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Isik, U.

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Factors influencing academic motivation of ethnic minority students: a review

U Isik, VUmc
O El Tahir, VUmc
M Meeter, VU University
MW Heymans, VUmc
EP Jansma, VUmc
G Croiset, VUmc
RA Kusurkar, VUmc

Abstract

Background
The aim of this study is to create a comprehensive overview of factors that may influence motivation of ethnic minority students from their own perspective.

Methods
A systematic review was conducted in PubMed, ERIC, and PsycINFO to find studies in which the motivation of ethnic minority students was studied. The articles reviewed were qualitatively synthesized by means of meta-ethnography, and were subjected to a quantitative meta-analysis where appropriate.

Results
Forty-five articles were included. Several factors were found to have either a positive or a negative influence on academic motivation, which can be classified into individual, family-related, school-related, and social factors.

Conclusions
These factors should be taken into account when developing interventions aimed at enhancing motivation, which is expected to improve. However, evidence for the influence of most identified factors is weak, given that almost every factor was investigated in a single study only. Based on the outcomes of the current overview, an integrative model, that provides a structure of the identified factors in relation to motivation which can be used for interventions, cannot be generated; thus, further research is needed.

Introduction

Globally, the phenomenon of academic underperformance of ethnic minority students has attracted much attention across disciplines, such as medical education, and vocabulary, reading and mathematics on high school. Although at the start of their educational career usually no significant differences are observed in performance between ethnic majority and minority students [1], during elementary school such differences tend to arise [2] and grow over time [1]. Varying from elementary school to higher education, ethnic minority students score lower grades, obtain fewer credits, are 2½ times as likely to fail examinations, and are twice as likely to experience study delays compared with majority background students [1, 3-7]. In tracked educational systems, ethnic minority students are overrepresented in vocational or lower education tracks, and underrepresented in higher education [2, 4, 5].

Researchers have identified several factors to explain this academic performance gap, such as stereotype threat (the feeling of a negative image) [8-10] and threat to feelings of belonging (feeling like the outsider in a group) [11]. Nonethnicity-specific factors, such as socioeconomic background, exert an influence as well [2, 8, 11, 12]. However, these factors only partly explain underperformance in ethnic minority students. Motivation, which has been found to influence learning and performance, could be a crucial factor in explaining this achievement gap [13-15] Specifically, research has shown that motivation has positive associations with learning and academic performance of students. Students that are not motivated have shown the least desirable learning behaviours and academic performance [13, 16]. In addition, earlier research on motivation showed that there were differences in the intrinsic and extrinsic motivation of ethnic minority students and the majority group [17]. The majority group showed the highest level of intrinsic motivation compared with the ethnic minority groups and the ethnic minority students showed higher levels of extrinsic motivation compared with the ethnic majority group. A better understanding into the factors influencing the motivation of ethnic minority students might help in preventing the achievement gap between ethnic minority and majority students. However, so far, factors that influence the motivation of ethnic minority students have been understudied in education [18].

The Objective of This Study
To reveal factors that might influence the motivation of ethnic minority students from their own perspective, we have conducted a comprehensive review of the relevant literature. Findings have the potential to facilitate the development of interventions aimed at enhancing motivation, which is expected to improve the academic performance of ethnic minority students. The following two questions guided our review: (a) Which factors influence the academic motivation of ethnic minority students? and (b) In what ways do

such factors influence the academic motivation of ethnic minority students?

This study aims to generate an inventory of factors influencing the motivation of all school-age ethnic minority groups; therefore, this study will include a wide range of factors, countries, ethnic minorities, ages, school types, and motivational constructs and measurements.

Theoretical Constructs and Measures of Motivation
There are several theories of motivation, such as Self-Determination Theory (SDT)[15], the Goal theory[19], Social Cognitive Theory (SCT)[20], and expectancy-value theory of motivation[21, 22]. The first three are based on the quality or type of motivation whereas the last is based on the quantity of motivation. As per SDT, people can be intrinsically motivated to learn new things and students who are intrinsically motivated show enjoyment and satisfaction when learning and utilizing their capabilities[15, 23]. SDT identifies three basic psychological needs that, when fulfilled, can foster intrinsic motivation, namely, autonomy (feeling of acting by choice), competence (confidence in one's ability to reach certain goals), and relatedness (feeling of being connected to others in the nearby environment). SDT is important for this review, as it views motivation as dynamic, which means that it can increase or decrease or change in its quality, which is influenced by many factors in the environment[16]. For example, stereotype threat, that is, the fear of a negative image leading to actual underperformance, could potentially hamper intrinsic motivation by lowering the feeling of autonomy (due to helplessness in influencing the examination results), competence (due to lower performance) and relatedness (feeling of being singled out). Research has shown that negative stereotype threat can influence motivation and performance negatively[24]. Participants were told that men perform better than women on the test (stereotype threat situation) or that men and women perform equally well (no-stereotype situation), prior to a mathematics test. After the test, participants received feedback (positive or negative) before scoring their self-esteem. Finally, participants could attend mathematics tutorials and were asked to point out their likelihood of attending. Female students that were under stereotype threat underperformed and were less motivated compared with nonstereotyped female students that were present at mathematics tutorials after receiving negative feedback. In addition, another study reported that "positive attitudes can motivate stigmatized individuals to engage with threatening domains, and stereotypes need to be retrained to give them the cognitive capacity critical for success"[25].

In the Goal theory, motivation is described on the basis of a person's goal orientation: mastery goals (for mastering a task) and performance goals (to demonstrate your own ability compared with others). From the perspective of Bandura's (1986)[20] SCT, self-efficacy (one's belief in the ability to achieve a certain goal)[26] can be seen as motivation, because motivation depends on feelings of self-efficacy. Someone with a strong sense of self-efficacy for a

certain task is thought to be motivated for that task[20, 27]. "According to the expectancy-value theory of motivation, the quantity of motivation to engage in achievement-related behaviour is a joint function of the expectation that such a behaviour will be successful and the value attached to that success"[21, 22, 28]. This theory assumes that every person has motivation to approach success and motivation to avoid failure. The quantity of motivation of a person could be measured as the sum of motivation to succeed and motivation to avoid failure. For an overview of all motivation theories see Kusurkar's (2012) table[27]. In this study, general academic motivation or school-related motivation of students (e.g., motivation to continue their study or for succeeding in school) was under consideration, as it is described in the included papers, regardless of which motivation theory had been used as a framework.

Definition of Ethnic Minority Used in This Study
An ethnic minority is an ethnically defined group that is significantly smaller than a dominant other ethnically defined group within the population. We rely on the definition of Senior and Bhopal (1994)[29] of ethnicity: "Ethnicity implies one or more of the following: shared origins or social background; shared culture and traditions that are distinctive, maintained between generations, and lead to a sense of identity and group; and a common language or religious tradition". So, what all ethnic minority groups have in common is that they differ in the mentioned characteristics within a community from a dominant other group, regardless of their cultural heritage, or their historic and economic position in a particular environment, which may all have their own separate effects.

It is important to note that the terms race, ethnicity, and nationality are regularly used interchangeably. For example, in many studies, the term ethnicity is used to indicate the race, ethnicity, and nationality of the individuals, like African American, White Americans, and so on[30]. "Race is usually explained in terms of physical characteristics, like skin colour, facial features, and hair type, which are common to an inbred, geographically isolated population[30]. The included studies conflate race and ethnicity, this was not a problem for this review, because they fit in the definition of ethnicity of Senior and Bhopal (1994)[29], as we used for our review.

Method

Search Strategy
A systematic literature search was conducted by the first author (U.I.) and an information specialist (E.J.), to identify all relevant publications in the databases PubMed, ERIC (via EBSCO), and PsycINFO (via EBSCO) from inception of the database to December 2013/

January 2014. Search terms and their synonyms were determined to acquire all relevant articles. The search terms included controlled terms from MeSH in PubMed, thesaurus terms from ERIC, and PsycINFO, as well as free text terms. Search terms expressing "student" were used in combination with search terms comprising "ethnic background" (including race as an intersection of ethnicity) and "motivation" (including aspiration; see Appendix A). No restrictions were applied to language and date of publication in the databases during the literature search. An updated literature search was conducted in May 2018 for the period December 2013/January 2014 until April 2018.

Measures

Data collection. Articles were selected using the following inclusion criteria: (a) motivation is an outcome or mediating variable, (b) ethnic minority students are the subjects, (c) factors/variables of motivation are mentioned or measured, (d) this study is conducted from elementary school onward, and only (e) journal articles, and (f) both quantitative and qualitative studies were included. We were interested in factors influencing the academic motivation of students from ethnic minorities in general (from the student's perspective).

Articles that described specific groups or situations were excluded, such as (a) special school programs or interventions, (b) specific types of motivation like for studying science, (c) perspective of teachers or parents, (d) gifted students, and (e) settings in which ethnic minority students in a particular population formed the majority in the particular school/college under study.

To assess the quality of the articles, we used the following five items related to methods, results, analysis, and conclusions [31]: 1 = *there is a clear research question/purpose*; 2 = *the method used is suitable for answering the research question*; 3 = *the methods and results are clearly described*; and 4 = *the research question is answered in the results and conclusion/discussion sections*. We added the following item because we were interested in the outcome variable motivation: 5 = *motivation is measured as mentioned in the research question/purpose and a (clear) description of motivation is given*.

To assess the methods used in the qualitative studies, we looked at the manner of coding, the policy applied for reaching consensus and reflexivity (i.e., the role of the researcher in constructing knowledge in each step of the research process) [32]; in the quantitative studies, we considered sample size, study design, and the instruments used. The quality check was independently realized by two researchers (U.I. and O.T.). The quality check was executed after inclusion of the articles, because we did not want to miss out on any data that lower quality articles could provide. The quality of a study is given in Table 1, using the

numbers of the above mentioned quality assessing items whenever it has been fulfilled.

The abstracts selected were independently screened and cross-checked by two researchers (U.I. and R.A.K.). Reasons for inclusion and exclusion were logged, after which the full versions of the articles selected for inclusion were retrieved. In case the full article was not available on the Internet, we wrote to the author(s). In the next step, U.I. and O.T. independently read the full-length articles and annotated the texts, after which they discussed the contents together. General academic motivation or school-related motivation of students was under consideration, as it is described/mentioned in the included papers, regardless of which motivation theory had been used as a framework. In case of doubt, Kusurkar's table [27], which gives an inventory of motivation theories, was used to check whether a certain article really presented a study of motivation. If consensus was not reached, a third researcher (R.A.K.) also read the full text and was involved in the decision-making. Articles written in a language other than English (two in German, one in Arabic, and one in Portuguese) were read by native speakers and the content was explained to the researchers. For the updated literature search (period December 2013/January 2014-April 2018) in the databases PubMed, ERIC (via EBSCO), and PsycINFO (via EBSCO), titles were screened independently by the researcher U.I. and R.A.K. Then the abstracts of relevant or doubtful titles were screened. The full versions of the articles were cross-checked by the two researchers.

