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To cite this article: Violeta Lozano Botellero, Stine M. Ekornes, Siv M. Gamlem, Wenche Torrissen & Helga Synnevåg Løvoll (2023) Perceived teacher support in secondary education from 1980 to 2019: An integrative review, Cogent Education, 10:1, 2164648, DOI: [10.1080/2331186X.2022.2164648](https://doi.org/10.1080/2331186X.2022.2164648)

To link to this article: <https://doi.org/10.1080/2331186X.2022.2164648>



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Published online: 02 Feb 2023.



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Received: 14 June 2022
Accepted: 27 December 2022

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INTERNATIONAL & COMPARATIVE EDUCATION | REVIEW ARTICLE

Perceived teacher support in secondary education from 1980 to 2019: An integrative review

Violeta Lozano Botellero¹, Stine M. Ekornes^{2,3}, Siv M. Gamlem², Wenche Torrissen^{1,4} and Helga Synnevåg Løvoll^{1*}

Abstract: How teacher support is perceived in secondary school was a main purpose for examination. As teacher support is a multidimensional construct, we conducted an integrative review to identify and analyze longitudinal and cross-sectional research trends, common practices, and general results in the field of perceived teacher support in secondary education. Following the PRISMA guidelines, a total of 198 articles were analyzed by abstract/methods and 95 by full-text. Our results suggest that teacher support is strongly related to academic motivation, health, and wellbeing but several gaps in the research literature needs attention. Subject topics are rarely reported, except for science, technology, engineering, and mathematics (STEM) and physical education, which make the body of research insensitive for various learning situations and teacher competence. The research is mainly quantitative, addressing the need for more qualitative studies. The teacher perspective is also sparse. The literature has mainly focused on three types of support: social/emotional, autonomy, and academic support. The research in the area has grown steadily since 1980, with a marked increase in publications and research quality since 2009. More research using qualitative and mixed methods and focusing on teachers' perspectives is needed in addition to more adherence to APA guidelines.

Subjects: Education - Social Sciences; Research Methods in Education; Secondary Education

Keywords: secondary education; perceived teacher support; literature reviews; research trends

1. Introduction

How to best support students in their social and academic learning is a fundamental question for all teachers, regardless of national, cultural, and subject specific contexts. The OECD's Education 2030: The Future of Education and Skills Project states that schools are facing increasing demands to prepare students for a rapidly changing future, and in order to help them to thrive, learn, and develop, teachers need to equip students with a broad range of skills, such as cognitive and meta-cognitive skills, social and emotional skills, and practical and physical skills (OECD, 2018, 2021). Obviously, the complex demands require complex support, making teacher support a key aspect to promote student learning and development. Hence, the focus of this review was to explore students' perceptions of receiving support from their teachers, and teachers' perceptions of giving their students such support. The focus on perceived support is distinct from observed support and

relies on students' and teachers' self-reports. Our study includes several related concepts of support and seek to get an overview of various impacts of teacher support to look for trends, strengths, and gaps in the research.

An integrated understanding of how teacher support contributes to student learning and school adaptation is essential. Several meta-analyses have linked teacher support with academic achievement (Givens Rolland, 2012), positive academic emotions (Lei et al., 2018), wellbeing (Chu et al., 2010), and fewer depression symptoms in youth (Rueger et al., 2016). Students are especially vulnerable in the transition to secondary education, which is experienced by most students as a stressful event, and it can be accompanied by several stress factors, such as fear of being bullied, increased workload, changes in peer relationships, and new environments (Zeedyk et al., 2003). At the same time, secondary education coincides with early adolescence, a period during which important psychological, biological, and social development occurs (Anderson et al., 2000). How to best support students during secondary education is, therefore, a fundamental question for all teachers, school leaders, politicians, and policymakers regardless of national, cultural, and subject-specific contexts. High-quality research on perceived teacher support in secondary education is therefore needed. Even though there is a long tradition of educational research in this area, little is known about the specific research trends and characteristics of studies on perceived teacher support in secondary education and how they have evolved through the years. To improve the quality and the scope of publications in this field, we need more knowledge about the quality and characteristics of the methodologies used, designs, sample characteristics, and variables investigated over the years. A general aim of the review was to investigate how international research on perceived support in secondary education has been carried out and developed over a period of 40 years. This includes the identification of longitudinal and cross-sectional research trends and characteristics of original research articles on perceived teacher support in secondary education, which are published in peer-reviewed journals since the inception of this research field.

1.1. The construct of teacher support

Our study includes several related and overlapping concepts of support, encompassing social, emotional, instructional, instrumental, academic and autonomy support. These concepts partly overlap and are complementary to each other, but also possess their own unique qualities, which altogether form the multidimensional construct of teacher support.

As researchers, we acknowledge that a variety of conceptualizations have been proposed for defining and identifying teacher support and that it may be understood and defined differently in different cultural, national, and geographic contexts. However, it is widely agreed that social support is derived from many sources (i.e., parents, peers, and teachers) and is often referred to either as a global concept, including belongingness and positive relationships in general, or a more specific construct emphasizing emotional and instrumental support (Danielsen et al., 2011; Song et al., 2015; Tian et al., 2013). A common definition is that social support refers to "individuals' perception of being cared for, appreciated, and included by people in his/her social network" (Margraf & Pinquart, 2016, p. 260) or as "the perception of how much support from social networks is available if needed" (Lebacqz et al., 2019, p. 896). Malecki and Demaray (2003) also point out that social support may include both available support and acted-on support and is a kind of support that is likely to buffer adverse outcomes and enhance the individual's social functioning. For example, some studies have identified social support from teachers as a protective factor against depression among students (Reddy et al., 2003; Rueger et al., 2016) and against negative long-term outcomes for students who have been bullied (Flaspohler et al., 2009; Margraf & Pinquart, 2016). Moreover, social support is often linked to self-determination theory (Deci & Ryan, 2000), seeing social support as a factor that facilitates the satisfaction of the fundamental human needs for competence, relatedness, and autonomy, and includes support in all these three domains (Shen et al., 2010).

The concept of autonomy support from teachers has been defined as “acts or instructions to identify, encourage, and develop internal motivational resources such as their interests, preferences, goals, and psychological needs” among students (Maldonado et al., 2019, p. 2). Autonomy support is sometimes defined as a “teaching style” (Fin et al., 2019) characterized by low levels of teacher control and high levels of student agency. It is also conceptualized more as a “motivational approach” in which teachers are aware of the importance of offering students choices regarding working pace and task difficulty level and are responsive to students’ perspectives (Patall, Steingut et al., 2018). A combination of the two is found in the perspective of autonomy support as a “motivating style” in which the teacher in an autonomy-supportive motivation style utilizes students’ individuality to facilitate their inner motivation as opposed to a controlling motivation style in which the teacher’s interests and values form the point of departure (Haerens et al., 2018).

By emphasizing regard for students’ perspectives, autonomy support is tangential to emotional support, as conceptualized in the Teaching Through Interactions (TTI) framework (Pianta & Hamre, 2009). Here, emotional support, classroom organization, and instructional support constitute the three main domains for teacher–student interaction. Emotional support comprises positive communication in the classroom, teachers’ demonstration of genuine interest in their students’ interests, sensitivity toward their students’ feelings, and efforts to facilitate student agency and freedom of choice (Ruzek et al., 2016). In the TTI framework, instructional support is operationalized through the subdomains of concept development, quality of feedback, language modeling, and richness in instructional methods (Hamre et al., 2009). This includes teachers’ ability to promote higher-order thinking skills among their students, expand learning, and promote deep-level understandings through feedback interactions. Against this background, the concept of academic support includes both emotional and instructional support, aiming to facilitate students’ learning processes.

Finally, instrumental support is often referred to as students’ perceptions of having access to practical help or resources to solve concrete problems. This includes teachers’ ability to clarify misunderstandings, model behavior, or provide concrete tools for problem solving (Federici & Skaalvik, 2014). Moreover, Malecki and Demaray (2003), with reference to House (1981), define instrumental support as a sub-dimension of social support, together with emotional support, informational support, and appraisal support. In sum, teacher support is a multidimensional construct comprising different types of support appropriate to meet students’ various social, academic, and emotional needs (Suldo et al., 2009).

1.2. Recommended research guidelines and trends in educational research

Educational research commonly follows the research guidelines and reporting standards of the American Psychological Association (APA; American Psychological Association, 2020; Appelbaum et al., 2018; Levitt et al., 2018), and follows the IMRaD model (introduction, methodology, results, and discussion; Pyrczak, 2016; Silvia, 2015). It is widely recommended, for example, that an article include the reporting of clear research questions, research design, data collection, and analysis methods and a discussion of the limitations of the study (Coates, 2020; G. King, 1995; Lyon et al., 2017). However, analyses of different educational journals in 1983 showed that half of the articles did not contain explicit research questions (Dillon, 1983), and more recent analyses of empirical articles from the Social Sciences Citation Index found that almost half of the articles were missing sampling strategy, a third did not discuss limitations, and a fifth were missing data analysis methods (Coates, 2020). Moreover, APA recommendations highlight the importance of reporting demographic variables, such as age, gender, ethnicity, and socio-economic status (SES; American Psychological Association, 2020). Concerns about the inconsistent reporting of demographic variables in educational studies have been previously raised (Smith et al., 1984), emphasizing the need to report more precise demographic data (American Speech-Language-Hearing Association, 1991). Advances in this regard have been made, but there is still inconsistency in the reporting of age, race/ethnicity, and SES in educational research (Gaias et al., 2020; Reed et al., 2013; Sinclair et al.,

2018). To understand the current status and the evolution of the research standards in the field of teacher support in secondary education, research analyzing these practices in the last decades is needed.

It is also important to assess the type of research approaches, designs, and methods used in educational research in the field of teacher support. There are data suggesting that educational researchers tend to favor quantitative approaches to the detriment of qualitative and mixed-methods studies (Egmir et al., 2017; Hrastinski & Keller, 2007; Hutchinson & Lovell, 2004; Onwuegbuzie, 2002). Similar results have been found in the field of teacher support for career development (J. Zhang et al., 2018). However, to our knowledge, there are no data assessing these questions in the field of teacher support in secondary education. To meet the requirements defined by the OECD (2018, 2021), and help teachers to provide authentic and relevant support, we need to identify the gaps in this field to be able develop a deep understanding of teacher support that covers relevant demographic variables and a broad spectrum of methods.

1.3. Research questions

Our two main research questions in the context of research on perceived teacher support in secondary education are as follows:

- (1) What are the main types of teacher support investigated and the main variables they have been related to?
- (2) What are the research characteristics, practices, and trends of peer-reviewed original research studies on perceived support in secondary education, and how have they changed throughout the years?

2. Method

We conducted an integrative review (Cronin & George, 2020; Toronto & Remington, 2020) of original research studies doing research on perceived teacher support in secondary education published in peer-reviewed journals. A systematic four-step process following the PRISMA guidelines (Page, McKenzie et al., 2021; Page, Moher et al., 2021) was conducted, including 1) searching for studies, 2) a multi-step screening process according to *a priori* inclusion criteria, 3) an analysis of the selected studies according to *a priori* quality indicators, and 4) a descriptive and qualitative synthesis of the selected studies (Figure 1).

2.1. Inclusion and exclusion criteria

Peer-reviewed original research articles from 1980 until 2019 studying perceived teacher support in secondary education were included in the review (Figure 2). All types of perceived teacher support were incorporated. We included studies with student samples ranging from 11 to 18 years old. Studies involving other age ranges were also included if specific results for the 11- to 18-year-old age range were provided. All types of schools were included (middle school, junior high school, senior high school, combined junior-senior high school, and corresponding classifications) except special schools. Studies with pre-service teacher samples were excluded. All types of methodologies and study designs were included as long as the article was an original peer reviewed research article. Reviews and meta-analyses were excluded. Observational studies not including measures for perceived teacher support were also excluded. Languages included in full-text articles were English, Spanish, Norwegian, Danish, and Swedish. Journals were checked for scientific quality by being included as peer-reviewed journals. A Norwegian journal register of peer-review journals was used for this purpose (The Norwegian Register for Scientific Journals, Series and Publishers, 2021).

