EDUCAR PARA LA FELICIDAD

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THE EFFECTS OF MOTIVATION ON STUDENTS LEARNING: A SYSTEMATIC REVIEW REGARDING PRIMARY SCHOOL

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1.   INTRODUCTION

Since the early school years, student's motivation and self-efficacy beliefs are crucial for their learning, academic success and well-being (Unrau et al., 2018). The learning process fundamentally depends on motivation to be fully effective (Lourenço & Paiva, 2010; Ryan & Deci, 2017; Schunk, 1991), which means that more motivated students will engage and learn faster and better than less motivated students. Therefore, their level of interests, goals and involvement in school experiences are expressions of their degree of motivation (Brophy, 2010).

This recognition is relevant and highlights the importance of motivation assessment, for professionals and researchers, namely the comprehension of its mechanisms and effects to enhance students' achievement (Schunk et al., 2014). According to the classification of Hattie et al. (2020), a four parts scheme can be used to merge different models, namely: (1) Person (2) Goals; (3) Task attributes; and (4) Benefits/costs. The person domain is subdivided in Self (i.e., include aspects as expectations to success, self-efficacy, confidence, competence); Social (i.e., comprise aspects as modeling, social judgements and relatedness); and Cognitive (i.e., encompasses self-regulation, attributions, intrinsic and extrinsic regulations). Goals involve aspects such as performance, mastery, and social experiences. Task attributes are related to features as value, importance, usefulness, and relevance or locus, stability and controllability. Finally, the fourth part can be divided in benefits (i.e., associated to external and intrinsic rewards, compliance, autonomy and agency) and costs (i.e., related to effort, opportunities, and emotional costs).

In the last decade, several systematic reviews were developed regarding school motivation, but focusing in diverse specific domains, as writing (e.g., Camacho et al, 2021), Mathematics (e.g., Caballero, 2023), technologies (e.g., Dreimane, 2019), physical activity (e.g.., Arufe-Girález et al., 2022; Goodeyear et al., 2023),

gamification (e.g., Ratinho & Martins, 2023) or languages (e.g., Dehghanzadeh et al., 2021), and across several school years (e.g., Goagoses et al., 2022). Of our knowledge, no study focused on the effects of school motivation in early school years.

2. METHODS
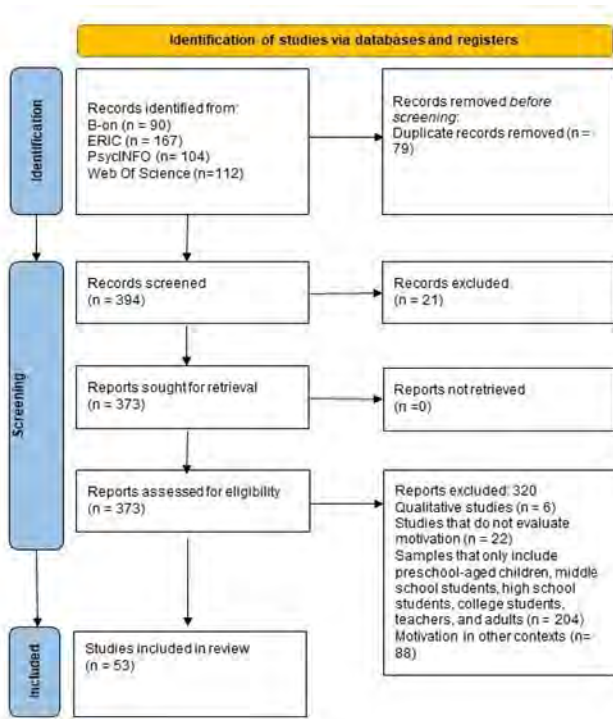
2.1. Research Protocol and Registration

The present work is part of a broader study developed by the research team (Santos et al., in preparation) and the global protocol was registered on PROSPERO (an international database of systematic reviews in health and social work), on the 26th of March of 2023, with the ID CRD42023455965.