Table 1. Overview of the articles included.

Study	Sample – Country	School	Study type	Quality check
Gillen-O'Neel et al. (2011)	451 African, 127 Chinese, 90 European, 109 Dominican, 77 Russian students - US	es	qn	1, 2, 3, 4, 5
Shin (2011)	88 African students – US	es	qn	1, 2, 3, 4, 5
Thijs and Verkuyten (2008)	1,895 Dutch, Turkish, Moroccan, Surinamese, mixed or students from different ethnicities - Netherlands	es	qn	1, 2, 3, 4, 5
Choi et al. (1994)	*Study 1:* 102 Caucasian and 68 Korean students - US *Study 2:* 24 Korean students – US	es, hs	qn	1, 2, 3, 4, 5
Lowe and Dotterer (2013)	208 African, Latino, and multi-racial students – US	ms	qn	1, 2, 3, 4, 5
St-Hilaire (2002)	728 Mexican students – US	ms	qn	1, 2, 3, 4, 5
Warner (2008)	192 African students – US	ms	qn	1, 2, 3, 4, 5
Behnke et al. (2004)	10 Latino youths (and their families) - US	ms, hs	ql	1, 2, 3, 4, 5
Gonzalez et al. (2013)	171 Latino students – US	ms, hs	qn	1, 2, 3, 4
Sentell (2012)	3,737 Hispanic, Black, Asian, White students – US	ms, hs	qn	1, 2, 3, 4, 5

Table 1 continued.

Study	Sample – Country	School	Study type	Quality check
Tynes et al. (2015)	257 African American, 161 Latino students – US	ms, hs	qn	1, 2, 3, 4, 5
Hill and Wang (2015)	Wave 1: 1,452 African and European Americans, Wave 3: 1,157 African and European Americans, Wave 4: 1,084 African and European Americans - US	ms, hs	qn	1, 2, 3, 4, 5
Basáñez et al. (2013)	2,214 Hispanic students – US	hs	qn	1, 2, 3, 4, 5
Butler-Barnes et al. (2015)	612 African American – US	hs	qn	1, 2, 3, 4, 5
Eaton and Dembo (1997)	366 Asian and Non-Asian students *Non-Asians:* Anglo, Mexican, African students – US	hs	qn	1, 2, 3, 4, 5
Esparza and Sánchez (2008)	143 Mexican, Latino, and biracial students – US	hs	qn	1, 2, 3, 4, 5
Flores et al. (2008)	89 Mexican students – US	hs	qn	1, 2, 3, 4, 5
Goodenow and Grady (1993)	301 African, White/ Anglo and Hispanic students – US	hs	qn	1, 2, 3, 4, 5
Guzmán et al. (2005)	222 Mexican students – US	hs	qn	1, 2, 3, 4, 5
Hill et al. (2004)	463 European, African students, students from other ethnic groups and their families – US	hs	qn	1, 2, 3, 4, 5
Hudley (1997)	47 African and Hispanics students - US	hs	mm	1, 2, 3, 4, 5
Kenny et al. (2007)	15 African, Black/ Caribbean, Latina/o students and 1 biracial student - US	hs	ql	1, 2, 3, 4
Kfir (1988)	3,154 Israeli students from Afro-Asian and European origin – Israel	hs	qn	1, 2, 3, 4, 5
Kiang et al. (2013)	177 Asian students – US	hs	qn	1, 2, 3, 4, 5
Lee (1994)	Asian students – US	hs	ql	1, 2, 4
Marjoribanks (1985)	260 Anglo, 120 Greek, 90 Southern Italian students – Australia	hs	qn	1, 2, 3, 4, 5
McInerney (1990)	496 Aboriginal, 487 migrant, 1,172 Anglo students – Australia	hs	qn	1, 2, 3, 4, 5
McInerney (2008)	852 Anglo, 343 Aboriginal, 372 Lebanese, 283 Asian students – Australia	hs	qn	1, 2, 3, 4, 5
O'Hara et al. (2012)	750 African adolescents – US	hs	qn	1, 2, 3, 4, 5
Perreira et al. (2010)	459 Latino students – US	hs	qn	1, 2, 3, 4, 5
Plunkett and Bámaca-Gómez (2003)	273 Mexican students – US	hs	qn	1, 2, 3, 4, 5
Ramos and Sanchez (1995)	71 Mexican students -US	hs	qn	1, 2, 3
Rivas-Drake (2008)	20 Latina/o students – US	hs	ql	1, 2, 3, 4
Siann et al. (1996)	985 Asian and Non-Asian students - UK	hs	mm	1, 2, 4
Stewart et al. (2007)	720 African students - US	hs	qn	1, 2, 3, 4, 5

Table 1 continued.

Study	Sample – Country	School	Study type	Quality check
Van Houtte and Stevens (2010)	1,324 immigrant, 10,546 native students – Belgium	hs	qn	1, 2, 3, 4, 5
Wood et al. (2011)	424 African students – US	hs	qn	1, 2, 3, 4, 5
Lew et al. (1998)	185 Asian students – US	col, uni	qn	1, 2, 3, 4, 5
Bembenutty (2007)	364 college students Minority groups: 43 African, 6 Asian, 14 Hispanics, 7 Native Americans, 25 from other ethnic groups – US	uni	qn	1, 2, 3, 4, 5
Gavala and Flett (2005)	122 Maori students - New Zealand	uni	qn	1, 2, 3, 4, 5
Mendoza-Denton et al. (2008)	70 African students – US	uni	qn	1, 2, 3, 4, 5
Strage (1999)	73 White, 40 Asian-American, 37 Hispanic students – US	uni	qn	1, 2, 3, 4, 5
Tseng (2004)	998 American students with Asian Pacific, Latino, African/Afro-Caribbean, European backgrounds – US	uni	qn	1, 2, 3, 4, 5
Young et al. (2011)	31 European, 31 African American, 31 Hispanic students – US	uni	qn	1, 2, 4, 5
Yuan et al. (2016)	258 European American and Asian American students (65.5% were European American and 34.5 % were Asian American)	uni	qn	1, 2, 3, 4, 5

es= elementary school, ms= middle school, hs= high school, col= college, uni= university, qn= quantitative study, ql= qualitative study, mm= mixed methods

Data synthesis and analysis. The articles were analysed in two steps. First, questions amenable to a quantitative analysis were subjected to a random effects meta-analysis using IBM SPSS Statistic 20.0: to determine whether ethnic minority students differ in motivation from ethnic majority students, and whether motivation was correlated with performance. To pool differences between groups standardized mean differences were used and correlations were pooled using Fisher's *r* to *z* transformation. Multivariate pooling was done when more data were used from the same study. Pooling was done using the metafor package [33]. More precise research questions, such as the role of particular factors in motivation, were not amenable to a meta-analysis, because many factors were investigated in multiple studies in different ways, using different definitions for the factors.

In a second step, all articles included were qualitatively synthesized by means of meta-ethnography [34, 35]. This method is commonly used in literature reviews, and allows for a comparison between studies to elucidate key concepts, identify contradictions, present an overview, and facilitate the general interpretation of articles. In particular, we aimed to create an overview of factors that may influence the motivation of ethnic minority students

based on the findings of the included studies.

Tables 1, 2, and Appendix B display the analyses of the articles included in our review. U.I. and O.T. each synthesized the articles independently, regularly discussing their findings together and cross-checking the articles, thus constructing these tables and categorizing the identified factors. A list of all factors influencing the academic motivation of ethnic minority students was developed. After screening and discussing the list within the research team the factors were categorized into the following categories: individual, family-related, school-related, and social. As follows, we considered whether the main factors could be classified into subcategories. We will give one example for each main category. For the main category "individual factors," we have seen that, for example, some of the factors like depressive symptoms were about wellbeing and health. Therefore, these factors were classified as "well-being." For the main category "family-related factors," we have found that, for example, the factors related to help given by parents and parental support were about support, so these factors were classified as "family support". For the main category "school-related factors," we found that some of the factors were about school grades and these could be categorized as academic achievement. For the last main category "social factors," we found that some of the factors were about experiencing discrimination and racism, so we classified these factors as discrimination/racism. The classification of the factors was regularly discussed in the research team until consensus was reached. The final tables were checked, discussed, and agreed upon by the entire research team. All the phases, from the search strategy to data analysis, were done systematically using the checklist of the PRISMA Statement as a guide[36].

Results

Study Search and Selection

Searching the databases yielded 4,465 hits (Figure 1). After removing duplicates, 4,336 articles remained. By screening titles and abstracts, 3,972 articles were excluded because motivation and/or ethnic minority students were not investigated. Fifty-two articles were excluded because the full article could not be retrieved, while 275 articles were excluded because they did not meet the inclusion criteria. Thirty-seven articles were eligible for inclusion. A hand search, checking the references of the included articles, conducted for references yielded four more eligible articles. Finally, 41 articles were selected for analysis (see Table 1). Because there was some time between the initial search and publishing this article, we decided to update the literature search. The literature search updated for the period December 2013/January 2014 till April 2018 yielded 2,349 hits (see Figure

