addressing the audience was the first module of the program and formed the basis for the entire rest of the training. This might have not only deepened students' knowledge but also given them more opportunities to actually practice their skills in this area. In addition, the instructors might have continuously stressed the importance of involving the audience so that students could develop a deeper understanding. The study results further show that students learned how to end a presentation and how to strengthen their content credibility by outlining their presentation question. This pattern of effect sizes, e.g., a larger effect for one structure item (ending a presentation) than for body language & voice, is also in line with finding of De Grez et al. (2009a) and Richthie (2016). Reasons for these effects might be that either these skills are easier to promote than body language & voice (De Grez et al., 2009), or that the program consisted of components that are most effective for developing these skills.

This study found no treatment effects on the other facets and single items. There are several possible explanations for these findings. First, the process of acquiring sufficient presentation competence to be able to appropriately perform in a presentation situation is complex and involves several steps (see Herbein, 2017; Spitzberg, 2009). Whether or not a

person shows competent presentation behavior depends on his/her presentation knowledge, skills, and motivation (Herbein, Golle, Tibus, Schiefer et al., 2018). Thus, although students might have increased their knowledge and repertoire of presentation skills, they might not yet be able to actually perform appropriately. It is not the goal of a presentation training program to train fixed behaviors which can be used across every context in the same manner. Expanding the skill repertoire forms only the first learning step of students. The second learning step is to select a behavior out of the skill repertoire which is appropriate to the specific situation. It might be that training effects would be higher when assessing only basic skills and not advanced skills that relate to the appropriateness of the situation. A second possible explanation is that some presentation facets are easier to improve than others. For example, body language & voice seem to be more difficult to improve than structure (De Grez, Valcke, & Roozen, 2009a). The same might apply for language use, where other instructional methods such as delayed written feedback may be required (Böhme, 2015). For structure, we found a treatment effect on the conclusion item but not on the transition item. It is probably more challenging to link all passages during one's entire presentation than to remember and apply the routine of drawing a conclusion. Thirdly, the lack of treatment effects could result from the program's focus on visual aids in general, including both analog and digital visual aids, rather than more narrowly on the analog visual aids required in the presentation task. Finally, the design of the presentation task may have contributed. The limited preparation time and previously unannounced topic might be responsible for the lack of improvement regarding content credibility.

The implications of these results for educational practice are associated with two aspects. First, the findings of the observer ratings of presentation competence indicate that facets of presentation competence of secondary school students are malleable through presentation training. This could encourage teachers to teach this complex competence (van Ginkel et al., 2015) already in secondary school. Second, the results imply that participating in the extracurricular presentation training embedded in the contest of Youth Presents fosters students' presentation competence. This is good news for all teachers who motivate and support students' participating in such programs.

Effects on Self-perceived Presentation Competence

In addition to the observer ratings, we assessed the treatment effects on students' self-perceived presentation competence. According to McCroskey and McCroskey (1988), self-reports do not measure actual competence but rather perceived competence. Instead of perceiving improvement on all facets, students only perceived a more vivid and clearer verbalization of the presentation content and better use of body language & voice in our study.

There are some similarities between these effects and previous studies in higher education by Mowbray and Perry (2013) and Bower, Cavanagh, Moloney, and Dao (2011), especially regarding the body language & voice facet. Reason for our findings might be that the corresponding training module on body language & voice included video-recorded training sequences as well as peer and instructor feedback. This could have particularly affected students' perceptions. In addition, the language use module focused on finding appropriate examples and challenged the students' creative thinking. The lack of statistically significant effects on addressing the audience, structure, and visual aids might necessitate future research to determine whether and how these facets differ fundamentally from the others and whether the training program concept contributed to these null effects.

However, these self-perceived effects on presentation competence did not correspond to observer ratings. Obviously, body language & voice and language use caught the students' attention and perception. These self-perceived effects might in turn lead to changes in observable presentation behavior in a later follow-up assessment. Therefore, future studies should also include follow-up measures.

With respect to the educational implications, the findings show that training effects also occur on some facets of the self-perceived presentation competence level. This is an important message for instructors of presentation trainings because they always have to take into account internal processes of their students. A treatment effect on self-perceived presentation competence is good news for instructors because perceived competence strongly affects future presentation decisions and contributes to individuals' affective domain (Carrell & Willmington, 1996). What remains open is the question of the relation of both assessment approaches.

Comparison of Both Assessment Approaches

In line with the findings of other studies (e.g., De Grez et al., 2012; Ritchie, 2016), we found low correlations between the observer ratings and self-reports (see Table 2). One reason for this might be that students are unaware of their actual behavior or are overwhelmed by the high number of situational stimuli (Carrell & Willmington, 1996). In addition, self-reports can be influenced by factors such as social anxiety (Parr & Cartwright-Hatton, 2009) or unrealistic personal achievements (Lanning et al., 2011). Observer rating data are considered more objective and valid than self-reported data, particularly when the observers have the same understanding and apply the same assessment procedure (Carrell & Willmington, 1996).

Nevertheless, despite these differences and despite the low congruence between observer ratings and self-reports, self-perceived presentation competence is important in presentation competence education. A treatment effect on self-perceived presentation

competence might also mean that students recognize internal improvements but are unable to demonstrate them. Having students complete self-assessments based on video self-observations focusing only on exhibited presentation behavior (see LeFebvre et al., 2015) could increase the congruence with observer ratings. Moreover, the two assessment tools could be compared as a learning tool in order to encourage reflection on the assessment procedure. Although self-reports are important, observer ratings should be the main focus of effectiveness studies as they provide greater validity (Carrell & Willmington, 1996).

Regarding the implications for education practice with respect to both assessment approaches, the findings of this study underpin the relevance of both observer ratings as well as self-perceived presentation competence when conducting presentation training programs. Both outcomes are important for learning and teaching. These findings also underline to avoid self-reports without observer ratings in presentation trainings.

Limitations and Future Research

Some limitations to this study should be noted. First, this study used a highly selective sample as we only included students who were already successful in the first round of the Youth Presents contest. Moreover, particularly highly motivated students with excellent presentation skills might have participated (see Rebholz, 2018). This limits the generalizability of our findings to the population of secondary school students. However, the selective sample does not affect the treatment effects themselves because both groups consisted of motivated and high-performing students to an equal extent. Moreover, although we potentially had a high-performing sample, there were no ceiling effects and we were still able to detect treatment effects. One might speculate that a treatment for lower-performing students would have even stronger effects because such students have greater room for improvement. Nevertheless, it is important to evaluate this program with a more representative sample.

Second, with regard to study design, there was only one posttest measurement immediately after the training program. In general, the largest effects can be expected on a posttest immediately after a training program, particularly for learning outcomes such as recall (Bailey et al., 2017). However, this might be different with respect to the development of presentation competence. Measuring effects immediately after a program leaves little time for students to retain their new knowledge and practice the newly learned presentation skills so that they can demonstrate appropriate and effective presentation behavior when giving their next presentation. Consequently, larger treatment effects or further effects on some or all of the facets might have been found on a later posttest or a follow-up test. Hence, future study designs

should include pretest, posttest, and follow-up measurement points to measure potential long-term effects.

Conclusion

This study is one of only a few training studies in the secondary school context to use an experimental design in order to provide evidence for effective presentation training programs. A strength of this program was the promotion of advanced presentation skills that aimed to appropriate presentation behaviors and not to standardized presentation behaviors which are often part of the popular public speaking literature. This study's promising results highlight the need for more research testing their generalizability, the stability of the treatment effects over longer timeframes, the treatment effects when students are asked to deliver presentations in other contexts, e.g., in the regular classroom setting, and further elucidating the differences between self-report and observer ratings. The results indicate that a short, extracurricular presentation training program fosters presentation competence even among high-performing secondary school students. This supports secondary school teachers to think about implementation and evaluation of short presentation trainings in the school context. Future studies should also evaluate the effectiveness whether this program is more effective when realized as described over two consecutive days or when realized in an interval program with training hours every week. The results could reveal effective training components to strengthen an evidence-based didactic of rhetoric.

References

Amirian, S. M. R., & Tavakoli, E. (2016). Academic oral presentation self-efficacy: A cross-sectional interdisciplinary comparative study. *Higher Education Research & Development*, *35*(6), 1095–1110. https://doi.org/10.1080/07294360.2016.1160874

Bailey, D., Duncan, G. J., Odgers, C. L., & Yu, W. (2017). Persistence and fadeout in the impacts of child and adolescent interventions. *Journal of Research on Educational Effectiveness*, *10*(1), 7–39. https://doi.org/10.1080/19345747.2016.1232459

Bodie, G. D. (2010). A racing heart, rattling knees, and ruminative thoughts: Defining, explaining, and treating public speaking anxiety. *Communication Education*, *59*(1), 70–105. https://doi.org/10.1080/03634520903443849

Böhme, K. (2015). *Didaktik der Rhetorik* [Didactic of rhetoric]. Weidler Buchverlag.

Böhme, K. (2012). *Methodische und didaktische Überlegungen sowie empirische Befunde zur Erfassung sprachlicher Kompetenzen im Deutschen* [Methodological and didactic considerations as well as empirical findings on the assessment of speaking competencies in German] [Doctoral dissertation, Humboldt University of Berlin]. https://doi.org/10.18452/16628

Bower, M., Cavanagh, M., Moloney, R., & Dao, M. (2011). Developing communication competence using an online video reflection system: Pre-service teachers' experiences. *Asia-Pacific Journal of Teacher Education*, *39*(4), 311–326. https://doi.org/10.1080/1359866X.2011.614685

Campbell, K. S., Mothersbaugh, D. L., Brammer, C., & Taylor, T. (2001). Peer versus self-assessment of oral business presentation performance. *Business Communication Quarterly*, *64*(3), 23–42. https://doi.org/10.1177/108056990106400303

Carrell, L. J., & Willmington, S. C. (1996). A comparison of self-report and performance data in assessing speaking and listening competence. *Communication Reports*, *9*(2), 185–191. https://doi.org/10.1080/08934219609367650

Chan, V. (2011). Teaching oral communication in undergraduate science: Are we doing enough and doing it right? *Journal of Learning Design*, *4*(3), 71–79. https://doi.org/10.5204/jld.v4i3.82

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203771587

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple regression/correlation analysis for the behavioral sciences* (3rd ed.). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203774441

Common Core State Standards Initiative. (2010). *Common Core State Standards for English language arts & literacy in history/social studies, science, and technical subjects.*

Croucher, S. M. (2013). Communication apprehension, self-perceived communication competence, and willingness to communicate: A french analysis. *Journal of International and Intercultural Communication*, *6*(4), 298–316. https://doi.org/10.1080/17513057.2013.769615

De Grez, L. (2009). *Optimizing the instructional environment to learn presentation skills* [Doctoral dissertation, Ghent University]. https://biblio.ugent.be/publication/7051516/file/7051518.pdf

De Grez, L., Valcke, M., & Roozen, I. (2009a). The impact of an innovative instructional intervention on the acquisition of oral presentation skills in higher education. *Computers & Education*, *53*(1), 112–120. https://doi.org/10.1016/j.compedu.2009.01.005

De Grez, L., Valcke, M., & Roozen, I. (2009b). The impact of goal orientation, self-reflection and personal characteristics on the acquisition of oral presentation skills. *European Journal of Psychology of Education*, *24*(3), 293–306. https://doi.org/10.1007/BF03174762

De Grez, L., Valcke, M., & Roozen, I. (2012). How effective are self- and peer assessment of oral presentation skills compared with teachers' assessments? *Active Learning in Higher Education*, *13*(2), 129–142. https://doi.org/10.1177/1469787412441284

Department for Education. (2014). *The national curriculum in England: Key stages 3 and 4 framework document*. www.gov.uk/dfe/nationalcurriculum

Dorée, S., Jardine, R., & Linton, T. (2007). Let's talk about student presentations. *PRIMUS*, *17*(4), 338–352. https://doi.org/10.1080/10511970601131589

Enders, C. K. (2010). *Applied missing data analysis: Methodology in the social sciences series*. Guilford Press.

Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, *12*(2), 121–138. https://doi.org/10.1037/1082-989X.12.2.121

Geldmacher, M. (2010). *Präsentationskompetenz im gymnasialen Deutschunterricht: Ziele, Inhalte und Methoden* [Presentation competence at the academic-track secondary level in German classes: Objectives, contents and methods]. Schneider-Verlag Hohengehren.

Hall, J. A., & Knapp, M. L. (Eds.). (2013). *Nonverbal communication*. De Gruyter Mouton.

Herbein, E. (2017). *Public speaking training as an enrichment program for elementary school children: Conceptualization, evaluation, and implementation* [Doctoral dissertation, University of Tübingen]. http://dx.doi.org/10.15496/publikation-17711

Herbein, E., Golle, J., Tibus, M., Schiefer, J., Trautwein, U., & Zettler, I. (2018). Fostering elementary school children's public speaking skills: A randomized controlled trial. *Learning and Instruction*, *55*, 158–168. https://doi.org/10.1016/j.learninstruc.2017.10.008

Humphrey, N., Lendrum, A., Ashworth, E., Frearson, K., Buck, R., & Kerr, K. (2016). *Implementation and process evaluation (IPE) for interventions in education settings: A synthesis of the literature*. https://educationendowmentfoundation.org.uk/public/files/Evaluation/Setting_up_an_Evaluation/IPE_Review_Final.pdf

Kultusministerkonferenz (Ed.). (2003). *Beschlüsse der Kultusministerkonferenz. Bildungsstandards im Fach Deutsch für den Mittleren Schulabschluss* [Decisions of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany. Scholastic standards for German for the middle school certificate]. http://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2003/2003_12_04-BS-Deutsch-MS.pdf

Kultusministerkonferenz (Ed.). (2018). *Qualitätskriterien für Schülerwettbewerbe* [Quality criteria for school competitions]. https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2009/2009_09_17-Schuelerwettbewerbe.pdf

Lanning, S. K., Brickhouse, T. H., Gunsolley, J. C., Ranson, S. L., & Willett, R. M. (2011). Communication skills instruction: An analysis of self, peer-group, student instructors and faculty assessment. *Patient Education and Counseling*, *83*(2), 145–151. https://doi.org/10.1016/j.pec.2010.06.024

LeFebvre, L., LeFebvre, L., Blackburn, K., & Boyd, R. (2015). Student estimates of public speaking competency: The meaning extraction helper and video self-evaluation. *Communication Education*, *64*(3), 261–279. https://doi.org/10.1080/03634523.2015.1014384

Lipphardt, C. (2019). *Untersuchung zur Trainierbarkeit verbaler Evidentialisierungstechniken in naturwissenschaftlichen Schülerpräsentationen als Problem der modernen Rhetorik*

[Investigation of the trainability of verbal evidentialisation techniques in scientific student presentations as a problem of modern rhetoric] [Doctoral Dissertation, University of Tübingen]. https://publikationen.uni-tuebingen.de/xmlui/handle/10900/95643

Machin, D. (Ed.). (2014). *Visual communication*. De Gruyter Mouton.

McCormack, K. (2014). Ethos, pathos, and logos: The benefits of aristotelian rhetoric in the courtroom. *Washington University Jurisprudence Review*, *7*(1), 131–155.

McCroskey, J. C., & McCroskey, L. L. (1988). Self-report as an approach to measuring communication competence. *Communication Research Report*, *5*(2), 108–113. https://doi.org/10.1080/08824098809359810

McKerrow, R. E. (1989). Critical rhetoric: Theory and praxis. *Communication Monographs*, *56*(2), 91–111. https://doi.org/10.1080/03637758909390253

Mitchell, V.-W., & Bakewell, C. (1995). Learning without doing: Enhancing oral presentation skills through peer review. *Management Learning*, *26*(3), 353–366. https://doi.org/10.1177/1350507695263005

Morreale, S., Spitzberg, B. H., & Barge, J. K. (2013). *Communication: Motivation, knowledge, skills*. Peter Lang Publishing Inc. https://doi.org/10.3726/978-1-4539-0257-8

Morreale, S., Valenzano, J. M., & Bauer, J. A. (2016). Why communication education is important: A third study on the centrality of the discipline's content and pedagogy. *Communication Education*, *66*(4), 402–422. https://doi.org/10.1080/03634523.2016.1265136

Mowbray, R., & Perry, L. B. (2013). Improving lecture quality through training in public speaking. *Innovations in Education and Teaching International*, *52*(2), 207–217. https://doi.org/10.1080/14703297.2013.849205

Muthén, L. K., & Muthén, B. O. (1998–2012). *Mplus user's guide* (7th ed.). Muthén & Muthén.

