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META-ANALYSIS

Elucidating the Associations Between Achievement Goals and Academic Dishonesty: a Meta-analysis

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Abstract

Academic dishonesty is a pervasive problem undermining the effectiveness of educational institutions. From a motivational perspective, researchers have proposed achievement goals as antecedents of academic dishonesty. Empirical findings corroborate the notion that mastery goals (focus on learning and competence development) are negatively linked to academic dishonesty. However, even though theoretical considerations suggest positive links between performance goals (focus on competence demonstration) and academic dishonesty, empirical findings are mixed. To provide a better understanding of how goals matter for academic dishonesty, we conducted three-level meta-analyses encompassing 163 effect sizes from 33 studies and a total of 19,787 participants. We found a disproportional use of correlational designs (using self-report measures of academic dishonesty) and personal goal measures (opposed to surrounding goal structures). Evidence of publication bias was not found. Our results confirmed the expected negative associations between mastery goals and academic dishonesty and revealed heterogenous findings for performance goals, with indications of positive associations within behavioral and intentional dishonesty measures, but not within self-reports. To further clarify the associations between achievement goals and academic dishonesty, we call for more methodological rigor in the measurement of goals and dishonesty as well as multi-methods approaches when investigating their interplay.

Keywords Achievement goals · Goal orientations · Academic dishonesty · Cheating · Meta-analysis

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Introduction

A prevailing and disconcerting finding concerning dishonest behavior that has circulated the scientific literature for almost a century (Marques et al., 2019) is the high prevalence of dishonest behavior by students in schools and higher education (see Cuadrado et al., 2019; McCabe et al., 2001; Simha & Cullen, 2012). Academic dishonesty, which encompasses activities such as cheating on exams or incorporating uncredited content from others, is a widespread problem that has been observed across different educational levels and in various countries (Simha & Cullen, 2012). Furthermore, cheating rates have reportedly increased throughout the last decades (Balbuena & Lamela, 2015; Marques et al., 2019) and have also been found to be prevalent in digital learning settings (Janke et al., 2021). Apart from this high prevalence, concerns are also warranted due to the far-reaching ramifications of cheating. The possibility to advance through the educational system without the necessary requirements not only reduces the fairness and validity of assessments, but also impedes actual knowledge transfer — corroding the essence of educational institutions (Bouville, 2010). Such issues can ultimately damage the reputation of higher education institutions and diminish confidence in their ability to produce educated and ethical members of society (Resurreccion, 2012). Fraudulent behavior in earlier life stages is known to be associated with a continuation of such behavior later in life (Carpenter et al., 2004; Mulisa & Ebessa, 2021; Nonis & Swift, 2001). Hence, understanding deviant behavior of the younger generation who represent the politicians, workers, and scientists of tomorrow is crucial as a means of early prevention. By gaining a deeper understanding of the mechanisms underlying academic dishonesty, educational institutions can develop more effective policies and teaching practices that promote fair and effective learning environments, while also fostering positive moral development as a foundation for ethical behavior throughout life (George et al., 2014).

The study of student cheating behavior has acknowledged a wide range of influencing factors (Crown & Spiller, 1998; Murdock & Anderman, 2006). A large body of research has examined student characteristics, such as demographics, personality traits, and cognitive abilities (see reviews and meta-analyses by Cuadrado et al., 2019; Lee et al., 2020; Paulhus & Dubois, 2015; Plessen et al., 2020; Whitley et al., 1998, 1999). Other identified factors include students' moral attitudes, the perceived severity and likelihood of penalties, and contextual aspects such as institutional policies or peer behavior (e.g., Akbulut et al., 2008; McCabe et al., 2002; O'Rourke et al., 2010). Besides this, motivational perspectives have also proven to be fruitful in understanding the reasons that compel students to engage in dishonest behaviors (Murdock & Anderman, 2006). Such perspectives are especially helpful in identifying strategies to combat academic dishonesty, as they deal with personal aspects that, compared to static student traits, are more malleable in nature (Anderman & Koenka, 2017; Murdock & Anderman, 2006) and can be influenced by the motivational climate of the learning environment (Bardach et al., 2020; Meece et al., 2006; Urdan, 2001). A particularly prominent motivational framework to this end is the achievement goal approach (Elliot et al., 2017), which has proven effective in explaining why students

cheat (Anderman & Danner, 2008; Anderman & Koenka, 2017). However, uninvestigated contextual aspects and mixed findings for the relationships between certain achievement goals and academic dishonesty represent open issues that require further attention. Specifically, although theoretical considerations suggest positive associations between performance goals and academic dishonesty, relationships ranging from negative to positive as well as nil findings have been reported (Daumiller & Janke, 2020). With the current meta-analysis, we therefore aimed to contribute to a deeper understanding of how achievement goals are related to academic dishonesty, examine conditional aspects that can help explain inconsistencies in the literature, and map the different research approaches as well as research gaps in this field.

Achievement Goals and Their Complex Associations with Academic Dishonesty

Definition of Academic Dishonesty

As academic dishonesty has often been described in a rather general and sometimes tautological way, it is important to provide a clear definition before elaborating further on its associations with achievement goals. Definitions of academic dishonesty such as "students' misdemeanors conducted within academic settings or during academic endeavors" (Akbulut et al., 2008, p. 464) comprise the full spectrum of relevant behaviors, speaking to the multifaceted nature of the phenomenon. McClung and Schneider (2015) list 18 distinct types of behaviors; however, the most prevalent and thus most frequently studied types include exam cheating, plagiarism, and lying (e.g., faking false pretenses to extend deadlines; Marques et al., 2019; McCabe et al., 2012; Roig & Caso, 2005). Furthermore, second-party or passive cheating refers to cheating in the form of helping others with illicit behaviors (e.g., Putarek & Pavlin-Bernardić, 2020). Increasingly, some of these behaviors are also considered in their electronically mediated form (e.g., Akbulut et al., 2008; Stephens & Gehlbach, 2007). In the present study, we define academic dishonesty as cheating behaviors in academic institutions, which involves taking personal advantage in educational performance situations by breaking academic rules (see Marques et al., 2019).

A noteworthy consideration in the study of academic dishonesty is the specific academic population under investigation. Most studies have been carried out with secondary or higher education students (e.g., Anderman et al., 1998; McCabe et al., 2012), although students as young as the elementary school level have been examined (Mendoza-Nápoles, 2022). A typical assumption is that academic dishonesty is more widespread among older students, as competition and the importance of grades and other achievements become more relevant. However, no conclusive effect of age on academic dishonesty has been established (see Krou et al., 2021). Interestingly, despite being part of the academic population, academic dishonesty of educators has been given little attention in this field.[1] Cizek (2003) reports cases of fraudulent

[1] We acknowledge the extensive debate on researcher misconduct elicited by the scientific confidence crisis of the last decade, but we regard scientists, although part of the academic population, as more related to a workplace than an educational domain. While their motivations for teaching and for research

behavior by school teachers in the USA, where school accountability evaluations and performance-focused teacher and student assessments are suspected to drive some teachers to sabotage their scoring by helping students to cheat. To gain a more comprehensive overview of academic dishonesty, we also included teachers in our literature search.

Achievement Goals and Academic Dishonesty

Although students may be unsure of the exact behaviors that count as academic dishonesty (Bisping et al., 2008), most rules are regarded as common or implicit knowledge and are usually explicitly expressed by educators or indirectly by institutional honor codes (McCabe et al., 2002). Thus, motivational theories on academic dishonesty generally consider it to be an intentional and motivated behavior (Anderman & Danner, 2008). In this line of research, the achievement goal approach represents a prominent theoretical framework which conceptualizes experiences and behaviors in achievement contexts such as in the workplace, sports, and, important for the present work, educational settings. Hence, it serves as a useful explanatory framework for understanding the motivation behind cheating in learning institutions (Anderman & Danner, 2008; Anderman & Koenka, 2017; Murdock & Anderman, 2006).

Achievement goals are future-directed cognitive representations of desired outcomes in achievement situations that differ in how achievement is conceptualized (Chazan et al., 2022). Typically, two fundamental types of achievement goals are distinguished (Elliot et al., 2017): *Mastery goals* are characterized by an orientation towards the process of learning (learning goals) and improving or mastering a skill or task (task goals), where successful achievement is assessed using an intra-individual frame of reference (i.e., based on the past self) or by standards of the task itself. *Performance goals* are characterized by a striving to appear competent (appearance goals) or perform better in relation to others (normative goals), using an inter-individual reference point to assess achievement (i.e., being judged by others or judging in reference to others). Furthermore, these goals can be further distinguished with regard to whether individuals strive to approach a positive outcome (approach goals) or focus on avoiding a negative outcome (avoidance goals). In recent years, *work-avoidance goals* have additionally been proposed as being relevant for achievement contexts. An overview model by Daumiller et al. (2019) takes these finer distinctions into account and summarizes the current literature of self-directed goals relevant in achievement situations. We focused on the goals distinguished in this model in the current study (see Table 1 for an overview of investigated types of goals).[2]

Footnote 1 (continued)
might overlap to some extent, their professional behaviors, including those related to academic dishonesty, are quite different between both domains (Daumiller & Dresel, 2020).

[2] *Social goals*, relating to social competence and broadly characterized by social reasons underlying academic achievement, have also been proposed as being relevant in achievement contexts (Urdan & Maehr, 1995). We thereby included social goals in the literature search, however, we did not have specific assumptions regarding their relevance for academic dishonesty and did not find any studies investigating this link.

Table 1 Overview of investigated types of goals, their definition and expected associations with academic dishonesty

Type of goal	Definition: Personal striving to …	Expected association with academic dishonesty
Mastery-approach	… do well on a task and develop and improve own competencies	Negative
Mastery-avoidance	… avoid falling short on a task and not improving own competencies	
Mastery	(includes both aspects from approach and avoidance)	
Performance-approach	… appear competent or perform better relative to others	Positive and negative (under certain circumstances)
Performance-avoidance	… avoid appearing incompetent or to perform worse relative to others	
Performance	(includes both aspects from approach and avoidance)	
Work-avoidance	… get through the day with little effort	Positive

Depending on the different goals that individuals strive for, different strategies for the pursuit of the respective desired outcome can be expected (Anderman & Danner, 2008; Anderman & Koenka, 2017; Murdock & Anderman, 2006). Regarding academic dishonesty, individuals striving to learn and master a task (i.e., strong mastery goals) should be less inclined to cheat, as doing so would undermine the learning process, hinder actual competence development, and essentially betray one's own standards. Indeed, consistent negative associations between mastery goals (approach and avoidance) and academic dishonesty have been found (Krou et al., 2021). Conversely, for individuals focused on their appearance and performance relative to others (i.e., strong performance goals), academic dishonesty might provide effective means to attain these goals. However, empirical findings on the association of performance goals and academic dishonesty appear highly inconclusive (entailing nil, positive, as well as negative associations, see overview in Daumiller & Janke, 2020), which is in line with an ongoing debate regarding the extent to which performance goals are linked to positive as well as negative academic outcomes, emotions, and behaviors (Anderman & Danner, 2008; Daniels et al., 2008; Kaplan et al., 2002; Pekrun et al., 2009; Roussel et al., 2011; Scherrer et al., 2020).

Findings regarding work-avoidance goals and their associations with academic dishonesty are scarce. Similar to performance goals, individuals striving to attend to tasks with as little effort as possible are assumed to show a stronger tendency for academic dishonesty, because it can provide short-cuts to reduce the necessary effort. The available empirical evidence thus far suggests a positive association between work-avoidance goals and academic dishonesty (e.g., Putarek & Pavlin-Bernardić, 2020; Šeremet et al., 2018).

Existing Meta-analysis and Proposed Extension

To unravel inconsistent empirical findings, research typically resorts to research syntheses to highlight differences between studies. One recent meta-analysis examined the relationships between a broad range of motivational aspects, including achievement goals, and academic dishonesty (Krou et al., 2021). The study provides a comprehensive overview of associations in alignment with different motivational theories and corroborates the lack of evidence regarding the associations between performance goals (approach and avoidance) and classroom performance goal structures with academic dishonesty when averaged across studies. As a consequence of the heterogeneity in effect sizes for performance goals, the authors tested two widely used achievement goal measures (the Achievement Goal Questionnaire of Elliot & Murayama, 2008, and the achievement goal measures from the Patterns of Adaptive Learning Scales of Midgley et al., 2000) for differential effects, but found no moderation. Publication status and age also showed no significant moderation. The authors noted that further investigations to uncover contextual influences are necessary to better understand the variability in associations between performance goals and academic dishonesty.