2). Duplicates were removed and 2,336 articles remained. After screening titles and abstracts, 2,317 articles were excluded. The hand search yielded no extra articles. In total, four extra articles were included in this review. With the updated literature search, a total of 45 articles were included in this review. Out of these 45 articles, only four were qualitative studies and two were mixed methods studies. Thirty-seven studies were conducted in the United States. The articles are sequenced according to different educational stages: elementary school, middle school, high school, college/university (see Table 1).
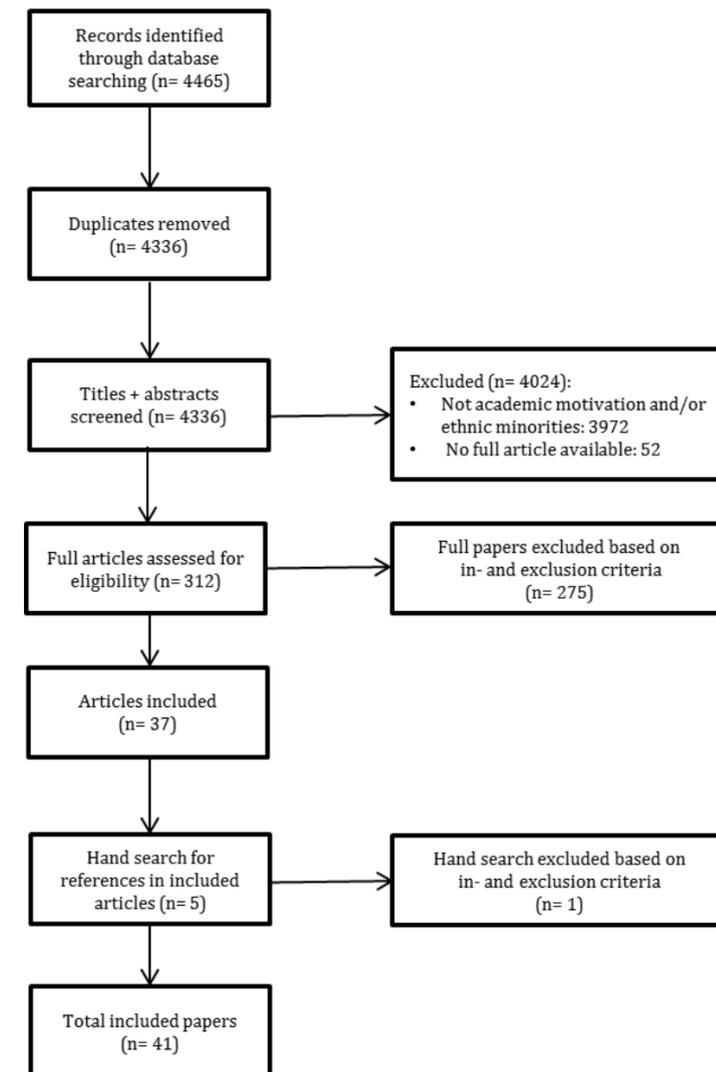

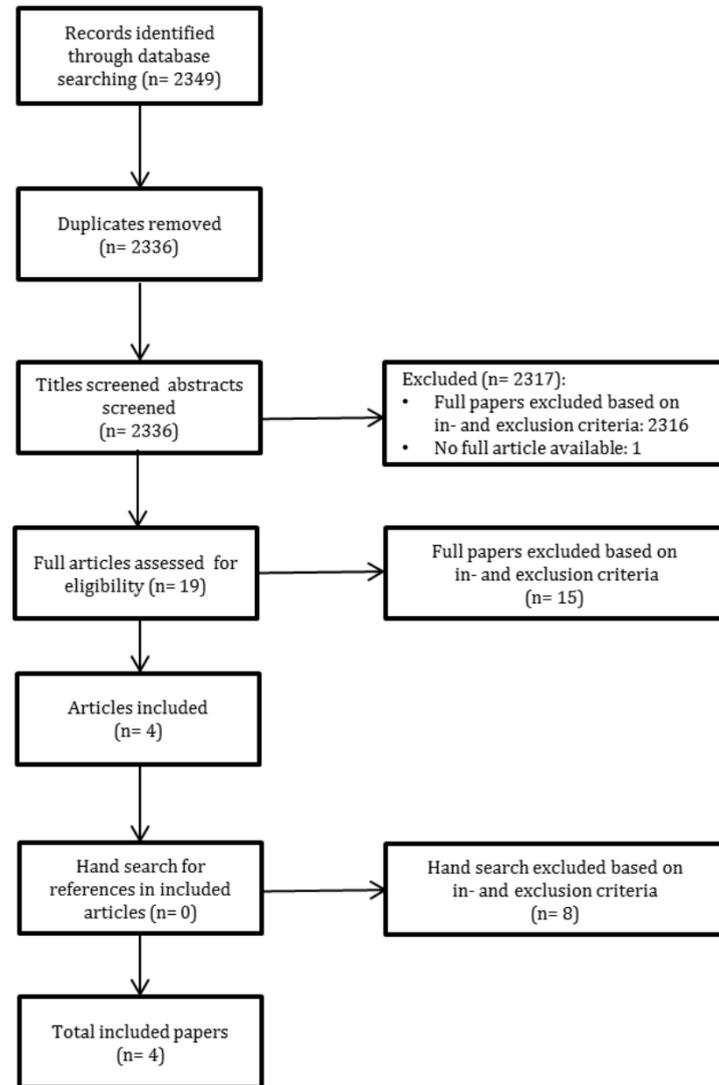**Figure 1.** Flow chart of study selection.

Figure 2. Flow chart of study selection: Updated for the period December 2013/January 2014 to April 2018.

Motivation Description and Measurement

Motivation is a broad concept, which has been described in different theories [27], with accompanying measuring instruments. In the studies included in this review, a great variety of descriptions and measurements of motivation was found, which has been summarized in Table 2. The most frequently used variables of motivation were educational aspirations/

intentions like aspiration to attend college and intention to finish school, and intrinsic motivation like enjoyment of learning and interest in school (in total 69%).

Table 2. Motivation description and measurement.

Study	Motivation description	Motivation measure
Basáñez et al. (2013)	Aspiration to attend college	College aspiration measured in 11th grade with the single item: "Will you go to college after high school, work, or something else?"
Behnke et al. (2004)	Education aspirations	Educational aspirations (varied from "don't know to obtaining a bachelor's degree). In-depth interviews
Bembenutty (2007)	Students' motivation for a specific course and their use of learning strategies	Motivational Strategies for Learning Questionnaire (MSLQ) (Pintrich et al., 1993). Motivation scales include intrinsic and extrinsic motivation, task value, control beliefs, self-efficacy, and test anxiety
Tynes et al. (2015)	Academic motivation: self-efficacy and utility values	Academic motivation measured using the mean of the following measures as indicators: self-efficacy and utility values. Academic self-efficacy is a five-item measure examining participants' self-evaluations of their abilities to accomplish school tasks (e.g., "Even if the work in school is hard, I can learn it") Utility values: participants' values toward schoolwork using a two-item measure (e.g., "The work we do in school is important").
Butler-Barnes et al. (2015)	Achievement motivational beliefs	Achievement motivational beliefs measured using abstract educational attitudes subscale (Mickelson 1990). "The scale assessed adolescents' personal views about education and the opportunity structure for Black people like them, or the extent to which adolescents endorsed schooling as a means to personal success." The subscale consisted of seven items, e.g., "Young Black people like me have a chance of making it if we do well in school," and "Education really pays off in the future for young Black people like me."
Choi et al. (1994)	Academic success and failure	The Sydney Attributions Scale (Marsh et al., 1984). Children attributed the outcome of academic success and failure. Academic succes: attributable to ability, effort, and external factors. Academic failure: attributable to lack of ability, lack of effort, and external factors

Table 2 continued.

Study	Motivation description	Motivation measure
Eaton and Dembo (1997)	Motivation as achievement behaviour	Achievement behavior: Measuring key aspects of motivational behaviour related to school performance , such as attention, persistence, and continuing motivation
Esparza and Sánchez (2008)	Motivation was adapted from the expectancy-value theory of motivation (Atkinson, 1964). "This theory suggests that individuals will perform better in their class work if they believe that they are able to perform the task (i.e., expectancy for success) and if they deem the task to be important and interesting to them (i.e., intrinsic value)."	Students' motivation was measured by examining their expectations for success in their English class and the intrinsic value they placed in it. (Pintrich & De Groot, 1990)
Flores et al. (2008)	Educational goal aspiration: level of education the students expected to complete	Educational goal aspiration measured with one item: indicate the highest level of education they hoped to complete
Gavala and Flett (2005)	Academic enjoyment/motivation	Students were asked to think about their experiences at the university that contributed to their ongoing enjoyment and determination to study at university. Academic enjoyment/motivation was measured with 16 items (e.g. "It has been difficult for me to meet and make friends with other students")
Gillen-O'Neel et al. (2011)	Intrinsic motivation	Intrinsic motivation measured by 4 items: "How interesting is school?"; "How much do you like school?"; "Why do you do your schoolwork?"; "Is it because you want to learn new things? Is it because it's fun and interesting?" (Eccles et al., 1993)
Gonzalez et al. (2013)	Educational aspirations	Educational aspirations (no further details described)
Goodenow and Grady (1993)	1. Motivation based on an expectancy-value theory of motivation (Atkinson, 1964; Eccles et al., 1983). "According to this theory, motivation to engage in achievement-related behaviour is a joint function of the expectation that such a behaviour will be successful and the value attached to that success." 2. General school motivation	1. Questionnaire based on an expectancy – value theory of motivation (Atkinson, 1964) Five items measuring students' expectancy of success in schoolwork and six items measuring the intrinsic value, interest and importance that students attribute to academic schoolwork. 2. General school motivation measured with a four-item scale, shortened version of School Motivation Scale.

Table 2 continued.

Study	Motivation description	Motivation measure
Guzmán et al. (2005)	Attitude toward education and school; motivation for succeeding in school	The Attitude scale of the Learning and Study Strategies Inventory-High School version (LASSI–HS). A high score on this scale demonstrates a student's positive attitude and high motivation for succeeding in school and a willingness to perform the tasks related to school success.
Hill et al. (2004)	Education expectations/aspirations	Education expectations/aspirations measure with 2 items, developed for the Pittsburgh Youth Study (Loeber et al., 1991). Students were asked to report on their chances of graduating from high school and going to college
Hill et al. (2015)	Educational aspirations	Adolescents' educational aspirations were assessed by two items to assess aspirations at 7th, 8th, and 11th grades. "The first item was "If you could do exactly what you wanted, how far would you like to go in school?" To increase the likelihood of obtaining realistic and thoughtful goals and to be consistent with other work on aspirations, a second question was asked: "We cannot always do what we most want to do. How far do you think you actually will go in school?" Each question was rated along a 9-point scale, ranging from 9–11th grade to earning a doctorate (e.g., PhD, JD, MD, DO, or DVM)."
Hudley (1997)	Intrinsic motivation: enjoyment of learning, a preference for challenging tasks, and curiosity and persistence in academic tasks.	Children academic intrinsic motivation self-report inventory (CAIMI) with 122 items for students in the fourth through eighth grade.
Kenny et al. (2007)	(Post-high-school) educational and career goals	(Post-high-school) educational and career goals described in semi-structured interview
Kfir (1988)	Educational aspiration	Educational aspiration to continue their study
Kiang et al. (2013)	Intrinsic motivation	Academic motivation measured with 2 items: "In general, I find working on school work…", and: "How much do you like working on school work?"
Lee (1994)	Motivation for working hard	Interviews (motivation for working hard)

Table 2 continued.