Nelson, M. C., Cordray, D. S., Hulleman, C. S., Darrow, C. L., & Sommer, E. C. (2012). A procedure for assessing intervention fidelity in experiments testing educational and behavioral interventions. *The Journal of Behavioral Health Services & Research*, *39*(4), 374–396. https://doi.org/10.1007/s11414-012-9295-x

Nippold, M. A., Hesketh, L. J., Duthie, J. K., & Mansfield, T. C. (2005). Conversational versus expository discourse. *Journal of Speech Language and Hearing Research*, *48*(5), 10–48. https://doi.org/10.1044/1092-4388(2005/073)

OECD. (2019). *PISA 2018 Assessment and Analytical Framework*. PISA, OECD Publishing. https://doi.org/10.1787/b25efab8-en

Parr, C. J., & Cartwright-Hatton, S. (2009). Social anxiety in adolescents: The effect of video feedback on anxiety and the self-evaluation of performance. *Clinical Psychology & Psychotherapy*, *16*(1), 46–54. https://doi.org/10.1002/cpp.599

Praetorius, A.-K., Lenske, G., & Helmke, A. (2012). Observer ratings of instructional quality: Do they fulfill what they promise? *Learning and Instruction*, *22*(6), 387–400. https://doi.org/10.1016/j.learninstruc.2012.03.002

Rebholz, F. (2018). *Fostering mathematical competences by preparing for a mathematical competition* [Doctoral dissertation, University of Tübingen]. https://doi.org/10.15496/publikation-21245

Ritchie, S. M. (2016). Self-assessment of video-recorded presentations: Does it improve skills? *Active Learning in Higher Education*, *17*(3), 207–221. https://doi.org/10.1177/1469787416654807

Ruth, F. (2020). *Linking rhetoric and educational research: The assessment and promotion of secondary school students' presentation competence* [Doctoral dissertation, University of Tübingen].

Ruth, F., Herbein, E., Fauth, B., Trautwein, U., & Kramer, O. (2020). *Towards a psychometrically sound assessment of students' presentation competence: The development of the Tübingen instrument for presentation competence (TIP)*. Manuscript in preparation.

Schneider, B., White, S. S., & Paul, M. C. (1998). Linking service climate and customer perceptions of service quality: Tests of a causal model. *Journal of Applied Psychology*, *83*(2), 150–163. https://doi.org/10.1037/0021-9010.83.2.150

Schreiber, L. M., Paul, G. D., & Shibley, L. R. (2012). The development and test of the public speaking competence rubric. *Communication Education*, *61*(3), 205–233. https://doi.org/10.1080/03634523.2012.670709

Scott, C. M., & Windsor, J. (2000). General language performance measures in spoken and written narrative and expository discourse of school-age children with language learning disabilities. *Journal of Speech Language and Hearing Research*, *43*(2), 324–339. https://doi.org/10.1044/jslhr.4302.324

Slavin, R. E. (2002). Evidence-based education policies: Transforming educational practice and research. *Educational Researcher*, *31*(7), 15–21. https://doi.org/10.3102/0013189X031007015

Spitznagel, A., Schlutt, S., & Schmidt-Atzert, L. (2003). Redeängstlichkeitsfragebogen: Entwicklung eines mehrdimensionalen Verfahrens [Speech anxiety: Development of a

multidimensional method]. In J. Hoyer & J. Margraf (Eds.), *Angstdiagnostik* (pp. 450–453). Springer. https://doi.org/10.1007/978-3-642-18976-0

van Ginkel, S., Gulikers, J., Biemans, H., & Mulder, M. (2015). Towards a set of design principles for developing oral presentation competence: A synthesis of research in higher education. *Educational Research Review*, *14*, 62–80. https://doi.org/10.1016/j.edurev.2015.02.002

What Works Clearinghouse (Ed.). (2020). *What Works Clearinghouse Standards Handbook, Version 4.1*. U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance. https://ies.ed.gov/ncee/wwc/handbooks.

Yurong, S. (2015). An overview of the development of research on public speaking course from 2004 to 2013. *Chinese Journal of Applied Linguistics*, *38*(4), 415–429. https://doi.org/10.1515/cjal-2015-0027

Appendix A

The Instructional Process for the Training Module "Addressing the Audience" at the 2015 Youth Presents Presentation Academy

Content of intervention (Presentation competence facet)	**Core Components**	**Methods**	**Time**	**Educational objectives of the learning units**	**Outcome measure within presentation competence**
Addressing the audience	Theory input	Informative introduction to teaching	05 min	- Students recognize the relevance of addressing the audience (affective educational objective).	Addressing the audience
Addressing the audience	Theory input	Presentation cards request and grouping the results on a bulletin board	15 min	- Students analyze their previous presentation preparation and can join together their preparation for addressing the audience, i.e., the situational factors of a presentation such as speaker, audience, time, room/place, media, topic (cognitive educational objective).	Addressing the audience
Addressing the audience	Teaching self-regulated learning	Instructor-learner dialogue	05 min	- Students i) analyze the relations between individual aspects of situational factors affecting presentations and ii) evaluate these aspects with regard to their relevance for their presentations and addressing the audience (cognitive educational objective). - Students analyze their metacognitive knowledge regarding presentation preparation in terms of addressing the audience (cognitive educational objective).	Addressing the audience
Addressing the audience	Practice Model learning Feedback	Role play and peer feedback	20 min	- Students demonstrate and apply strategies for addressing different fictive target audiences by explaining a short scientific text (skill objective). - Students analyze indicators for the addressing the audience strategies by giving their team partner feedback on their applied strategies (cognitive educational objective).	Addressing the audience

(continued)

Content of intervention (Presentation competence facet)	**Core Components**	**Methods**	**Time**	**Educational objectives of the learning units**	**Outcome measure within presentation competence**
Addressing the audience and further presentation competence facets	Teaching self-regulated learning Transfer	Instructor-learner dialogue	15 min	- Students understand the components of strategies for addressing the audiences (cognitive educational objective). - Students analyze the metacognitive process of addressing the audience (cognitive educational objective). - Students know how different presentation competence facets interrelate concerning strategies for addressing the audience (cognitive educational objective).	Addressing the audience Relations with other presentation competence facets such as: - Body language & voice - Language use - Content credibility
Addressing the audience	Theory input	Lecture	10 min	- Students recognize the relevance of the concept of perspective taking, an approach to improve empathic accuracy (affective educational objective) - Students understand the different steps of the perspective taking approach (cognitive educational objective)	Addressing the audience
Addressing the audience	Theory input	Take home message	05 min	- Students become aware of the relevance of addressing the audience (affective educational objective). - Students know strategies and concepts for better addressing the audience (cognitive educational objective).	Addressing the audience

Appendix B

Characteristics of the Presentation Tasks at Pretest and Posttest

	Pretest	**Posttest**
		
Choice of topic	Self-selected topic	Provided topic (microplastics)
Preparation time	Unlimited preparation time	40-min preparation time
Materials	Self-selected materials	Standardized materials
Presentation time	3-min presentation	3-min presentation
Audience	2-person audience	2-person audience

Appendix C

Tübingen Instrument for Presentation Competence (TIP)

	German original items Item stem: Der Präsentierende …	Translated items Item stem: The speaker …
Addressing the audience	… spricht das Publikum an.	… addresses the audience.
	… hat einen motivierenden Einstieg.	… has a motivating introduction.
	… berücksichtigt Fragen und Erwartungen der Zuhörer.	… takes the listeners' questions and expectations into account.
Structure	… führt überzeugend in die Präsentation ein.	… introduces the presentation convincingly.
	… gestaltet Übergänge überzeugend.	… structures transitions convincingly.
	… beendet die Präsentation überzeugend mit einem Schluss.	… ends the presentation convincingly with a conclusion.
Language use	… erzeugt mit Beispielen überzeugend greifbare Vorstellungen des Sachverhaltes.	… uses examples to create a tangible portrayal of the topic.
	… verwendet passende Satzkonstruktionen für die mündliche Kommunikation.	… uses appropriate sentence structures for oral communication.
	... setzt Fachbegriffe angemessen ein.	… uses technical terms appropriately.
Body language & voice	… hat eine wirkungsvolle Körperhaltung.	… has an effective posture.
	… setzt seine Gestik überzeugend ein.	… employs gestures convincingly.
	… stellt überzeugend Blickkontakt mit dem Publikum her.	… makes eye contact with the audience convincingly.
	… setzt seine Mimik überzeugend ein.	… uses facial expressions convincingly.
	… setzt die Stimme (Sprechmelodie, Geschwindigkeit, Lautstärke) wirkungsvoll ein.	… uses the voice effectively (intonation, tempo, volume).
	… nutzt die Stimme überzeugend (Artikulation, Sprechflüssigkeit, Pausen), um klar und deutlich zu präsentieren.	… uses the voice convincingly (articulation, fluency, pauses) to present clearly and comprehensibly.
Visual aids	… verwendet eine angemessene visuelle Informationsmenge.	… uses an appropriate amount of visual information.
	… gestaltet angemessen Visualisierungselemente funktional.	… structures visual elements appropriately and functionally.
	… gestaltet das Zusammenspiel von Vortrag und Visualisierung wirkungsvoll.	… constructs an effective interplay between the speech and visual aids.
	… gestaltet die Visualisierung optisch ansprechend.	… creates visual aids which are visually attractive.
Content credibility	… hat eine angemessen klar umrissene naturwissenschaftliche Fragestellung.	… has formulated an appropriately clear scientific question.
	… wirkt sicher im Umgang mit Informationen.	… appears confident in handling information.
	… begründet nachvollziehbar.	…'s reasoning is comprehensible.

Appendix D

Self-Assessment Instrument

Category	German original items	Translated items
Addressing the audience	Die Einleitung erregte Aufmerksamkeit und war motivierend.	The introduction caught the audience's attention and was motivating.
	Das Thema habe ich für die Zuhörer relevant gemacht.	I made the topic relevant for the audience.
	Meine Präsentation hat zum Zuhören motiviert.	My presentation motivated the audience to listen.
	Meine Präsentation war unterhaltsam.	My presentation was entertaining.
	Ich habe für das Thema begeistert.	I made the audience enthusiastic about the topic.
	In meiner Präsentation habe ich einen Bezug zum Publikum hergestellt.	In my presentation, I addressed the audience.
Structure	Meine Präsentation hatte einen klaren Aufbau.	My presentation had a clear organization.
	Einleitung, Hauptteil und Schluss waren klar in meiner Präsentation vorhanden.	Introduction, body, and conclusion were clearly present in my presentation.
	Meine Überleitungen haben die Teile meiner Präsentation gut verbunden.	My transitions connected the parts of my presentation well.
Language use	Mein sprachlicher Ausdruck war leicht verständlich.	My use of language was easy to understand.
	Wichtiges habe ich hervorgehoben.	I highlighted important aspects.
	Wenn nötig habe ich Fachwörter klar und verständlich erklärt.	I explained technical terms clearly and comprehensibly if necessary.
	Meine Sprache war lebendig.	I used vivid language.
	Das Thema habe ich anschaulich vermittelt.	I conveyed the topic vividly.
Body language & voice	Meine Gestik hat die Aussagen unterstützt.	My gestures supported my statements.
	Ich habe Blickkontakt mit den Zuhörern aufgenommen.	I made eye contact with the audience.
	Blickkontakt habe ich gleichmäßig aufrechterhalten.	I kept consistent eye contact.
	Meine Körperhaltung war den Zuhörern zugewandt.	My posture was directed towards the audience.
	Mein Standort war günstig für die Präsentation.	My location was appropriate for the presentation.
	Mein Sprechtempo war angemessen.	My speech tempo was appropriate.
	Ich habe verständlich gesprochen.	I spoke comprehensibly.
	Pausen habe ich angemessen eingesetzt.	I used pauses appropriately.
	Meine Mimik war entspannt und echt.	My facial expressions were relaxed and authentic.
Visual aids	Meine Visualisierung war übersichtlich.	My visual aids were easy to understand.
	Meine Visualisierung war aussagekräftig.	My visual aids were informative.
	Meine Visualisierung war ansprechend gestaltet.	My visual aids were attractively designed.
	Ich habe für die Zuhörer einen klaren Bezug zur Visualisierung hergestellt.	I made clear references to the visual aids.
	Ich habe die Visualisierung zielführend in die Präsentation eingebunden.	I meaningfully integrated the visual aids into the presentation.

Note. 4-point Likert-type scale.

5

General Discussion

5 General Discussion

The focus of this dissertation lay on secondary school students facing presentation tasks and ensuring that they are able to competently solve these tasks. After defining presentation competence, the question of how to capture and assess students' presentation competence moved into focus in order to diagnose and develop this competence. Subsequently, a new assessment tool for presentation competence was presented and individual factors influencing presentation competence were addressed as well as the question of how to foster students' presentation competence in response to calls for improvement. Consequently, this dissertation addressed three research areas: i) assessment of presentation competence, ii) determinants of presentation competence, and iii) fostering presentation competence. Within these research areas, secondary school students as a target group have been neglected in previous research. Hence, the present dissertation aimed to close this gap.

First, with respect to assessment (i), different approaches, goals and quality examinations have been introduced with respect to presentation competence instruments. In rhetorical trainings, the main concern has been to create practical evaluation forms, which are often based on subjective experience and/or theoretical considerations (Böhme, 2015; Geldmacher, 2010) From an empirical educational research perspective, the development of presentation competence instruments has been accompanied by references to existing instruments and theories as well as psychometric quality examinations. Existing instruments have been tested at different breadths and depths regarding objectivity, reliability, and validity (e.g., Morreale et al., 2007; Schreiber et al., 2012; De Grez, 2009). Most previously developed presentation competence instruments focused on higher education students (see Herbein, 2017; Morreale & Backlund, 2007). In contrast, there is currently no instrument for secondary school students with a rhetorical basis that has been psychometrically tested. Hence, the first research question of how to measure presentation competence forms the starting point for the two further research questions making up this dissertation. It is not possible to extend research about presentation competence without a high-quality instrument.

Second, delivering a presentation is a special form of oral communication and a special assessment format in school. In contrast to written communication, oral communication is characterized by speaking in front of an audience and by fluidity of spoken words. Different characteristics influence how individuals perform in this oral situation (ii). Previous research had identified some central determinants of presentation competence, such as speech anxiety (e.g., Ashlock et al., 2015) and presentation self-efficacy (e.g., Ringeisen et al., 2019). However, there is little research focusing on personality traits as determinants of presentation

competence. This is remarkable in light of the substantial body of research focusing on the link between achievement in written tasks and students' personality traits (e.g., Poropat, 2009). First examinations had provided evidence of a specific relationship between presentation competence and personality traits, for example, in the higher education context (Liang & Kelsen, 2018).

Third, prior research has identified that presentation competence can be effectively promoted in higher education (iii). However, effectiveness studies in the secondary school context are scarce. In addition, these studies lack strong research designs, including randomized controls and pre- and posttests. Hence, the third research question focused on the effectiveness of a short presentation training for secondary school students.

Three empirical studies were linked to the open research questions outlined above. Below, the findings of the three studies will be summarized (5.1). The research results will also be discussed with regard to the broader research context as well as practical use in education in the implications for research and educational practice (5.2). Afterwards, strengths and limitations will be considered (5.3). The final section identifies future research opportunities (5.4).

5.1. Discussion of General Findings

In *Study 1*, a new instrument for the assessment of secondary school students' presentation competence, the Tübingen Instrument for Presentation competence (TIP), was developed. It was based on rhetorical theory and in line with previous instrument approaches. To learn more about the instrument's quality, it was examined whether the TIP had appropriate psychometric properties in terms of objectivity, reliability, and validity. In terms of objectivity, the interrater reliability, as measured by ICCs, exhibited adequately high values for the majority of items. The language-related items had the lowest ICCs. This is in line with other studies (e.g., Herbein, Golle, Tibus, Schiefer et al., 2018). Only the items with adequately high ICCs were used for further analyses. With regard to reliability, test-retest measures were conducted using a semi-standardized design. Despite this non-optimal study design, the correlations between the two measurement points ranged from low to high. The high values for most items indicate that the TIP is stable over time. The low correlation values for the other items require further examination. Regarding validity, the exploratory factor analysis revealed factors representing the assumed presentation facets. Further validity examinations revealed moderate to high correlations between the TIP and experts' live ratings of presentation competence. This correspondence is a strong indicator that the TIP measures what it intends to measure: presentation competence. In addition, the correlations between the TIP and students' self-reports were small to moderate. This is line with previous findings (e.g., Aryadoust, 2015; Carrell & Willmington, 1996) and further confirms the validity of the TIP. Likewise, the negative correlations between the TIP and speech anxiety were in line with previous studies (e.g., T. Brown & Morrissey, 2004), confirming the assumed negative association. Furthermore, the correlation between the TIP and students' grades in German language arts supports the concurrent validity of the TIP. In summary, the findings provided evidence that the TIP with its rhetorical basis is a valid instrument for assessing secondary school students' presentation competence. It goes above and beyond previous presentation competence instruments by extending the target group to secondary school students. In addition, the examination of the TIP's psychometric quality included reliability measures, such as stability, validity measures and experts' live ratings, which were not addressed in psychometric examinations of other instruments. Hence, this study fills a research gap in terms of the lack of instruments for secondary school students and combines empirical educational research with rhetorical theory and practice. However, the TIP still requires further development and examination. This study could not empirically confirm the presentation facets deduced from rhetorical theory because

not all items could be included in the analysis due to low ICC values. In addition, the examination of the TIP showed that language items are difficult to assess.