2.2. Data Collection and Studies Selection

Following PRISMA criteria (Preferred Reporting Items for Systematic Reviews and Meta-Analyses; Page et al., 2021), this research was developed on January 5th of 2024, through four different databases: B-On, Eric, PsycINFO, and Web of Science. The applied criteria were: 1) scientific articles; 2) quantitative studies; 3) variables of motivation in learning; 4) samples composed of elementary school students aged between 6 and 12 years; 5) articles published from 2010 onwards. Regarding the exclusion criteria, the followed criteria were applied: a) thesis and dissertations, literature reviews, books, conferences; b) qualitative studies; c) studies that do not evaluate motivation; d) samples that only include preschool-aged children, middle school students, high school students, college students, teachers, and adults; e) motivation is studied in other contexts.

The identification of the studies was made using the following keywords: "Motivation to learn" OR "Motivation" AND "Assessment" OR "Evaluation" OR "Scale" OR "Psychometric" AND "Children" OR "Child" OR "Elementary" OR "Primary" AND "School". In the end, a total of 473 articles were found and in the end 53 articles were included, with 420 being excluded since they did not meet the defined inclusion criteria (Fig. 1).

Figure 1. *Prisma Flowchart*

Identification of studies via databases and registers

Records identified from:
B-on (n = 90)
ERIC (n = 167)
PsycINFO (n= 104)
Web Of Science (n=112)

Records removed before screening:
Duplicate records removed (n = 79)

Records screened (n = 394)

Records excluded (n = 21)

Reports sought for retrieval (n = 373)

Reports not retrieved (n =0)

Reports assessed for eligibility (n = 373)

Reports excluded: 320
Qualitative studies (n = 6)
Studies that do not evaluate motivation (n = 22)
Samples that only include preschool-aged children, middle school students, high school students, college students, teachers, and adults (n = 204)
Motivation in other contexts (n= 88)

Studies included in review (n = 53)

Identification | Screening | Included

3.   RESULTS

The studies' features are available in **annex A** and shows that there were two years where the publications were higher (2016: f = 9; 2023: f = 8), and that there is a growing interest in this area (i.e., since 2015, there have been publications every year). Regarding the countries, the most contributors are Turkey (f = 8) and USA (f = 8), followed by the United Kingdom (f = 5) and Germany (f = 4). The samples used range from 9 [9] to 1.808 [25], with a mean of 362.26 (SD = 423.23) and in respect to school years, 33 studies focused on 3rd year children, 22 used 2nd year and 20 used 3rd and 5th years samples. The 1st (f = 17) and 6th graders (f = 15) were the least studied. Regarding specific topics, reading was the most frequent (28%), followed by general education (23%), Mathematics (17%) and Science (13%).

Most of the studies assess general motivation (f = 30; that is, not specifying area or type), followed by reading (f = 11), writing (f = 6), and Mathematics (f = 5). The

Self-Determination Theory (SDT) is the most used and well identified theoretical approach (f = 20), with intrinsic motivation being the dimension with the highest score (f =17). Regarding the motivational dimensions (Hattie et al., 2020; Fig. 2), there is a diversity, where self (f = 37), costs (f = 31), task attributes (f = 28), and cognitive (f = 23) domains are the highest ones.

Concerning the positive relations reported by the studies, effects on the children' performance and learning is the most frequent (f = 41), mainly in specific subjects (f = 33) as reading [e.g., 1, 2, 8, 10, 40, 51, 54], Mathematics [e.g., 1, 3, 9], foreign language [44], writing [e.g., 3, 30], sciences [1], and arts [34]. Studies also point several situations that can have impact on children's general motivation (f = 28; e.g., use of specific technology [4, 41], task or intervention specificities (e.g., games, music/dance, classroom strategies; [25, 44, 49], teachers' support [4, 25], parent's support [36], and teachers' assessment and perceptions [38, 39]). Relations between motivation and children' intelligence quotient [16, 27] and perception of competence [11] were also identified. The studies that evaluate intrinsic motivation or related, reported results regarding children's involvement [2, 8, 14, 54], self-concept confidence [3], competence [6], and creativity [43]. The ones that focused on extrinsic motivation or related [3, 17,49], associated it with involvement [3], grades [1] and performance in certain subjects. Concerning gender, several studies reveal results (f = 6), where girls were associated to highest scores of evaluated internal features (e.g., intrinsic reading motivation [10, 11, 14], or reading self-concept [24]) and boys of contextual features (e.g., competitive reading motivation [29], effect from parents' encouragement [36]). Age was also associated to performance in specific subjects [2, 33] and anxiety [22].