Study	Motivation description	Motivation measure
Lew et al. (1998)	"Individual-oriented achievement motivation: endorsed by individualistic nations and emphasizes the qualities of self-reliance, individualism, and autonomy. Social-oriented achievement motivation: strongly socialized in collectivist cultures and reflects one's moral obligation to succeed in order to enhance the status of the family or other social unit"	Achievement Motivation Scales. 1. The Social-Oriented Achievement Motivation scale: "the extent to which the achievement goals, achievement behaviour, outcome evaluation, and consequences are regulated by significant others" 2. Individual Oriented Achievement Motivation scale: "the extent to which the achievement goals, achievement behaviour, outcome evaluation, and final consequences are regulated by the individual."
Lowe and Dotterer (2013)	Intrinsic motivation	Intrinsic motivation measured in a survey: 17-item scale (e.g. "I ask questions in class because I want to learn new things")
Marjoribanks (1985)	Educational aspiration: level of education	Educational aspirations. Students were asked to indicate what educational level they would eventually like to receive.
McInerney (1990)	Intention to complete the higher school	Intention to complete the higher school certificate (year 12) and intention to leave school as soon as possible
McInerney (2008)	Intention for further education	Intention for further education measured with five items (e.g.: "I intend to go on to college or university")
Mendoza-Denton et al. (2008)	Intentions to stay in school	Intentions to stay in school measured by reverse scoring considerations of dropping out: "I have considered dropping out of (the university) before earning a degree"
O'Hara et al. (2012)	Educational aspirations	Educational aspirations (7th and 10th grade): "If you could go as far as you wanted in school, how much education would you like to have?"
Perreira et al. (2010)	Dimensions of academic motivation: importance, usefulness, future value, and intrinsic value of education	Four dimensions of academic motivation: importance, usefulness, future value, and intrinsic value of education were measured with items like "doing well in school" (Fuligni, 1997)
Plunkett and Bámaca-Gómez (2003)	1. Academic motivation: liking school, effort exerted in school, importance of grade and education, and finishing homework on time. 2. Educational aspiration	1. Academic motivation measured with 5 items: liking school, effort exerted in school, importance of grade and education, and finishing homework on time. 2. Educational aspiration: "how much education do you plan to get?"
Ramos and Sanchez (1995)	Educational aspirations	Educational aspirations were measured with a questionnaire
Rivas-Drake (2008)	Achievement motivation	Semi-structured interviews
Sentell (2012)	College aspiration	College aspiration was measured as self-reported plans to attend college/university compared to other plans

Study	Motivation description	Motivation measure
Shin (2011)	Academic self-efficacy: " an individual's beliefs about his or her ability to generate and maintain the effort needed to achieve a goal"	Academic self-efficacy was measured with a revised version of the five-item academic self-efficacy scale (Midgley et al., 2000). This scale measures students' perceptions of their confidence to do their class work.
Siann et al. (1996)	Attributions of academic success: what students attributed academic success to.	Attributions of academic success: "How important do you think the following (e.g. how hard you work and how much teachers encourage them) are making you do well at school?"
Stewart et al. (2007)	College aspirations	College aspirations: 1. "How important is it to you to have a college education?"
St-Hilaire (2002)	Educational aspiration	Educational aspiration: "Education is the key to get ahead in this country. I'll get as much education as I can," and: "Education is less important than meeting the right people. As soon as I can, I'll leave school". 2. "What is the highest level of education that you would like to achieve? "And realistically speaking, what is the highest level of education that you think you will achieve?"
Strage (1999)	Motivation: persistence, task involvement, and incremental views	Motivation measured with 3 scales: persistence, task involvement, and incremental views
Thijs and Verkuyten (2008)	Academic self-efficacy. "Perceptions of efficacy refer to the confidence in one's ability to organize and execute a given course of action or accomplish a task."	Academic self-efficacy measured with four items from the scholastic competence scale of self-perception profile for adolescents
Tseng (2004)	Academic motivation: value of academic success and future utility of education	Academic motivation assessed with two measures: value of academic success (6 items, e.g. students were asked to rate how important it was for them to "do well in school") and future utility of education (5 items, e.g. "doing well in school is the best way for me to succeed as an adult")
Van Houtte and Stevens (2010)	1. Intentions to finish high school. 2. Plans for higher education	Students were asked two questions. 1. "Do you intend to finish high school?" 2. "What are you planning to do after the sixth grade of secondary education?"
Warner (2008)	Motivational orientation: "defined as a malleable and situational learning condition that exists on a continuum between extrinsic motivation and intrinsic motivation"	The Intrinsic versus Extrinsic Orientation in the Classroom Scale, 30-item instrument that measures motivational orientation along a continuum of intrinsic and extrinsic poles. Five subscales measuring (intrinsic and extrinsic) motivational orientation: the preference for challenge, curiosity/interest, independent mastery, independent judgment, and internal criteria.

Table 2 continued.

Study	Motivation description	Motivation measure
Wood et al. (2011)	Youths' motivational beliefs (i.e. youth aspiration, youth expectation, youth educational utility values)	1. Youths' educational attainment aspirations: "If you could do exactly what you wanted, how far would you like to go in school?" 2. Youths' educational attainment expectations: "We can't always do what we most want to do. How far do you think you actually will go in school?" Youths' educational utility values measured with five items.
Young et al. (2011)	1. "Academic motivation is the term associated with motivation within an academic setting. Academic motivation can create confidence in one's ability, along with an increased value of education and desire to learn." 2. "Self-Determination Theory: motivation for a specific behaviour is regulated by either internal choice or external force."	Academic Motivation Scale (AMS) (Vallerand et al., 1992), 28-item self-report that examines college students' motivational levels for academic success based on three types of motivation (i.e., intrinsic motivation, extrinsic motivation, and amotivation).
Yuan et al. (2016)	"Academic self-efficacy: people's belief in their ability to achieve a designated level of academic outcome. With high academic self-efficacy, students would believe in their abilities to successfully engage in school-related activities."	"Self-efficacy measured by general self-efficacy and academic self-efficacy. General self-efficacy was measured by the General Self-efficacy Scale (Sherer et al. 1982), which is a 17-item self-report measure. Participants were asked about their broad level of self-efficacy, such as "When I make plans, I am certain I can make them work", "If I can't do a job the first time, I keep trying until I can", and "Failure just makes me try harder"(1 = strongly disagree to 13 = strongly agree)."

The Relation Between Motivation and Performance

Ten out of the 45 articles measured motivation in association with performance [37-46]. In all of these 10 articles, motivation and performance were positively associated. The reason for the small number of articles measuring the relation between performance and motivation is probably due to the inclusion criterion that motivation should be an outcome or a mediating variable, so motivation was not specifically measured in relation to performance. The pooled correlation between motivation and performance was r = .36 (p < .001; see Figure 3).
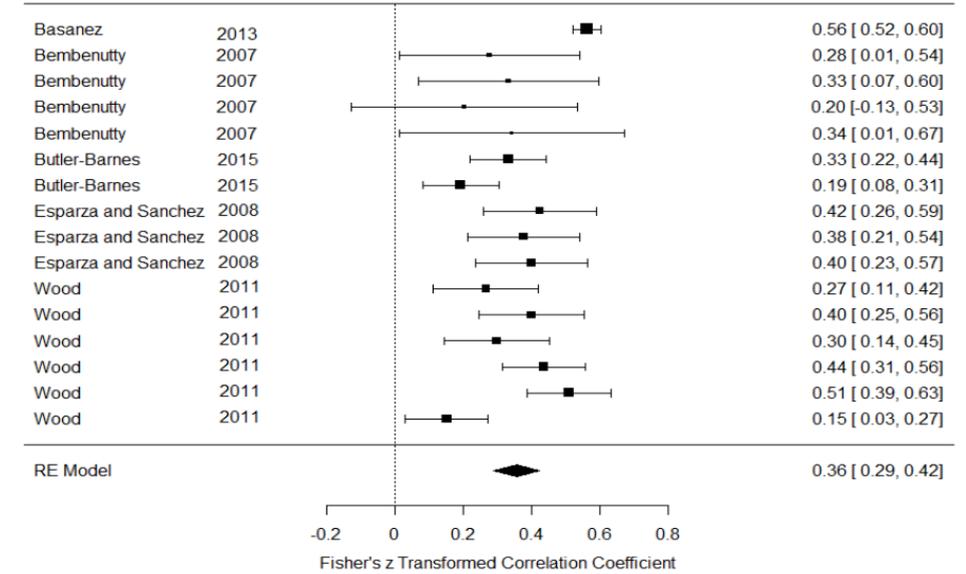

Figure 3. The pooled correlation between motivation and performance and the confidence intervals.

Comparison of Motivation of Ethnic Minority Students With Ethnic Majority Students

Of the 45 articles studied, only 11 compared the motivation of ethnic minority students with the motivation of their majority peers. Eight studies found higher levels of motivation among minority students [28, 47-53], whereas six studies found higher levels of motivation among majority students [39, 50-54]. It has to be borne in mind that these studies used different instruments for the measurement of motivation, which vary from measuring intrinsic motivation [48] and the intention to pursue further education [49] to the motivation for academic success (intrinsic, extrinsic, and amotivation) [53]. The pooled difference between the means of motivation of ethnic minority students with ethnic majority students was 0.45 (p = .342; see Figure 4). It must be noted that while a wide variety of minority cultures have been investigated, all studies were conducted in countries with a European majority culture (e.g., the United Kingdom, the Netherlands, and Belgium) and overwhelmingly in Anglo-Saxon countries (countries that at present are English-speaking, like the United States and Australia).
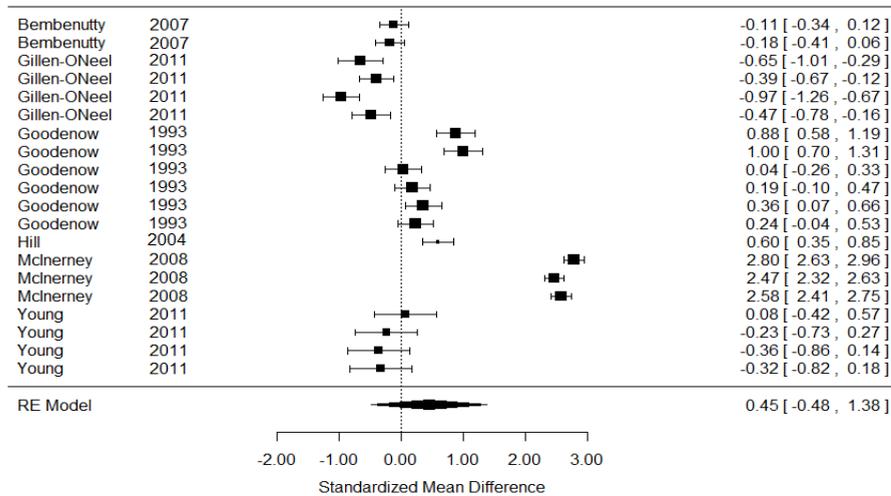
Figure 4. Standardized mean differences and confidence intervals for the differences in means of motivation of ethnic minority students with ethnic majority students.