The goal of *Study 2* was to extend research on determinants of presentation competence by focusing on the relationship between the Big Five personality traits and secondary school students' presentation competence. In order to achieve this goal, presentation competence was assessed using two kinds of external ratings (video ratings and experts' live ratings) as well as self-reports. The study found a robust positive association between Extraversion and presentation competence measured via external ratings as well as via self-reports. There was also a negative relationship pattern between Neuroticism and presentation competence measured via self-assessment measures. These relationships are based on correlation analyses as well as regression analyses controlling for the other Big Five personality traits, sex, and gender. Comparing the two assessment perspectives, i.e., external ratings and self-reports, revealed that the two approaches also result in different findings and indicate that different Big Five dimensions play different roles depending on the measurement perspective. Both external ratings and self-reports have their benefits. Self-reported presentation competence measures self-perceived presentation competence that determines future communication behavior. External ratings reflect the audience's perspective and are considered to represent a more objective perspective that determines the success of the performance in contexts such as school. In this study, applying the two perspectives resulted in different findings. The results indicated that different personality dimensions of the Big Five play a role depending on the measurement perspective. This is useful information for instructors, who can apply these findings to adapt their instruction to individual needs. The study showed that Extraversion is crucial for presentation tasks from the external rating perspective. This contrasts with existing findings concerning the correlation between personality traits and school achievement in general for secondary school students. These studies found that Conscientiousness is the strongest predictor for school achievement in general. In sum, the present dissertation contributes to extending previous research on determinants of presentation competence, such as speech anxiety or self-efficacy, by investigating personality traits. In addition, the examination of the relationship between presentation competence and personality traits found robust relationship patterns for the target group of secondary school students' and focused on presentation tasks beyond the specific context of second language learning. Explicitly focusing on the oral task of delivering a presentation showed that the personality trait Extraversion seems to play a crucial role in completing presentation tasks.

The goal of *Study 3* was to examine the effectiveness of a short presentation training program for secondary school students. The training took place at the Presentation Academy of Youth Presents, a national presentation contest for secondary school students in Germany. This study found treatment effects on the presentation facet addressing the audience, as well as on the items "the speaker ends the presentation convincingly with a conclusion" and "the speaker has formulated an appropriately clear scientific question" (assessed via video ratings). According to Cohen's classification (1988) effect sizes, the treatment effects in this study are considered small. No significant treatment effects were found on the presentation facets body language & voice and visual aids as well as on the three single items related to the presentation facets of structure, content credibility and language use. These effects follow the pattern found in previous studies focusing on the higher education context (e.g., De Grez, Valcke, & Roozen, 2009b; Gring & Littlejohn, 2000). In line with these studies, the results imply that students can more easily change and improve the structure of a presentation than they can change their body language & voice. Alongside these effects on external ratings, the self-report measures of presentation competence pointed to self-perceived improvements in body language & voice as well as language use. These findings are partly in line with other studies (e.g.; Bower et al., 2011; Mowbray & Perry, 2013). Comparing the findings from both measurement perspectives reveals a salient difference. On the one hand, this indicates that evaluation studies focusing on only one perspective cannot be generalized to the other perspective. On the other hand, external ratings provide the more objective perspective on treatment effects. With respect to self-reports, a future research question concerns the reference points students used when assessing themselves. In summary, this effectiveness study provides insights into empirically testing presentation training programs for secondary school students. The research question addressed whether early promotion in secondary school via a short presentation training is beneficial. The findings indicate that some facets of secondary school students' presentation competence can be changed through a short intensive training program. Nevertheless, the training did not have an effect on all of the presentation facets and also focused on a highly selective sample of secondary school students. This limits its generalizability.

5.2. Implications for Research and Educational Practice

The three studies provide first implications for research and educational practice. As this dissertation applied an interdisciplinary approach, implications can be derived for both disciplines, rhetorical and empirical educational research. However, despite attempting to take into account the disciplines' specific characteristics and research approaches, this dissertation cannot deepen each discipline to the same extent as would be possible with a non-interdisciplinary work. Thus, compromises had to be made. However, the interdisciplinary approach allows for conclusions and new insights to be made concerning the research object of presentation competence. The following section focuses first on research implications and then on implications for educational practice.

5.2.1. Implications for research

Alongside implications for i) rhetorical research and ii) empirical educational research, implications are discussed for iii) the interdisciplinary perspective. The three studies making up this dissertation are considered together in order to crystallize the main implications for each discipline.

Regarding i) rhetorical research, the findings of *Study 1* imply that the presentation facets' underlying rhetorical framework successfully links rhetorical theory with a contemporary speech format. The transfer of rhetorical theory to the presentation format via this rhetorical framework points to a systematical rhetorical approach for analyzing students' presentation behavior. This dissertation supplements the classical rhetorical canon for speech preparation by including aspects specifically related to the presentation format, such as visual aids. Turning to *Study 2*, the finding that the personality dimension of Extraversion can be considered a determinant of presentation competence, can be related to the *natura-ars* dialectic in rhetorical research. This dialectic notes that, in addition to rhetorical theory, individual characteristics influence a speaker's education. These characteristics, which are also labeled talent (Neumann, 2003), include voice, physical conditions, as well as cognitive factors such as memorization or the ability to make the right decisions within the presentation situation. The individual characteristic of Extraversion could contribute to more easily completing the presentation task, for example, by creating a feeling of pleasure when speaking in front of an audience. In summary, in addition to physical condition and cognitive factors, the personality trait of Extraversion could also be a supporting precondition for being a competent speaker.

Consequently, *Study 2*'s findings extend the rhetorical perspective on talent as a beneficial characteristic for a speaker.

With respect to ii) educational research, the findings of *Study 1* imply that the TIP can be used as a tool for diagnosing students' presentation competence, providing feedback and conducting effectiveness or efficacy studies. The results of *Study 2* indicate that presentation competence is correlated with the personality trait of Extraversion; thus the correlation pattern for school achievements on oral tasks differs from existing correlation patterns for school achievement on written tasks when relating to personality traits (Furnham & Monsen, 2009). This implies that the specific type of school task might play a role in relations with school achievement. Future studies should take the type of task into account and include the characteristics of different school tasks as an influencing variable. Moreover, the results of *Study 3*, the effectiveness study, imply that it is possible to change some facets of secondary school students' presentation competence through a short intensive presentation training. As the students improved on some but not all facets of presentation competence, future research should focus on optimizing the training to obtain effects for all presentation facets. Afterwards, a scaling-up is necessary: for example, this training could be transferred to the school context and the effects evaluated.

In terms of iii) the interdisciplinary perspective, the focus is on how both disciplines could benefit one another, as they both examine the same research object, i.e., presentation competence. First, a strength of this dissertation is its combination of rhetorical and empirical educational research. This interdisciplinary approach allows for broader implications beyond those for the single disciplines. Applying both disciplines in research on presentation competence results in opening educational research discourse to rhetorical schemes as well as relating educational research to rhetorical discourse. For example, with respect to the presentation framework, rhetorical research benefits insofar as the presentation facets, which differentiate between presentation behaviors and are derived from rhetorical theory, could be tested empirically. The assumed presentation facets could be empirically verified by uncovering a corresponding factor structure. This dissertation could not verify all of the assumed presentation facets because not all items could be included due to low reliability. But these first examinations and results provide a basis for further studies. The other discipline, educational research, can use subject-specific knowledge from the rhetorical discipline to implement training concepts. Empirical educational research provides the framework that includes testing, planning studies and diagnosing individual skill levels in order to identify training needs. The core components, a combination of both disciplines, are a second topic of this dissertation. As

reported in *Study 3*, applying these core components in a presentation training led to a change in secondary school students' presentation competence. Based on these results, specific elements of the training could be examined in more detail to identify core components with the greatest positive impact on presentation competence. In conclusion, this dissertation's approaches and findings are beneficial for developing a rhetorical teaching methodology. This dissertation combines rhetorical and educational research by focusing on the following three questions: How is presentation competence defined and how can presentation competence be assessed? What factors influence presentation competence? How can presentation competence be fostered? The answers can contribute to deducing and developing an evidence-based rhetorical teaching methodology.

5.2.2. Implications for educational practice

Beside these implications for research, the three studies' results also have implications for educational practice. These implications can be divided among different agents in the field of educational practice, i.e., students and teachers at the classroom level, the school level, and education authorities (Brüsemeister, 2007). They represent the micro and macro levels of educational practice.

Starting with the teacher and student level, the TIP, with its six facets of presentation competence (addressing the audience, structure, language use, body language & voice, visual aids, and content credibility), provides a differentiated view on presentation competence. The presentation facets can be used as a basis for differentiated feedback when attempting to improve students' presentation competence. In this dissertation, the use of the presentation competence instrument was linked to an intensive rater training. In order to the TIP to provide differentiated feedback in schools, school teachers also need parallel training on how to correctly use the evaluation form. In addition, the findings that personality traits are correlated with presentation competence can increase teachers and students' awareness of these specific relationship patterns. Different patterns of results were identified depending on the assessment perspective. Presentation competence measured via external ratings was associated with the personality trait of Extraversion. Students' self-perceived presentation competence was correlated with Neuroticism. This might imply that students perceive their performance in a problematic way, and presumably need to learn to assess their presentation competence in a more realistic way. Instruction might be helpful for strengthening their self-perception. However, future research will need to more closely examine differential promotion before more concrete instructional strategies can be deduced. Furthermore, the effectiveness study implied

that a short intensive training can improve some facets of presentation competence. This includes presentation skills related to addressing the audience, structure (concluding a presentation) and content credibility (creating clear questions). However, there might be a difference in how different presentation skills develop within these presentation facets. Some facets, such as language use or body language and voice, seem to require longer training or practice, with improvements only visible later. Conversely, some facets, such as addressing the audience, structure or content credibility, seem to exhibit change immediately after the training. Students and teachers can use this implication in presentation trainings.

At the school level, only a few implications can be drawn, because the presentation training program did not take place in the school context. This training's extracurricular context implies that presentation competence can be successfully promoted outside of the school and classroom context. Teachers who encourage students to participate in this extracurricular training program can contribute to fostering their students' presentation competence. However, future studies need to examine whether students can transfer their improved presentation competence to the school and classroom context. Based on the results of this dissertation, future research should also examine how to transfer this short intensive presentation training program and the associated training effects into school. Transferring this training to the school context appears possible. Schools can initiate project days focused on fostering presentation competence through intensive presentation trainings.

At the macro level of educational administration, one might focus on teacher training. In this dissertation, the rater training included familiarization with each item by studying the definitions, anchor examples and indicators in the manual. The main focus in the training was watching students' presentation videos, conducting assessments, explaining the assessment and group discussions among raters. Test ratings and reflections on them were also part of the training. The training involved acquiring knowledge on giving a presentation competently and learning the indicators and anchor examples for each category according to the four-point Likert-type scale. In addition, the training participants made practice ratings and discussed them under the leadership of a presentation expert. The goal was to create a common understanding among the raters for each item. In *Study 1*, this rater training on the TIP was found to result in objective, reliable, and valid estimations of presentation competence. Using the TIP in combination with this rater training resulted in assessments that were independent of the rater (objectivity), stable over time (reliability), and measured what they were supposed to measure (validity). *Study 1* showed that the training was successful for most items. The training process could also be transferred to teachers in school. Training teachers' expertise in assessing

presentation competence can be considered as an option for ensuring the fair and valid assessment of secondary school students' presentation competence. Thus, a teacher training should be developed to improve teachers' assessment of students' presentation competence to ensure accurate ratings.

5.3. Strengths and Limitations of the Present Dissertation

In addition to these implications for research and practice, some limitations have to be discussed. In this section, limitations are listed and discussed and the dissertation's strengths are elaborated.

Sample

The students of the three studies were participants in a presentation contest for secondary school students who had successfully passed the first round of the contest (i.e., jury evaluations of their application videos). Consequently, a highly selective sample was used. It must be assumed that participants in a contest are not representative for secondary school students in general. A survey focusing students in a higher track found that the participation in scientific contests depends on high intrinsiv competence pursuit, a high competition self-concept and previous contest participation (Blankenburg et al., 2015). Thus, it can be assumed that the participants of the Youth Presents contest are mainly high achievers and highly motivated (see Rebholz, 2018; Stang et al., 2014; Urhahne et al., 2012). The descriptive statistics showed that more than 95 % of the students attended a Gymnasium, the highest track in the German school system. Thus, the generalizability of the study results to other school tracks is limited. However, in developing the TIP, this dissertation did not only focus on the most successful students in the contest. It also included students who were excluded after the second round. Thus, the TIP was tested on a sample of students with different presentation competence levels. Nevertheless, it can be assumed that the variance in presentation performance would be greater in a more representative sample of secondary school students. Furthermore, this dissertation found treatment effects among a specific sample of highly motivated and high-performing students. This can serves as a starting point for successively extending the sample up to a representative sample.

Study design

The three empirical studies were based on presentation tasks with different standardization levels. While the presentation task at T1 was semi-standardized, the presentation task at T2 was fully standardized. This limitation weakens the study design and represents a methodological limitation for aspects such as the measurement of stability. However, despite these differences in standardization across measurement points, the degree of standardization within each measurement point remained the same (S. B. Green, 2003).

Consequently, the entire study sample completed the same presentation task at each measurement point. For example, the presentation rooms had the same configurations and the audience consisted of exactly the same number of listeners. Confounding factors were also minimized at each measurement point with respect to the preparation of the presentations. For example, at T2, privacy screens were installed on the tables in the preparation room, and a test instructor supervised the room to ensure that each student prepared individually. This increases the interpretability of the results (G. Brown & Hattie, 2012). A further strength is the construction of the presentation tasks. All of the presentation tasks can be classified as authentic tasks (Chan, 2011; Guariento, 2001). For example, there were analog visual aids as well as digital visual aids. The tasks were related to the real world and similar to presentation-based exams in school. The students had time to prepare for the presentation task and delivered their presentation in front of physically present, real people. The presentation tasks at T1, T3, and T4 were high-stakes tests (Stobart & Eggen, 2012), because students' performance determined whether they qualified for the next round of the presentation contest. T2 can be classified as a low-stakes test. Finally, because the study only included individual and no group presentations, presentation performance can be clearly attributed to the individual level.

Video ratings as external assessment tool

The assessments of presentation competence via the TIP were based on video-recorded presentations. This method is also likely to have limitations. The video format can influence perception of the observed behavior, resulting in biased assessments (Nagel, 2012). For example, the selection of camera angle (Baranowski & Hecht, 2017) or the video quality can influence the observer's perceptions (see Watson & Sasse, 1998). In addition, the context forms a central reference frame for interpretation (Curby et al., 2016). In contrast to live impressions, videos do not transmit room temperature, the feeling of an object that is passed to the real audience, or the scent of the people or the room (Nagel, 2012). This dissertation took these influences into account and tried to reduce biases on a technical as well as on an information basis. From a technical standpoint, no editing of the presentations was conducted. The presentations were all recorded from one camera angle. To capture a perspective similar to the live audience, the camera angle was at the height of the physically present audience and centered on the stage where the speaker stood. In addition, context information was provided for the video raters. They received a situation card including three photos of each presentation room before watching the presentation. These room photos were from three different perspectives (the speaker's perspective, the audience's perspective, bird's eye view of the room)

to support the raters' ability to imagine the physical distances in the room. In addition, the raters were informed about the situation, the presentation task, and the instructions the students had received for their presentation. For example, the students were told to ignore the camera and to deliver their presentation for the audience members. In addition, the video raters were trained to ignore aspects such as the lighting of the room or quality of the video and instead focus on the actual presentation behavior.

TIP in the field of tension of existing instruments

The development, benefits and limitations of the TIP could be described in comparison to well-established instruments such as the Competent Speaker, which has been used in several studies (e.g., Clyde et al., 1994; Gring & Littlejohn, 2000; Smith & Sodano, 2011). The Competent Speaker assesses students' presentation competence in an objective, reliable and valid way (Morreale et al., 2007). Moreover, the Competent Speaker encompasses 8 items on a three-point Likert-type scale, offering a usable and a manageable procedure to observers. In fact, there is much evidence supporting the use of this instrument in this dissertation as well. However, there are also several arguments against it. The eight-item Competent Speaker measure does not address all relevant aspects deduced from rhetorical theory. For example, addressing the audience is not part of the instrument. Furthermore, Brown, Leipzig, & McWherter (1997) criticized the measure's abstract assessment criteria and called for a more detailed perspective on observable presentation behaviors. In addition, the three-point scale limits opportunities to provide specific feedback.

The goal of this dissertation was to assess presentation competence on a broader basis by focusing on secondary school students' presentation competence development. The chosen approach was to develop a new instrument based on the strengths and limitations of existing instruments and taking into account the rhetorical perspective on presentation competence. Thus, the TIP focused on providing a detailed view of presentation competence from a rhetorical basis and a more specific perspective on presentation behavior. This is also in line with the Public Speaking Competency Instrument (PSCS) by Thomson and Rucker (2002) based on 20 items, or the Public Speaking Competence Rubric (PSCR) by Schreiber and colleagues (2012) based on 11 items, both of which took a more detailed view on the construct of presentation competence. However, even these instruments do not cover all of the presentation facets deduced from rhetorical theory. Language use is not part of the instruments by De Grez (2009) or Thomson and Rucker (2002). Furthermore, the instruments' authors do not argue why specific presentation behaviors are included or excluded. No empirical findings

are provided to explain why some specific presentation behaviors are missing. Consequently, this dissertation took a step back and developed the TIP instrument, which provides arguments for including specific presentation behaviors based on rhetorical theory, and conducted first analyses on reducing the number of items via exploratory factor analysis. In addition, use a three-point Likert-type scale limits the specificity of feedback. The TIP and other instruments (e.g., Herbein, Golle, Tibus, Schiefer et al., 2018; Schreiber et al., 2012; Thomson & Rucker, 2002) use four- or five-point Likert-type scales. Moreover, the TIP scale defines specific indicators and anchors for presentation behavior for each point on the Likert-type scale. In addition, each point of this scale reflect the development of presentation skills. The results of the first examinations of the TIP indicate its added value in comparison to existing instruments. However, further examinations are required to underpin this tendency. Future research should also include ratings using these established instruments to further analyze the benefits of the TIP.