To answer this call, we propose several possible reasons for these inconsistencies as an extension to the previous synthesis of Krou et al. (2021):

First, the way academic dishonesty is measured likely affects associations with achievement goals. Academic dishonesty is commonly assessed via self-report measures, where students rate the extent of their engagement in a list of dishonest behaviors (e.g., Carpenter et al., 2006; McCabe et al., 2002; Roig & DeTommaso, 1995). When academic dishonesty is assessed in laboratory settings, it is usually measured as cheating in a (supposed) academic, intelligence, or other type of performance test (e.g., Daumiller & Janke, 2019, 2020; Williamson & Assadi, 2005). Another approach is the use of case vignettes depicting hypothetical academic scenarios including the opportunity to cheat (e.g., Murdock et al., 2004; Rettinger et al., 2004), where participants are asked how likely it is that they would cheat in such a situation. Here, the measures represent a hypothetical willingness, intention, or likelihood of engagement in academic dishonesty. Intentional measures were excluded from the meta-analysis by Krou et al. (2021), which is why we deemed this an important extension for testing the influence of the measure type. Self-report and behavioral measures represent different degrees of validity in terms of the actual behavioral display, and intentions to engage in dishonest behavior show rather weak associations with actual cheating (Harding et al., 2007). Apart from this possible source of heterogeneity, the predominant use of self-report measures to assess academic dishonesty (Daumiller & Janke, 2020) could likely introduce biases in terms of social desirability, especially regarding sensitive topics like academic dishonesty (Bernardi & Adamaitis, 2006; Scheers & Dayton, 1987). Although the typical online administration of surveys somewhat ameliorates this problem by providing higher anonymity than personal interviews, prevalence estimates can vary substantially between different survey techniques and direct behavioral assessments (Höglinger, 2016). The appearance aspect of performance goals might even increase the risk of social desirability bias (Pulfrey et al., 2019), especially for students striving to avoid

appearing incompetent, possibly leading to underreporting of own cheating behavior that could be interpreted as a lack of competence. Thus, the type of measurement for academic dishonesty could explain heterogeneity in associations, especially regarding performance goals.

Second, not all studies differentiate between the goals' valence. Achievement goal researchers acknowledge that performance-approach and performance-avoidance goals are "functionally separate goals leading to different outcomes" (Harackiewicz et al., 2002, p. 638). Indeed, differential outcomes of performance-approach and performance-avoidance goals in terms of academic achievement, cognition, emotions, and behaviors are well documented in past empirical research (Chazan et al., 2022). Similar differences are conceivable regarding cheating behavior: a striving to outperform others (strong performance-approach goals) could render cheating an attractive option for success, whereas a striving to avoid appearing incompetent (strong performance-avoidance goals) could also increase the fear of getting caught cheating, resulting in lesser engagement in cheating in general or in the use of different, more covert or less detectable forms of cheating. Consequently, not considering this important distinction could blur differential effects of performance-approach and performance-avoidance goals on academic dishonesty or even level out opposite effects.

Third, whereas some studies investigate the personal goals of students, others consider achievement goal structures (contextual goals) of the environment, which might translate differently into consequent behavior. Contextual goals typically refer to students' perceptions of their teachers' instructional practices (teacher goals) or the general motivational climate within a learning environment (classroom or school goal structures; Bardach et al., 2020; Urdan & Schoenfelder, 2006), but also entail the achievement focus embodied by parents (parent goals; e.g., Friedel et al., 2007; Gonida et al., 2007). The strength of associations between contextual and personal achievement goals, including relations to non-counterparts (e.g., performance-approach goal structures and personal performance-avoidance goals), range from trivial to strong (e.g., Bardach et al., 2020; Friedel et al., 2007; Zubković & Kolić-Vehovec, 2014). Moreover, simple relationships between contextual and personal goals have been contested, as perceptions of the motivational climate have also been found to be mediated by personal goal orientations (Tapola & Niemivirta, 2008). Furthermore, although contextual goals have been conceptualized as antecedents of personal goals (Urdan & Schoenfelder, 2006), they have also shown direct links to outcomes over and beyond the influence of personal goals (Meece et al., 2006). It is therefore conceivable that their influence on students' engagement in academic dishonesty varies from the influence of personal achievement goals. As another extension to Krou et al. (2021), who only investigated non-valence distinguished classroom goal structures, we therefore also consider contextual goals on a differentiated level.

Lastly, it should be considered that an unspecific assessment of goals (and academic dishonesty, for that matter) might also lead to less pronounced effects. Although there are individual differences in goal orientations that are somewhat stable over time, there is also a situational component ascribed to them (Elliot et al., 2017), as shown in successful laboratory manipulations or the influence of goal structures (Bardach et al., 2020; Kaplan et al., 2002). It is therefore plausible that assessing goals within a specific domain (e.g., within a specific course or subject)

instead of regarding school and studies in general may allow participants to better picture scenarios and judge their own goal focus. Similarly, asking participants about their engagement in a specific dishonest behavior (e.g., copying answers from others during an exam), compared to using broad concepts, might facilitate judgment and decrease biases through subjective interpretations of what counts as cheating (Anderman & Danner, 2008). Furthermore, a meta-analysis by Huang (2016) on associations between achievement goals and self-efficacy found significant moderation effects regarding different subject domains as well as when goals and self-efficacy were assessed within the same domain. Consequently, specific assessment of both goals and academic dishonesty as well as a domain-match between measures (e.g., personal goals for math class and cheating in math exams) could produce more valid and pronounced effects.

Taken together, we extend the analysis of Krou et al. (2021) by including measures of cheating intentions to investigate the influence of the dishonesty measure type and by considering other types of contextual goals beyond classroom goal structures, distinguishing between valences on this level. We also include the specificity of achievement goal and academic dishonesty measures and consider personal work-avoidance goals to add to the scarce work on their relation to academic dishonesty.

Moderators

In sum, we investigated the following methodological specifications as moderators of the associations between achievement goals and academic dishonesty (see list and levels in Table 2).

Achievement Goal Measure Regarding the operationalization of achievement goals, we considered whether personal or contextual achievement goals were assessed and the specificity of the goal measure (general or specific to a certain task, domain, or subject). Following common practice to account for measurement error in meta-analyses (Hunter & Schmidt, 2004), we used the reliability of the scales assessing goals to test whether effects are less pronounced (i.e., smaller) for less precise measures.

Academic Dishonesty Measure We considered the type of academic dishonesty measure (self-report, behavioral, or intention) and the specificity of measures (i.e., coding composite measures of various behaviors as general measures and composite measures within a specific context such as subject class, or specific behaviors such as exam cheating as specific measures). Following the same argumentation as for the goal measures, we considered reliability coefficients of the measures used to assess academic dishonesty. Validated scales to assess academic dishonesty are more the exception than the norm (Bashir & Bala, 2018) and items developed or adapted specifically for a given study are frequently used. We therefore deemed it especially crucial to regard the academic dishonesty measurement reliability as a moderator of

Table 2 Methodological moderators of the achievement goal–academic dishonesty association

Moderator	Levels
Achievement goal measure	
Goal level	2 (personal, contextual)
Specificity	2 (general, specific)
Reliability coefficient	(continuous)
Academic dishonesty measure	
Measure type	3 (self-report, behavioral, intention)
Specificity	2 (general, specific)
Reliability coefficient	(continuous)
Goal-dishonesty domain-match	2 (matching, non-matching)
Primary study features	
Study design	3 (experimental cross-sectional, observational cross-sectional, observational longitudinal[a])
Sample educational level	4 (elementary, secondary, tertiary, post-graduate)
Publication type	5 (peer-reviewed journal article, dissertation thesis, conference contribution, book/book chapter, unpublished)
Publication time	(continuous)

Levels represent theoretical categories, which are not all represented in the data. Specificity of measures refers to whether goals/academic dishonesty were assessed specifically within a certain domain (e.g., school subject or task), or as a specific behavior in the case of academic dishonesty measures. Goal-dishonesty domain-match indicates whether domains were the same for both measures (matching) or only one of both was measured in a specific domain or both in general terms (non-matching). [a]Cross-sectional correlations were recorded from a single longitudinal study. Therefore, this moderator, having only two levels, was subsumed under the academic dishonesty measure type, which perfectly captured both recorded study designs (cross-sectional correlation studies and cross-sectional experimental studies) with the respective measure type (self-report and behavioral measure), plus adding more resolution with a third category not captured by study design (intentional measures)

effects (note that this moderator only applied to measures using questionnaires, not behavioral measures).

Goal-Dishonesty Domain-Match We considered the matching of specific measures of achievement goals and academic dishonesty in their assessed domain. We coded measures as non-matching when both were assessed as general, or only one measure as specific, and domain-matching when specific measures matched context (within the same subject class, e.g., Anderman et al., 2009, or within the same task, e.g., Daumiller & Janke, 2019).

Primary Study Features We tested the study design, educational level, publication type, and publication time as further moderators. We expected study designs to be related to the type of academic dishonesty measure (i.e., experimental studies predominantly using behavioral measures and correlational studies predominantly using self-report measures) but coded it separately to further differentiate the two (for more elaboration on this point see moderator analysis in the methods section).

As discussed above, varying effects of age on the association between achievement goals and academic dishonesty are reported in the literature (Krou et al., 2021), which is why we investigated the variability of effects depending on the educational level of the samples. Publication type and year were considered following standard practice, although we did not expect specific effects of these moderators.

Research Aim and Hypotheses

To summarize, the present meta-analysis had three main goals. The first goal was to synthesize the existing literature on achievement goals and their relation to academic dishonesty. Building on prior work discussed above, we expected negative associations between mastery goals and academic dishonesty, a heterogeneous pattern of associations for performance goals, and positive associations for work-avoidance goals. To help reconcile the inconsistent findings regarding performance goals, the second goal was to investigate moderators of the achievement goal – academic dishonesty associations from a methodological perspective. This focus follows recent developments in meta-research stressing the influence of data-analytical specifications on study results (Simonsohn et al., 2020) and considers primary study features as well as operationalizations of measures as potential moderators of associations. By mapping these different research approaches between studies, as a third goal, we aimed to raise awareness of methodological issues and research gaps to guide future research and to provide a template as well as inspiration for future syntheses in the vein of clarifying inconsistent findings.

Method

Open Science Statement

Following recommendations on transparent and reproducible scientific reporting (Lakens et al., 2016), we disclose within an online repository (https://osf.io/k3myg/?view_only=d950e2a45c7245efa01e181556a668ec) the coding scheme, the entire data set used for analysis, and the complete code to reproduce the analysis to comply with the FAIR (findable, accessible, interoperable, re-usable) guiding principles for scientific data (Wilkinson et al., 2016). This includes full disclosure of how we determined the sample size, data exclusions, calculated effect sizes, and any statistical data manipulations that were used. For reporting consistency, we followed the updated PRISMA reporting guidelines (Page et al., 2021).

Literature Search

The literature search was conducted in October 2020. Details of the search and resulting sample can be found in the PRISMA flow diagram (Fig. 1). Multiple databases (Google Scholar, Web of Science, ERIC, Education Source, PsycArticles, ProQuest Dissertations & Theses) were used to ensure an exhaustive sample with

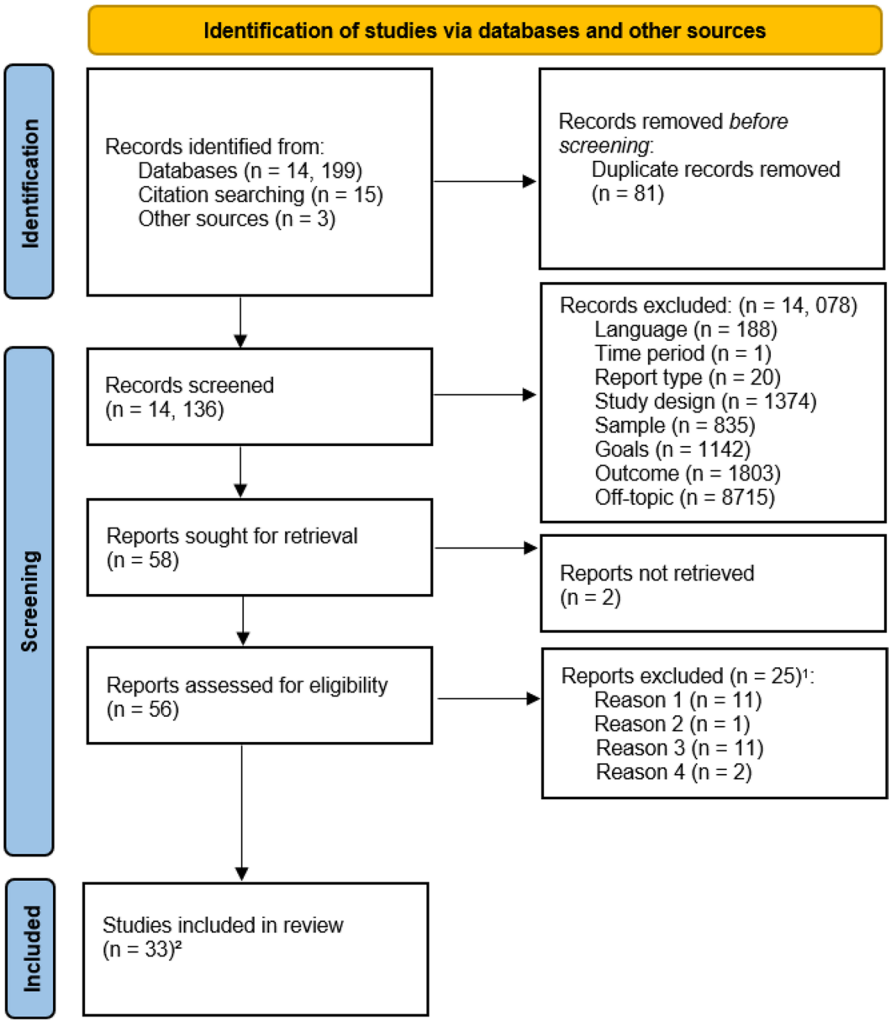


Fig. 1 Flow diagram of the literature search. Databases searched: Google Scholar, Web of Science, ERIC, Education Source, PsycArticles, ProQuest Dissertations & Theses. [1] Reason 1: no achievement goal measure or other goal measure; Reason 2: no academic dishonesty measure; Reason 3: insufficient reporting (author contact without answer); Reason 4: no effect size extractable (due to study design). [2] Two included papers reported two independent studies

a variety of publication types. Search terms were formulated on the basis of similar work and typical nomenclature in the literature (see Online Resource 1). This list of search terms was used in all databases searching full texts without any filters or limits. To ensure that this step covered all relevant studies, reference lists of included studies and the topically related meta-analysis by Krou et al. (2021) were examined for additional studies. To reach grey literature, we sent a call for papers via newsletters in pertinent special interest groups on motivation and moral development

of large-scale research associations (American Educational Research Association [AERA] and European Association for Research on Learning and Instruction [EARLI]).