Factors Influencing Motivation

Appendix B presents the overview of all the factors influencing the motivation of ethnic minority students positively (facilitators) or negatively (barriers), grouped into individual, family-related, school-related, and social factors. The factors that were identified in the quantitative studies all have a significant impact on the motivation of ethnic minority students. In the following paragraphs, we will discuss each category, including the subcategories of facilitators and barriers of motivation. Figure 5 provides an overview of the relations between the factors (main categories) and motivation.
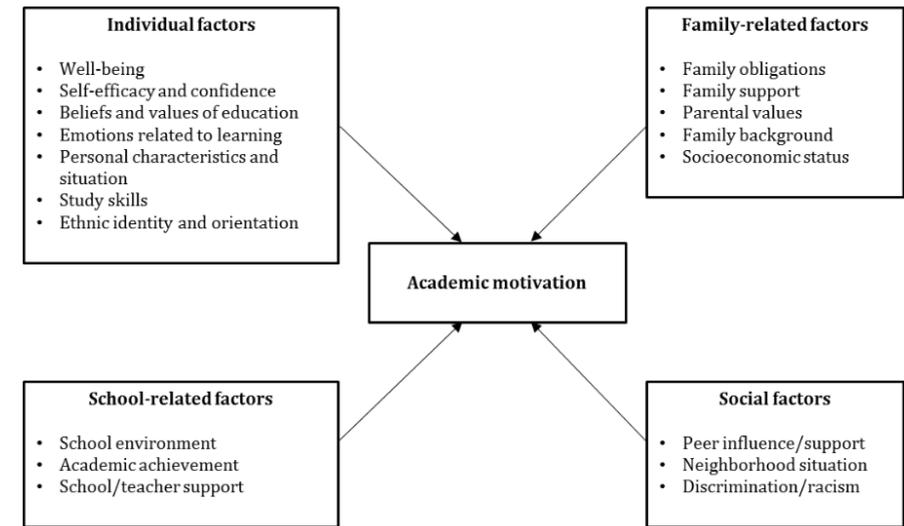

Figure 5. Overview of factors (main categories and subcategories) influencing academic motivation.

Individual factors. Individual factors included factors like the characteristics and personal experiences of the students. Most of the factors related to motivation could be labelled as individual factors which were divided into subcategories that all appeared to contain both facilitators and barriers of motivation.

The first subcategory is *well-being*. We found three factors facilitating the motivation of ethnic minority students: subjective well-being [55], avoidance coping [37], and active coping [37]. Three factors were found to be barriers: depressive symptoms [37], psychological distress/stress [55], poor/fair health, and good health [50].

The second subcategory is *self-efficacy, confidence, and effort*. In this subcategory, we found 17 factors facilitating the motivation of ethnic minority students: leadership skills [51], self-perception of an internal locus of control [51], academic confidence [51], social confidence [51], sense of academic control [55], college-going self-efficacy [56], self-efficacy (beliefs) [57, 58], self-reliance [49], positive self-concept [49], self-concept [59], school self-esteem [60], effort regulation [57], academic ability [61], educational progress [45], fear of academic failure [58], academic effort [62], and behavioural engagement ("including completing homework, paying attention, and participating in school activities") [39]. Five factors in this subcategory were barriers to the motivation of ethnic minority students: fear of success [63], previous

class failure [61], negative self-concept [49], lack of self-discipline [64], and sense of futility [52].

The third subcategory is *beliefs and values of education*. In total, 18 facilitators of motivation were found in this subcategory: perceived consequences and value [59], personal normative beliefs [59], affect toward the act/behaviour [59], sense of purpose [49], task value [57], control beliefs [57], perceived racial barriers [45], orientation toward the future [40], academic expectations [40], academic orientation [40], educational expectations [65], perceptions of (dis) comfort in environment [55], affective commitment to school [66], academic adjustment to school [66], the belief that education would give the tools to fight racism [67], school belonging [28, 48], school commitment [61], and willingness to delay gratification [57]. Two factors, fatalism [37, 68] and perceived racial barriers [45], were barriers of motivation in this subcategory.

The fourth subcategory is *emotions related to learning*. Only four facilitators were found in this subcategory: school attachment [38, 61], teacher attachment [61], comfort and rapport with teacher [51], and emotional engagement ("including students' sense of belonging and attachment to school") [39]. No barriers were found in this subcategory.

The fifth subcategory is *personal characteristics and situation*. Five factors had a positive influence on the motivation of ethnic minority students: age [40, 50, 52, 69], being a female (sex) [40, 50, 52, 69, 70, 71], being foreign-born [69], (general) intellectual ability/intelligence [66, 72], and police arrest [61]. Six factors were found to be barriers in this subcategory: age [56], length of residency in United States [73], limited knowledge of English) [74], drug use [64], person-based barriers (e.g., not feeling smart enough or having a good job already) [56], and being a male [39].

The sixth subcategory is *study skills*. We found no barriers and seven facilitators in this subcategory are as follows: cognitive engagement ("including students' commitment to school and ability to plan and develop strategies for learning") [39], metacognition, time management, rehearsal, elaboration, critical thinking, and organization [57].

The seventh and final subcategory is *ethnic identity and orientation*. This category is about ethnic minority student's identity and orientation toward their own ethnic minority culture or the majority culture in which they live. Ten factors were facilitators and positively related with motivation of ethnic minority students: majority acculturation [63], acculturation [41], Anglo (majority) orientation [65], minority acculturation [63], ethnic (identity) centrality [69], racial/ethnic identity [75], ethnic pride [76], other-group orientation [68], ethnic affirmation and belonging [69], and Africentric values [75]. The factor acculturation in the included studies can be summarized as follows: "a process in which cultural behaviours and values are changed

through contact with the dominant culture" [41]. Acculturation is also explained in the six staged Developmental Model of Intercultural Sensitivity [77]. The stages are described along a continuum of increasing sensitivity to cultural differences. Each of these stages shows a certain attitude along with behaviour related to cultural differences. The first three stages of this model form ethnocentricity, which means that one's own culture is experienced (1) as the only real one, (2) as the only good one, and (3) as universal. "The other three stages form ethno-relativity, which means that one's own culture is experienced (4) as just one of a number of equally complex worldviews, (5) as generating appropriate alternative behaviour in a different cultural context, (6) as self is expanded to include the movement in and out of different cultural worldviews" [78]. Three barriers were found in this subcategory: Mexican-oriented acculturation, private regard [56], and race-based rejection sensitivity [79].

In summary, there was a wide variety of individual factors ranging from personal characteristics to ethnic identity and orientation. Most factors were positively related to the motivation of ethnic minority students, for example, being a female (in six studies) and school belonging (in two studies).

However, there were also some factors (e.g., limited knowledge of English language and race-based rejection sensitivity) that negatively influenced the motivation of these students. Furthermore, we identified that age (being older) was positively related to educational aspirations/motivation in few studies and negatively related to educational aspirations in another study. In addition, in a study the factor minority (Asian) acculturation and motivation were positively related to each other, while in another the factor minority (Mexican) acculturation was negatively related to educational aspirations.

Family-related factors. Family-related factors included factors related to the student's family like family background, family obligations, and family support. Within the category of family-related factors, the following subcategories were identified: The first subcategory is *family obligations*. Four facilitators of motivation, related to family obligations, were found: sense of family respect or support [69], family obligation attitudes [43], responsibility, and a sense of guilt related to the family [67].

The second subcategory is *family support*. Here 14 factors were found to be positively related with motivation: parental support [52, 71], family (guidance, material support, etc.) [64], negative parental influence [49], parental monitoring [40, 60, 71], mothers' warmth [60], fathers' warmth [60], parental warmth [40], language spoken at home [71], help given by parents [47], control of parents [47], parents' help with academic tasks [71], communication with caregivers [37], parental autonomy support [40], and parent–child relationship (including parental

affection, parental emotional support, and parental independence encouragement) [46]. However, there were two barriers in this subcategory: negative parental influence [49] and family (misfortune, lack of care, etc.) [64].

The third subcategory is *parental values*. Two facilitators referred to parental values: value of parents' perceptions (the degree in which parents value education) [47] and perception of parental educational expectations [41, 45].

The forth subcategory is *family background*. Six facilitators of motivation were categorized as family background: parents' educational attainment [71], parental education [45, 61], parental college (having a parent who attended college) [50], parental employment [61], living in an urban area [61], and living in a rural area [50]. Two barriers were found in this subcategory: single caregiver family structure [61] and parents with a high-school degree [69].

The fifth and last subcategory is *socioeconomic status*. Four factors showed a significant positive relation with motivation: higher annual household income [45], higher parent socioeconomic status [61, 73], socioeconomic context [52], and higher social status [66].

To summarize, almost every factor found in this category was positively related to motivation of ethnic minority students. Parental education was found to be positively related to motivation of different students. A few factors regarding negative situations in the family, like family misfortune, neglect, or lack of care, were negatively related to the motivation of ethnic minority students. Based on the review of this category of factors we conclude that family is an important factor in the motivation of ethnic minority students.

School-related factors. School-related factors included factors that are generally experienced in a school setting, such as teacher support and academic achievement. Within the category of school-related factors, the following subcategories were identified:

The first subcategory is *school environment*. Six facilitators of motivation were categorized as school environment: daily positive school experiences [69], positive school climate [69], college enrolment [40], attending public school [61], grade level [76], and positive peer attitudes (toward school) [38]. Six barriers were identified in this subcategory: vocational track [52], grade level [76], school trouble [60], school suspension [61], leaving school [49], and negative peer attitudes (toward school) [38].

The second subcategory is *academic achievement*. Four facilitators of motivation were classified in this category: prior academic achievement [45], final course grade [57], grade

point average (GPA) [38, 39, 41, 62], and school grades [37]. In this subcategory, we found one barrier: past failures [52].

The third and last subcategory is *school/teacher support*. Five facilitators were identified in this subcategory: school and/or teachers [64], teacher support [49], personalized help with their learning [74], additional educational resources [74], and perceived encouragement of students by adults at school [69].

To sum up, we found that support received from school, teachers, and adults had a positive influence on the motivation of ethnic minority students. Negative experiences at school (e.g., school trouble, school suspension, and leaving school) were negatively associated with the motivation of ethnic minority students. The positive association of school grades with academic motivation/aspiration was demonstrated in more than two studies, which seems to indicate that it plays an important role in the academic motivation of ethnic minority students.