5.4. Future Research

As indicated in the implications, the three studies making this dissertation triggered further research questions, which can also be classified according to the three research areas provided at the beginning: the assessment of presentation competence, the determinants of presentation competence, and the promotion of presentation competence.

5.4.1. Assessment of presentation competence

Regarding the assessment of presentation competence, this dissertation provides insights on different areas of assessment. These include developing and testing the quality of an instrument, using video recordings as assessment materials, and focusing on appropriateness. The studies further provide first results regarding influencing factors of assessments. However, to examine the influencing factors and mechanisms of assessing presentation competence in detail, further studies are required that extend the previous assessment approach and assessment procedures. In the following section, the main future research areas are elaborated.

Further development of the TIP

Measuring presentation competence is the foundation for a wide range of further research questions related to presentation competence. In this dissertation, the development and examination of psychometric properties provides strong indications that the TIP can be a useful assessment tool for further studies among secondary school students. However, further development is necessary, because the examination did not empirically support the quality of every item in the instrument. Some items had to be excluded due to low ICCs. Therefore, these items with low reliability should be developed further. The development process will be complete when items exist for each presentation facet deduced from rhetorical theory and having sufficient reliability. Only then will the prerequisites be met for empirically testing the presentation facets' theoretical framework via a factor analysis based on a broader item basis. A confirmation factor analysis should be part of this study due to the pre-determined hypotheses on which items theoretically belong to which factor. In addition, the instrument should be examined among a more representative sample of secondary school students, including students from different school types, in order to validate it for different target groups within the broader population of secondary school students.

Assessment material: full videos or short video excerpts

The further development of the TIP could also make further examinations regarding the assessment of presentation competence possible. Future studies could focus on alternative assessment approaches that take the ecological validity (Döring & Bortz, 2016) of the TIP into account. One disadvantage in terms of practical use in the educational context is that the TIP and its video ratings are time-consuming as well as resource- and cost-intensive. One alternative within the behavioral assessment approach is thin-slices assessment. In this approach, assessment is based on short, randomly-selected excepts of the behavior as a whole (between 5-60 seconds; Ambady et al., 2000). Previous research has revealed that this approach achieves predictive quality in a communicational context. Researchers were able to predict customer satisfaction based on short excerpts of sales talks (Visser & Matthews, 2005). In the education context, Begrich, Fauth, Kunter, and Klieme (2017) used short excerpts of classroom lessons to predict teaching quality factors. First approaches in presentation research have also taken place. Gheorhiou, Callan, and Skylark (2020) used muted video excerpts of TED talk presentations to predict the quality of these talks. However, none of these previous examinations focused on video-recorded presentations by secondary school students including both audio and visual material. Therefore, an open research question in this context could be whether presentation competence can be predicted by short, randomly selected excerpts of video-recorded student presentations. This is relevant for both research and educational practice: while research would benefit from the reduced resource requirements, educational practice would benefit because teachers often have to make judgments based on first impressions. This approach could also show whether short excerpts from a presentation are also relevant in the educational context.

Appropriateness and effectiveness

This dissertation focused on the appropriateness of students' presentation behavior and excluded effectiveness. A complete view of presentation competence requires focusing on both the appropriateness and effectiveness of the exhibited presentation behavior. Effectiveness assessments are scarce in research (Morreale & Backlund, 2007). Thus, two main research remain little understood: i) the definition and operationalization of effectiveness in a presentation, and ii) the relationship between appropriateness and effectiveness. First, the definition of a presentation's effectiveness relates to the goal of the presentation. As indicated in the theoretical framework of this dissertation (1.2.1), a presentation can encompass multiple

goals, and these can even change during the course of a presentation. A starting point for research could be to focus on the main goal of informing, i.e., linking the goal to the presentation task. Effectiveness assessment has to focus on the audience. Beside knowledge, further reasonable outcome variables that should be considered are emotion and attitude, as studies in the context of persuasive pedgagogy exhibited (e.g., Broughton et al., 2013). Secondly, regarding the association between appropriateness and effectiveness, it might be interesting to examine whether appropriateness includes aspects of effectiveness. Can a presentation behavior be appropriate without being effective? Accordingly, future research could consider questions such as whether appropriateness predicts the audience's content retention. Overall, effectiveness aspects can also be considered in presentation research. Understanding the mechanisms underlying effectiveness in presentation behavior will be a starting point for designing more specific training concepts.

Relation between self-reports and external rating

This dissertation took a multi-perspective approach based on both external ratings and self-reports of presentation competence which is only used in some studies (e.g., Herbein, Golle, Tibus, Schiefer et al., 2018; Parr & Cartwright-Hatton, 2009). This dissertation confirmed the low congruence between external ratings and self-reports that has also been reported in other studies (Carrell & Willmington, 1996). Different explanations might play a role in this finding. For example, students might have problems focusing on their environment and their own presentation behavior at the same time (Carrell & Willmington, 1996). A further explanation refers to different reference points experts and self-assessing students use (Lanning et al., 2011). Previous research also points to situational differences between the two types of assessments. Different assessment materials, such as video or remembering the live performance, were applied (e.g., De Grez et al., 2012; Mallard & Quintanilla, 2007; Parr & Cartwright-Hatton, 2009), and individuals either did or did not receive training in assessing presentation competence (e.g., Ayres et al., 1998). To further examine the congruence between self-reports and external ratings, future research could focus on standardizing these conditions. This includes using i) the same evaluation form, ii) the same rater training to ensure a consistent understanding of the items, or iii) the same assessment procedure for both perspectives (e.g., conducted live ratings immediately after the presentation versus ratings based on video-recorded presentations). This research could identify whether a higher congruence is possible. By experimentally varying the different conditions, such research could also reveal the specific factors responsible for (in)congruency. In addition, this approach could increase the reliability

of self-reports, which are often characterized by low reliability. When students are trained in assessing presentation competence, their reference points could better correspond to experts' reference points. Overall, future research regarding self-reports and external ratings would be highly valuable. Both contribute to developing presentation competence (e.g., Böhme, 2015). Self-assessments often take place after a presentation and are the most frequently used assessment tool (McCroskey & McCroskey, 1988). External ratings in the form of grades by teachers in schools are obligated, when it concerns examinations (e.g., Land Berlin, 2007).

Rater characteristics

Another future research area is to examine the presentation expertise of the people rating the performance. In this dissertation, the video ratings and experts' live ratings were only conducted after participating a training. As described above, the training included theoretical instruction on the evaluation form in order to create a common understanding of the items. In future research, the use of different rater groups with different levels presentation expertise could provide further insight into the conditions required for accurate ratings.

5.4.2. Determinants of presentation competence

This dissertation found strong indicators for a relation between presentation competence and personality traits. Although some analyses in *Study 3* implied a certain causal direction (e.g., multiple regression analyses that included presentation competence as a dependent variable), this dissertation did not examine causal relationships between personality traits and presentation competence due to the research design. More findings regarding causality would make it possible to derive implications for more specific instruction on presentation competence. In previous research, a clear causal tendency could not be deduced. A reciprocal effect is also possible. According to J. J. Jackson (2011), a change in extroversion through educational enterprise is possible. In addition, extraverts seek out situations where they can exhibit their Extraversion. These selection effects could be responsible for the improvements in presentation competence. A better research design, with pre- and posttests of personality traits, would be important to explore these results in more detail. In terms of rhetorical theory, this research could extend rhetorical assumptions regarding talent and the development of presentation competence. Whereas specific physical conditions are considered beneficial for rhetorical development, i.e., the delivery of a presentation, it could also be that students' individual personality traits can be considered a beneficial talent enabling the more efficient acquisition of presentation competence.

5.4.3. The promotion of presentation competence

This dissertation has set a framework for a short presentation training program and conducted a first promising effectiveness study. In order to reach a broader dissemination in the school context, further steps are necessary including the optimization and repeated evaluation of the training programs (Humphrey et al., 2016). This section highlights three related steps and future research areas.

In a first step, the training modules for the presentation facets for which the effectiveness study found no treatment effects should be revised and optimized. In the effectiveness study, no effects were found on external ratings of students' language use, visual aids, and body language & voice. Presumably, adapting the intensity of the methods or changing the sequence will lead to improvement. For example, the use of model learning could be intensified to strengthen and foster students' language use (Böhme, 2015). In addition, short interventions regarding language use aspects should be consulted (Lipphardt, 2019) in order to revise the language use module. After revising three modules addressing presentation facets on which students showed no improvement, a second effectiveness study should be conducted including pre-, post-, and follow up-tests with a wait-list control group design. The follow up-test could reveal whether some effects occur after a period of reflection. In addition, a proper randomization design should be pursued.

In a second step, the short and effective presentation training program could be transferred to the school context. When transferring the short program into practice, both teachers and students should be a main focus of research. Specifically, training and support systems for teachers have to be taken into account in future research. In the present dissertation, experts in rhetoric and presentation conducted the training program. Future research regarding the breadth and depth of presentation expertise among both experts and teachers could be beneficial in order to adjust existing university teacher education or professional development. In addition, instructor's pedagogical psychological knowledge and skills (e.g., skills in classroom management, cognitive activation, emotional support; see Praetorius et al., 2018) could be of interest because experts and teachers might differ in that expertise. In a similar vein, it would also be interesting to determine whether weaknesses in presentation expertise can be compensated for with strengths in teacher knowledge (Ben-Peretz, 2011). Based on this dissertation associated research questions would be: Are presentation trainings similar effective regardless of whether teachers or experts conduct the trainings? Does the trainer's expertise influence the effectiveness of the training? In addition, what kind of support system for teachers

should be designed? When transferring this training program to schools, the variation resulting from changing parameters should be minimized as much as possible. This would mean using samples from the highest track in the German school system, Gymnasium, and embedded the training with project days, an intensive short presentation training is possible. Afterwards, a broader dissemination of the training could focus on other school types.

In a third step, the presentation training format is of interest. The present study used the format of a short intensive training program. This format is similar to existing presentation trainings (Böhme, 2015). However, it is assumed that interval trainings, which taking place regularly during a defined period of time each week, have other benefits for developing presentation competence (Böhme, 2015). Thus, it could be interesting to compare a short intervention training with an interval presentation training of the same length in order to determine the most effective training format. Furthermore, such research could reveal whether some presentation facets, such as body language & voice, benefit from interval training more than other presentation facets, such as addressing the audience or structure, for which this study found effects immediately after the short presentation training. It would also be interesting to examine whether more training hours would be beneficial in increasing the treatment effects. In education, the time spent on a task is considered a strong predictor for success in this task (see Harbour et al., 2014). Transferring this to presentation competence, for example, by extending the time spent practicing presentation tasks in one presentation training and contrasting it to the existing presentation training developed in this study, could provide insight into the size of the training effects. Thus, examining different presentation training formats could contribute to developing students' presentation competence in an effective and efficient way.

Beyond implementing the training in the secondary school context, it is of interest for future research whether the training impacts different groups of students differently. Such a focus on differential effects assumes that trainings could be more effective for some students and less effective for other students. Students interact differently with the training based on their individual characteristics (see Gully & Chen, 2011; Herbein, 2017). Relevant characteristics that could interact with the training are determinants related to presentation competence. Accordingly, self-efficacy, speech anxiety, or personality traits could be individual characteristics to focus on. This dissertation has showed that the personality trait of Extraversion seems to be correlated with presentation competence. However, whether students with high values on Extraversion benefit differently from a certain training program than students with low values on Extraversion remains an open question. Previous research has

found that self-efficacy and goal orientation impact the acquisition of presentation competence (e.g., De Grez, Valcke, & Roozen, 2009b). These differential effects are relevant in order to consider more personalized instruction.

A long-term future research project would be the development of an evidence-based didactic of rhetoric. Given the relative lack of data on how to effectively promote secondary school students' presentation competence, studies, from case reports over randomized controlled studies up to systematic reviews, are helpful (Bromme et al., 2017). Such evidence-based didactic (Davies, 1999) could identify effective principles for fostering presentation competence that teachers can use when planning and designing their classroom instruction. An evidence-based approach makes learning effects more likely when training programs are implemented in secondary schools at the national level. In addition, the evidence-based approach has to take into account teachers' needs as an inspiration in order to align research with educational practice. This interplay between educational research and educational practice including the orientation to teachers' needs could advance the development of secondary school students' presentation competence.

References

Abernethy, M. (2015). Self-reports and observer reports as data generation methods: An assessment of issues of both methods. *Universal Journal of Psychology, 3*(1), 22–27. https://doi.org/10.13189/ujp.2015.030104

Adams, K. (2004). Modelling success: Enhancing international postgraduate research students' self-efficacy for research seminar presentations. *Higher Education Research & Development, 23*(2), 115–130. https://doi.org/10.1080/0729436042000206618

Alibali, M. W., Young, A. G., Crooks, N. M., Yeo, A., Wolfgram, M. S., Ledesma, I. M., Nathan, M. J., Breckinridge Church, R., & Knuth, E. J. (2013). Students learn more when their teacher has learned to gesture effectively. *Gesture, 13*(2), 210–233. https://doi.org/10.1075/gest.13.2.05ali

Alshare, K., & Hindi, N. M. (2004). The importance of presentation skills in the classroom: Students and instructors perspectives. *Journal of Computing Sciences in Colleges, 19*(4), 6–15.

Ambady, N., Bernieri, F. J., & Richeson, J. A. (2000). Towards a histology of social behavior: Judgmental accuracy from thin slices of the behavioral stream. *Advances in Experimental Social Psychoology, 32*, 201-271. https://doi.org/10.1016/s0065-2601(00)80006-4.

American Educational Research Association, American Psychological Association, & National Council on Measurement in Education. (1999). *Standards for educational and psychological testing*. Paperback.

Amirian, S. M. R., & Tavakoli, E. (2016). Academic oral presentation self-efficacy: A cross-sectional interdisciplinary comparative study. *Higher Education Research & Development, 35*(6), 1095–1110. https://doi.org/10.1080/07294360.2016.1160874

Anger, S., & Dahmann, S. (2015). The impact of education on personality - Evidence from a German high school reform. *CINCH Working Paper Series, 5*. http://hdl.handle.net/10419/112902

Apel, H. J. (2002). *Präsentieren - die gute Darstellung: Darstellen: Vortragen - Vormachen - Vorführen – Visualisieren* [Presenting - the good demonstration. Demonstration: Lecturing, modeling, showing, performing, visualizing]. Schneider-Verlag Hohengehren.

Argyle, M. (1989). Is nonverbal communication a kind of language? *A Review of General Semantics, 46*(2), 158–162.

Argyle, M. (2013). *Körpersprache und Kommunikation: Nonverbaler Ausdruck und soziale Interaktion* [Body language and communication: nonverbal expression and social interaction] (10th ed.). Junfermann.

Aryadoust, V. (2015). Self- and peer assessments of oral presentations by first-year university students. *Educational Assessment*, *20*(3), 199–225. https://doi.org/10.1080/10627197.2015.1061989

Ashlock, M. Z., Brantley, W. A., & Taylor, K. B. (2015). Comparisons of speech anxiety in basic public speaking courses: Are intensive or traditional semester courses better? *Basic Communication Course Annual*, *27*, Article 13, 117–140.

Asmuth, B. (1992). Angemessenheit [Appropriateness]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 579–604). Max Niemeyer Verlag.

Auer, P. (2009). On-line syntax: Thoughts on the temporality of spoken language. *Language Sciences*, *31*(1), 1–13. https://doi.org/10.1016/j.langsci.2007.10.004

Ausubel, D. P. (1960). The use of advance organizers in the learning and retention of meaningful verbal material. *Journal of Educational Psychology*, *51*(5), 267–272. https://doi.org/10.1037/h0046669

Ayres, J., Sonandré, D. A., & Schliesman, T. (1998). Practice makes perfect but does it help reduce communication apprehension? *Communication Research Reports*, *15*(2), 170–179. https://doi.org/10.1080/08824099809362111

Bachmann-Medieck, D. (2008). Gegen Worte – Was heißt ‚Iconic/Visual Turn'? [Against words - What does ‚iconic/visual turn' mean?]. *Gegenworte*, *20*, 9–15.

Backlund, P. (1978). Defining communication competence. In C. Larson, P. Backlund, M. Redmond, & A. Barbour (Eds.), *Assessing functional communication* (pp 9–26). Speech Communication Association and Educational Research Information Center.

Backlund, P., & Morreale, S. (2015). Communication competence: Historical synopsis, definitions, applications, and looking to the future. In A. F. Hannawa & B. H. Spitzberg (Eds.), *Handbooks of communication science: Vol. 22. Communication competence* (pp. 11–38). De Gruyter Mouton.

Bailey, D., Duncan, G. J., Odgers, C. L., & Yu, W. (2017). Persistence and fadeout in the impacts of child and adolescent interventions. *Journal of Research on Educational Effectiveness*, *10*(1), 7–39. https://doi.org/10.1080/19345747.2016.1232459

Bankston, R. G., & Terlip, L. A. (1994, November 19–22). *The effects of videotaping on student performances in the basic communication course* [Paper presentation]. 80th Annual Meeting of the Speech Communication Association, New Orleans, United States.