Inclusion and Exclusion Criteria

We included primary, empirical studies that (1) used a sample of students enrolled in an educational institution (primary, secondary, or tertiary level), or educators working in academic institutions, (2) measured at least one self-directed achievement goal following the achievement goal approach (personal or contextual), (3) used at least one measure of academic dishonesty (self-report, behavioral, or intention/willingness), and (4) reported zero-order correlations or relevant data to calculate the relationship between achievement goals and academic dishonesty. If reporting of a study was insufficient for effect size calculation, authors were contacted to provide the necessary data. We excluded (1) qualitative studies, case studies, literature reviews, meta-analyses, theoretical papers, (2) studies published before 1970 (first research works on achievement goals; Roberts, 2001), (3) non-full-text material (e.g., presentation slides, abstracts), (4) academic dishonesty measures deviating from our definition (e.g., cheating detection mechanisms), (5) goal measures deviating from our definition (e.g., non-self-directed goals), (6) studies in non-academic contexts (e.g., sports, work, relationships), and (7) studies not in English language (to ensure that constructs complied with our definitions and to be able to consistently use the same list of search terms). Contrary to Krou et al. (2021), we excluded goals measured with the LOGO(II) questionnaire (Eison et al., 1986) called grade and learning orientation, as they contain further dimensions pertaining to behavior and attitudes which we deem incompatible to the strict definition of achievement goals focusing on competence (Anderman & Danner, 2008; Elliot et al., 2017). Furthermore, we did not use effect sizes from goals best described as extrinsic goals (focusing on rewards or good grades) because they also do not relate to one's own competences, and hence do not fall into the stricter understanding of performance goals (Grant & Dweck, 2003). Nonetheless, we included broader nomenclature such as extrinsic and intrinsic goals within the literature search terms, as they are sometimes used for strictly speaking performance and mastery goals, and then decided on their fit sensu our definition (Table 1).

Four trained research assistants and the first author screened the retrieved literature according to the listed criteria. To ensure a systematic screening process, the inclusion criteria were ordered hierarchically along a gradient of inference (1. language, 2. time period, 3. report type, 4. study design, 5. sample, 6. achievement goal measure, 7. academic dishonesty measure) and studies were excluded based on the first criteria not met. Screeners were instructed to prioritize inclusion over exclusion, meaning that studies remained included when in doubt, which were then inspected again by the first author to make the decision. When titles and abstracts did not contain enough decisive information, full texts were subsequently screened.

Data Extraction and Coding

Prior to the literature search, we developed a coding scheme comprising the study characteristics (publication type and year, sample size, sample country, sample educational level, number of female participants, study design), achievement goal measures (scale name, scale description, scale validation status, reliability measure, item list, sub-facet classification [if possible]), measure specificity, goal level (personal or contextual goals), academic dishonesty measures (scale name, scale description, scale validation status, reliability measure, item list, measure specificity, measure type, time period), and main effect sizes (zero-order correlations). The first author coded the entire sample of studies. A subset of 20 studies (34.5% of the total sample) was also coded by a graduate student. On three occasions, the second effect size within a study (regarding deception and willingness to cheat) was initially not considered by the second coder, but the decision for inclusion was resolved by discussion in the group. The double coding yielded a high interrater reliability (*ICC* = 99.8%, Cohen's Kappa = 0.90). To further ensure coding accuracy, two trained research assistants double checked the entire coding.

Goal Categorization

Initially, we had planned to classify goal types according to the specific sub-facets of mastery (task and learning) and performance goals (appearance and normative). However, due to most studies not distinguishing between these facets and operationalizing the respective constructs with items grounded in both facets, we used the overall terms of performance (approach and avoidance) and mastery (approach and avoidance) for the subsequent analysis. Regarding goal valences, when both approach and avoidance items were used to measure a goal (i.e., reporting one correlation for all items combined) or when authors did not specify the valence of a goal and only item examples hindering a clear distinction were given, goals were coded as mastery or performance goals and analyzed separately from the valence-distinguished goals. Even though achievement goal researchers emphasize the important distinction between the goals' valence (e.g., Simamora & Mutiarawati, 2021), we deemed it important to include these measures to indicate the number of studies that did not distinguish the goals' valence dimensions and to compare the effect heterogeneity of these measures with that of valenced goals.

Effect Sizes and Statistical Analyses

All analyses were performed within the R environment (R Core Team, 2016; Version 4.1.2). All packages (version controlled with the groundhog package [v1.5.0; Simonsohn & Gruson, 2021]) that were used can be found within the analysis code in the online repository: https://osf.io/k3myg/?view_only=d950e2a45c7245efa01e181556a668ec. The main analyses were carried out with functions from the metafor package (Viechtbauer, 2010). For comparable effect sizes, only

zero-order Pearson correlation coefficients between achievement goals and academic dishonesty measures (including experimental studies) were coded. In one case (Mendoza-Nápoles, 2022, study ID 28), zero-order correlation coefficients were calculated based on raw data provided by the author (see Online Resource 2 on details). First authors from eleven studies not reporting zero-order correlations were contacted. We heard back from four authors that provided additional data enabling us to extract the associations. To stabilize variances and normalize correlation coefficients, we standardized them through the Fisher r-to-z transformation and subsequently back-transformed aggregated z into r for interpretation. Weighted average effect sizes were calculated with three-level random-effects models (for more details on dependent effect sizes see paragraph below) using the REML estimator as well as the Hartung-Knapp adjustment for better estimate accuracy (this widens the confidence intervals to reflect uncertainty in the estimation of between-study heterogeneity; van Aert & Jackson, 2019). Cochran's Q and the multilevel variant of Thompson's I^2 (Cheung, 2014) are reported as heterogeneity statistics. To judge statistical significance of correlations, we report 95% confidence intervals (CI) for the average effect sizes (concluding significance if the confidence interval did not contain zero correlations). We also report prediction (also termed credibility) intervals (PI), which are not yet commonly reported for random-effects models, although increasingly recommended by methodologists (Higgins et al., 2021; Viechtbauer, 2021). Whereas confidence intervals indicate the expected range of *average* (future study) effects based on the present evidence, prediction intervals indicate the range within which one expects the *true* effects of hypothetical future studies to fall. Rainforest plots (Schild & Voracek, 2015) were used to visualize individual effect sizes.

Some studies reported correlations between achievement goals and more than one academic dishonesty measure (e.g., plagiarism and exam cheating) or correlations between one academic dishonesty measure and more than one level of achievement goals (e.g., personal goals and contextual goal structures). Such dependent effect sizes are often accounted for in multivariate meta-analyses considering their correlation within the summary effect models (if not known, typically assuming $r = 0.80$, Hedges et al., 2010). A better approach not hinging on default assumptions is to use three-level, hierarchical models, which model the sampling variance for each effect size (level 1), the within-study effect size variance for multiple outcomes per study (level 2), and the between-study effect size variance (level 3). It has been noted that three-level models may not accurately represent the real data structure of multiple effect sizes per study, but might still be preferred if the correlation of within-study effect sizes is unknown (van den Noortgate et al., 2013). Another advantage of three-level models is that heterogeneity statistics are given for each level, helping in investigating sources of effect size heterogeneity.

With the exception of one study (Anderman & Midgley, 2004; study ID 3), all studies used cross-sectional study designs. As one study is not sufficient to model summary effects for longitudinal designs, we extracted the cross-sectional correlations and treated the effect sizes from the three time points as dependent. To check the robustness of summary effects, we performed leave-one-out sensitivity analyses,

which judge the severity of change in effect sizes of recalculated meta-analyses through leaving out one study at a time.

Moderator Analysis

Moderators were tested in three-level random-effects meta-regression models, again using the REML estimator to allow for residual heterogeneity (Viechtbauer, 2021). To reliably compute significance levels for the predictors, Hartung-Knapp adjustment was used (Higgins et al., 2002). All moderators were inspected for possible collinearity (see bivariate correlations in Online Resource 3), assuming confounding when $r > 0.80$ (Harrer et al., 2021). We expected collinearity between study design and academic dishonesty measures type (experimental studies predominantly using behavioral measures and correlational studies predominantly using self-report measures), which was indeed indicated ($r_S = –0.73$, and $r_S = 1$ after removing the effect sizes for dishonesty intention measures). Consequently, we used the academic dishonesty measure type as moderator, because it captures more information regarding the behavior type. In other cases when the cut-off value was reached, in addition to individual tests, multiple meta-regression models including all cofounded moderators were run to test robustness (in no case did this procedure change the results).

Publication Bias

The most straightforward approach for considering bias in published literature is simply comparing results from published and unpublished studies, which was not possible in our case, as apart from four dissertation theses, no other grey literature was identified. We decided against another common approach of adjusting estimates through selection models (e.g., Coburn & Vevea, 2015), because these models are based on various assumptions regarding the mechanism of biased reporting, introducing yet another distortion if these assumptions are incorrect. Moreover, adjusted estimates become increasingly unreliable under highly heterogeneous effect sizes (Terrin et al., 2003), which is only aggravated in more complex model structures like multilevel meta-analytic models. Consequently, we first aggregated multiple effect sizes within studies to a single effect size in order to remove dependencies to meet test assumptions. Following results from a simulation study on this issue (Fernández-Castilla et al., 2019) and general recommendations to use a combination of methods (Harrer et al., 2021), we then used Egger's Regression test (Egger et al., 1997; complemented by Begg's Rank Correlation test as a non-parametric version for robustness, Begg & Mazumdar, 1994). We additionally conducted Tests of Excess Significance (Ioannidis & Trikalinos, 2007), which test whether the observed number of significant findings is greater than the expected number of significant findings given the power of the underlying tests. We used these methods within each type of goal individually and visualized effect size distribution with contour-enhanced funnel plots (indicating areas of statistical significance). No indication for publication bias was found (see test results and funnel plots in Online Resource 4).

Results

Final Sample

Table 3 shows detailed descriptive information of primary study features and effect sizes (the reference list and an overview of selected characteristics of included studies can be found in the Online Resources 5 and 6, respectively). The final sample consisted of $k = 33$ studies reporting 163 individual effect sizes on achievement goal – academic dishonesty associations, with a total of $N = 19{,}787$ participants, published between 1998 and 2020. The most frequent publication type was in the form of peer-reviewed journal articles (81.82%), with the remainder being four dissertation theses, one book chapter, and one conference contribution. Sample sizes ranged from 70 to 4787, and were generally large for psychological research ($Md = 337$; the median sample size across psychological fields ranges between 100 and 190; Kossmeier et al., 2019), probably owing to the fact that most studies were survey studies (87.88%) instead of typically smaller experimental studies (9.09%). The majority of studies were conducted on university students (51.52%) and secondary level students (45.45%), and we found only one study on elementary school students. Except for one study using only female participants, genders were evenly distributed within individual samples ($Md = 54.55\%$) and in the overall sample ($Md = 51.08\%$). Following the typical proportions of global research output, almost half of the studies were conducted with US samples (45.45%), followed by Croatia (9.09%), Germany, Greece, and Turkey (each 6.06%). The remaining studies stemmed from a variety of countries all over the globe.

As for effect size characteristics, achievement goals were preponderantly assessed as personal goals of students (84.66%), followed by classroom goal structures (7.36%), and teacher goals (6.13%). Only one effect size was recorded for school goal structures and two for parent goals. Most academic dishonesty measures were self-reports of students' engagement in academic dishonesty (90.18%), nine effect sizes represented intentions to cheat (5.52%) and seven effect sizes were behavioral measures of actually committed dishonesty (4.29%). Achievement goals were more often assessed regarding school or studies in general (65.03%), whereas academic dishonesty was more often assessed concerning a specific subject or course, or as specific behaviors (64.42%).