The two non-exclusive inclusion categories created were (1) included by abstract/methods and (2) included by full-text (see, Figure 1). Studies in the first category fulfilled all the inclusion criteria and were included by abstract/methods. Studies in the second category (included by full-text) were

Figure 1. Flow Chart

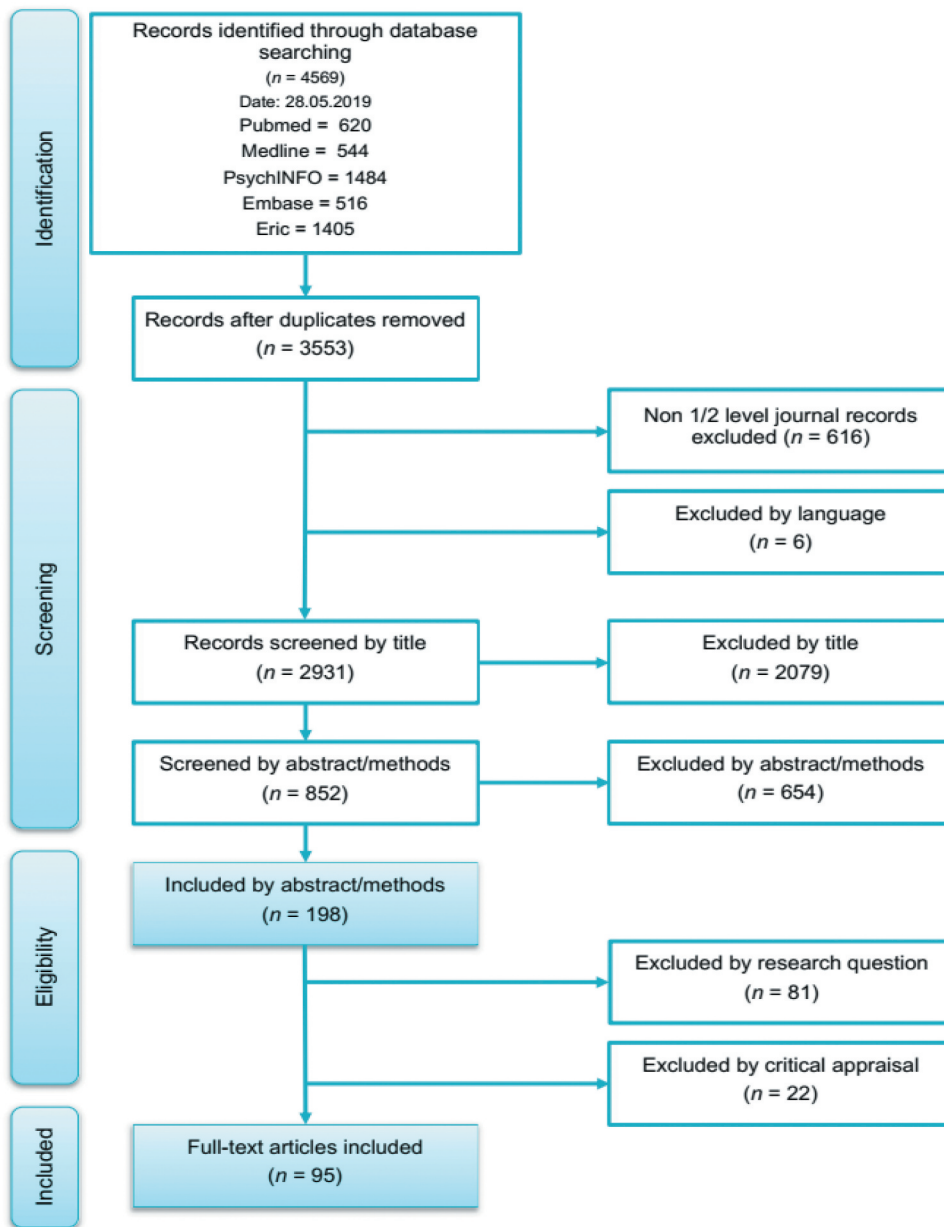
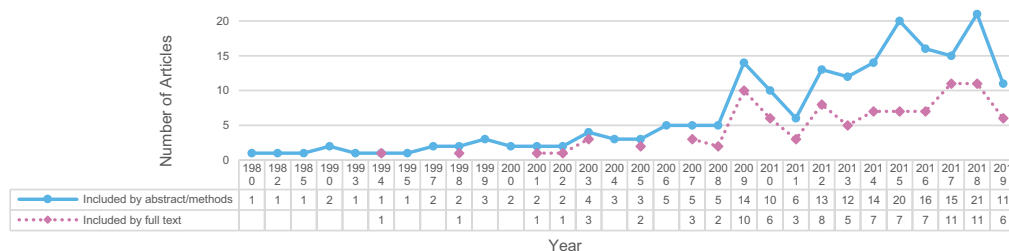


Figure 2. Included publications pr. year



chosen from the first category (included by abstract/methods), filtering out all studies that did not explicitly include perceived teacher support in their research question, those that did not discuss limitations, and/or articles that did not pass critical appraisal.

2.2. Search and screening strategy

We conducted a database search in Embase, ERIC, Medline, PsychINFO, and PubMed on the 28th of May of 2019. We did not use any filters for language and publication date in the database search. We conducted our search using text words within title and abstract fields using multi-field search features to retrieve results including all our search words. Our search terms were *perce** (to include all possible related terms to perception and perceived), *teacher*, and *support*. In the ERIC database, we restricted our search using filters for education level, removing non-secondary education publications. In both ERIC and PsychINFO, the searches were limited to peer-reviewed articles (see Appendix A for details on search strings and filters. Online only).

All the database results were imported to EndNote X9 and X20, where duplicates were removed. The remaining titles were imported to Excel (Office 365 Version: 18.2002.1101.0) for further deduping and for the rest of the screening process.

Two teams of two independent reviewers inspected all the articles following the inclusion criteria first by title and then by abstract. When the abstracts contained insufficient information, the method sections were used to determine whether to include or exclude the articles.

2.3. Quality assessment

All articles included by abstract/methods were critically assessed by the two teams of independent reviewers. To apply the same quality assessment to all articles, we developed an assessment scale based on the Scale for the Assessment of Narrative Review Articles (Baethge et al., 2019), following the recommendations of Jesson et al. (2011) and Mårtensson et al. (2016). We included in total seven items evaluating the rationale of the article, aims, research questions, design, analysis, presentation of data, results, and limitations (Appendix B. Online only). Each item was coded from 0 to 2. Articles not reaching a minimum of six points were excluded. When the independent reviewers did not reach agreement, a third reviewer inspected the articles and made the final decision. Articles that did not discuss limitations were excluded from the “included by full-text” category.

2.4. Data extraction and synthesis

The extraction of data was conducted using a structured database in Excel, coding the relevant variables for the qualitative characteristics of the articles (see, Figure 1), research approach and design (Figures 3 and 4), support type (Figure 5A), dependent variables related to teacher support (Figure 5B), support measuring instrument (Figure 6), and subject type (Figure 7), country (Figure 8), and age (Figure 9). Text, number, and binary coding methods were used. Missing age data were inputted from reported school grade.

Figure 3. Research Approaches From 1980 to 2019

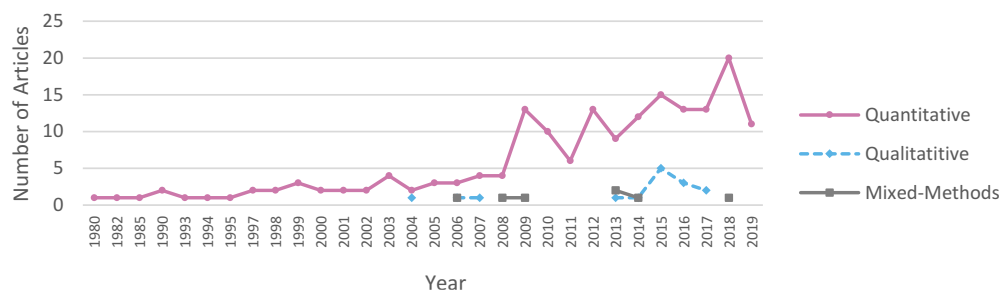


Figure 4. Research Approach and Design From 1994 to 2019

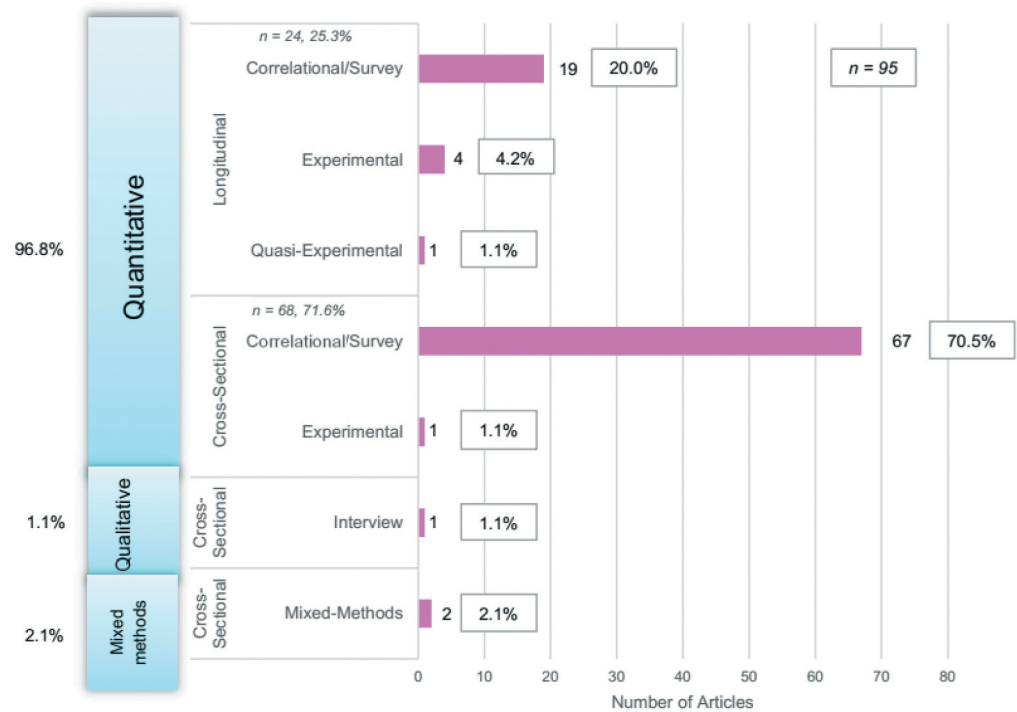


Figure 5. (A, B) Support type and related variables from 1994 to 2019

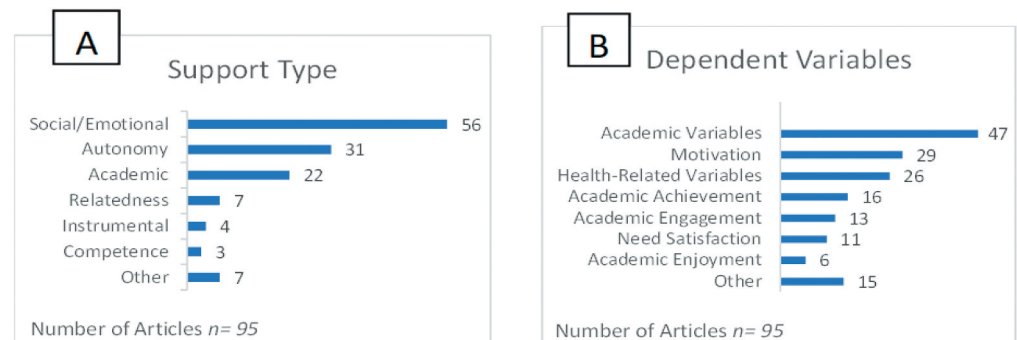


Figure 6. Support Measuring Instruments From 1994 to 2019

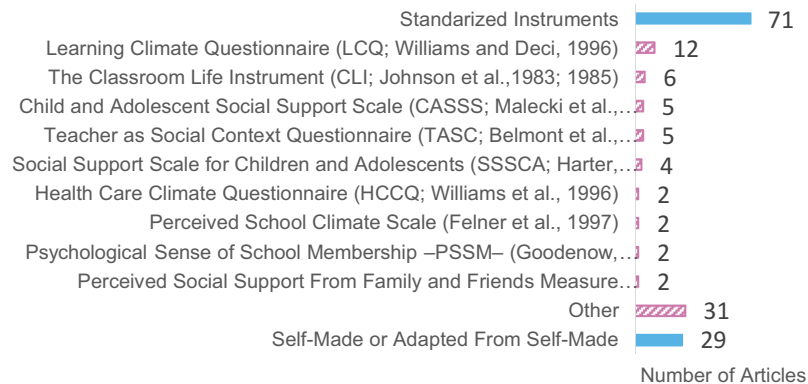
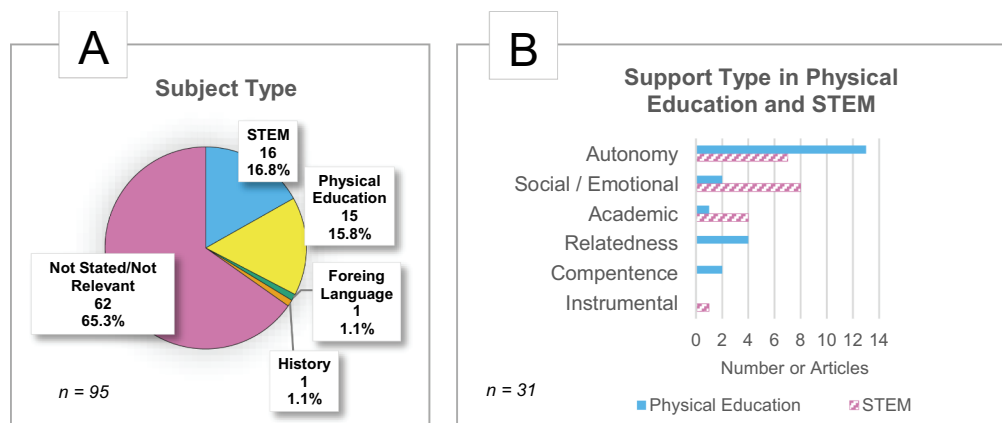