Baranowski, A. M., & Hecht, H. (2017). Effect of camera angle on perception of trust and attractiveness. *Empirical Studies of the Arts*, *36*(1), 90–100. https://doi.org/10.1177/0276237417710762

Barrett, N. E., & Liu, G.-Z. (2019). Factors that influence the development and performance of academic oral presentations using a blended learning environment. *Journal of Computer Assisted Learning*, *35*(6), 708–720. https://doi.org/10.1111/jcal.12376

Batson, C. D., Early, S., & Salvarani, G. (2016). Perspective taking: Imagining how another feels versus imaging how you would feel. *Personality and Social Psychology Bulletin*, *23*(7), 751–758. https://doi.org/10.1177/0146167297237008

Becker-Mrotzek, M. (2009). Mündliche Kommunikationskompetenz [Oral communication competence]. In M. Becker-Mrotzek (Ed.), *Mündliche Kommunikation und Gesprächsdidaktik* (pp. 66–83). Schneider Verlag Hohengehren.

Beebe, S. A., & Beebe, S. J. (2018). *Public speaking: An audience-centered approach* (10th ed.). Pearson.

Begrich, L., Fauth, B., Kunter, M., & Klieme, E. (2017). Wie informativ ist der erste Eindruck? Das Thin-Slices-Verfahren zur videobasierten Erfassung des Unterrichts: [How informative are first impressions? The thin-slices technique as a method for video-based assessment of instruction]. *Zeitschrift für Erziehungswissenschaft*, *20*(1), 23–47. https://doi.org/10.1007/s11618-017-0730-x

Ben-Peretz, M. (2011). Teacher knowledge: What is it? How do we uncover it? What are its implications for schooling? *Teaching and Teacher Education*, *27*(1), 3–9. https://doi.org/10.1016/j.tate.2010.07.015

Berkemeier, A. (2006). *Präsentieren und Moderieren im Deutschunterricht* [Presenting and moderating in German instruction]. Schneider-Verlag Hohengehren.

Berliner Senat. (2006, July 24). *Mittlerer Schulabschluss erfolgreich - Berlins Schulen haben den ersten mittleren Schulabschluss (MSA) erfolgreich durchgeführt. 82 Prozent der Schüler, für die der MSA Pflicht war, haben den MSA bestanden* [Intermediate school leaving certificate successful - Berlin‘s schools have successfully implemented the first intermediate school leaving certificate (MSA). 82 percent of the students for whom the MSA was compulsory passed the MSA.] [Press release].

https://www.berlin.de/rbmskzl/aktuelles/pressemitteilungen/2006/pressemitteilung.43136.php

Berliner Senat. (2007, April 16). *Erstes Zentralabitur in Berlin* [First central university entrance examination in Berlin] [Press release]. https://www.berlin.de/rbmskzl/aktuelles/pressemitteilungen/2007/pressemitteilung.55184.php

Bippus, A. M., & Daly, J. A. (1999). What do people think causes stage fright? Naïve attributions about the reasons for public speaking anxiety. *Communication Education, 48*(1), 63–72. https://doi.org/10.1080/03634529909379153

Bitzer, L. F. (1968). The rhetorical situation. *Philosophy & Rhetoric, 1*(1), 1–14.

Blankenburg, J. S., Höffler, T. N., & Parchmann, I. (2015). Naturwissenschaftliche Wettbewerbe – Was kann junge Schülerinnen und Schüler zur Teilnahme motivieren? [Science Competitions: How to Motivate Young Students to Participate?]. *Zeitschrift für Didaktik der Naturwissenschaften, 21*(1), 141–153. https://doi.org/10.1007/s40573-015-0031-y

Blase, K., & Fixsen, D. L. (2013). *Core intervention components: Identifying and operationalizing what makes programs work. ASPE research brief.* US Department of Health and Human Services.

Blömeke, S., Gustafsson, J.-E., & Shavelson, R. J. (2015). Beyond dichotomies. *Zeitschrift für Psychologie, 223*(1), 3–13. https://doi.org/10.1027/2151-2604/a000194

Board of Studies NSW. (2013). *NSW Syllabus for the Australian curriculum: English K-10 Syllabus*. https://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/english-year-10/english-k-10

Böhme, K. (2015). *Didaktik der Rhetorik* [Didactic of rhetoric]. Weidler Buchverlag.

Bourhis, J., & Allen, M. (1998). The role of videotaped feedback in the instruction of public speaking: A quantitative synthesis of published empirical research. *Communication Research Reports, 15*(3), 256–261. https://doi.org/10.1080/08824099809362121

Bower, M., Cavanagh, M., Moloney, R., & Dao, M. (2011). Developing communication competence using an online video reflection system: Pre-service teachers‘ experiences. *Asia-Pacific Journal of Teacher Education, 39*(4), 311–326. https://doi.org/10.1080/1359866X.2011.614685

Bremerich-Vos, A. (1991). *Populäre rhetorische Ratgeber: Historisch-systematische Untersuchungen* [Popular rhetorical guides: Historical-systematic studies]. Max Niemeyer Verlag.

Bromme, R., Prenzel, M., & Jäger, M. (2017). Empirische Bildungsforschung und evidenzbasierte Bildungspolitik [Educational research and evidence based educational policy]. In J. Baumert & K.-J. Tillmann (Eds.), *Empirische Bildungsforschung* (pp. 129–146). Springer Fachmedien Wiesbaden. https://doi.org/10.1007/978-3-658-13785-4_8

Broughton, S. H., Sinatra, G. M., & Nussbaum, E. M. (2013). "Pluto has been a planet my whole life!" Emotions, attitudes, and conceptual change in elementary students' learning about Pluto's reclassification. *Research in Science Education*, *43*(2), 529–550. https://doi.org/10.1007/s11165-011-9274-x

Brown, G., & Hattie, J. (2012). The benefits of regular standardized assessment in childhood education: Guiding improved instruction and learning. In S. Suggate & E. Reese (Eds.), *Contemporary debates in childhood education and development* (pp. 287–292). Routledge.

Brown, J., Leipzig, J., & McWherter, P. (1997, November 19). *The SCA speaking competencies: Developing a practical course-embedded assessment with a reflexive loop for active student learning* [Paper presentation]. Annual Meeting of the Speech Communication Association, 83rd, Chicago, United States.

Brown, T., & Morrissey, L. (2004). The effectiveness of verbal self-guidance as a transfer of training intervention: Its impact on presentation performance, self efficacy and anxiety. *Innovations in Education and Teaching International*, *41*(3), 255–271. https://doi.org/10.1080/14703290410001733302

Brüsemeister, T. (2007). Steuerungsakteure und ihre Handlungslogiken im Mehrebenensystem der Schule [Gouverning actors and their logic of action in the multi-level school system]. In J. Kussau & T. Brüsemeister (Eds.), *Governance, Schule und Politik: Zwischen Antagonismus und Kooperation* (pp. 63–96). VS Verlag für Sozialwissenschaften.

Bucher, H.-J., Krieg, M., & Niemann, P. (2010). Die wissenschaftliche Präsentation als multimodale Kommunikationsform: Zur Rezeption von Powerpoint-Vorträgen. Empirische Befunde zu Rezeption und Verständlichkeit von Powerpoint-Präsentationen [The scientific presentation as a multimodal form of communication: On the reception of Powerpoint lectures.]. In H.-J. Bucher, T. Gloning, & K. Lehnen (Eds.), *Interaktiva. Schriftenreihe des Zentrums für Medien und Interaktivität (ZMI): Vol. 10. Neue Medien - neue Formate:*

Ausdifferenzierung und Konvergenz in der Medienkommunikation (pp. 375–406). Campus Verlag.

Bucher, H.-J., & Niemann, P. (2012). Visualizing science: The reception of Powerpoint presentations. *Visual Communication*, *11*(3), 283–306. https://doi.org/10.1177/1470357212446409

Bush, J. D., Bittner, J. R., & Brooks, W. D. (1972). The effect of the video-tape recorder on levels of anxiety, exhibitionism, and reticence. *The Speech Teacher*, *21*(2), 127–130. https://doi.org/10.1080/03634527209377935

Cameron, L. (2002). Metaphors in the learning of science: A discourse focus. *British Educational Research Journal*, *28*(5), 673–688. https://doi.org/10.1080/0141192022000015534

Carlson, R. E., & Smith-Howell, D. (1995). Classroom public speaking assessment: Reliability and validity of selected evaluation instruments. *Communication Education*, *44*(2), 87–97. https://doi.org/10.1080/03634529509379001

Carrell, L. J., & Willmington, S. C. (1996). A comparison of self-report and performance data in assessing speaking and listening competence. *Communication Reports*, *9*(2), 185–191. https://doi.org/10.1080/08934219609367650

Cartwright-Hatton, S, Hodges, L., & Porter, J. (2003). Social anxiety in childhood: The relationship with self and observer rated social skills. *Journal of Child Psychology and Psychiatry*, *44*(1), 1–6.

Cartwright-Hatton, S., Tschernitz, N., & Gomersall, H. (2005). Social anxiety in children: Social skills deficit, or cognitive distortion? *Behaviour Research and Therapy*, *43*(1), 131–141. https://doi.org/10.1016/j.brat.2003.12.003

Caspari, A., Hennen, M., Scheffler, D., Schmidt, U., & Schwab, O. (n.d.). *Recommendations on education and training in evaluation: Requirement profiles for evaluators*. https://www.degeval.org/fileadmin/Publikationen/Publikationen_Homepage/Recom_Education_Training.pdf

Casteleyn, J. (2013). *New media and the rhetoric of presentations. Explorations in education.* Academia Press.

Casteleyn, J., Mottart, A., & Valcke, M. (2015). Creating visual aids with graphic organisers on an infinite canvas – the impact on the presenter. *Research in Learning Technology*, *23*(1). https://doi.org/10.3402/rlt.v23.25161

Cavanagh, M., Bower, M., Moloney, R., & Sweller, N. (2014). The effect over time of a video-based reflection system on preservice teachers' oral presentations. *Australian Journal of Teacher Education, 39*(6), 1–16. https://doi.org/10.14221/ajte.2014v39n6.3

Chan, V. (2011). Teaching oral communication in undergraduate science: Are we doing enough and doing it right? *Journal of Learning Design, 4*(3), 71–79. https://doi.org/10.5204/jld.v4i3.82

Chomsky, N. (1980). Rules and representations. *Behavioral and Brain Sciences, 3*, 1–61.

Chou, P.-N., Chang, C.-C., & Lu, P.-F. (2015). Prezi versus PowerPoint: The effects of varied digital presentation tools on students' learning performance. *Computers & Education, 91*, 73–82. https://doi.org/10.1016/j.compedu.2015.10.020

Christensen, A.-K. K., & Hasle, P. F. V. (2007). Classical rhetoric and a limit to persuasion. In D. Hutchison, T. Kanade, J. Kittler, J. M. Kleinberg, F. Mattern, J. C. Mitchell, . . . B. J. Fogg (Eds.), *Persuasive technology* (Vol. 4744, pp. 307–310). Springer. https://doi.org/10.1007/978-3-540-77006-0_36

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*(4), 284–290. https://doi.org/10.1037/1040-3590.6.4.284

Clark, C. (2008). The impact of entrepreneurs' oral 'pitch' presentation skills on business angels' initial screening investment decisions. *Venture Capital, 10*(3), 257–279. https://doi.org/10.1080/13691060802151945

Clark, R. A., & Jones, D. (2001). A comparison of traditional and online formats in a public speaking course. *Communication Education, 50*(2), 109–124. https://doi.org/10.1080/03634520109379238

Clyde, G., Poyner, B., & Ratcliff, L. (1994, November 19). *Assessment is epistemic and heuristic: The role of video tape in the public speaking course* [Paper presentation]. 80th Annual Meeting of the Speech Communication Association, New Orleans, United States.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates. https://doi.org/10.4324/9780203771587

Cohen, R. J., Swerdlik, M. E., & Phillips, S. M. (2009). *Psychological testing and assessment: An introduction to tests and measurement* (7th ed.). Mayfield Publishing Company.

Common Core State Standards Initiative. (2010). *Common Core State Standards for English language arts & literacy in history/social studies, science, and technical subjects.* http://www.corestandards.org/assets/CCSSI_ELA%20Standards.pdf

Curby, T. W., Johnson, P., Mashburn, A. J., & Carlis, L. (2016). Live versus video observations. *Journal of Psychoeducational Assessment*, *34*(8), 765–781. https://doi.org/10.1177/0734282915627115

Cyphert, D. (2007). Presentation technology in the age of electronic eloquence: From visual aid to visual rhetoric. *Communication Education*, *56*(2), 168–192. https://doi.org/10.1080/03634520601173136

Daly, J. A., McCroskey, J. C., Ayres, J., Hopf, T., Sonandre, D. M., & Wonprasert, T. K. (2009). *Avoiding communication: Shyness, reticence, and communication apprehension* (3rd ed.). Hampton.

Daly, J. A., Vangelisti, A. L., & Weber, D. J. (1995). Speech anxiety affects how people prepare speeches: A protocol analysis of the preparation processes of speakers. *Communication Monographs*, *62*, 383–397. https://doi.org/10.1080/03637759509376368

Dannels, D. P., & Housley Gaffney, A. L. (2009). Communication across the curriculum and in the disciplines: A call for scholarly cross-curricular advocacy. *Communication Education*, *58*(1), 124–153. https://doi.org/10.1080/03634520802527288

Davies, P. (1999). What is evidence-based education? *British Journal of Educational Studies*, *47*(2), 108–121. https://doi.org/10.1111/1467-8527.00106

De Almeida, C. (2009). The rhetorical genre in graphic design: Its relationship to design authorship and implications to design education. *Journal of Visual Literacy*, *28*(2), 186–198. https://doi.org/10.1080/23796529.2009.11674668

De Grez, L. (2009). *Optimizing the instructional environment to learn presentation skills* [Doctoral dissertation, Ghent University]. https://biblio.ugent.be/publication/7051516/file/7051518.pdf

De Grez, L., Valcke, M., & Roozen, I. (2009a). The impact of an innovative instructional intervention on the acquisition of oral presentation skills in higher education. *Computers & Education*, *53*(1), 112–120. https://doi.org/10.1016/j.compedu.2009.01.005

De Grez, L., Valcke, M., & Roozen, I. (2009b). The impact of goal orientation, self-reflection and personal characteristics on the acquisition of oral presentation skills. *European Journal of Psychology of Education*, *24*(3), 293–306. https://doi.org/10.1007/BF03174762

De Grez, L., Valcke, M., & Roozen, I. (2012). How effective are self- and peer assessment of oral presentation skills compared with teachers' assessments? *Active Learning in Higher Education*, *13*(2), 129–142. https://doi.org/10.1177/1469787412441284

Dennen, V. P., & Burner, K. J. (2008). The cognitive apprenticeship model in educational practice. In D. Jonassen, M. J. Spector, M. Driscoll, M. D. Merrill, & J. van Merrienboer (Eds.), *Handbook of Research on Educational Communications and Technology* (pp. 426–439). Lawrence Erlbaum Associates.

Department for Education. (2014). *The national curriculum in England: Key stages 3 and 4 framework document*. www.gov.uk/dfe/nationalcurriculum

Di Carlo, G. S. (2018). Patterns of clusivity in TED Talks: When 'you' and 'I' become 'we'. *Iberica*, *35*, 119–144.

Dietz, S. (2008). *Die Optimierung der Redeleistung im Rhetorik- und Kommunikationstraining. Eine geschlechtsdifferenzierte Untersuchung* [Optimizing speech performance in the context of rhetoric and communication trainings. - a gender specific examination] [Doctoral dissertation, Ludwig-Maximilians University Munich]. https://edoc.ub.uni-muenchen.de/8744/1/Dietz_Susanne.pdf

Dorée, S., Jardine, R., & Linton, T. (2007). Let's talk about student presentations. *PRIMUS*, *17*(4), 338–352. https://doi.org/10.1080/10511970601131589

Döring, N., & Bortz, J. (2016). *Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften* [Research methods and evaluation in the social and human sciences]. Springer. https://doi.org/10.1007/978-3-642-41089-5

Dupagne, M., Stacks, D., & Giroux, V. (2007). Effects of video streaming technology on public speaking students' communication apprehension and competence. *Journal of Educational Technology Systems*, *35*(4), 479–490. https://doi.org/10.2190/5947-4W72-303L-Q578

Dwyer, K. K., & Davidson, M. M. (2012). Is public speaking really more feared than death? *Communication Research Reports*, *29*(2), 99–107. https://doi.org/10.1080/08824096.2012.667772

Dynkowska, M., Lobin, H., & Ermakova, V. (2012). Erfolgreich Präsentieren in der Wissenschaft? Empirische Untersuchungen zur kommunikativen und kognitiven Wirkung von Präsentationen [Successful presentation in the academy? Empirical studies on the communicative and cognitive effects of presentations]. *Zeitschrift für angewandte Linguistik*, *57*(1), 33–65. https://doi.org/10.1515/zfal-2012-0010

EDK. (2010). *SCHULSPRACHE: Wissenschaftlicher Kurzbericht und Kompetenzmodell: Provisorische Fassung (vor Verabschiedung der Standards)* [School language: Scientific short report and competence model]. http://www.edudoc.ch/static/web/arbeiten/harmos/L1_wissB_25_1_10_d.pdf

EDK. (2011). *Grundkompetenzen für die Schulsprache: Nationale Bildungsstandards. Frei gegeben von der EDK-Plenarversammlung am 16. Juni 2011* [Basic skills in school language: National scholastic standards]. https://edudoc.ch/record/96791/files/grundkomp_schulsprache_d.pdf

Eggs, E. (2005). Res-verba-Problem [Res-verba problem]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 1200–1310). Max Niemeyer Verlag.