Most of the studies did not mention negative effects (f = 34). The ones that reported, pointed mainly intrinsic aspects (f = 7; i.e., intrinsic motivation [9, 17, 18, 34, 40], enjoyment [2], curiosity [29]), specific motivations (f = 6; i.e., to read [2,8, 26], choice [14], achievement [28], and writing [37]), performance (f = 5; i.e., [2, 28, 37, 46, 52]), task specificities (f = 4; i.e., narrative text [2,], reading [42], use of gadgets [46], individual vs. group reading [37]), self-concept/self-efficacy (f = 3; i.e., as readers [26], achievement [28], and academic self-concept [33]), and comprehension/understanding aspects (f = 3; [2, 12, 21]). Other specific features of the motivation (i.e., besides intrinsic and extrinsic motivation, as self-efficacy [e.g., 28], master [e.g., 43]) were mainly associated to performance [e.g., 19, 33], in school subjects [e.g., 30, 34, 46].

Figure 2. *Frequencies of the motivation domains (Hattie et al., 2020)*
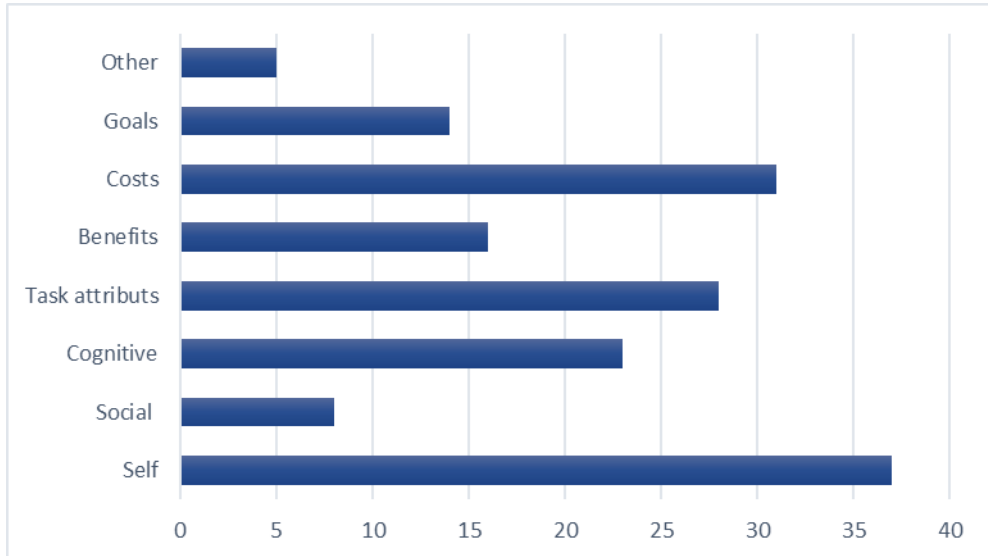
4.   CONCLUSIONS

Children's motivation is crucial for their daily life, namely in school context (Wentzel & Miele, 2016). There is a gradual investment of research in motivation assessment, and it is interesting that it covers all school years and mainly subjects. Regarding the framework used, it is the Self-Determination Theory (Ryan & Deci, 2017) the most expressive one, which reflects the adherence and robustness of this theoretical framework at an international level, covering different areas and ages. Motivation is expressed in several areas, revealing that diversity.

Although interesting results were reported, this work presents limitations, regarding the type of studies and online databases used. Future studies could develop a deeper analysis, inclusive with other procedures (e.g., meta-analysis). Overall, considering its centrality to childrens' learning and well-being, this work pretends contribute to a more refine knowledge, supporting professionals and researchers.

5.   FUNDING

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