Summary Effects

Table 4 shows the summary effects for associations between each type of goal and academic dishonesty (see Fig. 2a–g for forest plots on individual effect sizes). For mastery goals without specification of their valence, statistically significant average negative associations were obtained based on 12 effect sizes (all negative correlations) from 7 studies ($r = –0.234$, 95% CI [–0.317, –0.147]) as well as for

Table 3 Descriptive statistics of included studies and effect sizes

Study characteristics	*k*	%
Publication type		
Peer-reviewed journal article	27	81.82
Dissertation	4	12.12
Book chapter	1	3.03
Conference contribution	1	3.03
Publication year		
1998–2000	3	9.09
2001–2010	13	39.39
2011–2020	17	51.52
Study design		
Correlational (cross-sectional)	29	87.88
Experimental (cross-sectional)	3	9.09
Correlational (longitudinal)	1	3.03
Educational level		
Tertiary	17	51.52
Secondary	15	45.45
Primary	1	3.03
Sample country		
USA	15	45.45
Croatia	3	9.09
Germany	2	6.06
Greece	2	6.06
Turkey	2	6.06
Other[a]	9	27.27
Total	33	

Effect size characteristics	*n*	%
Achievement goal level		
Personal	138	84.66
Classroom	12	7.36
Teacher	10	6.13
School	1	0.61
Parent	1	0.61
Academic dishonesty measure		
Self-report	147	90.18
Intention	9	5.52
Behavioral	7	4.29
Total	163	

Percentages do not necessarily add up to 100 due to rounding. [a]Other countries represented by one sample each included Belgium, China, Mexico, Morocco, Poland, Slovenia, South Korea, Thailand, and Ukraine

Table 4 Results of three-level random-effects models for achievement goals–academic dishonesty associations

				95% CI		95% PI				
	n	*k*	*r*	Lower	Upper	Lower	Upper	*Q* (*df*=*k*–1)	I^2_{Level2}	I^2_{Level3}
Mastery	12	7	–.234	–.317	–.147	–.437	–.008	59.73*	0	82.43%
Mastery-approach	50	24	–.169	–.204	–.133	–.354	.030	289.66*	64.61%	21.98%
Mastery-avoidance	10	3	–.006	–.064	.051	–.152	.139	20.53 (p=.015)	56.31%	0
Performance	15	10	–.035	–.097	.027	–.198	.129	28.35 (p=.013)	0	56.23%
Performance-approach	43	20	.034	–.026	.095	–.234	.298	418.37*	22.47%	70.50%
Performance-avoidance	27	14	.060	–.005	.124	–.178	.291	268.66*	22.30%	69.56%
Work-avoidance	6	3	.190	.015	.354	–.246	.562	42.79*	87.71%	0

n = number of effect size from *k* = number of studies contributing to the meta-analysis, *r* = *z*-to-*r* back transformed average true effect sizes, *CI* = confidence interval (for back-transformed values), *PI* = prediction interval (for back-transformed values), *Q* = Cochran's *Q*, I^2 = Thompson's I^2 for within-study (level 2) and between-study (level 3) heterogeneity. For performance and mastery goals, associations were reported for a combination of items of both approach and avoidance dimensions

*p<.001

mastery-approach goals based on 50 effect sizes (3 positive and 47 negative) from 24 studies (r = –0.169, 95% CI [–0.204, –0.133]). Mastery-avoidance goals were not statistically significantly different from zero, based on 10 effect sizes (6 positive and 4 negative) from 3 studies (r = –0.006, 95% CI [–0.064, 0.051]). Individual effect sizes for all three types of performance goals showed roughly as many positive as negative associations with academic dishonesty and were therefore on average not statistically significantly different from zero: Non-valence distinguished performance goals were averaged across 15 effect sizes (7 positive and 8 negative) from 10 studies (r = –0.035, 95% CI [–0.097, 0.027]), for performance-approach goals, 43 effect sizes (21 positive, 21 negative, and one zero correlation) from 20 studies (r = 0.034, 95% CI [–0.026, 0.095]) were recorded, and for performance-avoidance goals, 27 effect sizes (16 positive and 11 negative) from 14 studies (r = 0.060, 95% CI [–0.005, 0.124]). Lastly, we found statistically significant small positive associations for work-avoidance goals (r = 0.190, 95% CI [0.015, 0.354]), based on 6 effect sizes (5 positive and 1 negative) from 3 studies.

Effect Size Heterogeneity

Except for the effect sizes of mastery-avoidance and non-valence distinguished performance goals, Q-tests for true effect size differences were all statistically significant (see Table 4). However, given that Q is influenced by the number of studies and their precision (i.e., sample size; Harrer et al., 2021), the proportions of effect size heterogeneity (I^2) attributed to the within- and between-study level are more informative. We judged inconsistencies based on recommended cut-off values (25%, 50%, and 75% considered as low, intermediate, and high inconsistency; Higgins et al., 2003). For mastery and mastery-approach goals, effect sizes showed a high inconsistency (I^2_{total} = 82.43% and 86.59%, respectively), which for mastery goals was solely attributed to between-study variability, and for mastery-approach goals mostly to within-study variability ($I^2_{\text{level 2}}$ = 64.61%). Mastery-avoidance goals showed intermediate total effect size heterogeneity ($I^2_{\text{total}} = I^2_{\text{level2}}$ = 56.31%), which was solely attributed to within-study variability. The same was the case for work-avoidance goals (with $I^2_{\text{total}} = I^2_{\text{level2}}$ = 87.71%). However, this lack of between-study heterogeneity should be interpreted with caution, as in both cases only three studies contributed to the summary estimates. All three types of performance goals showed intermediate to high total effect size heterogeneity, with the largest proportions attributed to between-study variability ($I^2_{\text{total}} = I^2_{\text{level 3}}$ = 56.23% for performance goals, $I^2_{\text{level 3}}$ = 70.50% and 69.56% for performance-approach and performance-avoidance goals, respectively). We took this as an indication that varying methodological specifications between studies are indeed plausible influences on the mixed patterns of associations between performance goals and academic dishonesty.

Moderator Analyses

Results from the meta-regression models for significant moderators are provided in Table 5 (an overview and results from all meta-regression analyses can be found in

Fig. 2 Bright lines within drops represent individual study effect sizes, with the width of the drops indicating the confidence interval boundaries, and the height indicating the plausibility (i.e., [log]-likelihood value) for different true values given the observed estimate, scaled to the weight given in the meta-analytical model (indicating relative importance for the summary effect). Color shades indicate statistical uncertainty. **a** Rainforest plot of individual effect sizes for mastery goals. **b** Rainforest plot of individual effect sizes for mastery-approach goals**. c** Rainforest plot of individual effect sizes for mastery-avoidance goals. **d** Rainforest plot of individual effect sizes for performance goals**. e** Rainforest plot of individual effect sizes for performance-approach goals**. f** Rainforest plot of individual effect sizes for performance-avoidance goals**. g** Rainforest plot of individual effect sizes for work-avoidance goals

the Online Resource 7). Achievement goal level, specificity of achievement goal and academic dishonesty measures,[3] goal-dishonesty domain-match, the reliability of achievement goal and academic dishonesty measures, publication type, and publication time did not significantly moderate any association.

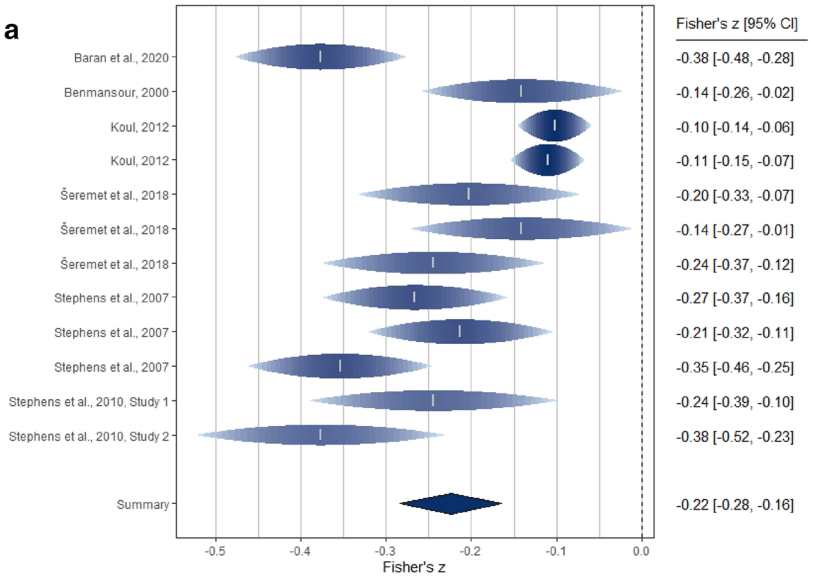
Mastery-approach goals were significantly moderated by the educational level of the sample. Here, the two effect sizes for students in elementary school showed no correlation between mastery-approach goals and academic dishonesty ($r = –0.019$, 95% CI = [–0.158, 0.121]), and were significantly different from the negative average correlations within secondary students ($r = –0.197$, 95% CI = [–0.253, –0.172]), but not from the weaker negative average correlations within tertiary students ($r = –0.110$, 95% CI = [–0.166, –0.090]).

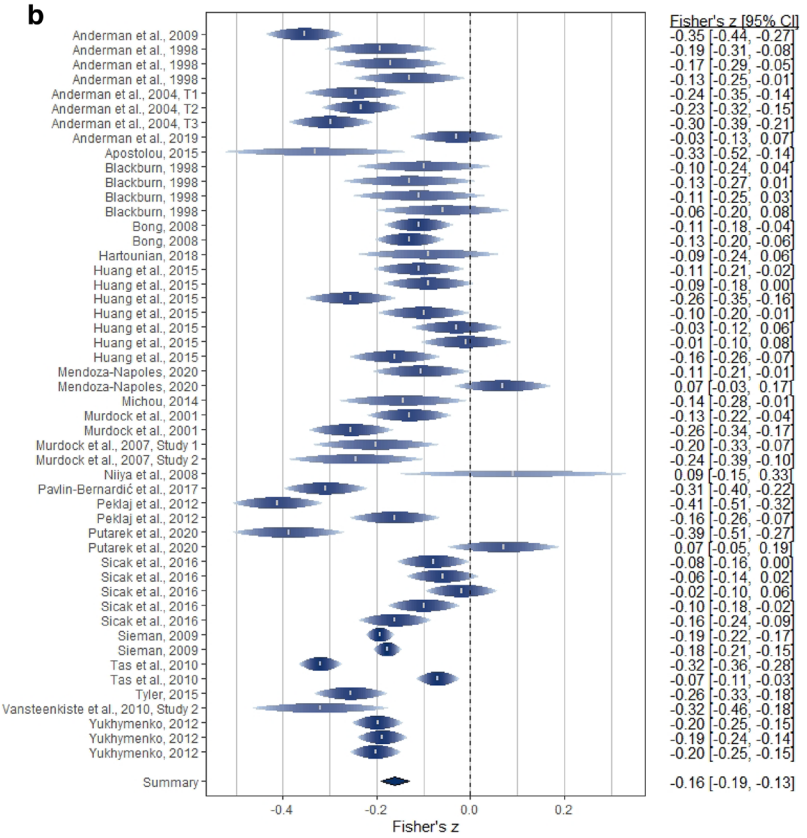
Performance-approach and performance-avoidance goals were both significantly moderated by the academic dishonesty measure type. For performance-approach goals, self-report and intention measures were not significantly associated with academic dishonesty, but behavioral measures were significantly different from self-report measures by being positively associated with academic dishonesty ($r = 0.237$, 95% CI = [0.083, 0.373]). For performance-avoidance goals, self-report and behavioral measures (based on one effect size) were not significantly associated with academic dishonesty, but intention measures were significantly different from self-report measures by being positively associated with academic dishonesty ($r = 0.148$, 95% CI = [0.068, 0.300]). This difference remained significant when the single behavioral measure was removed as a predictor from the model, testing only intention measures against self-report measures.

Sensitivity Analysis

From the leave-one-out analysis, we did not find indications that individual studies influenced the summary effects in a substantial way, with a mean deviation from the average effect size in the k–1 models of $\Delta r = 0.04$. The highest deviation ($\Delta r = 0.17$) was observed for work-avoidance goals, resulting in an average correlation of $r = 0.36$ ($n = 3$, $k = 2$) when leaving out the study by Šeremet et al. (2018). Detailed influencer diagnostics can be found in the section on sensitivity within the R script.