Emanuel, R. (2005). The case for fundamentals of oral communication. *Community College Journal*, *29*, 153–162. https://doi.org/10.1080/10668920490891638

Eriksson, B., & Pietro, J.-F. de (2011). Editorial. Mündlichkeit: Aktuelle Entwicklungen in verschiedenen Kontexten [Editorial. Orality: Recent developments in different contexts]. *Schweizerische Zeitschrift Für Bildungswissenschaften*, *33*(2), 161–166.

Ernst, U. (2003). Ordo [Order; sequence; disposition]. In G. Ueding (Ed.), *Historisches Wörterbch der Rhetorik* (pp. 416–423). Max Niemeyer Verlag.

Feilke, H. (2011). *Literalität und literale Kompetenz: Kultur, Handlung, Struktur* [Literacy and literary competence: Culture, action, structure]. Leseforum.Ch. https://www.leseforum.ch/myUploadData/files/2011_1_Feilke.pdf

Fellenberg, M. (2008). *Praktische Rhetorik in der Schule: Eine empirische Untersuchung verschiedener Unterrichtsmethoden zur Vorbereitung von Schülervorträgen.* [Practical rhetoric at school: An empirical examination on different teaching methods for preparing student presentations]. Wißner.

Fiehler, R. (2012). Mündliche Kommunikation [Oral communication]. In M. Becker-Mrotzek (Ed.), *Mündliche Kommunikation und Gesprächsdidaktik* (pp. 25–51). Schneider-Verlag Hohengehren.

Finn, A. N., Schrodt, P., Witt, P. L., Elledge, N., Jernberg, K. A., & Larson, L. M. (2009). A meta-analytical review of teacher credibility and its associations with teacher behaviors and student outcomes. *Communication Education*, *58*(4), 516–537. https://doi.org/10.1080/03634520903131154

Fiske, S. T., & Dupree, C. (2014). Gaining trust as well as respect in communicating to motivated audiences about science topics. *Proceedings of the National Academy of Sciences of the United States of America*, *111* (Supplement 4), 13593–13597. https://doi.org/10.1073/pnas.1317505111

Foss, S. K. (2004). Framing the study of visual rhetoric: Toward a transformation of rhetorical theory. In C. A. Hill & M. H. Helmers (Eds.), *Defining visual rhetorics* (pp. 303–314). Routledge.

Foss, S. K. (2005). Theory of visual rhetoric. In K. Smith, S. Moriarity, G. Barbatsis, & K. Kenney (Eds.), *Handbook of visual communication: Theory, methods, and media* (pp. 141–152). Routledge.

Freie und Hansestadt Hamburg, Behörde für Schule und Berufsbildung. (2018). *Richtlinie für die Aufgabenstellung und Bewertung der Leistungen in der Abiturprüfung* [Guidelines for creating tasks and assessing performance in university entrance qualification exams]. https://www.hamburg.de/contentblob/3743364/36e6921566139e14eaca6a6eec8c029b/data/arl-2018-dl.pdf

Furnham, A., & Monsen, J. (2009). Personality traits and intelligence predict academic school grades. *Learning and Individual Differences, 19*(1), 28–33. https://doi.org/10.1016/j.lindif.2008.02.001

Gallo, C. (2014). *Talk like TED: The 9 public speaking secrets of the world's top minds*. St. Martin's Press.

Gätje, O. (2014). Die Schülerpräsentation in der Sekundarstufe II und die Frage, ob es eine Re-Rhetorisierung des gymnasialen Deutschunterrichts gibt [Student presentations in upper secondary school and the question of whether a re-rhetorization is occurring in German language arts lessons in the highest-track schools]. In E. Grundler & C. Spiegel (Eds.), *Konzeption des Mündlichen: Wissenschaftliche Perspektiven und didaktische Konsequenzen* (pp. 67–85). Hep Verlag.

Gätje, O., Krelle, M., Behrens, U., & Grundler, E. (2016). Präsentieren als literale Kompetenz? [Presenting as a literary competence?]. *Leseforum.ch, 1*, 1-13.

Geldmacher, M. (2010). *Präsentationskompetenz im gymnasialen Deutschunterricht: Ziele, Inhalte und Methoden* [Presentation competence in German instruction in highest-track secondary schools: Objectives, contents and methods]. Schneider-Verlag Hohengehren.

Gheorghiu, A. I., Callan, M. J., & Skylark, W. J. (2020). A thin slice of science communication: Are people's evaluations of TED talks predicted by superficial impressions of the speakers? *Social Psychological and Personality Science, 11*(1), 117–125. https://doi.org/10.1177/1948550618810896

Gordon, R. A., Rozelle, R. M., & Baxter, J. C. (1988). The effect of applicant age, job level, and accountability on the evaluation of job applicants. *Organizational Behavior and Human Decision Processes*, *41*(1), 20–33. https://doi.org/10.1016/0749-5978(88)90044-1

Gottfredson, D. C., Cook, T. D., Gardner, F. E. M., Gorman-Smith, D., Howe, G. W., Sandler, I. N., & Zafft, K. M. (2015). Standards of evidence for efficacy, effectiveness, and scale-up research in prevention science: Next generation. *Prevention Science: The Official Journal of the Society for Prevention Research*, *16*(7), 893–926. https://doi.org/10.1007/s11121-015-0555-x.

Gottschling, M. (2016). Lend me your eyes: Creating immediate understanding through Prezi. In A. Kampka & K. Molek-Kozakowska (Eds.), *Rhetoric, knowledge and the public sphere* (pp. 57–72). Peter Lang.

Gottschling, M., & Kramer, O. (2012). Rhetorische Situation [Rhetorical situation]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 1126–1132). Max Niemeyer Verlag.

Gräsel, C. (2011). Was ist Empirische Bildungsforschung? [What is empirical educational research?]. In H. Reinders, H. Ditton, C. Gräsel, & B. Gniewosz (Eds.), *Empirische Bildungsforschung* (pp. 13–27). VS Verlag für Sozialwissenschaften.

Green, E. H., Lewin, L., DeCherrie, L. V., Durning, S. J., Fagan, M. J., Sharpe, B., & Hershman, W. (2013). Expectations for student oral case presentations: Do internal medicine and pediatric course directors see eye to eye? *Journal of Communication in Healthcare*, *6*(3), 166–170. https://doi.org/10.1179/1753807613Y.0000000038

Green, S. B. (2003). A coefficient alpha for test-retest data. *Psychological Methods*, *8*(1), 88–101. https://doi.org/10.1037/1082-989X.8.1.88

Gring, M. A., & Littlejohn, J. W. (2000). Assessment of the repeated speech performance as a pedagogical tool: A pilot study. *Basic Communication Course Annual*, *12*, 97–124.

Groeben, N. (1978). *Die Verständlichkeit von Unterrichtstexten: Dimensionen und Kriterien rezeptiver Lernstadien* [The comprehensibility of instructional texts: Dimensions and criteria of receptive learning stages] (2nd ed.). Aschendorff.

Groeben, N., & Vorderer, P. (1982). *Leserpsychologie: Textverständnis – Textverständlichkeit* [Reader psychology: Text comprehension - text comprehensibility]. Aschendorff.

Grondin, J. (1996). Hermeneutik [Hermeneutics]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 1350–1374). Max Niemeyer Verlag.

Guariento, W. (2001). Text and task authenticity in the EFL classroom. *ELT Journal*, *55*(4), 347–353. https://doi.org/10.1093/elt/55.4.347

Gully, S., & Chen, G. (2011). Individual differences, attribute-treatment interactions, and training outcomes. In S. W. J. Kozlowski & E. Salas (Eds.), *Learning, training, and development in organizations* (pp. 3–64). Routledge.

Haber, R. J., & Lingard, L. A. (2001). Learning oral presentation skills: A rhetorical analysis with pedagogical and professional implications. *Journal of General Internal Medicine*, *16*(5), 308–314. https://doi.org/10.1046/j.1525-1497.2001.00233.x

Hager, W. (2000). *Evaluation psychologischer Interventionsmaßnahmen: Standards und Kriterien*. Huber.

Hannken-Illjes, K. (2013). Einfluss nehmen. Zum rhetorischen Handeln von Kindern [Exerting influence. On children's rhetorical behavior]. In J. Knigge & H. Mautner-Obst (Eds.), *Responses to Diversity. Musikunterricht und -vermittlung im Spannungsfeld globaler und lokaler Veränderungen* (pp. 195–203). Staatliche Hochschule für Musik und Darstellende Kunst.

Harbour, K. E., Evanovich, L. L., Sweigart, C. A., & Hughes, L. E. (2014). A brief review of effective teaching practices that maximize student engagement. *Preventing School Failure: Alternative Education for Children and Youth*, *59*(1), 5–13. https://doi.org/10.1080/1045988X.2014.919136

Hasle, P. F. V. (2006). The persuasive expansion – Rhetoric, information architecture, and conceptual structure. In D. Hutchison, T. Kanade, J. Kittler, J. M. Kleinberg, F. Mattern, J. C. Mitchell, . . . P. Øhrstrøm (Eds.), *Conceptual structures: Inspiration and application* (Vol. 4068, pp. 2–21). Springer. https://doi.org/10.1007/11787181_2

Hattie, J. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. Routledge.

Hattie, J. (2011). *Visible learning for teachers & students: How to maximise school achievement*. Routledge.

Hattie, J., & Timperley, H. (2016). The power of feedback. *Review of Educational Research*, *77*(1), 81–112. https://doi.org/10.3102/003465430298487

Hauenstein, N. M. (1992). An information-processing approach to leniency in performance judgments. *The Journal of Applied Psychology*, *77*(4), 485–493. https://doi.org/10.1037/0021-9010.77.4.485

Hay, I. (1994). Justifying and applying oral presentations in geographical education. *Journal of Geography in Higher Education*, *18*(1), 43–55. https://doi.org/10.1080/03098269408709236

Heaven, P. C. L., & Ciarrochi, J. (2012). When IQ is not everything: Intelligence, personality and academic performance at school. *Personality and Individual Differences*, *53*(4), 518–522. https://doi.org/10.1016/j.paid.2012.04.024

Helmke, A. (2014). *Beobachtung des Sprachverhaltens von Schülern im Unterricht* [Observing students‘ language behavior in class]. Arbeitspapier für das Kultusministerium Sachsen-Anhalt, Fassung vom 22.01.2014. http://www.unterrichtsdiagnostik.de/media/files/Beobachtung%20des%20muendlichen%20Sprachverhaltens

Henne, J., & Zinsmaier, T. (2012). Überleitung [Transition]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 1326–1332). Max Niemeyer Verlag.

Hennessey, M. N., Higley, K., & Chesnut, S. R. (2012). Persuasive Pedagogy: A New Paradigm for Mathematics Education. *Educational Psychology Review*, *24*(2), 187–204. https://doi.org/10.1007/s10648-011-9190-7

Herbein, E. (2017). *Public speaking training as an enrichment program for elementary school children: Conceptualization, evaluation, and implementation* [Doctoral dissertation, University of Tübingen]. https://doi.org/10.15496/publikation-17711

Herbein, E., Golle, J., Nagengast, B., & Trautwein, U. (2020). Förderung von Präsentationskompetenz: Schrittweise Implementation und Effektivitätsüberprüfung eines Präsentationstrainings für Grundschulkinder [Fostering public speaking skills: Gradual implementation and effectiveness check of a public speaking training program for elementary school children]. *Zeitschrift für Erziehungswissenschaft*, *36*(3), 320. https://doi.org/10.1007/s11618-019-00923-y

Herbein, E., Golle, J., Tibus, M., Schiefer, J., Trautwein, U., & Zettler, I. (2018). Fostering elementary school children‘s public speaking skills: A randomized controlled trial. *Learning and Instruction*, *55*, 158–168. https://doi.org/10.1016/j.learninstruc.2017.10.008

Herbein, E., Golle, J., Tibus, M., Zettler, I., & Trautwein, U. (2018). Putting a speech training program into practice: Its implementation and effects on elementary school children’s public speaking skills and levels of speech anxiety. *Contemporary Educational Psychology*, *55*, 176–188. https://doi.org/10.1016/j.cedpsych.2018.09.003

Hintze, J. M. (2005). Psychometrics of direct observation. *School Psychology Review*, *34*(4), 507–519.

Hoffmann, M. (2009). Situation als Kategorie von Rhetorik und Stilistik [Situation as a category of rhetoric and stylistics]. In U. Fix, A. Gardt, & J. Knape (Eds.), *Handbücher zur Sprach- und Kommunikationswissenschaft: Vol. 31,2. Rhetorik und Stilistik: Ein Handbuch historischer und systematischer Forschung* (pp. 1316–1334). De Gruyter.

Hommel, H. (1990). Rhetorik [Rhetoric]. In C. Andresen (Ed.), *Lexikon der alten Welt* (pp. 2611–2627). Artemis Verlag.

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion. Psychological studies of opinion change*. Yale University Press.

Hovland, C. I., Lumsdaine, A. A., & Sheffield, F. D. (1949). *Experiments on mass communication.* University Press.

Hristova, Z. (2014). Using peers to assess oral presentations to foster learning. *International Journal of Innovation in Science and Mathematics Education (Formerly CAL-Laborate International)*, *22*(3). https://openjournals.library.sydney.edu.au/index.php/CAL/article/download/8261/8364

Hugenberg, L. W., & Yoder, D. D. (1996). *A reaction to the „Competent Speaker Speech Evaluation Form“. An update*. http://www.eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=ED404695

Humphrey, N., Lendrum, A., Ashworth, E., Frearson, K., Buck, R., & Kerr, K. (2016). *Implementation and process evaluation (IPE) for interventions in education settings: A synthesis of the literature.* https://educationendowmentfoundation.org.uk/public/files/Evaluation/Setting_up_an_Evaluation/IPE_Review_Final.pdf

Hunt, S., Wright, A., & Simonds, C. (2014). Securing the future of communication education: Advancing an advocacy and research agenda for the 21st century. *Communication Education*, *63*(4), 449–461. https://doi.org/10.1080/03634523.2014.926016

Hunter, K. M., Westwick, J. N., & Haleta, L. L. (2014). Assessing success: The impacts of a fundamentals of speech course on decreasing public speaking anxiety. *Communication Education*, *63*(2), 124–135. https://doi.org/10.1080/03634523.2013.875213

Huxham, M., Campbell, F., & Westwood, J. (2012). Oral versus written assessments: A test of student performance and attitudes. *Assessment & Evaluation in Higher Education*, *37*(1), 125–136. https://doi.org/10.1080/02602938.2010.515012

Indartono, S., Musfiroh, T., Wahyudin, A., & Nugroho, M. A. (2017). Content analysis for public speaking for business courses for non-degreed education institutions. *International Journal of Business Quantitative Ecovnomics and Applied Management Research, 4*(4), 31–43.

Jackson, D. (2014). Business graduate performance in oral communication skills and strategies for improvement. *The International Journal of Management Education, 12*(1), 22–34. https://doi.org/10.1016/j.ijme.2013.08.001

Jackson, J. J. (2011). *The effects of educational experiences on personality trait development* [Doctorial dissertation, University of Illinois]. http://hdl.handle.net/2142/26149

Jessen, F., Heun, R., Erb, M., Granath, D. O., Klose, U., Papassotiropoulos, A., & Grodd, W. (2000). The concreteness effect: Evidence for dual coding and context availability. *Brain and Language, 74*(1), 103–112. https://doi.org/10.1006/brln.2000.2340

Jugend präsentiert. (2019, September 15). *Wenn die Ressourcen knapp werden: Schülerinnen und Schüler denken beim Präsentationswettbewerb Jugend präsentiert über die Zukunft der Erde nach* [When resources become scarce: Students think about the future of the earth at the Youth Presents presentation contest] [Press release]. https://www.jugend-praesentiert.de/news/pressemitteilung-bundesfinale-2019

Kaminski, N., & De Rentiis, D. (1998). Imitatio [Imitation]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 235–303). Max Niemeyer Verlag.

Kemmann, A. (1996). Evidentia, Evidenz [Evidence; obviousness; manifestness]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 33–47). Max Niemeyer Verlag.

King, P. E., Young, M. J., & Behnke, R. R. (2000). Public speaking performance improvement as a function of information processing in immediate and delayed feedback interventions. *Communication Education, 49*(4), 365–374. https://doi.org/10.1080/03634520009379224

Kirchner, R. (2007). Elocutio: Latin Prose Style. In W. Dominik & J. Hall (Eds.), *Blackwell companions to the ancient world. A companion to Roman rhetoric* (pp. 181–194). Blackwell.

Kjeldsen, J. E. (2003). Talking to the eye: Visuality in ancient rhetoric. *Word & Image, 19*(3), 133–137. https://doi.org/10.1080/02666286.2003.10406228

Kjeldsen, J. E. (Ed.). (2018). *Rhetorical audience studies and reception of rhetoric*. Springer International Publishing. https://doi.org/10.1007/978-3-319-61618-6

Klieme, E., Avenarius, H., Blum, W., Döbrich, P., Gruber, H., Prenzel, M., Reiss, K., Riquarts, K., Rost, J., Tenorth, H.-E., & Vollmer, H. (2003). *Bildungsforschung Band 1. Zur Entwicklung nationaler Bildungsstandards: Eine Expertise* [Educational research volume 1.

The development of national educational standards. An expert report]. Bonn. http://www.bmbf.de/pub/zur_entwicklung_nationaler_bildungsstandards.pdf

Knape, J. (2000a). *Allgemeine Rhetorik: Stationen der Theoriegeschichte* [General rhetoric: Stages of theoretical history]. Reclam.