Figure 7. (A, B) Subject and Support Type From 1994 to 2019



The data extraction process started during the quality appraisal. Reviewers coded variables related to the qualitative characteristics of the articles and demographic variables. The rest of the variables were coded by a different researcher, who also conducted a randomized quality check of the variables in Excel. If errors were detected, all included articles were checked to correct the data within a variable category.

Two blocks of descriptive analysis were conducted in Excel. The first comprised all articles included by abstract/methods and the second one all articles included by full-text. A short narrative summary of a subset of articles included by full-text was conducted with the purpose of giving a brief overview of the general results on perceived teacher support in secondary education.

3. Results and discussion

3.1. Results from the literature search

The search produced a total of 4,569 publications, of which 3,553 remained after deleting duplicates. Of these, 2,931 were published in high-quality, peer-reviewed journals, as stated by the Norwegian Register for Scientific Journals. This resulted in 852 studies analyzed by abstract/methods sections after screening by title, giving a total of 198 articles conducting research related to perceived teacher support in secondary education. After excluding those that did not have perceived teacher support as an explicit variable in their research question and those articles that did not fulfill quality standards after critical appraisal, a total of 95 articles were included by full-text.

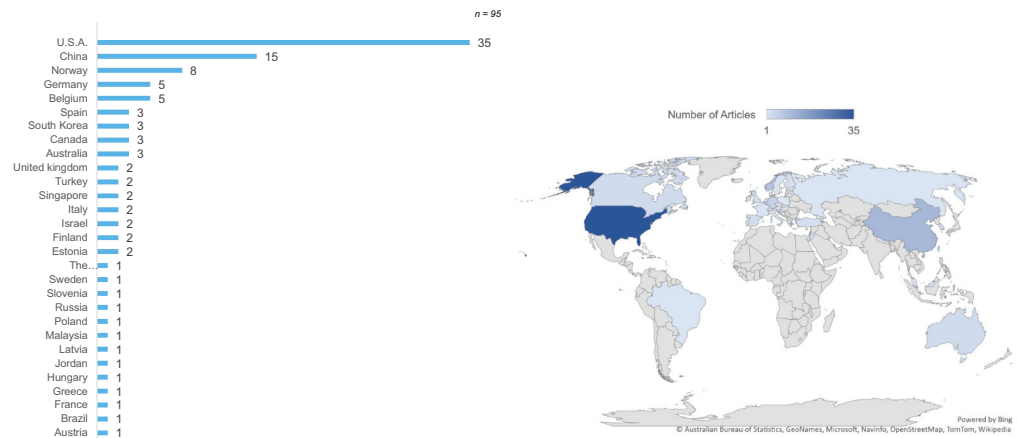
One hundred and ninety-eight articles published from 1980 to 2019 were analyzed and synthesized by abstract/methods. Ninety-five articles published between 1994 and 2019 were analyzed and synthesized by full-text (see, Figure 1). Seventy-five articles were included in the thematic narrative summary (see Appendix C for a complete list of included articles. Online only). Most of the studies were published between 2009 and 2019 (152) and in the *Journal of Educational Psychology* (9) and *Social Psychology of Education: An International Journal* (8).

3.2. Main types of support, dependent variables, and support perspective

We found that the three main types of teacher support researched by the literature are social/emotional, autonomy, and academic and are mainly related to academic, motivation, and health-related variables (Figure 5).

In contrast, in a review on teacher support for career development, J. Zhang et al. (2018) identified three categories of teacher support in the 18 articles analyzed: general, autonomy, and specific teacher support.

Figure 8. Countries where studies were conducted in from 1994 to 2019



The concepts of social and emotional teacher support were intertwined in the analyzed literature and were commonly measured using the same items. The same was true for academic and instructional teacher support.

All 95 articles included by full-text, studied the support provided by teachers; 40.0% also studied the support provided by peers and 26.3% the support provided by parents. Interestingly, only *one* of the included studies reported from the teacher perspective. Given the overall important role the teacher has in their perception of students' needs for support, the current evidence is skewed.

3.2.1. Support-measuring instruments

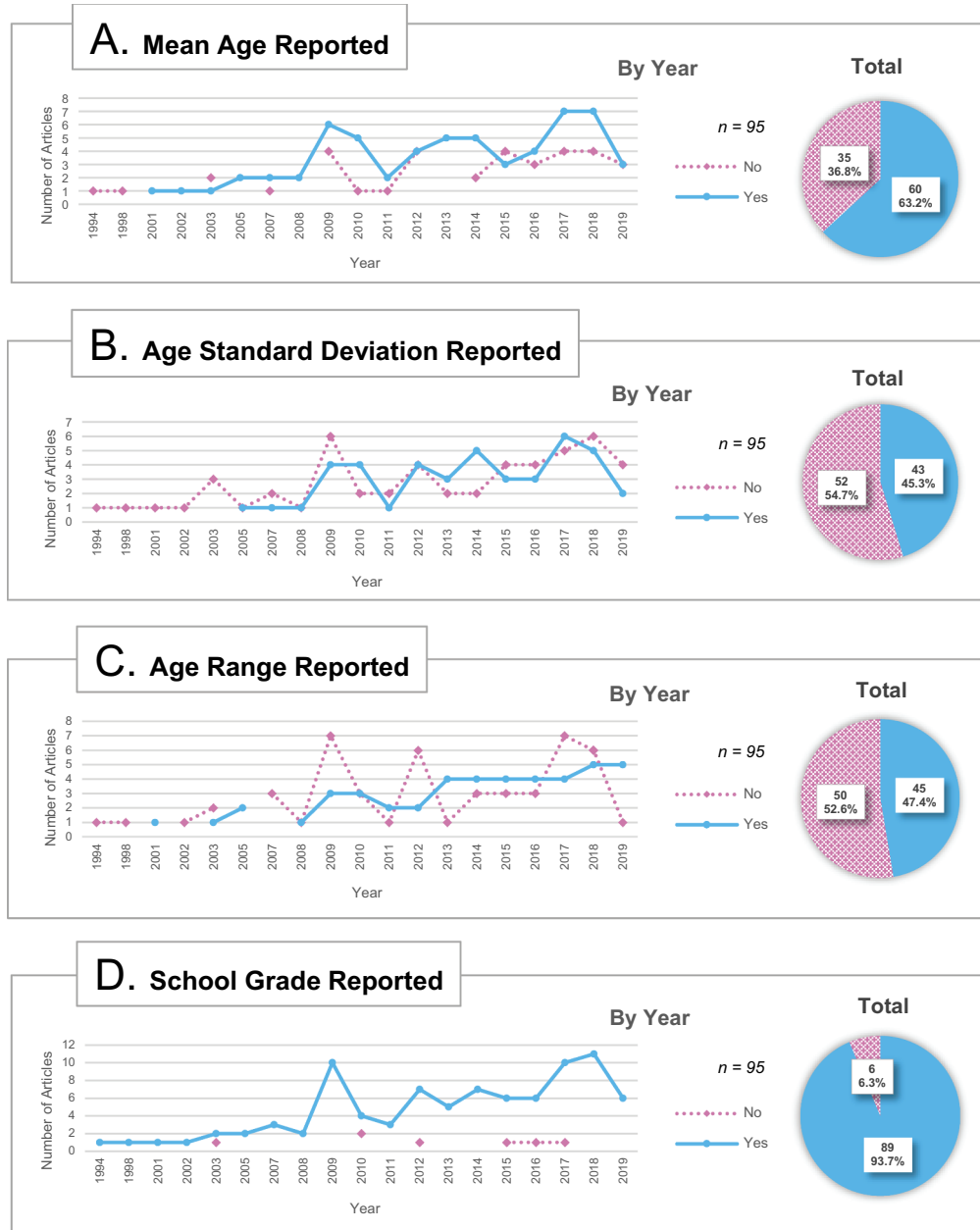
Regarding the instruments used to measure perceived teacher support, we found that standardized instruments were the preferred data collection method (71, 79.0%), followed by self-made or adaptations from other self-made scales/items (29, 30.5%; Figure 6).

Among the standardized instruments, we identified 40 different measures. This result contrasts with the results from Metheny et al. (2008). They conducted an introductory review of standardized measurements of perceived teacher support in the field of adolescent career development and identified 16 different measures with basic psychometric properties provided. Of these, 12 were subscales of other instruments and three were standalone self-made measures. The authors argued that even though there are several instruments to measure perceived teacher support, they often measure a limited type of support, are subscales of larger instruments, and provide only preliminary evidence of validity. Although we did not code how many of the standardized instruments were subscales or whether the self-made items had provided psychometric properties, there were several subscales included among the 40 different measures to assess perceived teacher support. Our results also suggest that there is not a unifying instrument for measuring all types of perceived teacher support and that many researchers prefer to develop their own items. The development of a unifying standardized instrument for measuring all the different dimensions of perceived teacher support is needed.

3.2.2. Specific school subjects

We found that most articles (65.3%) did not focus on one specific subject; 16.8% studied perceived support in the context of STEM-related subjects, and 15.8% studied perceived support in the context of physical education (Figure 7A). The three main types of support (i.e., social/emotional, autonomy, and academic) have been studied in both physical education and STEM-related subjects (Figure 7B).

Figure 9. Students age-related variables from 1994 to 2019



In physical education, autonomy support has been studied as a motivational principle, whereas academic and socio-emotional support, as part of the learning outcome in physical education, have been less studied. The lack of report of disciplines studied on the role of teacher support is a critical aspect of the international research as different working methods within disciplines as well as other contextual factors, such as physical learning environment, the use of out-of-school pedagogy, arts-rich schools, and the physical placement of the school site, including trees and green playing opportunities (or not), would influence the need for and way of giving support. For example, the perception of support in physical education is rarely studied in rural areas (results not shown). Our results show that another gap in the literature is the lack of studies in the context of artistic subjects and other practical disciplines, which could include working methods where students perceive support. Arts education could have many benefits when teachers hold an arts

education (Bamford, 2014), but the value of arts education for student support needs more empirical evidence.

3.3. The positive effects of teacher support

The results from our narrative review suggest that there is sufficient evidence supporting the relationship between perceived teacher support and an array of positive effects related to academic, motivation, and health-related variables. This is in line with the results from different meta-analyses and reviews on the effects of teacher support (Chu et al., 2010; Givens Rolland, 2012; Lei et al., 2018; Rueger et al., 2016; J. Zhang et al., 2018). As a general finding, the focus of teacher support as a genuine skill for students to thrive is essential. However, in understanding how support is perceived within students, there are many gaps in the research pointing at the understudied processes within subjects/disciplines, the urban versus rural qualities of the school, and the relation between concepts of support.