[3] We also tested this moderator on a higher resolution, with the levels general, specific context (such as subject class), or specific behavior (such as exam cheating), as well as only specific behavior measures vs. composite behavior measures. This did not change the results of this moderator test (i.e., no significant moderation).


a
Fisher's z [95% CI]
Baran et al., 2020 -0.38 [-0.48, -0.28]
Benmansour, 2000 -0.14 [-0.26, -0.02]
Koul, 2012 -0.10 [-0.14, -0.06]
Koul, 2012 -0.11 [-0.15, -0.07]
Šeremet et al., 2018 -0.20 [-0.33, -0.07]
Šeremet et al., 2018 -0.14 [-0.27, -0.01]
Šeremet et al., 2018 -0.24 [-0.37, -0.12]
Stephens et al., 2007 -0.27 [-0.37, -0.16]
Stephens et al., 2007 -0.21 [-0.32, -0.11]
Stephens et al., 2007 -0.35 [-0.46, -0.25]
Stephens et al., 2010, Study 1 -0.24 [-0.39, -0.10]
Stephens et al., 2010, Study 2 -0.38 [-0.52, -0.23]
Summary -0.22 [-0.28, -0.16]
-0.5 -0.4 -0.3 -0.2 -0.1 0.0
Fisher's z


b
Fisher's z [95% CI]
Anderman et al., 2009 -0.35 [-0.44, -0.27]
Anderman et al., 1998 -0.19 [-0.31, -0.08]
Anderman et al., 1998 -0.17 [-0.29, -0.05]
Anderman et al., 1998 -0.13 [-0.25, -0.01]
Anderman et al., 2004, T1 -0.24 [-0.35, -0.14]
Anderman et al., 2004, T2 -0.23 [-0.32, -0.15]
Anderman et al., 2004, T3 -0.30 [-0.39, -0.21]
Anderman et al., 2019 -0.03 [-0.13, 0.07]
Apostolou, 2015 -0.33 [-0.52, -0.14]
Blackburn, 1998 -0.10 [-0.24, 0.04]
Blackburn, 1998 -0.13 [-0.27, 0.01]
Blackburn, 1998 -0.11 [-0.25, 0.03]
Blackburn, 1998 -0.06 [-0.20, 0.08]
Bong, 2008 -0.11 [-0.18, -0.04]
Bong, 2008 -0.13 [-0.20, -0.06]
Hartounian, 2018 -0.09 [-0.24, 0.06]
Huang et al., 2015 -0.11 [-0.21, -0.02]
Huang et al., 2015 -0.09 [-0.18, 0.00]
Huang et al., 2015 -0.26 [-0.35, -0.16]
Huang et al., 2015 -0.10 [-0.20, -0.01]
Huang et al., 2015 -0.03 [-0.12, 0.06]
Huang et al., 2015 -0.01 [-0.10, 0.08]
Huang et al., 2015 -0.16 [-0.26, -0.07]
Mendoza-Napoles, 2020 -0.11 [-0.21, -0.01]
Mendoza-Napoles, 2020 0.07 [-0.03, 0.17]
Michou, 2014 -0.14 [-0.28, -0.01]
Murdock et al., 2001 -0.13 [-0.22, -0.04]
Murdock et al., 2001 -0.26 [-0.34, -0.17]
Murdock et al., 2007, Study 1 -0.20 [-0.33, -0.07]
Murdock et al., 2007, Study 2 -0.24 [-0.39, -0.10]
Niiya et al., 2008 0.09 [-0.15, 0.33]
Pavlin-Bernardić et al., 2017 -0.31 [-0.40, -0.22]
Peklaj et al., 2012 -0.41 [-0.51, -0.32]
Peklaj et al., 2012 -0.16 [-0.26, -0.07]
Putarek et al., 2020 -0.39 [-0.51, -0.27]
Putarek et al., 2020 0.07 [-0.05, 0.19]
Sicak et al., 2016 -0.08 [-0.16, 0.00]
Sicak et al., 2016 -0.06 [-0.14, 0.02]
Sicak et al., 2016 -0.02 [-0.10, 0.06]
Sicak et al., 2016 -0.10 [-0.18, -0.02]
Sicak et al., 2016 -0.16 [-0.24, -0.09]
Sieman, 2009 -0.19 [-0.22, -0.17]
Sieman, 2009 -0.18 [-0.21, -0.15]
Tas et al., 2010 -0.32 [-0.36, -0.28]
Tas et al., 2010 -0.07 [-0.11, -0.03]
Tyler, 2015 -0.26 [-0.33, -0.18]
Vansteenkiste et al., 2010, Study 2 -0.32 [-0.46, -0.18]
Yukhymenko, 2012 -0.20 [-0.25, -0.15]
Yukhymenko, 2012 -0.19 [-0.24, -0.14]
Yukhymenko, 2012 -0.20 [-0.25, -0.15]
Summary -0.16 [-0.19, -0.13]
-0.4 -0.2 0.0 0.2
Fisher's z

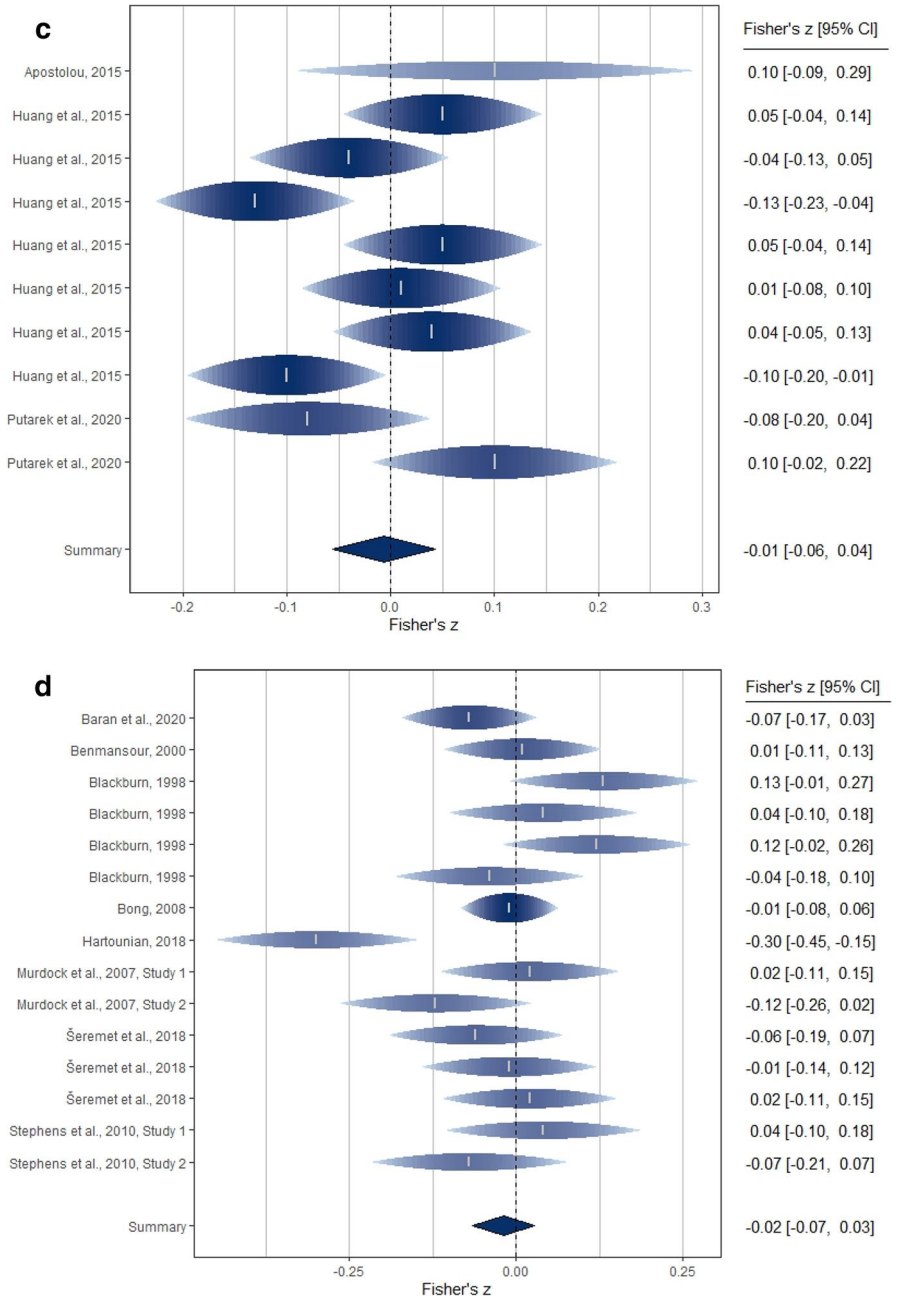


Fig. 2 (continued)

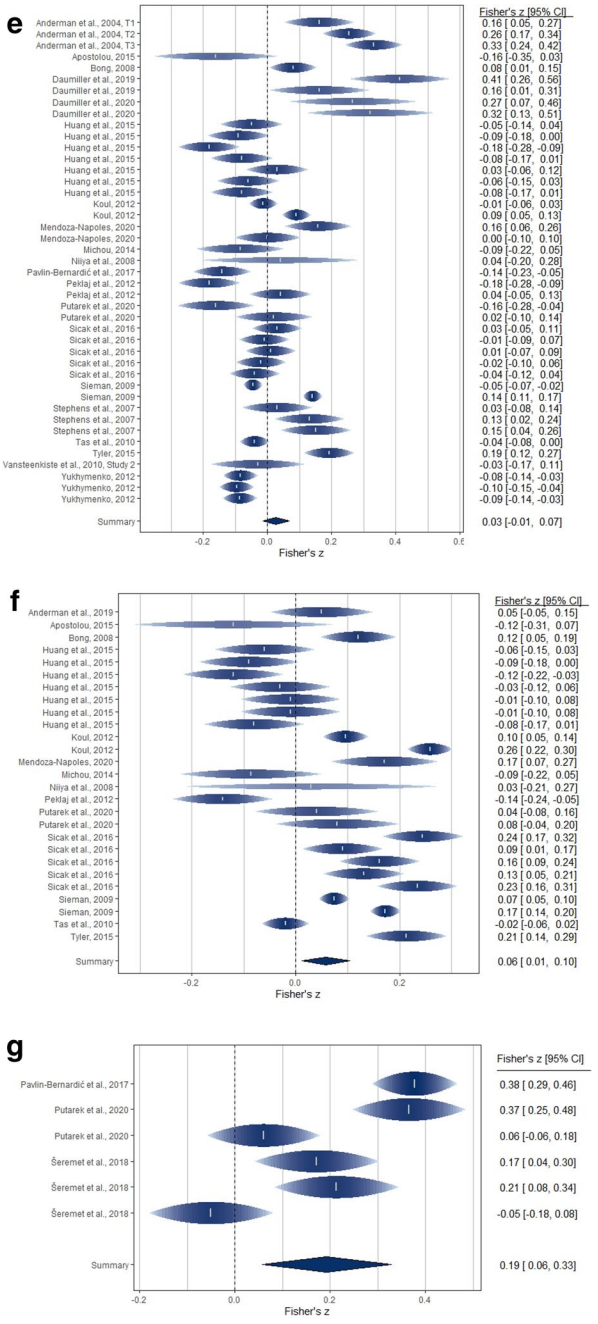


Fig. 2 (continued)

Table 5 Results from the meta-regression models for significant moderators of achievement goal–academic dishonesty associations

Mastery-approach goals						
					95% CI	
Educational level	*n*	β	*SE*	*r*	Lower	Upper
Primary	2	–.019	0.07	–.019	–.158	.121
Secondary	21	–.197**	0.07	–.213	–.253	–.172
Tertiary	27	–.110	0.07	–.128	–.166	–.090
Test of moderator: $F(df1 = 2, df2 = 47) = 6.83$, $p = .003$						
Residual heterogeneity: $Q(df = 47) = 247.00$, $p < .001$						
Performance-approach goals						
Academic dishonesty measure type					95% CI	
	n	β	*SE*	*r*	Lower	Upper
Self-report	35	.001	0.03	–.001	–.056	.058
Behavioral	5	.237**	0.08	.233	.083	.373
Intention	3	.078	0.07	.078	–.058	.212
Test of moderators: $F(df1 = 2, df2 = 40) = 4.60$, $p = .016$						
Residual heterogeneity: $Q(df = 40) = 349.30$, $p < .001$						
Performance-avoidance goals						
Academic dishonesty measure type					95% CI	
	n	β	*SE*	*r*	Lower	Upper
Self-report	23	.041	0.03	.040	–.027	.108
Behavioral	1	–.011	0.17	.030	–.299	.352
Intention	3	.148*	0.06	.186	.068	.300
Test of moderators: $F(df1 = 2, df2 = 24) = 3.43$, $p = .049$						
Residual heterogeneity: $Q(df = 24) = 218.41$, $p < .001$						

ß = unstandardized regression coefficient, *r* = *z*-to-*r* back transformed coefficients, *95% CI* = confidence interval for back transformed coefficients; The first listed moderator level served as the reference group, with the other levels entered as dummy-coded predictor variables

** $p < .010$; * $p < .05$

Discussion

This meta-analysis synthesized the literature on associations between the different goals from the achievement goal model and academic dishonesty. Our results confirmed the expected negative associations between mastery goals, and positive associations between work-avoidance goals and academic dishonesty. We conducted extensive moderator analyses regarding the various types of goals and uncovered indicators within academic dishonesty measures that lead to different associations for performance goals and academic dishonesty. We also recorded preliminary findings regarding differences in educational levels. We further documented methodological issues in this line of research, including a scarcity of behavioral measures of academic dishonesty as well as measures of goal structures (opposed to personal goal measures) and the need for more specificity in

measurement operationalization and reporting. We thereby deliver an extended synthesis covering currently investigated achievement goals, how they relate to academic dishonesty, and what circumstances can influence those relationships.

As we extended a recent synthesis on this topic (Krou et al., 2021), information on overlap and differences is warranted: We were stricter in our definition of achievement goals (e.g., excluding measures from the LOGO(II) questionnaire of Eison et al., 1986), extracted six less effect sizes for personal mastery and mastery-approach goals (which were combined in Krou et al., 2021), but found four and six more effect sizes for personal performance-approach and -avoidance goals, respectively, plus 13 non-valence distinguished personal performance goal effect sizes. We coded five effect sizes less for mastery goal structures (which included classroom and teacher goals in Krou et al., 2021), but added one effect size each for parent mastery-approach goal and school mastery-approach goal structure. Lastly, we coded eight effect sizes less for performance goal structures, but added one effect size for parent performance-approach goal. Thus, we offer a higher resolution in distinguishing between valence dimension of goals on the personal and contextual level as well as indicating where the distinction is unclear from the study reports. It is noteworthy that in the case of classroom goals structures and teacher goals, we excluded a number of effect sizes that measured extrinsic rewards rather than perceived goal structures. While we identified 11 studies not covered in the previous meta-analysis, our stricter definition of self-directed achievement goals resulted in less included effect sizes in some cases — a methodological rigor we deem necessary in light of our research question on how inconsistencies in association patterns can be explained by methodological specifications.