Knape, J. (2000b). Persuasion und Kommunikation [Persuasion and communication]. In J. Kopperschmidt (Ed.), *Rhetorische Anthropologie: Studien zum Homo rhetoricus* (pp. 171–182). Fink.

Knape, J. (2000c). *Was ist Rhetorik?* [What is rhetoric?]. Reclam.

Knape, J. (2003). Persuasion [Persuasion]. In G. Ueding (Ed.), *Historisches Wörterbch der Rhetorik* (pp. 874–907). Max Niemeyer Verlag.

Knoblauch, H. (2008). The performance of knowledge: Pointing and knowledge in PowerPoint presentations. *Cultural Sociology*, *2*(1), 75–97. https://doi.org/10.1177/1749975507086275

Kobayashi, M. (2016). L2 Academic discourse socialization through oral presentations: An undergraduate student's learning trajectory in study abroad. *Canadian Modern Language Review*, *72*(1), 95–121. https://doi.org/10.3138/cmlr.2494

Kositzke, B. (1994). Einleitung [Introduction]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 979–982). Max Niemeyer Verlag.

Kramer, O. (2008a). Affekt und Figur. Rhetorische Praktiken der Affekterregung und -darstellung [Affect and figure. Rhetorical practices of evoking and representing affect]. In J. Knape, O. Kramer, & P. Weit (Eds.), *„Und es trieb die Rede mich an…": Festschrift zum 65. Geburtstag von Gert Ueding* (pp. 313–326). Max Niemeyer Verlag.

Kramer, O. (2008b). Der Reiz des Einfachen. Zur Rhetorik und Ästhetik des Web 2.0 [The appeal of simplicity. On the rhetoric and aesthetics of Web 2.0]. In G. Joost & A. Scheuermann (Eds.), *Design als Rhetorik: Grundlagen, Positionen, Fallstudien* (pp. 247–258). Birkhäuser.

Kramer, O. (2010). Redetraining als Predigttraining? Rhetorische Weiterbildung und Homiletik. Eine kritische Bestandsaufnahme [Speech training as sermon training? Rhetorical training and homiletics. A critical review]. In M. Meyer-Blanck, J. Seip, & B. Spielberg (Eds.), *Homiletische Präsenz: Predigt und Rhetorik* (pp. 156–174). Don Bosco.

Kramer, O. (2012). Verbotene Rhetorik. List, Tücke und geheimes Wissen als Erfolgsformeln in der rhetorischen Ratgeberliteratur [Forbidden rhetoric. Cunning, deceit, and secret knowledge as formulas for success in rhetorical advice literature]. In J. Knape, O. Kramer,

& T. Schirren (Eds.), *Neue Rhetorik: Bd. 13. Rhetorik: Bildung - Ausbildung - Weiterbildung* (pp. 165–180). Weidler.

Kramer, O. (2019). Wie sachlich sind Sachtexte? Ein Plädoyer für die rhetorische Analyse von Sachtexten [How objective are factual texts? A plea for the rhetorical analysis of factual texts]. *Mitteilungen des Deutschen Germanistenverbandes*, *66*(2), 121–131. https://doi.org/10.14220/mdge.2019.66.2.121

Kramer, O. , & Malaka, R. (Eds.). (2014). *Jugend präsentiert. Multiplikatorenhandbuch* [Youth Presents. Disseminators‘ handbook]. Klaus Tschira Stiftung.

Kultusministerkonferenz. (2000, October 5). *Aufgaben von Lehrerinnen und Lehrern heute - Fachleute für das Lernen* [Teachers‘ tasks today - Experts in learning]. https://www.kmk.org/fileadmin/veroeffentlichungen_beschluesse/2000/2000_10_05-Aufgaben-Lehrer.pdf

Kultusministerkonferenz. (2003). *Beschlüsse der Kultusministerkonferenz. Bildungsstandards im Fach Deutsch für den Mittleren Schulabschluss* [Decisions of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany. Scholastic standards for German language arts for the intermediate school leaving certificate]. http://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2003/2003_12_04-BS-Deutsch-MS.pdf

Kultusministerkonferenz. (2004). *Bildungsstandards im Fach Deutsch für den Primarbereich (Jahrgangsstufe 4)* [Educational standards for German language arts in primary school]. https://www.nibis.de/nli1/gohrgs/bildungsstandards/primar/bs_gs_kmk_deutsch.pdf

Kultusministerkonferenz. (2012). *Bildungsstandards im Fach Deutsch für die Allgemeine Hochschulreife. Beschluss der Kultusministerkonferenz* [Educational standards for German language arts for the university entrance qualifications. Decisions of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany]. https://www.kmk.org/fileadmin/Dateien/veroeffentlichungen_beschluesse/2012/2012_10_18-Bildungsstandards-Deutsch-Abi.pdf

Land Berlin. (2007). Verordnung über die gymnasiale Oberstufe [ordinance of the higer upper school]. http://gesetze.berlin.de/jportal/?quelle=jlink&query=GymOstV+BE&psml=bsbeprod.psml&max=true

Landesinstitut für Schule und Medien Berlin. (2005). *Präsentationsprüfung im mittleren Schulabschluss: „Prüfung in besonderer Form“* [Presentation test in the intermediate school leaving certificate: „A unique form of exam“].

Landesinstitut für Schule und Medien Berlin. (2006). *Die fünfte Prüfungskomponente im Abitur* [The fifth examination component of the university entrance qualification]. https://bildungsserver.berlin-brandenburg.de/fileadmin/bbb/unterricht/faecher/gesellschaftswissenschaften/sozialkunde/Handreichung_5PK_im_Abitur.pdf

Langan, A. M., Wheater, C. P., Shaw, E. M., Haines, B. J., Cullen, W. R., Boyle, J. C., Penney, D., Oldekop, J. A., Ashcroft, C., Lockey, L., & Preziosi, R. F. (2005). Peer assessment of oral presentations: Effects of student gender, university affiliation and participation in the development of assessment criteria. *Assessment & Evaluation in Higher Education*, *30*(1), 21–34. https://doi.org/10.1080/0260293042003243878

Langer, I. (1971). *Verständnisfördernde Merkmale der sprachlichen Gestaltung von Unterrichtstexten* [Features of the linguistic design of instructional texts that promote understanding] [Doctoral dissertation, University of Hamburg].

Langer, I., Schulz von Thun, F., & Tausch, R. (1974). *Verständlichkeit in Schule, Verwaltung, Politik und Wissenschaft: Mit einem Selbsttrainingsprogramm zur verständlichen Gestaltung von Lehr- und Informationstexten* [Comprehensibility in schools, public administration, politics and the academy: A self-training programme for comprehensibly designing instructional and informative texts]. Reinhardt.

Lanning, S. K., Brickhouse, T. H., Gunsolley, J. C., Ranson, S. L., & Willett, R. M. (2011). Communication skills instruction: An analysis of self, peer-group, student instructors and faculty assessment. *Patient Education and Counseling*, *83*(2), 145–151. https://doi.org/10.1016/j.pec.2010.06.024

Liang, H.-Y., & Kelsen, B. (2018). Influence of personality and motivation on oral presentation performance. *Journal of Psycholinguistic Research*, *47*(4), 755–776. https://doi.org/10.1007/s10936-017-9551-6

Lipphardt, C. (2019). *Untersuchung zur Trainierbarkeit verbaler Evidentialisierungstechniken in naturwissenschaftlichen Schülerpräsentationen als Problem der modernen Rhetorik* [Investigation of the trainability of verbal evidentialisation techniques in students' science presentations as a problem of modern rhetoric] [Doctoral Dissertation, University of Tübingen]. http://dx.doi.org/10.15496/publikation-37026

Lobin, H. (2012). *Die wissenschaftliche Präsentation: Konzept, Visualisierung, Durchführung* [The scientific presentation: Concept, visualization, conducting]. Schöningh.

Longenecker, C. O., Sims, H. P., & Gioia, D. A. (1987). Behind the mask: The politics of employee appraisal. *Academy of Management Perspectives*, *1*(3), 183–193. https://doi.org/10.5465/ame.1987.4275731

López, J. F. (2007). Quintilian as rhetorician and teacher. In W. Dominik & J. Hall (Eds.), *Blackwell companions to the ancient world. A companion to Roman rhetoric* (pp. 307–321). Blackwell.

MacIntosh-Murray, A. (2016). Poster presentations as a genre in knowledge communication: A case study of forms, norms, and values. *Science Communication*, *28*(3), 347–376. https://doi.org/10.1177/1075547006298251

Mallard, J., & Quintanilla, K. (2007). *Does videotaped feedback for speeches impact student learning? Student self-assessment of public speaking* [Paper presentation]. Annual meeting of the NCA 93rd, Chicago, United States. http://citation.allacademic.com/meta/p_mla_apa_research_citation/1/9/5/3/3/pages195338/p195338-1.php

Marcel, M. (2014). What‘s the best course? Evidence from alumni on the value of business presentations preparation. *Journal of Education for Business*, *90*(1), 10–17. https://doi.org/10.1080/08832323.2014.968515

Marcel, M. (2019). Communication apprehension across the career span. *International Journal of Business Communication*. Advance online publication. https://doi.org/10.1177/2329488419856803

Martin, J. (1974). *Antike Rhetorik: Technik und Methode* [Classical rhetoric: Technique and method]. Beck.

Mayer, H., Ecker, V., Leitner, C., Obermaier, G., Pachlatko, J., Pum, P., & Riedler, J. (2009). *Leitfragen zur Rhetorischen Textanalyse* [Guiding questions for rhetorical text analysis]. Rheton. http://www.rheton.sbg.ac.at/rheton/2009/02/leitfragen-zur-rhetorischen-textanalyse/

Mayer, R. E. (2009). *Multimedia learning*. Cambridge University Press. https://doi.org/10.1017/CBO9780511811678

McCormack, K. (2014). Ethos, pathos, and logos: The benefits of aristotelian rhetoric in the courtroom. *Washington University Jurisprudence Review*, *7*(1), 131–155.

McCrae, R. R., & Costa, P. T. (1999). A five-factor theory of personality. In L. A. Pervin & O. P. John (Eds.), *Handbook of personality: Theory and research* (pp. 139–154). Guilford Press.

McCroskey, J. C. (2000). *Introduction to rhetorical communication* (8th ed.). Pearson Allyn & Bacon.

McCroskey, J. C., & McCroskey, L. L. (1988). Self-report as an approach to measuring communication competence. *Communication Research Report, 5*(2), 108–113. https://doi.org/10.1080/08824098809359810

McNatt, D. B. (2019). Enhancing public speaking confidence, skills, and performance: An experiment of service-learning. *The International Journal of Management Education, 17*(2), 276–285. https://doi.org/10.1016/j.ijme.2019.04.002

Meyer, J., Fleckenstein, J., Retelsdorf, J., & Köller, O. (2019). The relationship of personality traits and different measures of domain-specific achievement in upper secondary education. *Learning and Individual Differences, 69*, 45–59. https://doi.org/10.1016/j.lindif.2018.11.005

Ministerium für Kultus, Jugend und Sport Baden-Württemberg. (2016a). *Deutsch. Bildungsplan der Grundschule* [German language arts. Primary school education plan]. Neckar-Verlag GmbH.

Ministerium für Kultus, Jugend und Sport, Baden-Württemberg. (2016b). *Bildungsplan 2016: Lehrkräftebegleitheft* [Education plan 2016: Teacher support booklet]. http://www.bildungsplaene-bw.de/site/bildungsplan/get/documents/lsbw/Bildungsplaene/BP2016BW_ALLG_LBH.PDF

Mino, M., & Butler, M. N. (1997). A traditional lecture approach versus a collaborative approach: A comparison of student performance outcomes. *Communication Research Reports, 14*(4), 493–507. https://doi.org/10.1080/08824099709388692

Mitchell, V.-W., & Bakewell, C. (1995). Learning without doing: Enhancing oral presentation skills through peer review. *Management Learning, 26*(3), 353–366. https://doi.org/10.1177/1350507695263005

Moosbrugger, H., & Kelava, A. (2012). Qualitätsanforderungen an einen psychologischen Test (Testgütekriterien) [Quality requirements for a psychological test (test quality criteria)]. In H. Moosbrugger & A. Kelava (Eds.), *Springer-Lehrbuch. Testtheorie und Fragebogenkonstruktion* (2nd ed., pp. 7–26). Springer-Verlag.

Morek, M. (2011). Explanative Diskurspraktiken in schulischen und ausserschulischen Interaktionen: Ein Kontextvergleich [Explanatory discourse practices in school and extracurricular interactions: A contextual comparison]. *Schweizerische Zeitschrift für Bildungswissenschaften*, *33*(2), 211-230.

Morreale, S, Hackman, M. Z., & Neer, M. R. (1995). Predictors of behavioral competence and self-esteem: A study assessing impact in a basic public speaking course. *Basic Communication Course Annual, 7,* 125–141.

Morreale, S., Hackman, M., & Neer, R. (1998). Predictors of self-perceptions of behavioral competence, self-esteem, and willingness to communicate: A study assessing impact in a basic interpersonal course. *Basic Communication Course Annual*, *10*, 7–26.

Morreale, S., Moore, M., Taylor, K., Surges-Tatum, D., & Webster, L. (2007). *Competent Speaker Speech Evaluation Form*. *SCA publication program in education and instructional development*. National Communication Association.

Morreale, S., Moore, M., Taylor, K. P., Tatum, D., Hulbert, & Johnson, R. (1992). *„The Competent Speaker" Speech Evaluation Form* [Paper presentation]. Annual Meeting of the Speech Communication Association in Chicago, United States.

Morreale, S., & Backlund, P. M. (2007). *Large scale assessment in oral communication: P-12 and higher education* (3rd ed.). National Communication Association.

Morreale, S., Myers, S. A., Backlund, P. M., & Simonds, C. J. (2016). Study IX of the basic communication course at two- and four-year U.S. Colleges and Universities: a re-examination of our discipline's "front porch". *Communication Education*, *65*(3), 338–355. https://doi.org/10.1080/03634523.2015.1073339

Morreale, S., Spitzberg, B. H, & Barge, J. K. (2006). *Human communication: Motivation, knowledge and skills*. Recording for the Blind & Dyslexic.

Morreale, S., Worley, D. W., & Hugenberg, B. (2010). The basic communication course at two- and four-year U.S. colleges and universities: Study VIII—The 40th anniversary. *Communication Education*, *59*(4), 405–430. https://doi.org/10.1080/03634521003637124

Morton, J., & Rosse, M. (2015). Persuasive presentations in engineering spoken discourse. *Australasian Journal of Engineering Education*, *17*(2), 55–66. https://doi.org/10.1080/22054952.2011.11464058

Moulton, S. T., Türkay, S., & Kosslyn, S. M. (2017). Does a presentation's medium affect its message? PowerPoint, Prezi, and oral presentations. *PloS One*, *12*(7). https://doi.org/10.1371/journal.pone.0178774

Mowbray, R., & Perry, L. B. (2013). Improving lecture quality through training in public speaking. *Innovations in Education and Teaching International*, *52*(2), 207–217. https://doi.org/10.1080/14703297.2013.849205

Murphy, K. R., & Cleveland, J. N. (1991). *Performance appraisals: An organizational perspective*. Allyn Bacon.

Murphy, P. K., & Mason, L. (2012). Changing knowledge and beliefs. In P. A. Alexander & P. H. Winne (Eds.), *Handbook of educational psychology* (2nd ed., pp. 305–326). Routledge. https://doi.org/10.4324/9780203874790.ch14

Nagel, F. (2012). *Die Relevanz verbaler und nonverbaler Kommunikation für die Wahrnehmung von Politikern im Fernsehen: Eine Untersuchung am Beispiel des TV-Duells zwischen Gerhard Schröder und Angela Merkel* [The relevance of verbal and non-verbal communication for the perception of politicians on television A study taking the example of the TV debate between Gerhard Schröder and Angela Merkel.]. VS Verlag für Sozialwissenschaften.

Nash, G., Crimmins, G., & Oprescu, F. (2015). If first-year students are afraid of public speaking assessments what can teachers do to alleviate such anxiety? *Assessment & Evaluation in Higher Education*, *41*(4), 586–600. https://doi.org/10.1080/02602938.2015.1032212

Nell-Tuor, N. (2014). *Überzeugungen von Lehrpersonen zur Mündlichkeit - Eine explorative Studie mittels Fragebogen, Interviews und Unterrichtsvideografie* [Teachers‘ beliefs about orality - An exploratory study using questionnaires, interviews and classroom video-recordings] [Doctoral dissertation, University of Zurich]. https://doi.org/10.5167/uzh-108749

Nelson, M. C., Cordray, D. S., Hulleman, C. S., Darrow, C. L., & Sommer, E. C. (2012). A procedure for assessing intervention fidelity in experiments testing educational and behavioral interventions. *The Journal of Behavioral Health Services & Research*, *39*(4), 374–396. https://doi.org/10.1007/s11414-012-9295-x

Nespital, U. (2016). Wie effektiv sind Rhetorikkurse? Erste Ergebnisse zur Entwicklung von rhetorischen Fähigkeiten und Sprechangstsymptomen bei Studierenden [How effective are rhetoric courses? First results on the development of rhetorical abilities and speech anxiety symptoms of students.]. *Sprechen. Zeitschrift für Sprechwissenschaft*, *33*(61), 56–66.

Neubauer, W. (2001). Memoria [Memory]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 103–1078). Max Niemeyer Verlag.