In a meta-analysis on classroom goal structures and their relationships with student outcomes in middle and secondary school, Givens Rolland (2012) analyzed 49 studies including 31,409 students from 6th through 12th grades and found that teacher socio-emotional and instructional support was positively related to students' academic achievement as well as to socio-emotional factors including self-efficacy, interest in class, and prosocial behaviors and goals. These results are in line with J. Zhang et al. (2018), who conducted an integrative review in the field of teacher support for career development, analyzing 18 articles, and found that teacher support, in general, has positive effects on students' career development, including (among others) career decision-making satisfaction, vocational and educational self-efficacy, and career commitment. Moreover, teacher support seems to be more strongly associated with positive outcomes in career development variables compared to parental and peer support.

In a meta-analysis on the association between teacher support and students' academic emotions, Lei et al. (2018) analyzed 65 studies including in total 58,368 students. They found a relationship between teacher support and students' academic emotions mediated by students' culture, age, and gender. The results showed that students with more teacher support had higher positive academic emotions or lower negative academic emotions. Western European/American students had a stronger positive correlation between teacher support and positive academic emotions than East Asian students, but East Asian students had a stronger negative correlation between teacher support and negative academic emotions than Western European/American students, suggesting that the positive effect of teacher support can manifest as either increasing positive emotions or reducing negative emotions, mediated by the cultural background of the students. The authors also found that teacher support was positively correlated with positive academic emotions and negatively correlated with negative academic emotions for elementary school, middle school, high school and university students. Regarding the role of gender in mediating the association between teacher support and academic emotions, the authors found that females showed a higher negative correlation between teacher support and negative academic emotions than male students.

In a meta-analysis on the relationships between social support and wellbeing in children and adolescents, Chu et al. (2010) analyzed 246 studies and found a small association between social support and wellbeing, and support from teachers and school personnel was more strongly associated with wellbeing than family and friend support.

In a meta-analysis on the relationship between social support and depression in youth, Rueger et al. (2016) analyzed 341 published and unpublished studies conducted between 1983 and 2014, including 273,149 participants. They found small to moderate effect sizes in the association between all types of social support and depression. However, support from family members and one's general peer group had a stronger effect on depression compared with teacher support, which in turn was stronger than support from close friends.

A teacher's ability to give support to their students is a core attribute of the teacher role, with large influences on students' lives. The rich array of positive consequences identified in the research points to the need for educating teachers in ways to support their students. The orientation toward teacher's personal skills, follow ideas of education for future of education and skills 2030 (OECD, 2018, 2021) in acknowledging the teacher's capacity to give student support to meet future challenges as a complex higher-order competence. Teacher education thus would produce better-prepared teachers by emphasizing the value of personal training to give various kinds of support to students.

3.4. Research characteristics from 1994 to 2019

3.4.1. Sample characteristics

The total number of participants from the 95 articles analyzed by full-text was 189,543 (sample size range from 36 to 49,638). Most studies had samples ranging between 100 and 999 (53, 55.8%) and between 1,000 and 9,999 (30, 31.6%) participants. Smaller (< 100) and larger (> 10,000) samples were less frequent (9, 9.5%, and 3, 3.2%, respectively). Studies with samples smaller than 100 participants were published between 2002 and 2016, whereas studies with samples larger than 10,000 participants were published between 2012 and 2018.

Female participation was on average 51.8% (range from 0% to 74.5%, not reported in 4 studies). One article included only male participants, 9 had 40.0% or less males, and 2 had 40.0% or less females.

The estimated mean age of students in the 95 articles included by full-text was 14.4 years (estimated age range from 9 to 20 years; not reported in 22 studies; missing age data was imputed from school grade data). The most studied grades were 8th grade (57, 60.0%) and 9th grade (55, 57.9%), followed by 10th grade (45, 47.4%), 7th grade (43, 45.3%), 11th grade (35, 36.8%), and 12th grade (25, 26.3%). Six articles (6.3%) did not provide specific information about grade but reported student age.

3.4.2. Country

Our results showed that over one-third of the studies included by full-text were conducted in the U.S.A. (35, 36.8%), whereas none were conducted in Central America, Africa, and several regions of Asia and South America (Figure 7). Combined publications from Europe and North America amount to 82.1% (78). These results in the field of teacher support are similar to those reported by J. Zhang et al. (2018). The authors implemented an integrative review in the field of teacher support for career development and found that 15 out of the 18 studies identified (83.3%) were conducted in Europe and North America.

The underrepresentation of developing countries in the academic research literature is a well-known problem (D. A. King, 2004; Atkinson, 2013; Jaffe et al., 2020). More publications investigating perceived teacher support in different countries can shed light on cultural differences and similarities. Knowledge about how teacher support is conceptually understood, implemented in schools, and experienced by students in emerging countries is crucial to develop a multicultural approach in teacher support research and practices.

3.4.3. Reporting of students' mean age, age range, and age standard deviation

Although age is a widely accepted and reported variable in human research, we found that just 63.2% of the articles included by full-text reported students' mean age, 45.3% age standard deviation, and 47.4% age range. In contrast, school grade was reported by 93.7% (Figure 9). Just 19 (20.0%) articles reported all age-related variables.

Demographic variables, the reporting of student age, is critical to adequately interpreting research on perceived teacher support. Moreover, it is also important to report range and standard

deviation to understand the age distribution of the sample (Pickering, 2017). According to APA recommendations, specific information about age means, ranges, and medians should be reported when describing participants in the article's Method section (American Psychological Association, 2020).

3.5. Research quality and reporting of demographic variables from 1980 to 2019

3.5.1. Articles' qualitative characteristics

The longitudinal descriptive analyses from the 198 articles included by abstract/methods showed that research on the area has grown steadily since 1980, with a marked increase in publications and quality since 2009. We found that 166 (83.8%) articles had clear and explicit research questions, 118 (59.6%) explicitly included perceived support in the research question, 162 (81.8%) had a clear and explicit study design, 153 (77.3%) had a clear and explicit conclusion, and 155 (78.3%) discussed limitations. Our results suggest that reporting a clear and explicit research question and design, limitations, and conclusion is a common practice in the field of perceived support in secondary education. However, between 16.2% (32) and 22.7% (45) of the included publications did not fulfill these guidelines in one or more of the required essential details mentioned by Coates (2020) and by APA reporting standards (American Psychological Association, 2020). This result is in line with Coates (2020), who found that from a sample of 500 empirical articles from the Social Sciences Citation Index, 19.6% were missing a data analysis method, 47.8% a sampling strategy, and 35.6% limitations. However, none of the articles studied by Coates (2020) lacked a research purpose. This mismatch in results could be caused by our focus on explicit research questions rather than focusing on the general research purpose of the articles and by the fact that Coate's sample is from 2017, whereas our sample includes articles ranging from 1980 to 2019. Interestingly, a study conducted in 1983 analyzing the use of research questions in nine journals of educational research reported that half of the 520 articles analyzed did not include explicit research questions (Dillon, 1983). This is in line with the tendency we found that the more recent publications adhered more to these standards than older publications, suggesting that the history of research on perceived support in secondary education has developed a use of more precise scientific standards.

3.5.2. Demographic variables

Regarding demographic variables reported from 1980 to 2019, there have been diverse practices. We found that student age was the most reported demographic variable. However, 32.8% (65) of the articles did not report student age despite APA recommendations (Cooper, 2020; Levitt, 2020). One could argue that age could be calculated from school grade; however, many classes include students of different ages, making it difficult to infer accurate age by school grade. Moreover, cognitive and emotional development, which are accompanied by brain changes, are constant in this period of life and normally follow an age-related development (Steinberg, 2005; Yurgelun-Todd, 2007). In a meta-analysis of 65 studies on the relationship between teacher support and students' academic emotions, Lei et al. (2018) found that age was a moderating variable. Knowing the precise age of students when doing research on perceived support is, therefore, essential in order to match students' cognitive and emotional development with the type of teacher support provided.

Students' ethnic background was reported in 46.0% (91) studies, and demographic variables regarding teachers and parents were clearly underreported, with just 9.1% (18) of articles providing teachers' years of experience, 6.6% (13) teachers' age, 13.6% (27) parents' educational level, and 31.8% (63) parents' SES. In a recent systematic review, Gaias et al. (2020) studied the current treatment of race/ethnicity in educational intervention research by analyzing empirical studies included in the U.S.A. DOE's What Works Clearinghouse database. They found that out of the 96 education intervention studies randomly selected, 26 (27.1%) did not report race/ethnicity, 10 (10.4%) gave partial detail (e.g., "the sample was 60% nonwhite"), and 60 (62.5%) reported comprehensive details on race/ethnicity. However, out of the 210 meta-analyses included in the

review, 197 (93.8%) did not provide information on the racial/ethnic characteristics of the sample, 5 (2.4%) gave partial detail, and 8 (3.8%) provided complete details.

Concerns about inconsistent reporting of demographic variables in educational studies were raised by the Council for Learning Disabilities research committee in 1984 (Smith et al., 1984), and the National Joint Committee on Learning Disabilities (American Speech-Language-Hearing Association, 1991) recommended the reporting of more precise demographic data in 1991. After this call, the reporting of demographic variables improved, as suggested by a meta-analysis on 26 reading interventions by Reed et al. (2013). They found that 73% of the studies reported race/ethnicity, and 58% reported SES. However, Reed et al. (2013) reported results concerning age mixed with grade results, not providing detailed analysis for age-related variables. In a more recent review of special education intervention studies published in 12 peer-reviewed special education journals between 2010 and 2016, Sinclair et al. (2018) found that out of the 495 studies included, 54.7% reported race/ethnicity, and 11.7% reported SES. However, Sinclair et al. (2018) reported age results mixed with grade results, with 91.1% of studies reporting age or grade.

Even though our results indicate that ethnicity and SES are also underreported in educational research focusing on perceived teacher support, there seems to be a stronger tradition of including these variables compared with the fields of behavioral sciences (Brodhead et al., 2014; Jones et al., 2020; Li et al., 2017) and neuropsychology (Medina et al., 2021; O'Bryant et al., 2004). In contrast, age is underreported. The underreporting of demographic variables can lead to undesirable consequences, such as misrepresentation, inability to analyze participant diversity (Fontenot et al., 2019; Jones et al., 2020), and overlooking important variables that might be crucial in the understanding of teacher support.

3.6. Research approaches and designs

Regarding the research approaches of the 198 articles included by abstract/methods published between 1980 and 2019, we found that 89.0% (176) had a quantitative research approach, 7.5% (15) had a qualitative approach, and 3.5% (7) a mixed-methods approach. The first qualitative study dates from 2004, and most of are from the period 2013–2017, suggesting an increased interest in qualitative methods in research related to perceived teacher support in later years (Figure 3). Onwuegbuzie (2002) found similar results in an analysis of the 1998 volume of the *British Journal of Educational Psychology*. Of the 40 articles analyzed, 90.0% had a quantitative research approach, 2.5% were mixed methods, 5.0% were qualitative reviews of the literature, and 2.5% were opinion papers. In a review of the methodological characteristics of the research published in three journals of higher education from 1996 to 2000, Hutchinson and Lovell (2004) identified 312 original research articles, with 73.4% having a quantitative approach, 20.3% qualitative, and 6.3% mixed methods. In another study, Hrastinski and Keller (2007) analyzed 660 articles from four journals on educational technology published between 2000 and 2004. They found that 51% of the papers had a quantitative approach, 25% qualitative, and 24% mixed methods, suggesting that quantitative research is the preferred research approach but showing an increase in the use of qualitative and mixed-methods techniques. Similar results showing the predominance of quantitative research were also found in a more recent study by Egmir et al. (2017). They conducted a content analysis of the studies published in the *International Journal of Instruction* from 2008 to 2017. Of the 197 articles scrutinized, 61.4% employed quantitative methods, of which 35.5% were descriptive surveys, 35.5% were qualitative studies, and 3% were mixed-methods studies. Our results showed much lower percentages of qualitative and mixed-methods studies. This difference can be due to several factors. First, Egmir et al. (2017), Hrastinski and Keller (2007), Hutchinson and Lovell (2004), and Onwuegbuzie (2002) limited their analyses to specific journals, whereas we included several journals from different countries and filtered them by quality standards. Second, we analyzed the research approaches of articles published from 1980 to 2019, an interval of 40 years, whereas the longest interval of the other studies was 10 years. In fact, the first qualitative study from our pool of 198 articles published between 1980 and 2019 dates from 2004, suggesting that older publications favored quantitative

approaches. Third, our review is limited to studies including perceived teacher support as an explicit variable in the research questions.