Average Associations

The averaged correlations between achievement goals and academic dishonesty we found are comparable to the respective findings from Krou et al. (2021). This corroborates that mastery and, in particular, mastery-approach goals are associated with less engagement in academic dishonesty, with unclear associations for mastery-avoidance goals, which are still rarely assessed. We also confirmed that associations for all three types of performance goals vary substantially between studies, resulting in null effects when averaged. We additionally deliver the first synthesis on linkages between work-avoidance goals and academic dishonesty, with a tentative result based on three studies indicating a positive association.

Heterogeneity and Moderator Analysis

In general, the effect sizes within the different types of goals showed intermediate to high variability. In non-valence distinguished goals (seven studies reporting mastery goals and 10 studies reporting performance goals), all of the effect size heterogeneity was attributed to the between-study level and was intermediate to high. We deem

this as an indication that, following theoretical developments within achievement goal research (e.g., Harackiewicz et al., 2002) and the psychometric foundation of the valence dimension (e.g., Simamora & Mutiarawati, 2021), the distinct approach and avoidance orientations should always be considered and specifically addressed.

Interestingly, a large fraction of effect size variability for mastery-approach goals was attributed to within-study variability. Closer inspection showed that nine of the 27 studies used multiple measures of academic dishonesty assessing specific behaviors, with another eight assessing various forms of academic dishonesty in a combined measure but within a specific subject or course. One especially interesting case was the study of Putarek and Pavlin-Bernardić (2020), which found a moderate negative association between mastery-approach goals and active cheating (various behaviors, $r = -0.37$), but no correlation for second-party cheating (helping others to cheat, $r = 0.07$). A subset ($k = 3$) of these studies also reported correlations for mastery-avoidance goals, with two studies (Hartounian, 2018; Putarek & Pavlin-Bernardić, 2020) reporting nine distinguished dishonesty behaviors. This might explain why, for this type of goal, all of the effect size heterogeneity was attributed to differences within studies (apart from the fact that only three studies are being compared). This could also hint towards the necessity of differentiating between specific forms of academic dishonesty, as considerably varying associations can be expected (note for example, the differences in correlations within goal types for test cheating, homework cheating, and severe forms of academic dishonesty in Šeremet et al., 2018).

Although we found only one study using an elementary student sample (Mendoza-Nápoles, 2022), our moderator analysis suggests that the consistent negative associations of mastery goals might not hold true for all ages. An explanation for this disparity might be that academic dishonesty is less frequent in students during their first years in school (Maeda, 2021; Whitley, 1998). Thus, the frequency differences among age groups might indeed play together with the general issue in academic dishonesty research when dealing with its rare-event character, leading to less pronounced estimates. Another explanation could be that academic dishonesty in younger students might comprise other forms than the typically assessed behaviors in older students (Cizek, 1999). Mendoza-Nápoles (2022) used the three items from the PALS subscale (Midgley et al., 2000) assessing general cheating behavior on classwork and copying answers from other students during classwork and tests, for which the scale authors report generally low internal consistency in samples younger than fourth grade. Although Mendoza-Nápoles (2022) reports decent reliability for the academic dishonesty scale in their sample (Cronbach's $\alpha = 0.76$), a differential investigation of academic dishonesty forms throughout the educational stages via qualitative interviews would be a helpful expansion and elaboration on this point.

Depending on how academic dishonesty was measured, associations for valence-distinguished performance goals showed varying effects. In accordance with our expectations, the average nil effects in self-reports were contrasted by significant positive associations found in other types of measures, although this was only true for cheating behavior in laboratory settings in the case of performance-approach goals and cheating intentions in the case of performance-avoidance goals.

Considering the low number of studies in these contrasts, these findings remain contestable until more studies with such measure types are conducted. Associations between performance-approach goals and self-reported academic dishonesty in itself showed significant variability between studies, ranging from $r = –0.18$ to $r = 0.39$, where descriptive comparison indicated no systematic distinguishing aspects between studies reporting positive correlations and those reporting negative correlations. The same holds true for correlations from self-report measures and performance-avoidance goals, ranging from $r = –0.14$ to $r = 0.25$. Although we did not find that actual cheating was underestimated in self-report academic dishonesty measures for performance-avoidance goals (i.e., no significant correlations in both measures), a significant positive average association with cheating intentions in hypothetical scenarios hints towards possible catalyzing mechanisms of this type of goal, which, although not as directive for actual behavior as performance-approach goals, should still be given further attention. To further disentangle these mechanisms, we call for future investigations specifying when strong performance-approach and -avoidance goals also lead to increased academic dishonesty in more natural academic settings.

Apart from academic dishonesty measure type, no other significant moderator for performance goal associations was found and few other systematic differences between studies were discernable. Even though the general achievement motivation literature stresses the importance of context-specific assessment of constructs for higher predictive power and stronger effects (see also the discussion on context symmetry between predictors and criteria, Bandura, 1997), we found no significant moderation of associations by the measures' specificity or their domain-match. Significant as well as non-significant effects of specific vs. general measures and domain-matches are also found in other meta-analyses on achievement goals and academic outcomes (e.g., Huang, 2011, 2012), suggesting that these factors only contribute to some extent to effect heterogeneity. Descriptively, among the strongest associations for performance goals and academic dishonesty are those from studies assessing both goals and dishonesty within in a specific context (e.g., Daumiller & Janke, 2019, experimental test, $r_{\text{appearance-approach}} = 0.39$) or subject class (e.g., Anderman & Midgley, 2004; math class, $r_{\text{performance-approach}} = 0.32$). However, substantial correlations were also found between general performance goal measures and measures of a specific cheating behavior across contexts (e.g., Sicak & Arslan, 2016, unauthorized help, $r_{\text{performance-avoidance}} = 0.23$), or composite academic dishonesty measures (e.g., Tyler, 2015, $r_{\text{performance-avoidance}} = 0.21$). Even when only comparing studies assessing the same academic dishonesty behavior (nine studies assessing exam cheating and plagiarism, respectively), there were negative as well as positive associations reported. We also did not find evidence that context specific measures of goals (mean Cohen's alpha = 0.80) or context/behavior specific measures of academic dishonesty (mean Cohen's alpha = 0.82) were more reliable than unspecific measures (mean Cohen's alpha = 0.81/0.82 and $r = –0.04/–0.06$, respectively for goals and academic dishonesty). However, the measurement specificity in terms of goal facets seems to be important: Looking at the two most frequently used achievement goal scales, studies using the (Revised) Achievement Goal Questionnaire (AGQ[-R], Elliot & McGregor, 2001; Elliot & Murayama's, 2008; used by five studies) consistently reported negative associations between performance goals

and academic dishonesty, whereas measures from the Patterns of Adaptive Learning Scales (PALS, Midgley et al., 2000; used by nine studies) produced more heterogenous results. One major difference between these two scales is that the AGQ(-R) measures only normative goals (termed performance goals within the scale), whereas the PALS uses items pertaining both to the normative as well as appearance aspects of performance goals. Interestingly, meta-analyses by Huang (2011, 2012) also found significant variation in effects dependent on these two scales, for example for performance goal – positive achievement emotion associations and for performance-avoidance – academic achievement associations (stronger associations from AGQ than from PALS). Few studies in our sample differentiated the performance (and mastery) goal sub-facets, which is why we could not use these finer-grained distinctions in our analyses. What corroborates this pattern, however, are known functional differences between the sub-facets within academic contexts, for instance adaptive effects of normative goals (or goal structures) on academic achievement, self-efficacy, and interest, and maladaptive effects of appearance goals on achievement, help-seeking, and self-handicapping behavior (Bardach et al., 2020; Senko & Tropiano, 2016). Taken together, this could allude to a higher operational variability in measurements of performance goals and their sub-facets, which requires more attention in future research, for instance, by including full item lists in study reports to help literature reviewers judge about such differences.

In sum, as further discussed in the limitations section, the absence of discernable differences might hinge on the limited number of studies with comparable characteristics. We therefore aim to sensitize researchers on this topic to the necessary precision regarding contextuality and specificity of measurements to help future syntheses in following up on the present analyses.

Limitations and Future Directions

We first want to discuss aspects of the research base that was synthesized in this meta-analysis that we deem noteworthy and that affected the scope of this study and the inferences that can be drawn from it. First, we often observed lacking information regarding the measurements of the main constructs in primary studies. The psychometric properties of achievement goals are better understood than those of academic dishonesty, which is why validated and more reliable scales are more common in this case. Still, when single items of existing scales are selected or adapted, deviations from the source should be fully reported to help measurement evaluation and reproducibility. In other cases, when self-constructed items or scales were used, often only example items were given, if at all. In our case, this impeded a more precise categorization of goals (both in terms of valence and in terms of sub-facet classification) as well as judgements about the specific behaviors that were subsumed under the term academic dishonesty. Here specifically, related terms (e.g., assignment cheating, misuse of credit, plagiarism) could not be judged on their comparability without the complete item list. In some instances, this information might have been omitted due to space limitations or editor/reviewer recommendations. However, we draw attention to concerns raised in psychology in particular and in the

social sciences more broadly regarding chronic underreporting of key information of measurements (e.g., sources, item selection decisions, validity indicators) from which critical conclusions are drawn (Flake & Fried, 2020).

Another type of missing information concerns the time frame for which academic dishonesty behaviors are assessed. Time frames directly confound behavioral frequencies through the amount of cheating opportunities. For instance, there will be a substantial difference in reports when assessing cheating on exams during the last semester in comparison to a student's entire academic life. Not only was there a high variety of time frames used to measure academic dishonesty in the current sample of studies (ranging from one season during a school year to the total time in school or at university), but in more than half (55.17%) of the studies using self-report measures of academic dishonesty, this information was not reported at all. Omitting this information hinders appropriate comparison of prevalence and measures across studies. Time frames might also be a source of effect heterogeneity in performance goals: Descriptively, there were on average positive associations between performance goals (with and without valence distinction) and academic dishonesty in shorter time frames (mean $r_{\text{semester}} = 0.15$) and negative associations in longer time frames (mean $r_{\text{year}} = -0.10$, mean $r_{\text{academic-life}} = -0.04$). However, due to missing information in many cases (performance goals: 30.8%, performance-approach goals: 77.8%, performance-avoidance goals: 88.5%), this pattern could not be tested statistically.

Unfortunately, we did not find studies investigating achievement goals and academic dishonesty among educators in academic institutions. Concerns regarding dishonesty seem to mostly center around the issue of how educators can prevent and detect dishonesty in their students, possibly overlooking one side of the equation (Cizek, 2003; Jacob & Levitt, 2003). One reason for this might be that academic dishonesty in educators is more difficult to operationalize and detect, as they face more diverse achievement situations — and hence, opportunities to cheat — depending on the educational level, school type, or position, to name a few. The other side of the age spectrum is similarly scarcely examined, as we recorded only one study investigating primary level students. As elaborated above, this "blind spot" in academic dishonesty research could be rooted in a lesser concern about academic dishonesty, following the notion that it is not as severely widespread in elementary students compared to older ones. Future endeavors in achievement goal – academic dishonesty research should expand into this age group to verify this assumption.

We found no study that examined the relationship between social goals (relating to social competence) and academic dishonesty, which we deem a noteworthy research gap, as academic dishonesty research stresses the importance of social factors in explaining cheating behavior (McCabe & Trevino, 1993; Murdock et al., 2001). The typically assessed forms of academic dishonesty involve collaboration with others such as helping others to cheat, illicitly collaborating on individual assignments, or sharing answers during exams. Engaging in such mutually supportive acts would be in line with the striving of individuals with strong social goals by strengthening their peer relationships as partners in crime. This association could be especially strong if students perceive that their peers cheat as well (Daumiller & Janke, 2020). Therefore, to further the motivational theory on academic dishonesty,

it would be interesting to consider social goal orientations with regard to these socially mediated forms of academic dishonesty.

One major issue for our moderator analysis was the low number of experimental studies, and therefore, behavioral measures of academic dishonesty that we identified in the literature. Having more equally distributed effect sizes from all measures is required to further corroborate our finding that depending on how academic dishonesty is measured, performance-approach and performance-avoidance goals relate differently to it. On a more theoretical level, it would be interesting to investigate the mechanism behind the positive association we recorded between performance-avoidance goals and cheating intentions. One possibility could be that the fear of appearing incompetent prevents the translation of considering cheating under a performance focus into action.

Similarly, we recorded only few studies investigating contextual goals, which might explain why we did not find a significant difference in associations between personal and contextual goals for any type of goal. As theoretical considerations and empirical findings indicate complex mechanisms of how contextual goals influence behaviors (Meece et al., 2006), ascertaining whether associations actually do not differ requires further investigation of contextual goals and their relation to academic dishonesty.

Related to this issue, and as a general limitation of the present synthesis, is the overall small number of studies summarized. This meta-analysis was instigated by our impression that the inconsistencies in achievement goal – academic dishonesty research might to some extent be traced back to vague definitions and interchangeably used terms for actually different constructs. One goal of this study was therefore to be very specific in our definitions and strict in our inclusion criteria, which we believe to be a strength of this study. However, the available literature on this topic represents a rather small sample, leading to tentative findings regarding some average associations and cautious conclusions drawn from the moderator analyses (e.g., on mastery-avoidance and work-avoidance goals stemming from three studies each). Nonetheless, our sample size is in total larger and within moderator subsets often comparable to the average sample in meta-analyses (typically around 10 studies, Harrer et al., 2021). Testing differences between small subsets of studies is still insightful, although it needs to be born in mind that the viewer studies are synthesized, the more the results can be affected by the potential bias of singular studies. We therefore deemed conducting sensitivity analyses important, where we made sure no single study uniquely influenced the results. Despite these reservations, our findings raise awareness of methodological issues and research gaps within achievement goal – academic dishonesty research that should be addressed by future research to better the understanding of how achievement goals matter for academic dishonesty. This study also provides a documentation of the current state of the literature, a template for future meta-analyses once a broader research base is available, and potential inspiration for further moderators that could help elucidate inconsistent findings in this line of research.