Neumann, F. (2003). Natura-ars-Dialektik [Natura-ars dialectics]. In G. Ueding (Ed.), *Historisches Wörterbch der Rhetorik* (pp. 139–171). Max Niemeyer Verlag.

Nielsen, B., & Harder, N. (2013). Causes of student anxiety during simulation: What the literature says. *Clinical Simulation in Nursing*, *9*(11), e507–e512. https://doi.org/10.1016/j.ecns.2013.03.003

Nippold, M. A., Hesketh, L. J., Duthie, J. K., & Mansfield, T. C. (2005). Conversational versus expository discourse. *Journal of Speech Language and Hearing Research*, *48*(5), 10–48. https://doi.org/10.1044/1092-4388(2005/073)

Novack, M., & Goldin-Meadow, S. (2015). Learning from gesture: How our hands change our minds. *Educational Psychology Review*, *27*(3), 405–412. https://doi.org/10.1007/s10648-015-9325-3.

Ockel, E. (1998). Rhetorik und Didaktik [Rhetoric and didactics]. *Rhetorik. Ein Internationales Jahrbuch*, *17*, 1–16.

OECD. (2016). *Global competency for an inclusive world.* http://globalcitizen.nctu.edu.tw/wp-content/uploads/2016/12/2.-Global-competency-for-an-inclusive-world.pdf

Oliveira, A. W., & Brown, A. O. (2016). Exemplification in science instruction: Teaching and learning through examples. *Journal of Research in Science Teaching*, *53*(5), 737–767. https://doi.org/10.1002/tea.21319

Özsarigöl, B. (2011). *Korpuslinguistische Untersuchungen von Kohäsionsmerkmalen in akademischen Präsentationen mit Softwareunterstützung* [Corpus linguistic investigations of cohesion features in academic presentations with software support] [Doctoral dissertation, Justus Liebig University Giessen]. http://geb.uni-giessen.de/geb/volltexte/2011/8286/

Pabst-Weinschenk, M. (2013). Vortragen und Präsentieren [Lecturing and presenting]. In S. Gailberger & F. Wietzke (Eds.), *Handbuch Kompetenzorientierter Deutschunterricht* (pp. 400–421). Beltz.

Parks, M. R. (1994). Communication competence and interpersonal control. In M. L. Knapp & G. R. Miller (Ed.), *Handbook of interpersonal communication* (pp. 589–618). Thousand Oaks.

Parr, C. J., & Cartwright-Hatton, S. (2009). Social anxiety in adolescents: The effect of video feedback on anxiety and the self-evaluation of performance. *Clinical Psychology & Psychotherapy*, *16*(1), 46–54. https://doi.org/10.1002/cpp.599

Pearson, J. C., Child, J. T., & Kahl, D. H. (2006). Preparation meeting opportunity: How do college students prepare for public speeches? *Communication Quarterly*, *54*(3), 351–366. https://doi.org/10.1080/01463370600878321

Pearson, J. C., DeWitt, L., Child, J. T., Kahl, D. H., & Dandamudi, V. (2007). Facing the fear: An analysis of speech-anxiety content in public-speaking textbooks. *Communication Research Reports*, *24*(2), 159–168. https://doi.org/10.1080/08824090701304923

Pepe, C. (2013). *The genres of rhetorical speeches in Greek and Roman antiquity*. Brill.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In E. L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 123–205). Academia Press.

Pittenger, K. K. S. (2004). Using real-world standards to enhance students‘ presentation skills. *Business Communication Quarterly*, *67*(3), 327–336. https://doi.org/10.1177/1080569904268084

Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *The Journal of Applied Psychology*, *88*(5), 879–903. https://doi.org/10.1037/0021-9010.88.5.879

Poropat, A. E. (2009). A meta-analysis of the five-factor model of personality and academic performance. *Psychological Bulletin*, *135*(2), 322–338. https://doi.org/10.1037/a0014996

Porter, J. E. (2009). Recovering delivery for digital rhetoric. *Computers and Composition*, *26*(4), 207–224. https://doi.org/10.1016/j.compcom.2009.09.004

Pöschl, V. (1995). Ciceros Bildungsprogramm [Cicero‘s educational program]. *Rhein. Mus.*, *138*, 193–209.

Praetorius, A.-K., Klieme, E., Herbert, B., & Pinger, P. (2018). Generic dimensions of teaching quality: The German framework of three basic dimensions. *ZDM*, *50*(3), 407–426. https://doi.org/10.1007/s11858-018-0918-4

Pribyl, C. B., Keaten, J., & Sakamoto, M. (2001). The effectiveness of a skills-based program in reducing public speaking anxiety. *Japanese Psychological Research*, *43*(3), 148–155. https://doi.org/10.1111/1468-5884.t01-1-00171

Rebholz, F. (2018). *Fostering mathematical competences by preparing for a mathematical competition* [Doctoral dissertation, University of Tübingen]. https://doi.org/10.15496/publikation-21245

Rey, G. D., & Buchwald, F. (2011). The expertise reversal effect: Cognitive load and motivational explanations. *Journal of Experimental Psychology. Applied*, *17*(1), 33–48. https://doi.org/10.1037/a0022243

Rey, G. D., & Steib, N. (2013). The personalization effect in multimedia learning: The influence of dialect. *Computers in Human Behavior*, *29*(5), 2022–2028. https://doi.org/10.1016/j.chb.2013.04.003

Richter, J., Scheiter, K., & Eitel, A. (2016). Signaling text-picture relations in multimedia learning: A comprehensive meta-analysis. *Educational Research Review*, *17*, 19–36. https://doi.org/10.1016/j.edurev.2015.12.003

Rickards-Schlichting, K. A., Kehle, T. J., & Bray, M. A. (2004). A self-modeling intervention for high school students with public speaking anxiety. *Journal of Applied School Psychology*, *20*(2), 47–60. https://doi.org/10.1300/J370v20n02_04

Ringeisen, T., Rohrmann, S., Bürgermeister, A., & Tibubos, A. N. (2019). Assessing self-efficacy in presentation and moderation skills. *European Journal of Psychological Assessment*, *35*(4), 564–576. https://doi.org/10.1027/1015-5759/a000423

Ritchie, S. M. (2016). Self-assessment of video-recorded presentations: Does it improve skills? *Active Learning in Higher Education*, *17*(3), 207–221. https://doi.org/10.1177/1469787416654807

Roberts, B. W., & Davis, J. P. (2016). Young adulthood is the crucible of personality development. *Emerging Adulthood*, *4*(5), 318–326. https://doi.org/10.1177/2167696816653052

Robling, F.-H. (1992). Ars [Art]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 1009–1030). Max Niemeyer Verlag.

Robling, F.-H. (2005). Redner, Rednerideal [Speaker, orator, perfect orator]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 862–864). Max Niemeyer Verlag.

Rossette-Crake, F. (2019). *Public speaking and the New Oratory: A guide for non-native speakers*. Palgrave Macmillan. https://doi.org/10.1007/978-3-030-22086-0

Rowan, K. E. (1995). A new pedagogy for explanatory public speaking: Why arrangement should not substitute for invention. *Communication Education*, *44*(3), 236–250. https://doi.org/10.1080/03634529509379014

Rubin, R. B. (1994). Assessment of the cognitive component of communication competence. In S. Morreale, M. Brooks, R. Berko, & C. Cooke (Eds.), *SCA Summer Conference Proceedings and Prepared Remarks* (pp. 73–86). Speech Communication Association.

Rubin, R. B., & Morreale, S. (1996). Setting expectations for speech communication and listening. *New Directions for Higher Education*, *1996*(96), 19–29. https://doi.org/10.1002/he.36919969604

Rueckert, L., Church, R. B, Avila, A., & Trejo, T. (2017). Gesture enhances learning of a complex statistical concept. *Cognitive Research: Principles and Implications*, *2*(1), 1-6. https://doi.org/10.1186/s41235-016-0036-1

Ryan, A. M., Daum, D., Bauman, T., & Grisez, M. (1995). Direct, indirect, and controlled observation and rating accuracy. *The Journal of Applied Psychology*, *80*(6), 664–670. https://doi.org/10.1037/0021-9010.80.6.664

Schreiber, L. M., Paul, G. D., & Shibley, L. R. (2012). The development and test of the public speaking competence rubric. *Communication Education*, *61*(3), 205–233. https://doi.org/10.1080/03634523.2012.670709

Schwanenflugel, P. J., Akin, C., & Luh, W. M. (1992). Context availability and the recall of abstract and concrete words. *Memory & Cognition*, *20*(1), 96–104. https://doi.org/10.3758/BF03208259

Scott, C. M., & Windsor, J. (2000). General language performance measures in spoken and written narrative and expository discourse of school-age children with language learning disabilities. *Journal of Speech Language and Hearing Research*, *43*(2), 324–339. https://doi.org/10.1044/jslhr.4302.324

Seebert, D. (2017). *Rhetorik und Aufmerksamkeit? Der unsichtbare Orator* [Rhetoric and attention? The invisible orator]. Weidler Buchverlag Berlin.

Seidel, T. (2014). Angebots-Nutzungs-Modelle in der Unterrichtspsychologie. Integration von Struktur- und Prozessparadigma [Utilization-of-learning-opportunities models in the psychology of instruction: Integration of the paradigms of structure and of process]. *Zeitschrift für Pädagogik, 60*(6), 850–866.

Shauki, E. R., & Benzie, H. (2017). Meeting threshold learning standards through self-management in group oral presentations: Observations on accounting postgraduate students. *Accounting Education*, *26*(4), 358–376. https://doi.org/10.1080/09639284.2017.1300777

Sime, D. (2006). What do learners make of teachers‘ gestures in the language classroom? *IRAL - International Review of Applied Linguistics in Language Teaching*, *44*(2), 211–230. https://doi.org/10.1515/IRAL.2006.009

Smith, C. M., & Sodano, T. M. (2011). Integrating lecture capture as a teaching strategy to improve student presentation skills through self-assessment. *Active Learning in Higher Education, 12*(3), 151–162. https://doi.org/10.1177/1469787411415082

Smolarski, P. (2017). *Rhetorik des Designs: Gestaltung zwischen Subversion und Affirmation* [Rhetoric of design: Design between subversion and affirmation]. Transcript Verlag.

Stang, J., Urhahne, D., Nick, S., & Parchmann, I. (2014). Wer kommt weiter? Vorhersage der Qualifikation zur Internationalen Biologie- und Chemie-Olympiade auf Grundlage des Leistungsmotivations-Modells von Eccles [Who proceeds tot he next round? Predicting qualification for the International Biology and Chemistry Olympiad based on Eccles' performance motivation model]. *Zeitschrift für Pädagogische Psychologie*, *28*(3), 105–114. https://doi.org/10.1024/1010-0652/a000127

Stein, M. B., Walker, J. R., & Forde, D. R. (1996). Public-speaking fears in a community sample. Prevalence, impact on functioning, and diagnostic classification. *Archives of General Psychiatry*, *53*(2), 169–174. https://doi.org/10.1001/archpsyc.1996.01830020087010

Stevens, B. (2005). What communication skills do employers want? Silicon valley recruiters respond. *Journal of Employment Counseling*, *42*(1), 2–9. https://doi.org/10.1002/j.2161-1920.2005.tb00893.x

Stobart, G., & Eggen, T. (2012). High-stakes testing – value, fairness and consequences. *Assessment in Education: Principles, Policy & Practice*, *19*(1), 1–6. https://doi.org/10.1080/0969594X.2012.639191

Stroh, W. (2014). Der Regelverstoß in Theorie und Praxis der antiken Rhetorik [Violating the rules in theory and practice within classical rhetoric]. In M. Götz (Ed.), *Fiasco - ma non troppo: Vom Designfehler zum Fehlerdesign* (pp. 233–248). Schwabe Verlag.

Styles, E. A. (2006). *The psychology of attention* (2nd ed.). Psychology Press.

Tank, K. M., & Coffino, K. (2014). Learning science through talking science in elementary classroom. *Cultural Studies of Science Education*, *9*(1), 193–200. https://doi.org/10.1007/s11422-013-9562-z

Thomson, S., & Rucker, M. L. (2002). The development of a specialized public speaking competency scale: Test of reliability. *Communication Research Reports*, *19*(1), 18–28. https://doi.org/10.1080/08824090209384828

Tillfors, M., Andersson, G., Ekselius, L., Furmark, T., Lewenhaupt, S., Karlsson, A., & Carlbring, P. (2011). A randomized trial of internet-delivered treatment for social anxiety

disorder in high school students. *Cognitive Behaviour Therapy*, *40*(2), 147–157. https://doi.org/10.1080/16506073.2011.555486

Titsworth, B. S., & Kiewra, K. A. (2004). Spoken organizational lecture cues and student notetaking as facilitators of student learning. *Contemporary Educational Psychology*, *29*(4), 447–461. https://doi.org/10.1016/j.cedpsych.2003.12.001

Tonger-Erk, L. (2012). *Actio: Körper und Geschlecht in der Rhetoriklehre* [Actio: Body and gender in rhetoric]. *Studien zur deutschen Literatur: Vol. 196*. De Gruyter.

Tucker, M. L., & McCarthy, A. M. (2001). Presentation self-efficacy: Increasing communication skills through service-learning. *Journal of Managerial Issues*, *13*(2), 227–244.

Ueding, G, & Steinbrink, B. (2011). *Grundriß der Rhetorik: Geschichte - Technik - Methode* [Outline of the rhetoric: History, technique, method] (5th ed.). J. B. Metzler.

Urhahne, D., Ho, L. H., Parchmann, I., & Nick, S. (2012). Attempting to predict success in the qualifying round of the International Chemistry Olympiad. *High Ability Studies*, *23*(2), 167–182. https://doi.org/10.1080/13598139.2012.738324

Valenzeno, L., Alibali, M. W., & Klatzky, R. (2003). Teachers' gestures facilitate students' learning: A lesson in symmetry. *Contemporary Educational Psychology*, *28*(2), 187–204. https://doi.org/10.1016/S0361-476X(02)00007-3

van de Mieroop, D., Jong, J. de, & Andeweg, B. (2008). I want to talk about...: A rhetorical analysis of the introductions of 40 speeches about engineering. *Journal of Business and Technical Communication*, *22*(2), 186–210. https://doi.org/10.1177/1050651907311926

van Ginkel, S., Gulikers, J., Biemans, H., & Mulder, M. (2015). Towards a set of design principles for developing oral presentation competence: A synthesis of research in higher education. *Educational Research Review*, *14*, 62–80. https://doi.org/10.1016/j.edurev.2015.02.002

Visser, D., & Matthews, J. D. (2005). The power of non-verbal communication: Predicting job performance by means of thin slices of non-verbal behaviour. *South African Journal of Psychology*, *35*(2), 362–383. https://doi.org/10.1177/008124630503500212

Voßkamp, P. (2012). Bildungsstandards für die Sekundarstufe I [Educational standards for lower secondary school]. In M. Becker-Mrotzek (Ed.), *Mündliche Kommunikation und Gesprächsdidaktik* (pp. 160–178). Schneider-Verlag Hohengehren.

Wagner, J. (1998). Iudicium [judgement (faculty); discernment; wit]. In G. Ueding (Ed.), *Historisches Wörterbuch der Rhetorik* (pp. 662–692). Max Niemeyer Verlag.

Watson, A., & Sasse, M. A. (1998). Measuring perceived quality of speech and video in multimedia conferencing applications. In W. Effelsberg & B. C. Smith (Eds.), *Proceedings of the sixth ACM international conference on Multimedia - MULTIMEDIA ,98* (pp. 55–60). ACM Press. https://doi.org/10.1145/290747.290755

Weinert, F. E. (2001). Vergleichende Leistungsmessung in Schulen – Eine umstrittene Selbstverständlichkeit [Comparative performance measurement in schools - A controversial matter of course]. In F. E. Weinert (Ed.), *Leistungsmessungen in Schulen* (2nd ed.). Beltz.

Westmyer, S. A., DiCioccio, R. L., & Rubin, R. B. (1998). Appropriateness and effectiveness of communication channels in competent interpersonal communication. *Journal of Communication*, *48*(3), 27–48. https://doi.org/10.1111/j.1460-2466.1998.tb02758.x

Whetten, D. A., & Cameron, K. S. (1998). *Developing management skills* (4th ed.). Addison-Wesley.

Wiertzema, K., & Jansen, P. (2004). *Spreken in het openbaar* [Speaking in public]. Pearson education Benelux.

Wild, E., & Möller, J. (Eds.). (2015). *Pädagogische Psychologie* [Educational psychology] (2nd ed.). Springer. https://doi.org/10.1007/978-3-642-41291-2

Witt, P. L., Wheeless, L. R., & Allen, M. (2004). A meta-analytical review of the relationship between teacher immediacy and student learning. *Communication Monographs*, *71*(2), 184–207. https://doi.org/10.1080/036452042000228054

Yeo, A., Ledesma, I., Nathan, M. J., Alibali, M. W., & Church, R. B. (2017). Teachers‘ gestures and students‘ learning: Sometimes „hands off“ is better. *Cognitive Research: Principles and Implications*, *2*(1), 41. https://doi.org/10.1186/s41235-017-0077-0

Zareva, A. (2009). Informational packaging, level of formality, and the use of circumstance adverbials in L1 and L2 student academic presentations. *Journal of English for Academic Purposes*, *8*(1), 55–68. https://doi.org/10.1016/j.jeap.2008.12.002