Regarding the methodological approach and research design of the 95 articles included by full-text dating from 1994 to 2019, we found that 74.8% (71) of the publications included by full-text had a cross-sectional design and that 90.5% (86) were correlational studies. These results are in line with an integrative review conducted by J. Zhang et al. (2018) in the field of teacher support for career development. Out of the 18 articles included in the review, 15 were quantitative studies and 3 qualitative. Of the quantitative studies, 13 had a cross-sectional design, and 14 reported correlation analysis results.

Our results indicate that there is a need of more qualitative and mixed-methods publications. Studies including qualitative methods could bring more nuances into the field of perceived teacher support and give a broader perspective of contextual differences within disciplines and the different working methods applied in the learning processes.

3.7. Research themes and general results from 1994 to 2019

We conducted a short narrative thematic review with all the articles included by full-text that studied at least one of the main three types of support identified and that were related to at least one of the main dependent variables identified (i.e., academic, motivation and health-related variables; $n = 75$).

3.7.1. Perceived teacher support and academic variables

The notion that perceived teacher support has a positive effect on students' academic achievement is generally supported (Abrami et al., 1994; Bakadorova & Raufelder, 2015; Chen, 2005; Filippello et al., 2019; Göllner et al., 2018; Jelas et al., 2016; Jia et al., 2009; Košir & Tement, 2014; López et al., 2002; Malecki & Demaray, 2003; Neseth et al., 2009; Ng et al., 2016; O'Rourke & Houghton, 2008; Schenke et al., 2017; song et al., 2015; Spera & Wentzel, 2003; Tennant et al., 2015; Yu & Singh, 2016). However, Caleon et al. (2016) did not find a relationship between perceived teacher support and being at risk for low academic achievement or school failure, and Havik and Ertesvåg (2019) found no significant differences in math course grades between trajectories of teachers' instructional support. Interestingly, Schenke et al. (2017) found that increasing levels of within-classroom heterogeneity of students' perceptions of the classroom learning environment, including teacher support, were negatively associated with students' achievement.

Positive associations between perceived teacher support and academic engagement have also been reported (Cheon et al., 2016; Hardre et al., 2009; Jelas et al., 2016; Pan et al., 2017; Patall, Hooper et al., 2018; Patall, Steingut et al., 2018; S. S. Shih, 2008; Shih, 2015; Tas, 2016; Wentzel et al., 2017). However, Ryzin (2011) and Strati et al. (2017) did not find a direct relationship between teacher support and engagement.

Perceived teacher support has also been positively associated with academic enjoyment (Fin et al., 2019; Lazarides & Buchholz, 2019; Ommundsen & Kvalø, 2007; S. S. Shih, 2008; Sakiz et al., 2012; Sparks et al., 2017; Wright & Li, 2009), academic goals (Chirkov & Ryan, 2001; Diseth & Samdal, 2014; Régner et al., 2009; Shih, 2013; Song et al., 2015; Spera & Wentzel, 2003), career adaptability (Kenny & Bledsoe, 2005), academic initiative (Danielsen et al., 2011, 2010), school attendance (De Wit et al., 2010), self-regulation (Chirkov & Ryan, 2001; Ng et al., 2016; S. S. Shih, 2008), perceptions of competence (Lavigne et al., 2007), academic adjustment, and attitudes toward school (Rueger et al., 2010).

3.7.2. Perceived teacher support and motivation

Several studies have reported associations with higher perceived teacher support and higher intrinsic motivation (Chirkov & Ryan, 2001; Lam et al., 2009; Ommundsen & Kvalø, 2007; Thomas & Mueller, 2017), self-determined motivation (Fin et al., 2019; Hagger et al., 2009; Hein & Caune,

2014; Lavigne et al., 2007; Mouratidis et al., 2017; Patall, Steingut et al., 2018; Sevil et al., 2018), mastery-oriented and performance goals (Shih, 2013; Song et al., 2015; Spera & Wentzel, 2003), and subject-related motivation (Cheon et al., 2016; Vlachopoulos, 2012; T. Zhang et al., 2012). However, Sparks et al. (2017) did not find a significant relationship between perceived teacher support and self-determined motivation in an intervention study. In the same manner, Wentzel et al. (2017) did not find a direct relationship between perceived teacher support and motivation at the individual level; they did, however, report a significant influence of perceived teacher support on student's motivation at the classroom level.

Wormington et al. (2012) studied different motivational profiles and its relationship with teacher support and school relatedness. They found that students with a profile displaying both intrinsic and extrinsic motivation perceived more teacher support and school relatedness than students with other motivational profiles. In a qualitative study, Bakadorova and Raufelder (2015) found that students with a high school self-concept were more motivated by direct teacher feedback, including critique, whereas students with a low school self-concept profited from a more indirect form of involvement on the teacher's part (encouragement in lesson participation and the involvement of important others). Interestingly, Ng et al. (2016) found that students with high levels of learning-motivated strategies reported higher levels of perceived teacher autonomy support compared with students with lower scores in learning-motivated strategies. Additionally, Havik and Ertesvåg (2019) reported higher motivation levels in students with higher and stable perceptions of perceived teacher support compared with students with lower, but increasing, rates of perceived teacher support during the study.

Basic psychological needs satisfaction has been both directly (Filippello et al., 2019; Sevil et al., 2018; Shih, 2015) and indirectly (Hein & Caune, 2014; Sanchez-Oliva et al., 2014; Shih, 2015; Taylor & Lonsdale, 2010; Vlachopoulos, 2012) related to perceived teacher autonomy support. Higher levels of perceived autonomy support have been reported to directly predict higher levels of autonomy needs satisfaction in students (Filippello et al., 2019; Sevil et al., 2018; Shih, 2015). As a mediator, needs satisfaction has been reported to regulate the relationship between perceived teacher autonomy support and academic burnout (Shih, 2015), effort (Taylor & Lonsdale, 2010), subjective vitality (Taylor & Lonsdale, 2010), and motivation (Hein & Caune, 2014; Sanchez-Oliva et al., 2014; Vlachopoulos, 2012).

Intervention studies have also reported that students who have more supportive and less controlling teachers report more perceived autonomy support and higher needs satisfaction (Cheon et al., 2016; Fin et al., 2019; Flunger et al., 2019). Interestingly, Cheon et al. (2014) found that teachers also benefit from being more supportive and less controlling, reporting higher levels of psychological needs satisfaction, autonomous motivation, intrinsic goals, teaching skills, and wellbeing.

3.7.3. *Perceived teacher support and health-related variables*

Several studies report an association between higher scores in perceived teacher support and lower rates of depressive symptoms (Alivernini et al., 2019; Colarossi & Eccles, 2003; Galand & Hospel, 2013; Jia et al., 2009; Madjar et al., 2017, 2018; Reis et al., 2009; Rueger et al., 2010; Way et al., 2007), anxiety (Lazarides & Buchholz, 2019; Piechurska-Kuciel, 2011; S. S. Shih, 2008), musculoskeletal complaints (Bru et al., 1998), school problems, internalizing problems, inattention/hyperactivity (Tennant et al., 2015), and maladaptive behavior (Shih, 2015; Tabbah et al., 2016; Way et al., 2007) and higher rates of self-esteem (Colarossi & Eccles, 2003; Jia et al., 2009; Rueger et al., 2010; Way et al., 2007), wellbeing (Chirkov & Ryan, 2001; Ciarrochi et al., 2017; Suldo et al., 2009; Tian et al., 2013), life satisfaction (Diseth & Samdal, 2014; Suldo et al., 2009), better health (Laftman & Modin, 2012), and health-related quality of life (Lebacqz et al., 2019). In a qualitative study, Bakadorova and Raufelder (2015) found that close relations with teachers provided emotional support for students with both high and low school self-concept. However, Ren

et al. (2018) and Malecki and Demaray (2003) did not find associations between perceived teacher emotional support and depression and emotional symptoms.

4. Limitations

This study is not without limitations. The research questions were wide, covering a broad aspect of support. As support is a multidimensional phenomenon, the included studies carry a broad spectrum of relevant support concepts. Alternatively, this was an approach chosen to draw a picture of historical and current contributions to the field to get an overview of the research trends and practices, which clearly demonstrate tendencies and gaps in the literature.

The search items were based on a multi-field search, but we could also have used subject headings as a search strategy in Medline, Publine, and PsychInfo to identify more relevant studies. We could also have included more search terms to broaden the search and be able to identify more publications. However, the chosen strategy was sufficient to identify a large number of articles.

Studying support across nationalities entails certain challenges. Schooling systems can vary greatly across countries. For example, in some countries, classes are integrated with students with special needs, while in others, this group is segregated. This could have implications for the homogeneity of the classes and the whole situation of teachers giving support. In some schools, there might also be a common practice differentiating levels among groups, such as in STEM disciplines, but information on homogeneity and heterogeneity is not provided. Another challenge was comparing school grades from the included articles to the U.S.A. grading system. Different grouping systems are used worldwide, and many allow for older or younger students to be placed in grades not corresponding with their age but with their level.

We conducted a randomized error control of the imputed variables. This could have allowed for errors not being identified. However, the randomized control was conducted several times in different steps of the study.

Another limitation is that we employed very strict inclusion and exclusion criteria, which could have led to excluding relevant studies. However, our review was not limited to specific journals and included articles published in five different languages, allowing for a review that represents the international research panorama of perceived teacher support.

5. Conclusions

This review provides an overview of the research on perceived teacher support in secondary education published in high-quality journals from 1980 to 2019. Our findings uncovered several gaps in the literature, such as a skewness in methodology favoring quantitative approaches to the detriment of qualitative and mixed-methods studies; a lack of adherence to APA quality standards when reporting demographic variables; and a lack of research from the teachers' perspective. We also found that the literature has mainly focused on three types of support: social/emotional, autonomy, and academic support. There is a serious gap in the literature reporting specific school subject, which uncover the lack of sensitiveness for different kinds of teacher support in different learning situations. The results from the 80 high-quality articles included in the thematic summary give sufficient evidence to associate perceived teacher support with an array of positive consequences involving academic and health-related variables as well as motivation and basic needs satisfaction. Future research should focus on employing more qualitative and mixed-methods approaches as well as on investigating teachers' perspectives on providing support. Future publications should also report student age and all pertinent demographic variables adhering to APA quality standards. The findings have implications for teachers, school leaders, politicians and policymaking in acknowledging teacher support as essential competence for future education, and offer training for giving teacher support, not only within classroom, but also in various teaching contexts outside the classroom.

6. Recommendations and future research

Future research in the field of teacher support should focus on employing more qualitative, mixed-methods, and longitudinal designs. Even though quantitative methods are broadly used, they are mainly correlational. More experimental and quasi-experimental studies are needed. Moreover, future studies should be conducted in different countries and cultures to guarantee a broad understanding and interpretation of teacher support. In particular more studies investigating teacher support in subjects other than STEM and physical education are needed. In order to meet this goal, it is necessary to give details about subject type.

Based on our results and reporting APA guidelines (American Psychological Association, 2020; Appelbaum et al., 2018; Levitt et al., 2018), we recommend that future studies provide more detail and specific information regarding demographic variables. This includes reporting both school grade and detailed information about age as well as parent and teacher information and, in general, more adherence to APA guidelines. We also recommend following the IMRaD model (Pyrzczak, 2016; Silvia, 2015) and including an explicit and clear research question, design, and conclusion as well as discussing limitations (Coates, 2020; G. King, 1995; Lyon et al., 2017).

An important research gap we identified was that almost all studies address teacher support from the student perspective. Therefore, future studies should focus on the teachers' perspective of giving support in secondary education. Another important research line is the development of a standardized and validated instrument to measure all types and aspects of teacher support and allow for comparisons between studies.

Funding

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

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Disclosure statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Citation information

Cite this article as: Perceived teacher support in secondary education from 1980 to 2019: An integrative review, Violeta Lozano Botellero, Stine M. Ekornes, Siv M. Gamlem, Wenche Torrisen & Helga Synnevgård Løvoll, *Cogent Education* (2023), 10: 2164648.