Conclusion

We found negative associations between mastery(-approach) goals and academic dishonesty in secondary school and university students, and positive associations between work-avoidance goals and academic dishonesty. Performance-approach goals were only positively associated with actual cheating behavior, and performance-avoidance goals were only positively linked with cheating intentions. We consider this research synthesis as preliminary groundwork for necessary further avenues in research on the interplay between achievement goals and academic dishonesty. In order to fill the uncovered research gaps, we call for (i) more experimental studies to complement the predominant self-report assessments of academic dishonesty, (ii) a higher specificity in achievement goal assessment to develop an even finer-grained perspective on the impact of goal conceptualization, (iii) investigations of social goals and their relation to academic dishonesty, and (iv) studies using contextual goals to assess the generalizability of associations for personal achievement goals with academic dishonesty.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s10648-023-09753-1.

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References

(studies included in the meta-analysis can be found in the Online Resource 5)

Akbulut, Y., Şendağ, S., Birinci, G., Kılıçer, K., Şahin, M. C., & Odabaşı, H. F. (2008). Exploring the types and reasons of Internet-triggered academic dishonesty among Turkish undergraduate students. *Computers & Education, 51*(1), 463–473. https://doi.org/frvk38.

Anderman, E. M., & Danner, F. (2008). Achievement goals and academic cheating. *Revue Internationale de Psychologie Sociale, 21*(1), 155–180. https://www.cairn.info/revue-internationale-de-psychologie-sociale-2008-1-page-155.htm.

Anderman, E., & Koenka, A. (2017). The relation between academic motivation and cheating. *Theory into Practice, 56*(2), 95–102. https://doi.org/10.1080/00405841.2017.1308172

Anderman, E. M., & Midgley, C. (2004). Changes in self-reported academic cheating across the transition from middle school to high school. *Contemporary Educational Psychology, 29*(4), 499–517. https://doi.org/10.1016/j.cedpsych.2004.02.002

Anderman, E. M., Griesinger, T., & Westerfield, G. (1998). Motivation and cheating during early adolescence. *Journal of Educational Psychology, 90*(1), 84–93. https://doi.org/fbmg6p.

Balbuena, S. E., & Lamela, R. A. (2015). Prevalence, motives, and views of academic dishonesty in higher education. *Asia Pacific Journal of Multidisciplinary Research, 3*(2), 69–75. https://eric.ed.gov/?id=ED575015.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. Freeman.

Bardach, L., Oczlon, S., Pietschnig, J., & Lüftenegger, M. (2020). Has achievement goal theory been right? A meta-analysis of the relation between goal structures and personal achievement goals. *Journal of Educational Psychology, 112*(6), 1197–1220. https://doi.org/gkmsks.

Bashir, H., & Bala, R. (2018). Development and validation of academic dishonesty scale (ADS). *International Journal of Instruction, 11*(2), 57–74. https://doi.org/10.12973/iji.2018.1125a

Begg, C. B., & Mazumdar, M. (1994). Operating characteristics of a rank correlation test for publication bias. *Biometrics, 50*(4), 1088–1101. https://doi.org/10.2307/2533446

Bernardi, R. A., & Adamaitis, K. L. (2006). Data contamination by social desirability response bias. In C. Jeffrey (Ed.), *Research on professional responsibility and ethics in accounting* (Vol. 11, pp. 149–175). Emerald. https://doi.org/10.1016/S1574-0765(06)11008-0

Bisping, T. O., Patron, H., & Roskelley, K. (2008). Modeling academic dishonesty. *Journal of Economic Education, 39*(1), 4–21. https://doi.org/10.3200/JECE.39.1.4-21

Bouville, M. (2010). Why is cheating wrong? *Studies in Philosophy and Education, 29*(1), 67–76. https://doi.org/10.1007/s11217-009-9148-0

Carpenter, D. D., Harding, T. S., Finelli, C. J., & Passow, H. J. (2004). Does academic dishonesty relate to unethical behavior in professional practice? *Science and Engineering Ethics, 10*(2), 311–324. https://doi.org/10.1007/s11948-004-0027-3

Carpenter, D. D., Harding, T. S., Finelli, C. J., Montgomery, S. M., & Passow, H. J. (2006). Engineering students' perceptions of and attitudes towards cheating. *Journal of Engineering Education, 95*(3), 181–194. https://doi.org/10.1002/j.2168-9830.2006.tb00891.x

Chazan, D. J., Pelletier, G. N., & Daniels, L. M. (2022). Achievement goal theory review: An application to school psychology. *Canadian Journal of School Psychology, 37*(1), 40–56. https://doi.org/10.1177/08295735211058319

Cheung, M. W. L. (2014). Modeling dependent effect sizes with three-level meta-analyses. *Psychological Methods, 19*(2), 211–229. https://doi.org/10.1037/a0032968

Cizek, G. J. (1999). *Cheating on tests: How to do it, detect it, and prevent it*. Routledge.

Cizek, G. J. (2003). Educational testing integrity. In J. E. Wall & G. R. Walz (Eds.), *Measuring up: Assessment issues for teachers, counselors, and administrators* (pp. 363–386). CAPS.

Coburn, K. M., & Vevea, J. L. (2015). Publication bias as a function of study characteristics. *Psychological Methods, 20*(3), 310–330. https://doi.org/10.1037/met0000046

Crown, D. F., & Spiller, M. S. (1998). Learning from the literature on collegiate cheating. *Journal of Business Ethics, 17*(6), 683–700. https://doi.org/10.1023/A:1017903001888

Cuadrado, D., Salgado, J. F., & Moscoso, S. (2019). Prevalence and correlates of academic dishonesty. *Sustainability, 11*(21), 6062. https://doi.org/10.3390/su11216062

Daniels, L. M., Haynes, T. L., Stupnisky, R. H., Perry, R. P., Newall, N. E., & Pekrun, R. (2008). Individual differences in achievement goals. *Contemporary Educational Psychology, 33*(4), 584–608. https://doi.org/10.1016/j.cedpsych.2007.08.002

Daumiller, M., & Janke, S. (2020). Effects of performance goals and social norms on academic dishonesty in a test. *British Journal of Educational Psychology*, *90*(2), 537–559. https://doi.org/gpxhtc

Daumiller, M., & Dresel, M. (2020). Teaching and research. *International Journal of Educational Research, 99*, 101460. https://doi.org/10.1016/j.ijer.2019.08.002

Daumiller, M., & Janke, S. (2019). The impact of performance goals on cheating depends on how performance is evaluated. *AERA Open, 5*(4), 1–10. https://doi.org/10.1177/2332858419894276

Egger, M., Smith, G. D., Schneider, M., & Minder, C. (1997). Bias in meta-analysis detected by a simple, graphical test. *BMJ, 315*(7109), 629–634. https://doi.org/10.1136/bmj.315.7109.629

Eison, J. A., Pollio, H. R., & Milton, O. (1986). Educational and personal characteristics of four different types of learning-and grade-oriented students. *Contemporary Educational Psychology, 11*(1), 54–67. https://doi.org/10.1016/0361-476X(86)90012-3

Elliot, A. J., Dweck, C. S., & Yeager, D. S. (2017). *Handbook of competence and motivation: Theory and application*. Guilford.

Elliot, A. J., & McGregor, H. A. (2001). A 2× 2 achievement goal framework. *Journal of Personality and Social Psychology, 80*(3), 501–519. https://doi.org/10.1037//0022-3514.80.3.501

Elliot, A. J., & Murayama, K. (2008). On the measurement of achievement goals. *Journal of Educational Psychology, 100*(3), 613–628. https://doi.org/10.1037/0022-0663.100.3.613

Fernández-Castilla, B., Declercq, L., Jamshidi, L., Beretvas, S. N., Onghena, P., & van den Noortgate, W. (2019). Detecting selection bias in meta-analyses with multiple outcomes. *The Journal of Experimental Education, 89*(1), 125–144. https://doi.org/10.1080/00220973.2019.1582470

Fiedler, K., & Schwarz, N. (2016). Questionable research practices revisited. *Social Psychological and Personality Science, 7*(1), 45–52. https://doi.org/10.1177/1948550615612150

Flake, J. K., & Fried, E. I. (2020). Measurement schmeasurement: Questionable measurement practices and how to avoid them. *Advances in Methods and Practices in Psychological Science, 3*(4), 456–465. https://doi.org/10.1177/2515245920952393

Friedel, J. M., Cortina, K. S., Turner, J. C., & Midgley, C. (2007). Achievement goals, efficacy beliefs and coping strategies in mathematics. *Contemporary Educational Psychology, 32*(3), 434–458. https://doi.org/10.1016/j.cedpsych.2006.10.009

George, W., Sottile, J. M., & Liang, J. G. (2014). What is cheating? Student and faculty perception of what they believe is academically dishonest behavior. *Journal of Research in Education*, *24*(1), 120–134. https://eric.ed.gov/?id=EJ1098307

Gonida, E. N., Kiosseoglou, G., & Voulala, K. (2007). Perceptions of parent goals and their contribution to student achievement goal orientation and engagement in the classroom. *European Journal of Psychology of Education, 22*(1), 23–39. https://doi.org/10.1007/BF03173687

Grant, H., & Dweck, C. S. (2003). Clarifying achievement goals and their impact. *Journal of Personality and Social Psychology, 85*(3), 541–553. https://doi.org/10.1037/0022-3514.85.3.541

Harackiewicz, J. M., Barron, K. E., Pintrich, P. R., Elliot, A. J., & Thrash, T. M. (2002). Revision of achievement goal theory. *Journal of Educational Psychology, 94*(3), 638–645. https://doi.org/10.1037/0022-0663.94.3.638

Harding, T. S., Mayhew, M. J., Finelli, C. J., & Carpenter, D. D. (2007). The theory of planned behavior as a model of academic dishonesty in engineering and humanities undergraduates. *Ethics & Behavior, 17*(3), 255–279. https://doi.org/10.1080/10508420701519239

Harrer, M., Cuijpers, P., Furukawa, T. A., & Ebert, D. D. (2021). *Doing meta-analysis with R: A hands-on guide*. Chapman and Hall.

Hartounian, P. (2018). The relationship between cognitive moral development and attitudes toward academic cheating of Armenian high school students at an Armenian private school in Southern California (Publication No. 9780438129665) [Doctoral dissertation, Pepperdine University]. ProQuest Dissertations and Theses.

Hedges, L. V., Tipton, E., & Johnson, M. C. (2010). Robust variance estimation in meta-regression with dependent effect size estimates. *Research Synthesis Methods*, *1*(1), 39–65. fn998d

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2002). Statistical heterogeneity in systematic reviews of clinical trials. *Journal of Health Services Research & Policy, 7*(1), 51–61. https://doi.org/10.1258/1355819021927674

Higgins, J. P., Thompson, S. G., Deeks, J. J., & Altman, D. G. (2003). Measuring inconsistency in meta-analyses. *BMJ, 327*(7414), 557–560. https://doi.org/10.1136/bmj.327.7414.557

Higgins, J., Thomas J., Chandler, J., Cumpston, M., Li, T., Page, M.J., & Welch, V. A. (Eds). (2019). *Cochrane handbook for systematic reviews of interventions* (2nd ed.). John Wiley & Sons.