Social factors. The last category that could be identified is social factors. Social factors included factors related to the social and cultural context like peer support and discrimination in the societal context. This category consists of three subcategories:

The first subcategory is *peer influence/support*. Eight facilitators of motivation were found: total perceived social support [53], positive peer network [61], friends' values [28], pride from others [49], friends and peers' positive influence [49, 64], friends and peers' emotional support [64], friends and peers' support (unspecified) [64], and friends and peers' guidance [64]. A few barriers were found in this subcategory: friends and peers' antischool values, social attachment [64], peer help [49], negative peer influence [49], and peer victimization [42].

The second subcategory is *neighbourhood situation*. Neighbourhood satisfaction [75], neighbourhood stability [61], and neighbourhood cohesion [61] were positively related to motivation. [61] There were also barriers found in this subcategory. Neighbourhood disadvantage (racially segregated economic disadvantage) [61] and neighbourhood violence [61, 64] had a negative influence on college aspirations.

The third and last subcategory is *discrimination/racism*. We found three facilitators: concern about discrimination [69], any positive ethnic treatment (included responses of the students to the statement "something good happened to you or you were treated well because of your race or ethnicity" [69] and discrimination by students [73]. Three factors were found to be barriers: perceived likelihood of discrimination [69] racism/race and ethnic discrimination [64, 74], and online racial discrimination [44].

To summarize, negative experience with peers (e.g., negative peer influence and peer victimization) and negative neighbourhood situation had a negative influence on the motivation of ethnic minority students. Furthermore, we found that discrimination can influence motivation of ethnic minority students positively and negatively.

Other findings. In the following studies, also related to the motivation of students, students are categorized in profiles, the importance of several factors for doing well at school is rated, and the correlations of factors with the motivation of students are measured across four waves (ninth grade to 12th grade). These findings need more explanation for a good understanding, so these studies are explained separately below.

In a qualitative study on the motivation of Latino students in the United States, in-depth interviews were conducted to explore perceptions of opportunity, ethnic identity beliefs, and motivation orientation of students [80]. From this research, three student profiles emerged: those of (a) the justifiers, (b) the critically conscious, and (c) the accommodators. The accommodators were students who felt connected with Latinos but were not motivated by inequities. Students profiled as accommodators mentioned they did not have the ability to change the circumstances currently affecting Latinos. Justifiers were characterized by individualistic achievement motivations, which were reinforced by the feeling of exemption from social and economic barriers and a sense of alienation from other Latinos. In the critically conscious group, students displayed a strong connection with Latinos and were motivated to improve perceived group disparities.

Siann Lightbody, Stocks, and Walsh (1996) [81] performed a study comparing Asian and non-Asian students in the United States. Students were asked to rate the importance of several factors for doing well at school. The results of the analyses of variance showed that the following factors were rated significantly higher by Asian students than by non-Asian students: (a) the kind of family you have, (b) the kind of friends you have, (c) easy access to computers, and (d) luck.

Kiang, Witkow, and Champagne (2013) [82] studied various factors that correlate with the motivation of Asian American students. Correlations were measured across four waves (ninth grade to 12th grade). The correlation between ethnic identity and motivation ranged from nonsignificantly positive to significantly positive. American identity had a similar relation with motivation. The correlation of depression with motivation ranged from significantly negative to nonsignificantly positive.

Synthesis of the Findings

The majority of the identified factors fall in the category "individual factors" (see Appendix B and Figure 5). Individual factors varied from cognitive skills to personal characteristics and identity. Most factors in the category ethnic identity and orientation were specific to ethnic minority students (e.g., acculturation), which indicates that it is important to take ethnic identity into account when developing interventions for student groups that include ethnic minorities, for example, a course for all students at school on diversity for creating awareness about the differences between ethnic groups. Compared with other factors, there is more evidence for the importance of sex. In all seven articles that took sex into account, ethnic minority women were found to be more (intrinsically) motivated than ethnic minority men. Generally, female students are more intrinsically motivated than male students [13, 83]; not surprisingly, we found the same relation for ethnic minority students. Individual factors that can be influenced by interventions, like well-being (promoting well-being at school) should also be taken into account. Further research should evaluate the success of such interventions in minority students.

Based on our review, we can conclude that family members, especially parents, have a significant and positive influence on the motivation of ethnic minority students. Our findings show that family support and parental values have a positive influence on motivation of ethnic minority students. However, negative experience within their family, like misfortune and lack of care, is shown to have a negative influence on their motivation. Based on these findings we recommend to increase parental involvement in the school and communicate with them to support/motivate their children with their education.

The findings show that the support received from school, teachers, and adults has a positive influence on the motivation of ethnic minority students. Factors categorized as academic achievement (e.g., school suspension) were negatively associated with motivation of ethnic minority students. So, (extra) supervision and support from school might prevent those negative consequences for ethnic minority students. The positive association of higher school grades with academic motivation/aspiration was demonstrated in several studies, which seems to indicate that it plays an important role in the motivation of ethnic minority students.

An interesting finding in the category of social factors is that discrimination can have both a positive and a negative influence on the motivation of students. An explanation for the positive influence of concern about discrimination on motivation could be that ethnic minority students overcame it and got very motivated to exceed in their education [69]. Perreira et al. (2010) [69] indicated that some students even used their fears to further

motivate themselves. Furthermore, it is known that experiencing discrimination could have a negative influence on people [64, 69, 74]. So, it might be helpful to discuss discrimination at school and to make students aware of the negative influence.

Motivation is important for academic performance. In 10 articles, in which the relation between motivation and academic performance of ethnic minority students was examined, a positive association was found between the two and the meta-analysis showed also a positive significant relationship, supporting the hypothesis that motivating ethnic minority students could lead to better academic performance.

Discussion

The purpose of our review was to investigate factors that could possibly influence the academic motivation of ethnic minority students. We found a wide range of (individual, family-related, school-related, and social) factors that influence the academic motivation of ethnic minority students positively or negatively. In addition, because of the broad definition of academic motivation, a great variety of definitions and measurements of motivation was found, which made interpretation and comparison challenging. We chose to adopt a broad concept of motivation, ranging from intrinsic motivation to aspirations of students for/at school, because we were interested in the general academic motivation of ethnic minority students. However, it was not possible to propose an integrative model, because almost every factor was mentioned in single study only and different theories and instruments were used to define/measure motivation.

In the studies reviewed above, different factors of influence on the motivation of ethnic minority groups were investigated. It is possible that results would differ when it comes to having an ethnic minority background within another majority population. We therefore considered some other findings from general studies (i.e., not specifically geared at ethnic minorities) to compare it with our findings and those findings reasonably resonate with our findings. Williams and Williams (2011)[84] have found five key ingredients for improving motivation: student, teacher, content, method/process, and environment.Student-related factors include individual and social factors, hierarchy of needs, perceived well-being, conscientiousness, and achievement. Examples of teacher-related factors are teacher skills, teacher qualifications, and reaching out to students. Content-related factors comprise matters such as critical thinking, students' feelings of connectedness and student ownership. Factors relating to process (the way in which content is presented) involve, among others, positive social interactions, encouragement, and praise. Examples

of factors included in the key ingredient of the immediate environment are empowerment and an emotionally literate environment. In a review, Kusurkar et al. (2011) [16] have also considered what influences the motivation of medical students, identifying factors such as age, sex, ethnicity, socioeconomic status, parent and teacher support, autonomy support, self-efficacy, and well-being. In addition, examples of factors influencing motivation and learning identified in other general studies are as follows: self-efficacy and competence perceptions [19, 85, 86], attributions and control beliefs [19, 87], level of interest [19, 84, 88], classroom environment [89], levels of value (task value) [90], and goals and goal orientation.[91, 92] If we compare this list with our own findings, we can conclude that especially the ethnicity-based/ discrimination factors and a limited mastery of the official language (of a particular country) might be specific to ethnic minority students; the other factors apply to both ethnic majority and ethnic minority groups.

More than half of the articles in our review measured the academic motivation of students at high school. As Hill et al. (2004)[54] have pointed out, the reason researchers prefer to observe students during adolescence might be that this is a crucial period for students to reflect on and grow aware of their motivation. Compared with elementary and middle school students, high-school students are more likely to have a good understanding of their academic competencies and are better able to assess their educational progress. Little research (only eight articles) was conducted within the context of higher education.

Implications for Practice

Although some factors, such as sex, cannot be influenced, most other factors, particularly school-related and social factors, can be influenced by means of interventions. When developing interventions aimed at the enhancement of the motivation of ethnic minority students, such factors need to be taken into account. Wigfield and Wentzel (2007)[93] have examined which interventions aimed at motivating students and enhancing their academic and social outcomes could be suitable.Examples of measures that can be used to influence students' motivation in a positive manner are supporting students' self-efficacy and helping them to accept that they have to take control of their own learning, establish positive achievement goals and communicate well with educators and peers in the classroom [93]. Another way of influencing students' motivation and learning is to pay attention to the importance of creating a positive social-emotional climate in middle school, so as to improve student engagement [93, 94]. Several studies have shown that school climate is important for student engagement: For instance, students in the United States rated the climate at school as the lowest compared with all other countries. Furthermore, there is evidence of a negative perception of U.S. students of peer culture at school. Likewise, the importance of teacher support and peer support for the engagement of middle school

students was confirmed in our review. Additional middle school reform efforts should be initiated to increase students' engagement and learning and the focus should be on the social relations of students at school. Another intervention specifically targeted at ethnic minority students is that of focusing more on improving their language skills (of the national language in the country where they live)[95] and bilingualism[96].

Limitations and Implications for Further Research

We have considered the study population from the perspective of being an ethnic minority in a country and not their racial historical background and economic position. So, we might have missed relevant aspects that are based on the racial historical background and economic position of the ethnic minority groups, for example, it might be that Hispanic and Latino American students experience some factors influencing their motivation different from African American students because of their racial historical background. However, we thought it could be helpful to consider all ethnic minority groups together, because they have in common that they differ in some aspects within a community from the majority population. Further research should isolate context and consider sociohistorical factors unique to different ethnic minority groups within specific socio-political contexts.

Furthermore, motivation and the factors influencing it were measured and operationalized in various ways across the studies, which made the synthesis of the variables difficult, and it might be that certain variables of motivation and factors are more relevant than others (in particular contexts like higher education).