References

Abrami, P. C., Chambers, B., Poulsen, C., Kouros, C., Farrell, M., & D'Apollonia, S. (1994). Positive social interdependence and classroom climate. *Genetic, Social, and General Psychology Monographs*, 120(3), 329–346. <https://pubmed.ncbi.nlm.nih.gov/7926696/>

Alivernini, F., Cavicchiolo, E., Manganelli, S., Chirico, A., & Lucidi, F. (2019). Support for autonomy at school predicts immigrant adolescents' psychological well-being. *Journal of Immigrant & Minority Health*, 21(4), 761–766. <https://doi.org/10.1007/s10903-018-0839-x>

American Psychological Association. (2020). *Publication manual of the American psychological association 2020: The official guide to APA style* (7 ed). American Psychological Association.

American Speech-Language-Hearing Association. (1991). *The need for subject descriptors in learning disabilities research: Preschool through high school years [Position Statement]*. www.asha.org/policy

Anderson, L. W., Jacobs, J., Schramm, S., & Splittgerber, F. (2000). School transitions: Beginning of the end or a new beginning? *International Journal of Educational Research*, 33(4), 325–339. [https://doi.org/10.1016/S0883-0355\(00\)00020-3](https://doi.org/10.1016/S0883-0355(00)00020-3)

Appelbaum, M., Cooper, H., Kline, R. B., Mayo-Wilson, E., Nezu, A. M., & Rao, S. M. (2018). Journal article reporting standards for quantitative research in psychology: The APA publications and communications board task force report. *American Psychologist*, 73(1), 3–25. <https://doi.org/10.1037/amp0000191>

Atkinson, R. (2013). Journals with borders, journals without borders: Under-representation of Asian countries in educational research journals. *Higher Education Research & Development*, 32(3), 507–510. <https://doi.org/10.1080/07294360.2013.790528>

Baethge, C., Goldbeck-Wood, S., & Mertens, S. (2019). SANRA—a scale for the quality assessment of narrative review articles. *Research Integrity and Peer Review*, 4(1), 1–7. <https://doi.org/10.1186/s41073-019-0064-8>

Bakadorova, O., & Raufelder, D. (2015). Perception of teachers and peers during adolescence: Does school self-concept matter? Results of a qualitative study. *Learning and Individual Differences*, 43, 218–225. <https://doi.org/10.1016/j.lindif.2015.08.035>

- Bamford, A. (2014). Making it happen: Closing the gap between policy and practice in arts education. In M. Fleming, L. M. Bresler, & J. O'Toole (Eds.), *The Routledge international handbook of the arts and education* (pp. 406–415). Routledge.
- Brodhead, M. T., Durán, L., & Bloom, S. E. (2014). Cultural and linguistic diversity in recent verbal behavior research on individuals with disabilities: A review and implications for research and practice. *The Analysis of Verbal Behavior*, 30(1), 75–86. <https://doi.org/10.1007/s40616-014-0009-8>
- Bru, E., Boyesen, M., Munthe, E., & Roland, E. (1998). Perceived social support at school and emotional and musculoskeletal complaints among Norwegian 8th grade students. *Scandinavian Journal of Educational Research*, 42(4), 339–356. <https://doi.org/10.1080/0031383980420402>
- Caleon, I. S., Wui, M. G. L., Chiam, C. L., King, R. B., Tan, J. P.-L., & Tan, C. S. (2016). Personal strengths and perceived teacher support as predictors of Singapore students' academic risk status. *Educational Psychology*, 37(8), 983–1000. <https://doi.org/10.1080/01443410.2016.1259460>
- Chen, J. J. (2005). Relation of academic support from parents, teachers, and peers to Hong Kong adolescents' academic achievement: The mediating role of academic engagement. *Genetic, Social, & General Psychology Monographs*, 131(2), 77–127. <https://doi.org/10.3200/MONO.131.2.77-127>
- Cheon, S. H., Reeve, J., & Song, Y. G. (2016). A teacher-focused intervention to decrease PE students' amotivation by increasing need satisfaction and decreasing need frustration. *Journal of Sport & Exercise Psychology*, 38(3), 217–235. <https://doi.org/10.1123/jsep.2015-0236>
- Cheon, S. H., Reeve, J., Yu, T. H., & Jang, H. R. (2014). The teacher benefits from giving autonomy support during physical education instruction. *Journal of Sport and Exercise Psychology*, 36(4), 331–346. <https://doi.org/10.1123/jsep.2013-0231>
- Chirkov, V. I., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and U. S. adolescents: Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology*, 32(5), 618–635. <https://doi.org/10.1177/0022022101032005006>
- Chu, P. S., Saucier, D. A., & Hafner, E. (2010). Meta-analysis of the relationships between social support and well-being in children and adolescents. *Journal of Social and Clinical Psychology*, 29(6), 624–645. <https://doi.org/10.1521/jscp.2010.29.6.624>
- Ciarrochi, J., Morin, A. J. S., Sahdra, B. K., Litalien, D., & Parker, P. D. (2017). A longitudinal person-centered perspective on youth social support: Relations with psychological wellbeing. *Developmental Psychology*, 53(6), 1154–1169. <https://doi.org/10.1037/dev0000315>
- Coates, A. (2020). How often are basic details of the research process mentioned in social science research papers? *Learned Publishing*, 34(2), 128–136. <https://doi.org/10.1002/leap.1330>
- Colarossi, L. G., & Eccles, J. S. (2003). Differential effects of support providers on adolescents' mental health. *Social Work Research*, 27(1), 19–30. <https://doi.org/10.1093/swr/27.1.19>
- Cooper, H. (2020). *Reporting quantitative research in psychology: How to meet APA style journal article reporting standards*, 2nd ed. American Psychological Association. <https://doi.org/10.1037/0000178-000>
- Cronin, M. A., & George, E. (2020). The why and how of the integrative review. *Organizational Research Methods*, 1094428120935507. <https://doi.org/10.1177/1094428120935507>
- Danielsen, A. G., Breivik, K., & Wold, B. (2011). Do perceived academic competence and school satisfaction mediate the relationships between perceived support provided by teachers and classmates, and academic initiative? *Scandinavian Journal of Educational Research*, 55(4), 379–401. <https://doi.org/10.1080/00313831.2011.587322>
- Danielsen, A. G., Wiium, N., Wilhelmsen, B. U., & Wold, B. (2010). Perceived support provided by teachers and classmates and students' self-reported academic initiative. *Journal of School Psychology*, 48(3), 247–267. <https://doi.org/10.1016/j.jsp.2010.02.002>
- Deci, E. L., & Ryan, R. M. (2000). The “What” and “Why” of goal Pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227–268. https://doi.org/10.1207/S15327965PLI1104_01
- De Wit, D. J., Karioja, K., & Rye, B. (2010). Student perceptions of diminished teacher and classmate support following the transition to high school: Are they related to declining attendance? *School Effectiveness and School Improvement*, 21(4), 451–472. <https://doi.org/10.1080/09243453.2010.532010>
- Dillon, J. T. (1983). The use of questions in educational research. *Educational Researcher*, 12(9), 19–24. <https://doi.org/10.2307/1174724>
- Diseth, A., & Samdal, O. (2014). Autonomy Support and Achievement Goals as Predictors of Perceived School Performance and Life Satisfaction in the Transition between Lower and Upper Secondary School. *Social Psychology of Education: An International Journal*, 17(2), 269–291. <https://doi.org/10.1007/s11218-013-9244-4>
- Egmir, E., Erdem, C., & Kocyigit, M. (2017). Trends in educational research: A content analysis of the studies published in “international journal of instruction”. *International Journal of Instruction*, 10(3), 277–294. <https://doi.org/10.12973/iji.2017.10318a>
- Federici, R. A., & Skalvik, E. M. (2014). Students' perception of instrumental support and effort in mathematics: The mediating role of subjective task values. *Social Psychology of Education: An International Journal*, 17(3), 527–540. <https://doi.org/10.1007/s11218-014-9264-8>
- Filippello, P., Buzzai, C., Costa, S., & Sorrenti, L. (2019). School refusal and absenteeism: Perception of teacher behaviors, psychological basic needs, and academic achievement. *Frontiers in Psychology*, 10, 1471. <https://doi.org/10.3389/fpsyg.2019.01471>
- Fin, G., Moreno-Murcia, J. A., Leon, J., Baretta, E., Junior, R. J. N., & Erwin, H. (2019). Interpersonal autonomy support style and its consequences in physical education classes. *PLoS One*, 14(5), e0216609. <https://doi.org/10.1371/journal.pone.0216609>
- Flaspohler, P. D., Elfstrom, J. L., Vanderzee, K. L., Sink, H. E., & Birchmeier, Z. (2009). Stand by me: The effects of peer and teacher support in mitigating the impact of bullying on quality of life. *Psychology in the Schools*, 46(7), 636–649. <https://doi.org/10.1002/pits.20404>
- Flunger, B., Mayer, A., & Umbach, N. (2019). Beneficial for some or for everyone? Exploring the effects of an autonomy-supportive intervention in the real-life classroom. *Journal of Educational Psychology*, 111(2), 210–234. <https://doi.org/10.1037/edu0000284>
- Fontenot, B., Uwayo, M., Avendano, S. M., & Ross, D. (2019). A descriptive analysis of applied behavior analysis research with economically disadvantaged children. *Behavior Analysis in Practice*, 12(4),