Höglinger, M. (2016). *Revealing the truth? Validating the randomized response technique for surveying sensitive topics* (Publication No. 23471) [Doctoral dissertation, ETH Zurich]. jbwq

Huang, C. (2011). Achievement goals and achievement emotions: A meta-analysis. *Educational Psychology Review, 23*(3), 359–388. https://doi.org/10.1007/s10648-011-9155-x

Huang, C. (2012). Discriminant and criterion-related validity of achievement goals in predicting academic achievement: A meta-analysis. *Journal of Educational Psychology, 104*(1), 48–73. https://doi.org/10.1037/a0026223

Huang, C. (2016). Achievement goals and self-efficacy: A meta-analysis. *Educational Research Review, 19*, 119–137. https://doi.org/10.1016/j.edurev.2016.07.002

Hunter, E., & Schmidt, L. (2004). *Methods of meta-analysis: Correcting error and bias in research findings*. Sage.
Ioannidis, J. P., & Trikalinos, T. A. (2007). An exploratory test for an excess of significant findings. *Clinical Trials, 4*(3), 245–253. https://doi.org/10.1177/1740774507079441
Jacob, B. A., & Levitt, S. D. (2003). Rotten apples: An investigation of the prevalence and predictors of teacher cheating. *The Quarterly Journal of Economics, 118*(3), 843–877. https://doi.org/df43mg
Janke, S., Rudert, S. C., Petersen, Ä., Fritz, T. M., & Daumiller, M. (2021). Cheating in the wake of COVID-19. *Computers and Education Open*, *2*, 100055. https://doi.org/gpxc3g
Kaplan, A., Middleton, M. J., Urdan, T., & Midgley, C. (2002). Achievement goals and goal structures. In C. Midgley (Ed.), *Goals, goal structures, and patterns of adaptive learning* (pp. 21–53). Routledge.
Kossmeier, M., Vilsmeier, J., Dittrich, R., Fritz, T., Kolmanz, C., Plessen, C. Y., Slowik, A., Tran, U. S., & Voracek, M. (2019). Long-term trends (1980–2017) in the N-pact factor of journals in personality psychology and individual differences research. *Zeitschrift Für Psychologie, 227*(4), 293–302. https://doi.org/10.1027/2151-2604/a000384
Krou, M. R., Fong, C. J., & Hoff, M. A. (2021). Achievement motivation and academic dishonesty: A meta-analytic investigation. *Educational Psychology Review, 33*(2), 427–458. https://doi.org/10.1007/s10648-020-09557-7
Lakens, D., Hilgard, J., & Staaks, J. (2016). On the reproducibility of meta-analyses. *BMC Psychology, 4*(1), 1–10. https://doi.org/10.1186/s40359-016-0126-3
Lee, S. D., Kuncel, N. R., & Gau, J. (2020). Personality, attitude, and demographic correlates of academic dishonesty. *Psychological Bulletin, 146*(11), 1042–1058. https://doi.org/10.1037/bul0000300
Maeda, M. (2021). Exam cheating among Cambodian students. *Compare A Journal of Comparative and International Education, 51*(3), 337–355. https://doi.org/10.1080/03057925.2019.1613344
Marques, T., Reis, N., & Gomes, J. (2019). A bibliometric study on academic dishonesty research. *Journal of Academic Ethics, 17*(2), 169–191. https://doi.org/10.1007/s10805-019-09328-2
McCabe, D. L., Trevino, L. K., & Butterfield, K. D. (2001). Cheating in academic institutions. *Ethics & Behavior, 11*(3), 219–232. https://doi.org/10.1207/S15327019EB1103_2
McCabe, D. L., Trevino, L. K., & Butterfield, K. D. (2002). Honor codes and other contextual influences on academic integrity. *Research in Higher Education, 43*(3), 357–378. https://doi.org/dx949q
McCabe, D. L., & Trevino, L. K. (1993). Academic dishonesty: Honor codes and other contextual influences. *The Journal of Higher Education*, *64*(5), 522–538. https://doi.org/ggv8cn
McCabe, D. L., Butterfield, K. D., & Trevino, L. K. (2012). *Cheating in college*. JHU.
McClung, E. L., & Schneider, J. K. (2015). A concept synthesis of academically dishonest behaviors. *Journal of Academic Ethics, 13*(1), 1–11. https://doi.org/10.1007/s10805-014-9222-2
Meece, J. L., Anderman, E. M., & Anderman, L. H. (2006). Classroom goal structure, student motivation, and academic achievement. *Annual Review Psychology*, *57*, 487–503.https://doi.org/fphw4v
Mendoza-Nápoles, C. A. (2022). Validation of learning adaptation patterns (PALS) scales in elementary Mexican school students. *Current Psychology, 41*(9), 5872–5882. https://doi.org/10.1007/s12144-020-01082-8
Midgley, C., Maehr, M. L., Hruda, L. Z., Anderman, E., Anderman, L., Freeman, K. E., & Urdan, T. (2000). *Manual for the patterns of adaptive learning scales*. University of Michigan.
Mulisa, F., & Ebessa, A. D. (2021). The carryover effects of college dishonesty on the professional workplace dishonest behaviors. *Cogent Education*, *8*(1), 1935408.https://doi.org/gm832q
Murayama, K., & Elliot, A. J. (2009). The joint influence of personal achievement goals and classroom goal structures on achievement relevant-outcomes. *Journal of Educational Psychology, 101*(2), 432–447. https://doi.org/10.1037/a0014221
Murdock, T. B., & Anderman, E. M. (2006). Motivational perspectives on student cheating. *Educational Psychologist, 41*(3), 129–145. https://doi.org/10.1207/s15326985ep4103_1
Murdock, T. B., Hale, N. M., & Weber, M. J. (2001). Predictors of cheating among early adolescents. *Contemporary Educational Psychology, 26*(1), 96–115. https://doi.org/10.1006/ceps.2000.1046
Murdock, T. B., Miller, A., & Kohlhardt, J. (2004). Effects of classroom context variables on high school students' judgments of the acceptability and likelihood of cheating. *Journal of Educational Psychology, 96*(4), 765–777. https://doi.org/10.1037/0022-0663.96.4.765
Nonis, S., & Swift, C. O. (2001). An examination of the relationship between academic dishonesty and workplace dishonesty. *Journal of Education for Business*, *77*(2), 69–77.https://doi.org/crkc6m
O'Rourke, J., Barnes, J., Deaton, A., Fulks, K., Ryan, K., & Rettinger, D. A. (2010). Imitation is the sincerest form of cheating. *Ethics & Behavior*, *20*(1), 47–64.https://doi.org/cw3zvj

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*(160), 1–36. https://doi.org/10.1136/bmj.n160

Paulhus, D. L., & Dubois, P. J. (2015). The link between cognitive ability and scholastic cheating: A meta-analysis. *Review of General Psychology, 19*(2), 183–190. https://doi.org/10.1037/gpr0000040

Pekrun, R., Elliot, A. J., & Maier, M. A. (2009). Achievement goals and achievement emotions Testing a model of their joint relations with academic performance. *Journal of Educational Psychology, 101*(1), 115–135. https://doi.org/10.1037/a0013383

Plessen, C., Gyimesi, M., Kern, B., Fritz, T., Catalán Lorca, M., Voracek, M., & Tran, U. S. (2020). Associations between academic dishonesty and personality: A pre-registered multilevel mea-analysis. PsyArXiv. https://doi.org/gqkw9r

Pulfrey, C. J., Vansteenkiste, M., & Michou, A. (2019). Under pressure to achieve? The impact of type and style of task instructions on student cheating. *Frontiers in Psychology, 10*, 1624. https://doi.org/10.3389/fpsyg.2019.01624

Putarek, V., & Pavlin-Bernardić, N. (2020). The role of self-efficacy for self-regulated learning, achievement goals, and engagement in academic cheating. *European Journal of Psychology of Education, 35*(3), 647–671. https://doi.org/10.1007/s10212-019-00443-7

R Core Team. (2016). *R: A language and environment for statistical computing*. Vienna, Austria. Retrieved from https://www.R-project.org/

Resurreccion, P. F. (2012). The impact of faculty, peers and integrity culture in the academe on academic misconduct among Filipino students. *International Journal of Academic Research in Business and Social Sciences, 2*(12), 33–50. https://www.researchgate.net/publication/304169734.

Rettinger, D. A., Jordan, A. E., & Peschiera, F. (2004). Evaluating the motivation of other students to cheat. *Research in Higher Education, 45*(8), 873–890. https://doi.org/10.1007/s11162-004-5952-0

Roberts, G. (2001). Understanding the dynamics of motivation in physical activity. In G. Roberts & D. Treasure (Eds.), *Advances in motivation in sport and exercise* (pp. 1–50). Kinetics.

Roig, M., & DeTommaso, L. (1995). Are college cheating and plagiarism related to academic procrastination?. *Psychological Reports*, *77*(2), 691–698. https://doi.org/cpfgx4

Roig, M., & Caso, M. (2005). Lying and cheating: Fraudulent excuse making, cheating, and plagiarism. *The Journal of Psychology, 139*(6), 485–494. https://doi.org/10.3200/JRLP.139.6.485-494

Roussel, P., Elliot, A. J., & Feltman, R. (2011). The influence of achievement goals and social goals on help-seeking from peers in an academic context. *Learning and Instruction, 21*(3), 394–402. https://doi.org/10.1016/j.learninstruc.2010.05.003

Scheers, N. J., & Dayton, C. M. (1987). Improved estimation of academic cheating behavior using the randomized response technique. *Research in Higher Education, 26*(1), 61–69. https://doi.org/10.1007/bf00991933

Scherrer, V., Preckel, F., Schmidt, I., & Elliot, A. J. (2020). Development of achievement goals and their relation to academic interest and achievement in adolescence. *Developmental Psychology, 56*(4), 795–814. https://doi.org/10.1037/dev0000898

Schild, A. H., & Voracek, M. (2015). Finding your way out of the forest without a trail of bread crumbs. *Research Synthesis Methods, 6*(1), 74–86. https://doi.org/10.1002/jrsm.1125

Senko, C., & Tropiano, K. L. (2016). Comparing three models of achievement goals: Goal orientations, goal standards, and goal complexes. *Journal of Educational Psychology, 108*(8), 1178–1192. https://doi.org/10.1037/edu0000114

Šeremet, A., Perić, K., & Brdovčak, B. (2018). Determinants of academic dishonesty among students. In S. Nakić Radoš (Ed.), *Protection and promotion of the well-being of children, youth, and families* (pp. 93–108). Catholic University of Croatia.

Simamora, B., & Mutiarawati, E. V. (2021). Achievement goals model validation. *International Journal of Evaluation and Research in Education*, *10*(1), 142–149. https://doi.org/jbwr

Simha, A., & Cullen, J. B. (2012). A comprehensive literature review on cheating. *International Journal of Cyber Ethics in Education, 2*(4), 24–44. https://doi.org/10.4018/ijcee.2012100102

Simonsohn, U., Simmons, J. P., & Nelson, L. D. (2020). Specification curve analysis. *Nature Human. Behaviour, 4*(11), 1208–1214. https://doi.org/10.1038/s41562-020-0912-z

Simonsohn, U., & Gruson, H. (2021). *groundhog: The simplest solution to version-control für CRAN packages.* R package version 1.5.0. https://CRAN.R-project.org/package=groundhog

Stephens, J. M., & Gehlbach, H. (2007). Under pressure and underengaged. In E. M. Anderman & T. B. Murdock (Eds.), *Psychology of Academic Cheating* (pp. 107–134). Academic.

Tapola, A., & Niemivirta, M. (2008). The role of achievement goal orientations in students' perceptions of and preferences for classroom environment. *British Journal of Educational Psychology, 78*(2), 291–312. https://doi.org/10.1348/000709907X205272

Terrin, N., Schmid, C. H., Lau, J., & Olkin, I. (2003). Adjusting for publication bias in the presence of heterogeneity. *Statistics in Medicine, 22*(13), 2113–2126. https://doi.org/10.1002/sim.1461

Urdan, T. C., & Maehr, M. L. (1995). Beyond a two-goal theory of motivation and achievement: A case for social goals. *Review of Educational Research, 65*(3), 213–243. https://doi.org/10.3102/00346543065003213

Urdan, T., & Schoenfelder, E. (2006). Classroom effects on student motivation. *Journal of School Psychology, 44*(5), 331–349. https://doi.org/10.1016/j.jsp.2006.04.003

Urdan T. (2001). Contextual influences on motivation and performance. In F. Salili, C.Y. Chiu & Y.Y. Hong (Eds.), *Student motivation. Plenum series on human exceptionality (*pp. 171–201). Springer. https://doi.org/10.1007/978-1-4615-1273-8_9

van Aert, R. C., & Jackson, D. (2019). A new justification of the Hartung-Knapp method for random-effects meta-analysis based on weighted least squares regression. *Research Synthesis Methods, 10*(4), 515–527. https://doi.org/10.1002/jrsm.1356

van den Noortgate, W., López-López, J. A., Marín-Martínez, F., & Sánchez-Meca, J. (2013). Three-level meta-analysis of dependent effect sizes. *Behavior Research Methods, 45*(2), 576–594. https://doi.org/10.3758/s13428-012-0261-6

Viechtbauer, W. (2010). Conducting meta-analyses in R with the metafor package. *Journal of Statistical Software, 36*(3), 1–48. https://doi.org/10.18637/jss.v036.i03

Viechtbauer, W. (2021). Model checking in meta-analysis. In C. H. Schmid, T. Stijnen, & I. R. White (Eds.), *Handbook of meta-analysis* (pp. 219–254). CRC.

Whitley, B. E. (1998). Factors associated with cheating among college students. *Research in Higher Education, 39*(3), 235–274. https://doi.org/10.1023/A:1018724900565

Whitley, B. E., Jr., Nelson, A. B., & Jones, C. J. (1999). Gender differences in cheating attitudes and classroom cheating behavior. *Sex Roles, 41*(9–10), 657–680. https://doi.org/btdxhw

Wilkinson, M. D., Dumontier, M., Aalbersberg, I. J., Appleton, G., Axton, M., Baak, A., Blomber, N., Boiten, J., Bonino da Silva Santos, L., Bourne, P. E., Bouwman, J., Brookes, A. J., Clark, T., Crosas, M. Dillo, I., Dumon, O., Edmunds, S., Evelo, C. T., Finkers, R., … Mons, B. (2016). The FAIR Guiding Principles for scientific data management and stewardship. *Scientific Data*, *3*(1), 1–9. https://doi.org/10.1038/sdata.2016.18

Williamson, W. P., & Assadi, A. (2005). Religious orientation, incentive, self-esteem, and gender as predictors of academic dishonesty. *Archive for the Psychology of Religion, 27*(1), 137–158. https://doi.org/10.1163/008467206774355411

Zubković, B. R., & Kolić-Vehovec, S. (2014). Perceptions of contextual achievement goals: Contribution to high-school students' achievement goal orientation, strategy use and academic achievement. *Studia Psychologica, 56*(2), 137–153. https://doi.org/10.21909/sp.2014.02.656