Further research about the factors identified in this review is required. As only a few qualitative studies (n = 4) were available; we recommend more qualitative research to reach a better understanding of the underlying mechanisms. Almost every factor listed was mentioned in one study only (see Appendix B). The evidence for the influence of most factors we discussed is therefore weak, and further evidence is required to enable the generation of an integrative model for the identified factors. Also more research needs to be done on factors that had contradictory influences, positive and negative, on motivation in the different studies, to achieve consistency and reliability in our understanding of the associations. Furthermore, different motivation theories were used in the included studies. The motivation theories and the instruments used to measure motivation do not cover the same aspects of motivation, some instruments do overlap in some aspects and others not. So, it is recommended that further research should use uniform/standardized definitions and measurements to measure motivation, like the combination of the most used measures (educational aspiration in combination with intrinsic motivation); this would enable more valid comparisons between studies. In addition, more multinational studies are required to

translate the findings of this review into generalizable results.

It should also be noted that the factors identified in this review are context and culture-dependent. An appropriate interpretation of factors should therefore be context-based. For example, in one of the studies a positive relation between the factor minority (orientation) acculturation and motivation was found [63], while in another there was evidence of a negative relation between minority (orientation) acculturation and educational aspirations [65]. An explanation for this difference might be the different ethnic backgrounds, Asian and Mexican, of the students involved. Another factor that varied in influence is age, which was found to associate positively to motivation in a few studies[40, 50, 52, 69], but showed a negative association in another study[56]. This difference could stem from the fact that the studies pertained to different populations; more generalizable research is needed to explain these differences. The considered populations varied also in their cultural background, which made general interpretations difficult. More knowledge is needed of the different cultural backgrounds of the students in this context to make general interpretations.

Finally, as mentioned before, little research has been conducted within the context of higher education (see Table 1). In our future research, we intend to focus on the academic motivation of students in higher education.

Conclusion

In this literature review, we have given an overview of factors influencing the academic motivation of ethnic minorities that were described in studies from many different countries (mainly from the United States). Factors that either positively or negatively influence the academic motivation of ethnic minority students can be classified as individual, family-related, school-related, and social factors. Some of the factors we identified cannot be influenced; such as sex. However, most other factors, such as school-related and social factors, can be influenced through interventions. Acknowledging the importance of the factors identified in this review could facilitate the development of appropriate interventions for the enhancement of the academic motivation of ethnic minority students, which in turn may positively impact academic performance, but more research is needed. Furthermore, more research into the identified factors and the instruments used to measure motivation is needed to generate an integrative model that provides a structure of the identified factors in relation to motivation which can be used for interventions.

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Appendix A. List of search terms used for systematic review.

Database	Search terms
PubMed	**#1 Students** "Education"[Mesh] OR highschool[tiab] OR highschools[tiab] OR ((education*[tiab] OR school[tiab] OR schools[tiab] OR scholar*[tiab] OR university[tiab] OR universities[tiab] OR college[tiab] OR colleges[tiab] OR student[tiab] OR students[tiab] OR undergraduate[tiab] OR undergraduates[tiab] OR residency[tiab] OR resident[tiab] OR residents[tiab] OR internship[tiab] OR intern[tiab] OR internships[tiab] OR clerk[tiab] OR clerkship[tiab] OR registrar[tiab] OR postgraduate[tiab]) NOT medline[sb]) **#2 Ethnic background** "Ethnic Groups"[Mesh] OR "Transients and Migrants"[Mesh] OR "Emigrants and Immigrants"[Mesh] OR ((immigrant*[tiab] OR migrant*[tiab] OR ethnic*[tiab] OR minorit*[tiab] OR racial[tiab] OR race[tiab] OR races[tiab]) NOT medline[sb]) **#3 Motivation** "Motivation"[Mesh:NoExp] OR "Achievement"[Mesh] OR goals[Mesh] OR intention[MeSH] OR ((achievement[tiab] OR motivation[tiab] OR motivate[tiab] OR motivator[tiab] OR motive[tiab] OR incentive[tiab] OR incentives[tiab] OR purpose[tiab] OR goal[tiab] OR intention[tiab] OR intentions[tiab]) NOT medline[sb]) **#4 Publication types** NOT ("addresses"[Publication Type] OR "biography"[Publication Type] OR "comment"[Publication Type] OR "directory"[Publication Type] OR "editorial"[Publication Type] OR "festschrift"[Publication Type] OR "interview"[Publication Type] OR "lectures"[Publication Type] OR "legal cases"[Publication Type] OR "legislation"[Publication Type] OR "letter"[Publication Type] OR "news"[Publication Type] OR "newspaper article"[Publication Type] OR "patient education handout"[Publication Type] OR "popular works"[Publication Type] OR "congresses"[Publication Type] OR "consensus development conference"[Publication Type] OR "consensus development conference, nih"[Publication Type])
PsycINFO (via EBSCO)	**#1 Students** DE "Graduate Education" OR DE "Undergraduate Education" OR DE "Colleges" OR DE "Graduate Schools" OR DE "College Students" OR DE "Elementary School Students" OR DE "Education" OR DE "Elementary Education" OR DE "High School Education" OR DE "Higher Education" OR DE "Middle School Education" OR DE "Nursing Education" OR DE "Paraprofessional Education" OR DE "Private School Education" OR DE "Public School Education" OR DE "Secondary Education" OR DE "School Learning" OR DE "Schools" OR DE "Students" OR DE "Classmates" OR DE "College Students" OR DE "Dental Students" OR DE "Elementary School Students" OR DE "Graduate Students" OR DE "Junior High School Students" OR DE "Medical Students" **#2 Ethnic background** DE "Racial and Ethnic Groups" OR DE "Cross Cultural Differences" OR DE "Culture (Anthropological)" OR DE "Subculture (Anthropological)" OR DE "Ethnic Values" OR DE "Ethnology" OR DE "Minority Groups" OR DE "Multiculturalism" OR DE "Racial and Ethnic Differences" OR DE "Ethnic Identity" **#3 Motivation** DE "Motivation" OR DE "Achievement Motivation" OR DE "Academic Achievement Motivation" OR DE "Academic Achievement" OR DE "Academic Overachievement" OR DE "Academic Underachievement" OR DE "College Academic Achievement" OR DE "Student Attitudes" OR DE "Educational Incentives" OR DE "Extrinsic Motivation" OR DE "Fear of Success" OR DE "Incentives" OR DE "Intrinsic Motivation" OR DE "Goal Setting" OR DE "Goals" OR DE "Educational Objectives" OR DE "Intention"

Appendix A continued.

Database	Search terms
ERIC (via EBSCO)	**#1 Students** DE "Education" OR DE "Graduate Study" OR DE "Undergraduate Study" OR DE "Medical Education" OR DE "Graduate Medical Education" OR DE "Nursing Education" OR DE "Pharmaceutical Education" OR DE "Veterinary Medical Education" OR DE "Academic Education" OR DE "Higher Education" OR DE "Doctoral Degrees" OR DE "Postdoctoral Education" OR DE "Private Education" OR DE "Public Education" OR DE "Secondary Education" OR DE "Elementary Secondary Education" OR DE "Colleges" OR DE "Agricultural Colleges" OR DE "Black Colleges" OR DE "Church Related Colleges" OR DE "Cluster Colleges" OR DE "Commuter Colleges" OR DE "Dental Schools" OR DE "Experimental Colleges" OR DE "Medical Schools" OR DE "Multicampus Colleges" OR DE "Noncampus Colleges" OR DE "Private Colleges" OR DE "Public Colleges" OR DE "Small Colleges" OR DE "Universities" OR DE "Upper Division Colleges" OR DE "Universities" OR DE "Open Universities" OR DE "Research Universities" OR DE "State Universities" OR DE "Urban Universities" OR DE "College Graduates" OR DE "Private Schools" OR DE "Community Colleges" OR DE "Public Schools" OR DE "State Colleges" OR DE "State Schools" OR DE "Schools" OR DE "Elementary Schools" OR DE "Secondary Schools" OR DE "Junior High Schools" OR DE "High Schools" OR DE "Middle Schools" OR DE "Elementary Education" OR DE "Secondary Education" OR DE "Students" OR DE "Graduate Students" OR DE "Undergraduate Students" OR DE "College Students" OR DE "College Freshmen" OR DE "College Seniors" OR DE "College Transfer Students" OR DE "First Generation College Students" OR DE "On Campus Students" OR DE "Elementary School Students" OR DE "Secondary School Students" OR DE "High School Freshmen" OR DE "High School Seniors" OR DE "High School Graduates" OR DE "Junior High School Students" OR DE "High School Students" OR DE "Middle School Students" OR DE "Foreign Medical Graduates" OR DE "Medical Students" OR DE "Premedical Students" **#2 Ethnic background** DE "Ethnic Groups" OR DE "Ethnicity" OR DE "Ethnography" OR DE "Ethnology" OR DE "Foreign Culture" OR DE "Minority Groups" OR DE "Religious Cultural Groups" OR DE "Cultural Differences" OR DE "Ethnic Diversity" OR DE "Subcultures" OR DE "Culture" OR DE "Cultural Pluralism" OR DE "Cultural Background" OR DE "Cultural Influences" OR DE "Ethnic Stereotypes" OR DE "Ethnocentrism" OR DE "Migrant Children" OR DE "Immigrants" OR DE "Migrants" OR DE "Foreign Nationals" OR DE "Immigration" OR DE "Migration" **#3 Motivation** DE "Motivation" OR DE "Learning Motivation" OR DE "Reading Motivation" OR DE "Self Motivation" OR DE "Student Motivation" OR DE "Achievement" OR DE "High Achievement" OR DE "Low Achievement" OR DE "Achievement Need" OR DE "Educational Attainment" OR DE "Science Achievement" OR DE "Academic Achievement" OR DE "Overachievement" OR DE "Underachievement" OR DE "Incentives" OR DE "Fear of Success" OR DE "Objectives" OR DE "Educational Objectives" OR DE "Student Educational Objectives" OR DE "Goal Orientation" OR DE "Intention" OR DE "Intentional Learning"

Appendix B. Overview of factors and their influence on academic motivation.