- 782–794. <https://doi.org/10.1007/s40617-019-00389-8>
- Gaias, L. M., Duong, M. T., Pullmann, M. D., Brewer, S. K., Smilansky, M., Halbert, M., Carey, C. M., & Jones, J. (2020). Race and ethnicity in educational intervention research: A systematic review and recommendations for sampling, reporting, and analysis. *Educational Research Review*, 31, 100356. <https://doi.org/10.1016/j.edurev.2020.100356>
- Galand, B., & Hospel, V. (2013). Peer victimization and school disaffection: Exploring the moderation effect of social support and the mediation effect of depression. *British Journal of Educational Psychology*, 83(4), 569–590. <https://doi.org/10.1111/j.2044-8279.2012.02077.x>
- Givens Rolland, R. (2012). Synthesizing the evidence on classroom goal structures in middle and secondary schools: A Meta-analysis and narrative review. *Review of Educational Research*, 82(4), 396–435. <https://doi.org/10.3102/0034654312464909>
- Göllner, R., Wagner, W., Eccles, J. S., & Trautwein, U. (2018). Students' idiosyncratic perceptions of teaching quality in mathematics: A result of rater tendency alone or an expression of dyadic effects between students and teachers? *Journal of Educational Psychology*, 110(5), 709–725. <https://doi.org/10.1037/edu0000236>
- Haerens, L., Vansteenkiste, M., De Meester, A., Delrue, J., Tallir, I., Vande Broek, G., Goris, W., & Aelterman, N. (2018). Different combinations of perceived autonomy support and control: Identifying the most optimal motivating style. *Physical Education and Sport Pedagogy*, 23(1), 16–36. <https://doi.org/10.1080/17408989.2017.1346070>
- Hagger, M., Chatzisarantis, N. L., Hein, V., Soos, I., Karsai, I., Lintunen, T., & Leemans, S. (2009). Teacher, peer and parent autonomy support in physical education and leisure-time physical activity: A trans-contextual model of motivation in four nations. *Psychology & Health*, 24(6), 689–711. <https://doi.org/10.1080/08870440801956192>
- Hamre, B. K., Pianta, R. C., & Chomat-Mooney, L. (2009). Conducting classroom observations in school-based research. In L. M. Dinella (Ed.), *Conducting science-based psychology research in schools* (pp. 79–105). American Psychological Association. <https://doi.org/10.1037/11881-004>
- Hardre, P. L., Sullivan, D. W., & Crowson, H. M. (2009). Student characteristics and motivation in rural high schools. *Journal of Research in Rural Education*, 24(16), 43466. <https://hdl.handle.net/11244/13645>
- Havik, T., & Ertesvåg, S. K. (2019). Trajectories of students' perceived instructional support. *Social Psychology of Education: An International Journal*, 22(2), 357–381. <https://doi.org/10.1007/s11218-018-9474-6>
- Hein, V., & Caune, A. (2014). Relationships between perceived teacher's autonomy support, effort and physical self-esteem. *Kinesiology*, 46(2), 218–226. <https://hrcak.srce.hr/131915>
- House, J. S. (1981). *Work stress, and social support*. AddisonWesley. Addison-Wesley.
- Hrastinski, S., & Keller, C. (2007). An examination of research approaches that underlie research on educational technology: A review from 2000 to 2004. *Journal of Educational Computing Research*, 36(2), 175–190. <https://doi.org/10.2190/H16L-4662-6000-0446>
- Hutchinson, S. R., & Lovell, C. D. (2004). A review of methodological characteristics of research published in key journals in higher education: Implications for graduate research training. *Research in Higher Education*, 45(4), 383–403. <https://doi.org/10.1023/B:RIHE.0000027392.94172.d2>
- Jaffe, K., Ter Horst, E., Gunn, L. H., Zambrano, J. D., Molina, G., & Xin, B. (2020). A network analysis of research productivity by country, discipline, and wealth. *PLoS One*, 15(5), e0232458. <https://doi.org/10.1371/journal.pone.0232458>
- Jelas, Z. M., Azman, N., Zulnaidi, H., & Ahmad, N. A. (2016). Learning support and academic achievement among Malaysian adolescents: The mediating role of student engagement. *Learning Environments Research*, 19(2), 221–240. <https://doi.org/10.1007/s10984-015-9202-5>
- Jesson, J., Matheson, L., & Lacey, F. M. (2011). *Doing your literature review: Traditional and systematic techniques*. Sage Publications.
- Jia, Y., Way, N., Ling, G., Yoshikawa, H., Chen, X., Hughes, D., Ke, X., & Lu, Z. (2009). The influence of student perceptions of school climate on socioemotional and academic adjustment: A comparison of Chinese and American adolescents. *Child Development*, 80(5), 1514–1530. <https://doi.org/10.1111/j.1467-8624.2009.01348.x>
- Jones, S. H., St. Peter, C. C., & Ruckle, M. M. (2020). Reporting of demographic variables in the journal of applied behavior analysis. *Journal of Applied Behavior Analysis*, 53(3), 1304–1315. <https://doi.org/10.1002/jaba.722>
- Kenny, M. E., & Bledsoe, M. (2005). Contributions of the relational context to career adaptability among urban adolescents. *Journal of Vocational Behavior*, 66(2), 257–272. <https://doi.org/10.1016/j.jvb.2004.10.002>
- King, G. (1995). Replication, replication. *PS: Political Science & Politics*, 28(3), 444–452. <https://doi.org/10.2307/420301>
- King, D. A. (2004). The scientific impact of nations. *Nature*, 430(6997), 311–316. <https://doi.org/10.1038/430311a>
- Košir, K., & Tement, S. (2014). Teacher-student relationship and academic achievement: A cross-lagged longitudinal study on three different age groups. *European Journal of Psychology of Education*, 29(3), 409–428. <https://doi.org/10.1007/s10212-013-0205-2>
- Laftman, S. B., & Modin, B. (2012). School-performance indicators and subjective health complaints: Are there gender differences? *Sociology of Health & Illness*, 34(4), 608–625. <https://doi.org/10.1111/j.1467-9566.2011.01395.x>
- Lam, S.-F., Cheng, R. W.-Y., & Ma, W. Y. K. (2009). Teacher and student intrinsic motivation in project-based learning. *Instructional Science*, 37(6), 565–578. <https://doi.org/10.1007/s11251-008-9070-9>
- Lavigne, G. L., Vallerand, R. J., & Miquelon, P. (2007). A motivational model of persistence in science education: A self-determination theory approach. *European Journal of Psychology of Education*, 22(3), 351–369. <https://doi.org/10.1007/Bf03173432>
- Lazarides, R., & Buchholz, J. (2019). Student-perceived teaching quality: How is it related to different achievement emotions in mathematics classrooms? *Learning and Instruction*, 61, 45–59. <https://doi.org/10.1016/j.learninstruc.2019.01.001>
- Lebacqz, T., Dujeu, M., Meroc, E., Moreau, N., Pedroni, C., Godin, I., & Castetbon, K. (2019). Perceived social support from teachers and classmates does not moderate the inverse association between body mass index and health-related quality of life in adolescents. *Quality of Life Research*, 28(28), 895–905. <https://doi.org/10.1007/s11136-018-2079-x>
- Lei, H., Cui, Y., & Chiu, M. M. (2018). The relationship between teacher support and students' academic

- emotions: A meta-analysis [Review]. *Frontiers in Psychology*, 8, 2288. <https://doi.org/10.3389/fpsyg.2017.02288>
- Levitt, H. M. (2020). Reporting qualitative research in psychology: How to meet APA style journal article reporting standards, revised edition. American Psychological Association. <https://doi.org/10.1037/0000179-000>
- Levitt, H. M., Bamberg, M., Creswell, J. W., Frost, D. M., Josselson, R., & Suárez-Orozco, C. (2018). Journal article reporting standards for qualitative primary, qualitative meta-analytic, and mixed methods research in psychology: The APA publications and communications board task force report. *American Psychologist*, 73(1), 26. <https://doi.org/10.1037/amp0000151>
- Li, A., Wallace, L., Ehrhardt, K. E., & Poling, A. (2017). Reporting participant characteristics in intervention articles published in five behavior-analytic journals, 2013–2015. *Behavior Analysis: Research and Practice*, 17(1), 84–91. <https://doi.org/10.1037/bar0000071>
- López, E. J., Ehly, S., & García-Vásquez, E. (2002). Acculturation, social support and academic achievement of Mexican and Mexican American high school students: An exploratory study. *Psychology in the Schools*, 39(3), 245–257. <https://doi.org/10.1002/pits.10009>
- Lyon, L., Jeng, W., & Mattern, E. (2017). Research transparency: A preliminary study of disciplinary conceptualisation, drivers, tools and support services. *International Journal of Digital Curation*, 12(1), 46–64. <https://doi.org/10.2218/ijdc.v12i1.530>
- Madjar, N., Ben Shabat, S., Elia, R., Fellner, N., Rehavi, M., Rubin, S. E., Segal, N., & Shoval, G. (2017). Non-suicidal self-injury within the school context: Multilevel analysis of teachers' support and peer climate. *European Psychiatry*, 41(1), 95–101. <https://doi.org/10.1016/j.eurpsy.2016.11.003>
- Madjar, N., Walsh, S. D., & Harel-Fisch, Y. (2018). Suicidal ideation and behaviors within the school context: Perceived teacher, peer and parental support. *Psychiatry Research*, 269, 185–190. <https://doi.org/10.1016/j.psychres.2018.08.045>
- Maldonado, E., Zamarripa, J., Ruiz-Juan, F., Pacheco, R., & Delgado, M. (2019). Teacher autonomy support in physical education classes as a predictor of motivation and concentration in Mexican students. *Frontiers in Psychology*, 10, 2834. <https://doi.org/10.3389/fpsyg.2019.02834>
- Malecki, C. K., & Demaray, M. K. (2003). What type of support do they need? Investigating student adjustment as related to emotional, informational, appraisal, and instrumental support. *School Psychology Quarterly*, 18(3), 231–252. <https://doi.org/10.1521/scpq.18.3.231.22576>
- Margraf, H., & Pinquart, M. (2016). Bullying and social support: Variation by school-type and emotional or behavioural disturbances. *Emotional and Behavioural Difficulties*, 21(3), 258–270. <https://doi.org/10.1080/13632752.2016.1165970>
- Mårtensson, P., Fors, U., Wallin, S.-B., Zander, U., & Nilsson, G. H. (2016). Evaluating research: A multidisciplinary approach to assessing research practice and quality. *Research Policy*, 45(3), 593–603. <https://doi.org/10.1016/j.respol.2015.11.009>
- Medina, L. D., Torres, S., Gioia, A., Ochoa Lopez, A., Wang, J., & Cirino, P. T. (2021). Reporting of demographic variables in neuropsychological research: An Update of O'Bryant et al.'s trends in the current literature. *Journal of the International Neuropsychological Society*, 27(5), 497–507. <https://doi.org/10.1017/S1355617720001083>
- Metheny, J., McWhirter, E. H., & O'Neil, M. E. (2008). Measuring perceived teacher support and its influence on adolescent career development. *Journal of Career Assessment*, 16(2), 218–237. <https://doi.org/10.1177/1069072707313198>
- Mouratidis, A., Michou, A., Aelterman, N., Haerens, L., & Vansteenkiste, M. (2017). Begin-of-school-year perceived autonomy-support and structure as predictors of end-of-school-year study efforts and procrastination: The mediating role of autonomous and controlled motivation. *Educational Psychology*, 38(4), 435–450. <https://doi.org/10.1080/01443410.2017.1402863>
- Neseth, H., Savage, T. A., & Navarro, R. (2009). Examining the impact of acculturation and perceived social support on mathematics achievement among Latino/a high school students. *California School Psychologist*, 14(1), 59–69. <https://doi.org/10.1007/BF03340951>
- Ng, B. L. L., Liu, W. C., & Wang, J. C. K. (2016). Student motivation and learning in mathematics and science: A cluster analysis. *International Journal of Science and Mathematics Education*, 14(7), 1359–1376. <https://doi.org/10.1007/s10763-015-9654-1>
- The Norwegian Register for Scientific Journals, Series and Publishers. (2021). Retrieved May 5, 2021, from https://dbn.sns.uib.no/publiseringsskanaler/Forside.action?request_locale=en
- O'Bryant, S., O'Jile, J., & McCaffrey, R. (2004). Reporting of demographic variables in neuropsychological research: Trends in the current literature. *The Clinical Neuropsychologist*, 18(2), 229–233. <https://doi.org/10.1080/13854040490501439>
- OECD. (2018). *The future of education and skills: Education 2030* (OECD, Ed.). Organisation for Economic Cooperation Development (OECD). [https://www.oecd.org/education/2030/E2030%20Position%20Paper%20\(05.04.2018\).pdf](https://www.oecd.org/education/2030/E2030%20Position%20Paper%20(05.04.2018).pdf)
- OECD. (2021). *Beyond academic learning: First results from the survey of social and emotional skills*. OECD Publishing. <https://doi.org/10.1787/92a11084-en>
- Ommundsen, Y., & Kvalø, S. E. (2007). Autonomy-mastery, supportive or performance focused? Different teacher behaviours and pupils' outcomes in physical education. *Scandinavian Journal of Educational Research*, 51(4), 385–413. <https://doi.org/10.1080/00313830701485551>
- Onwuegbuzie, A. J. (2002). Common methodological, analytical, and interpretational errors in published educational studies: An analysis of the 1998 volume of the British journal of educational psychology. *Educational Research Quarterly*, 26(1), 11–22. <https://www.proquest.com/scholarly-journals/common-methodological-analytical-interpretational/docview/216183068/se-2?accountid=12870>
- O'Rourke, J., & Houghton, S. (2008). Perceptions of secondary school students with mild disabilities to the academic and social support mechanisms implemented in regular classrooms. *International Journal of Disability, Development and Education*, 55(3), 227–237. <https://doi.org/10.1080/10349120802268321>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lahu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *Systematic Reviews*, 10(1), 89. <https://doi.org/10.1186/s13643-021-01626-4>

- Page, M. J., Moher, D., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hróbjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., ... McKenzie, J. E. (2021). PRISMA 2020 explanation and elaboration: Updated guidance and exemplars for reporting systematic reviews. *BMJ*, 372, n160. <https://doi.org/10.1136/bmj.n160>
- Pan, J., Zaff, J. F., & Donlan, A. E. (2017). Social support and academic engagement among reconnected youth: Adverse life experiences as a moderator. *Journal of Research on Adolescence*, 27(4), 890–906. <https://doi.org/10.1111/jora.12322>
- Patall, E. A., Hooper, S., Vasquez, A. C., Pituch, K. A., & Steingut, R. R. (2018). Science class is too hard: Perceived difficulty, disengagement, and the role of teacher autonomy support from a daily diary perspective. *Learning and Instruction*, 58, 220–231. <https://doi.org/10.1016/j.learninstruc.2018.07.004>
- Patall, E. A., Steingut, R. R., Vasquez, A. C., Trimble, S. S., Pituch, K. A., & Freeman, J. L. (2018). Daily autonomy supporting or thwarting and students' motivation and engagement in the high school science classroom. *Journal of Educational Psychology*, 110(2), 269–288. <https://doi.org/10.1037/edu0000214>
- Pianta, R. C., & Hamre, B. K. (2009). A lot of students and their teachers need support: Using a common framework to observe teacher practices might help. *Educational Researcher*, 38(7), 546–548. <https://doi.org/10.3102/0013189X09348786>
- Pickering, R. M. (2017). Describing the participants in a study. *Age and Ageing*, 46(4), 576–581. <https://doi.org/10.1093/ageing/afx054>
- Piechurska-Kuciel, E. (2011). Perceived teacher support and language anxiety in Polish secondary school EFL learners. *Studies in Second Language Learning and Teaching*, 1(1), 83–100. <https://doi.org/10.14746/ssl.2011.1.1.5>
- Pyrzczak, F. (2016). *Writing empirical research reports: A basic guide for students of the social and behavioral sciences*. Routledge.
- Reddy, R., Rhodes, J. E., & Mulhall, P. (2003). The influence of teacher support on student adjustment in the middle school years: A latent growth curve study. *Development and Psychopathology*, 15(1), 119–138. <https://doi.org/10.1017/S0954579403000075>
- Reed, D. K., Sorrells, A. M., Cole, H. A., & Takakawa, N. N. (2013). The ecological and population validity of reading interventions for adolescents: Can Effectiveness Be Generalized? *Learning Disability Quarterly*, 36(3), 131–144. <https://doi.org/10.1177/0731948712451976>
- Régner, I., Loose, F., & Dumas, F. (2009). Students' perception of parental and teacher academic involvement: Consequences on achievement goals. *European Journal of Psychology of Education*, 24(2), 263–277. <https://doi.org/10.1007/BF03173016>
- Reis, O., Azmitia, M., Syed, M., Radmacher, K., & Gills, J. (2009). Patterns of social support and mental health among ethnically-diverse adolescents during school transitions. *International Journal of Developmental Science*, 3(1), 39–50. <https://doi.org/10.3233/DEV-2009-3106>
- Ren, P., Qin, X., Zhang, Y., & Zhang, R. (2018). Is social support a cause or consequence of depression? A longitudinal study of adolescents. *Frontiers in Psychology*, 9, 1634. <https://doi.org/10.3389/fpsyg.2018.01634>
- Rueger, S. Y., Malecki, C. K., & Demaray, M. K. (2010). Relationship between multiple sources of perceived social support and psychological and academic adjustment in early adolescence: Comparisons across gender. *Journal of Youth and Adolescence*, 39(1), 47–61. <https://doi.org/10.1007/s10964-008-9368-6>
- Rueger, S. Y., Malecki, C. K., Pyun, Y., Aycock, C., & Coyle, S. (2016). A meta-analytic review of the association between perceived social support and depression in childhood and adolescence. *Psychological Bulletin*, 142(10), 1017–1067. <https://doi.org/10.1037/bul0000058>
- Ruzek, E. A., Hafen, C. A., Allen, J. P., Gregory, A., Mikami, A. Y., & Pianta, R. C. (2016). How teacher emotional support motivates students: The mediating roles of perceived peer relatedness, autonomy support, and competence. *Learning and Instruction*, 42, 95–103. <https://doi.org/10.1016/j.learninstruc.2016.01.004>
- Ryzin, M. J. (2011). Protective factors at school: Reciprocal effects among adolescents' perceptions of the school environment, engagement in learning, and hope. *Journal of Youth and Adolescence*, 40(12), 1568–1580. <https://doi.org/10.1007/s10964-011-9637-7>
- Sakiz, G., Pape, S. J., & Hoy, A. W. (2012). Does perceived teacher affective support matter for middle school students in mathematics classrooms? *Journal of School Psychology*, 50(2), 235–255. <https://doi.org/10.1016/j.jsp.2011.10.005>
- Sanchez-Oliva, D., Sanchez-Miguel, P. A., Leo, F. M., Kinnafick, F.-E., & Garcia-Calvo, T. (2014). Physical education lessons and physical activity intentions within Spanish secondary schools: A self-determination perspective. *Journal of Teaching in Physical Education*, 33(2), 232–249. <https://doi.org/10.1123/jtpe.2013-0043>
- Schenke, K., Ruzek, E., Lam, A. C., Karabenick, S. A., & Eccles, J. S. (2017). Heterogeneity of student perceptions of the classroom climate: A latent profile approach. *Learning Environments Research*, 20(3), 289–306. <https://doi.org/10.1007/s10984-017-9235-z>
- Sevil, J., Garcia-Gonzalez, L., Abos, A., Generelo Lanaspá, E., & Aibar Solana, A. (2018). Which school community agents influence adolescents' motivational outcomes and physical activity? Are more autonomy-supportive relationships necessarily better? *International Journal of Environmental Research & Public Health [Electronic Resource]*, 15(9), 30. <https://doi.org/10.3390/ijerph15091875>
- Shen, B., Li, W., Sun, H., & Rukavina, P. B. (2010). The influence of inadequate teacher-to-student social support on motivation of physical education students. *Journal of Teaching in Physical Education*, 29(4), 417–432. <https://doi.org/10.1123/jtpe.29.4.417>
- Shih, S. S. (2008). The relation of self-determination and achievement goals to Taiwanese eighth graders' behavioral and emotional engagement in schoolwork. *The Elementary School Journal*, 108(4), 313–334. <https://doi.org/10.1086/528974>
- Shih, -S.-S. (2013). Autonomy support versus psychological control, perfectionism, and Taiwanese adolescents' achievement goals. *The Journal of Educational Research*, 106(4), 269–279. <https://doi.org/10.1080/00220671.2012.692734>
- Shih, -S.-S. (2015). An investigation into academic burnout among Taiwanese adolescents from the self-determination theory perspective. *Social Psychology of Education: An International Journal*, 18(1), 201–219. <https://doi.org/10.1007/s11218-013-9214-x>
- Silvia, P. J. (2015). *Write it up: Practical strategies for writing and publishing journal articles*. American Psychological Association.

- Sinclair, J., Hansen, S. G., Machalicek, W., Knowles, C., Hirano, K. A., Dolata, J. K., Blakely, A. W., Seeley, J., & Murray, C. (2018). A 16-year review of participant diversity in intervention research across a selection of 12 special education journals. *Exceptional Children*, 84(3), 312–329. <https://doi.org/10.1177/0014402918756989>
- Smith, D. D., Deshler, D., Hallahan, D., Lovitt, T., Robinson, S., Voress, J., & Ysseldyke, J. (1984). Minimum Standards for the Description of Subjects in Learning Disabilities Research Reports. *Learning Disability Quarterly*, 7(3), 221–225. <https://doi.org/10.2307/1510478>
- Song, J., Bong, M., Lee, K., & Kim, S.-I. (2015). Longitudinal investigation into the role of perceived social support in adolescents' academic motivation and achievement. *Journal of Educational Psychology*, 107(3), 821–841. <https://doi.org/10.1037/edu0000016>
- Sparks, C., Lonsdale, C., Dimmock, J., & Jackson, B. (2017). An intervention to improve teachers' interpersonally involving instructional practices in high school physical education: Implications for student relatedness support and in-class experiences. *Journal of Sport & Exercise Psychology*, 39(2), 120–133. <https://doi.org/10.1123/jsep.2016-0198>
- Spera, C., & Wentzel, K. R. (2003). Congruence between students' and teachers' Goals: Implications for social and academic motivation. *International Journal of Educational Research*, 39(4–5), 395–413. <https://doi.org/10.1016/j.ijer.2004.06.006>
- Steinberg, L. (2005). Cognitive and affective development in adolescence. *Trends in Cognitive Sciences*, 9(2), 69–74. <https://doi.org/10.1016/j.tics.2004.12.005>
- Strati, A. D., Schmidt, J. A., & Maier, K. S. (2017). Perceived Challenge, Teacher Support, and Teacher Obstruction as Predictors of Student Engagement. *Journal of Educational Psychology*, 109(1), 131–147. <https://doi.org/10.1037/edu0000108>
- Suldo, S. M., Friedrich, A. A., White, T., Farmer, J., Minch, D., & Michalowski, J. (2009). Teacher support and adolescents' subjective well-being: A mixed-methods investigation. *School Psychology Review*, 38(1), 67–85. <https://doi.org/10.1080/02796015.2009.12087850>
- Tabbah, R., Miranda, A. H., & Wheaton, J. E. (2016). Intricacies of school relationships and the well-being of Arab American Youth: Implications for school psychologists. *Contemporary School Psychology*, 20(4), 315–326. <https://doi.org/10.1007/s40688-016-0089-7>
- Tas, Y. (2016). The contribution of perceived classroom learning environment and motivation to student engagement in science. *European Journal of Psychology of Education*, 31(4), 557–577. <https://doi.org/10.1007/s10212-016-0303-z>
- Taylor, I. M., & Lonsdale, C. (2010). Cultural differences in the relationships among autonomy support, psychological need satisfaction, subjective vitality, and effort in British and Chinese physical education. *Journal of Sport and Exercise Psychology*, 32(5), 655–673. <https://doi.org/10.1123/jsep.32.5.655>
- Tennant, J. E., Demaray, M. K., Malecki, C. K., Terry, M. N., Clary, M., & Elzinga, N. (2015). Students' ratings of teacher support and academic and social-emotional well-being. *School Psychology Quarterly: the Official Journal of the Division of School Psychology, American Psychological Association*, 30(4), 494–512. <https://doi.org/10.1037/spq0000106>
- Thomas, A. E., & Mueller, F. H. (2017). A magic dwells in each beginning? Contextual effects of autonomy support on students' intrinsic motivation in Unfamiliar situations. *Social Psychology of Education: An International Journal*, 20(4), 791–805. <https://doi.org/10.1007/s11218-017-9393-y>
- Tian, L., Liu, B., Huang, S., & Huebner, E. S. (2013). Perceived social support and school well-being among Chinese early and middle adolescents: The mediational role of self-esteem. *Social Indicators Research*, 113(3), 991–1008. <https://doi.org/10.1007/s11205-012-0123-8>
- Toronto, C. E., & Remington, R. (2020). *A step-by-step guide to conducting an integrative review*. Springer.
- Vlachopoulos, S. P. (2012). The role of self-determination theory variables in predicting middle school students' subjective vitality in physical education. *Hellenic Journal of Psychology*, 9(2), 179–204. https://pseve.org/wp-content/uploads/2018/03/Volume09_Issue2_Vlachopoulos.pdf
- Way, N., Reddy, R., & Rhodes, J. (2007). Students' perceptions of school climate during the middle school years: Associations with trajectories of psychological and behavioral adjustment. *American Journal of Community Psychology*, 40(4/3558), 194–213. <https://doi.org/10.1007/s10464-007-9143-y>
- Wentzel, K. R., Muenks, K., McNeish, D., & Russell, S. (2017). Peer and teacher supports in relation to motivation and effort: A multi-level study. *Contemporary Educational Psychology*, 49, 32–45. <https://doi.org/10.1016/j.cedpsych.2016.11.002>
- Wormington, S. V., Corpus, J. H., & Anderson, K. G. (2012). A person-centered investigation of academic motivation and its correlates in high school. *Learning and Individual Differences*, 22(4), 429–438. <https://doi.org/10.1016/j.lindif.2012.03.004>
- Wright, P. M., & Li, W. (2009). Exploring the relevance of positive youth development in urban physical education. *Physical Education and Sport Pedagogy*, 14(3), 241–251. <https://doi.org/10.1080/17408980801974978>
- Yurgelun-Todd, D. (2007). Emotional and cognitive changes during adolescence. *Current Opinion in Neurobiology*, 17(2), 251–257. <https://doi.org/10.1016/j.conb.2007.03.009>
- Yu, R., & Singh, K. (2016). Teacher support, instructional practices, student motivation, and mathematics achievement in high school. *The Journal of Educational Research*, 111(1), 81–94. <https://doi.org/10.1080/00220671.2016.1204260>
- Zeedyk, M. S., Gallacher, J., Henderson, M., Hope, G., Husband, B., & Lindsay, K. (2003). Negotiating the transition from primary to secondary school: perceptions of pupils, parents and teachers. *School Psychology International*, 24(1), 67–79. <https://doi.org/10.1177/0143034303024001010>
- Zhang, T., Solmon, M. A., & Gu, X. (2012). The role of teachers' support in predicting students' motivation and achievement outcomes in physical education. *Journal of Teaching in Physical Education*, 31(4), 329–343. <https://doi.org/10.1123/jtpe.31.4.329>
- Zhang, J., Yuen, M., & Chen, G. (2018). Teacher support for career development: An integrative review and research agenda. *Career Development International*, 23(2), 122–144. <https://doi.org/10.1108/cdi-09-2016-0155>



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