Main category	Subcategory	Facilitators	Measure	Barriers	Measure
Individual	*Well-being*	Subjective well-being (Gavala & Flett, 2005)	c	Depressive symptoms (Basáñez et al., 2013)	c, p
		Avoidance coping (Basáñez et al., 2013)	c	Psychological distress/stress (Gavala & Flett, 2005)	c, r
		Active coping (Basáñez et al., 2013)	c	Poor/fair health and good health (compared to very good/ excellent health; Sentell, 2012)	o
	Self-efficacy, confidence, and effort	Leadership skills (Strage, 1999)	c	Negative self-concept (McInerney, 2008)	r
		Self-perception of an internal locus of control (Strage, 1999)	c	Fear of success (Lew et al., 1998)	c
		Academic confidence (Strage, 1999)	c	Class failure (Stewart et al., 2007)	c, r
		Social confidence (Strage, 1999)	c	Lack of self-discipline (Kenny et al., 2007)	i
		Sense of academic control (Gavala & Flett, 2005)	c, r	Futility culture (Van Houtte & Stevens, 2010)	mu
		College-going self-efficacy (Gonzalez et al., 2013)	c		
		Self-efficacy (beliefs; Bembenutty, 2007; Eaton & Dembo, 1997)	c, r		
		Self-reliance (McInerney, 2008)	r		
		Positive self-concept (McInerney, 2008)	r		
		Self-concept (McInerney, 1990)	r		
		School self-esteem (Lowe & Dotterer, 2013)	c		
		Effort regulation (Bembenutty, 2007)	c		
		Academic ability (Stewart et al., 2007)	c, r		
		Educational progress (Wood et al., 2011)	c		
		Fear of academic failure (Eaton & Dembo, 1997)	c, r		
		Academic effort (Esparza & Sánchez, 2008)	c		
		Behavioural engagement (Hill & Wang, 2015)	c		
	Beliefs and values of education	Perceived consequences and value (McInerney, 1990)	r	Fatalism (Basáñez et al., 2013; Guzmán et al., 2005)	c, p, r
		Personal normative beliefs (McInerney, 1990)	r	Perceived racial barriers (Wood et al., 2011)	c, p
		Affect towards the act /behaviour (McInerney, 1990)	r		
		Sense of purpose (McInerney, 2008)	r		
		Task value (Bembenutty, 2007)	c		
		Control beliefs (Bembenutty, 2007)	c		
		Perceived racial barriers (Wood et al., 2011)	c, p		
		Orientation towards the future (O'Hara et al., 2012)	c		
		Academic expectations (O'Hara et al., 2012)	c		
		Academic orientation (O'Hara et al., 2012)	c		
		Educational expectations (Flores et al., 2008)	c		
		Perceptions of (dis)comfort in environment (Gavala and Flett, 2005)	c, r		
		Affective commitment to school (Marjoribanks, 1985)	c, r		
		Academic adjustment to school (Marjoribanks, 1985)	c		
		The belief that education would give the tools to fight racism (Lee, 1994)	i		
		School belonging (Goodenow & Grady, 1993; Gillen-O'Neel et al., 2011)	c, m		
		School commitment (Stewart et al., 2007)	c, r		
		Willingness to delay gratification (Bembenutty, 2007)	c		
	Emotions related to learning	School attachment (Butler-Barnes et al., 2015; Stewart et al., 2007)	c, r		
		Teacher attachment (Stewart et al., 2007)	c, r		
		Comfort and rapport with teacher (Strage, 1999)	c		
		Emotional engagement (Hill & Wang, 2015)	c		
	Personal characteristics and situations	Police arrest (Stewart et al., 2007)	c	Age (Gonzalez et al., 2013)	c
		Age (Perreira et al., 2010; O'Hara et al., 2012; Sentell, 2012; Van Houtte & Stevens, 2010)	c, r, mu, o	Limited knowledge of English (Behnke et al., 2004)	i
		Girls, being a female (gender; Perreira et al., 2010; Plunkett and Bámaca-Gómez, 2003; O'Hara et al., 2012; Sentell, 2012; Van Houtte and Stevens, 2010; Kfir, 1988)	c, r, mu, v, o	Being a male (Hill & Wang, 2015)	c

Appendix B continued.

Main category	Subcategory	Facilitators	Measure	Barriers	Measure
				Length of residency in US (St-Hilaire, 2002)	r
				Person-based barriers (Gonzalez et al., 2013)	c, r
				Drug use (Kenny et al., 2007)	i
	Study skills	Cognitive engagement (Hill & Wang, 2015)	c		
		Metacognition (Bembenutty, 2007)	c		
		Time management (Bembenutty, 2007)	c		
		Rehearsal (Bembenutty, 2007)	c		
		Elaboration (Bembenutty, 2007)	c		
		Critical thinking (Bembenutty, 2007)	c		
		Organization (Bembenutty, 2007)	c		
	Ethnic identity and orientation	Majority (here: Anglo) acculturation (Lew et al., 1998)	c, r	Mexican (minority) orientation acculturation (Flores et al., 2008)	c
		Acculturation (Ramos & Sanchez, 1995)	r	Private regard (Gonzalez et al., 2013)	r
		Anglo (majority) orientation (Flores et al., 2008)	c, r	Race-based rejection sensitivity (Mendoza-Denton et al., 2008)	r
		Minority (here: Asian) acculturation (Lew et al., 1998)	c, r		
		Ethnic (identity) centrality (Perreira et al., 2010)	c		
		Racial/ethnic identity (Shin, 2011)	c		
		Ethnic pride (Warner, 2008)	r		
		Other-group orientation (Guzmán et al., 2005)	c, r		
		Ethnic affirmation and belonging (Perreira et al., 2010)	c, r		
		Africentric values (Shin, 2011)	c, r		
Family	*Family obligations*	Sense of family respect (Perreira et al., 2010)	c, r		
		Supporting family in the future (Perreira et al., 2010)	c, r		
		Family obligation attitudes (Tseng, 2004)	m		
		Responsibility to the family (Lee, 1994)	i		
		Sense of guilt to the family (Lee, 1994)	i		
	Family support	Parental support (Plunkett & Bámaca-Gómez, 2003; Van Houtte & Stevens, 2010)	c, r, mu	Family (misfortune, lack of care etc.; Kenny et al., 2007)	i
		Family (guidance, material support etc.; Kenny et al., 2007)	i	Negative parental influence (McInerney, 2008)	r
		Negative parental influence (McInerney, 2008)	r		
		Parental monitoring (Hill & Wang, 2015; Lowe & Dotterer, 2013; Plunkett & Bámaca-Gómez, 2003)	c, r		
		Mothers' warmth (Lowe & Dotterer, 2013)	c, r		
		Fathers' warmth (Lowe & Dotterer, 2013)	c		
		Parental warmth (Hill and Wang, 2015)	c		
		Language spoken at home (Plunkett & Bámaca-Gómez, 2003)	c, r		
		Help given by parents (Choi et al., 1994)	c		
		Control of parents (Choi et al., 1994)	c		
	Family support	Parents' help with academic tasks (Plunkett & Bámaca-Gómez, 2003)	c, r		
		Communication with caregivers (Basáñez et al., 2013)	c		
		Parental autonomy support (Hill & Wang, 2015)	c		
		Parent-child relationship (Yuan et al., 2016)	sem		
	Parental values	Value of children's parents' perceptions (Choi et al., 1994)	c		
		Students' perceptions of parental educational expectations (Wood et al., 2011; Ramos & Sanchez, 1995)	c, p, r		
	Family background	Parents' educational attainment (Plunkett & Bámaca-Gómez, 2003)	c, r	Parent graduated high school (Perreira et al., 2010)	c
		Parental education (Wood et al., 2011; Stewart et al., 2007)	c, r	Family structure (one caregiver; Stewart et al., 2007)	c
		Parental college (Sentell, 2012)	o		
		Parental employment (Stewart et al., 2007)	c		

Appendix B continued.

Main category	Subcategory	Facilitators	Measure	Barriers	Measure
School-related	*Family background*	Living in an urban (Stewart et al., 2007)	c		
		Living in a rural area (Sentell, 2012)	o		
	Socioeconomic status	Annual household income (Wood et al., 2011)	c		
		Socioeconomic context (Van Houtte & Stevens, 2010)	mu		
		Parent socioeconomic status (Stewart et al., 2007; St-Hilaire, 2002)	c, r		
		Social status (Marjoribanks, 1985)	c, r		
	School environment	Daily positive school experiences (Perreira et al., 2010)	c, r	Vocational track (Van Houtte & Stevens, 2010)	mu
		Positive school climate (Perreira et al., 2010)	c, r	Grade level (Warner, 2008)	r
		College enrolment (O'Hara et al., 2012)	c	School trouble (Lowe & Dotterer, 2013)	c
		Attending public school (Stewart et al., 2007)	c	School suspension (Stewart et al., 2007)	c, r
		Grade level (Warner, 2008)	r	Leaving school (McInerney, 2008)	r
		Positive peer attitudes (toward school; Butler-Barnes et al., 2015)	c	Negative peer attitudes (toward school; Butler-Barnes et al., 2015)	c
	Academic achievement	Prior academic achievement (Wood et al., 2011)	c	Past failures (Van Houtte & Stevens, 2010)	mu
		Final course grade (Bembenutty, 2007)	c		
		GPA (Butler-Barnes et al., 2015, Esparza & Sánchez, 2008; Hill and Wang, 2015; Ramos & Sanchez, 1995)	c, r		
		School Grades (Basáñez et al., 2013)	c, p		
	School/teacher support	School and/or teachers (Kenny et al., 2007)	i		
		Teacher support (McInerney, 2008)	r		
		Personalized help with their learning (Behnke et al., 2004)	i		
		Additional educational resources (Behnke et al., 2004)	i		
		Perceived encouragement of students by adults at school (Perreira et al., 2010)	c, r		
Social	*Peer influence/ support*	Total perceived social support (Young et al., 2011)	c, r	Friends and peers' anti-school values, social attachment (Kenny et al., 2007)	i
		Positive peer network (Stewart et al., 2007)	c, r	Peer help (McInerney, 2008)	r
		Friends' values (Goodenow & Grady, 1993)	c	Negative peer influence (McInerney, 2008)	r
		Pride from others (McInerney, 2008)	r	Peer victimization (Thijs & Verkuyten, 2008)	r
		Friends and peers' positive influence, emotional support, support, guidance (Kenny et al., 2007)	i		
		Positive peer influence (McInerney, 2008)	r		
	Neighbourhood situation	Neighbourhood satisfaction (Shin, 2011)	c, r	Neighbourhood disadvantage (Stewart et al., 2007)	c, r
		Neighbourhood stability (Stewart et al., 2007)	c	Neighbourhood violence (Stewart et al., 2007; Kenny et al., 2007)	c, i
		Neighbourhood cohesion (Stewart et al., 2007)	c, r		
	Discrimination/ racism	Concern about discrimination (Perreira et al., 2010)	c, r	Perceived likelihood of discrimination (Perreira et al., 2010)	r
		Any positive ethnic treatment (Perreira et al., 2010)	c, r	Racism/race and ethnic discrimination (Behnke et al., 2004; Kenny et al., 2007)	i
		Discrimination by students (St-Hilaire, 2002)	r	Online racial discrimination (Tynes et al., 2015)	c, gcm

c= correlation i= interviews, r= regression, p= path model, m= mediation analyses, mu= multilevel analysis, v= variance analyses, o= odds ratio, sem= structural equation modeling, gcm= (conditional latent) growth curve model