Academic Boredom in School Context: A Systematic Scoping Review

Ghozali Rusyid Affandi[1,2*], Cholichul Hadi[1], Nur Ainy Fardhana Nawangsari[1]
[1]Departement of Doctor of Psychology, Faculty of Psychology, Universitas Airlangga
[2]Department of Psychology, Faculty of Psychology and Educational Sciences, Universitas Muhammadiyah Sidoarjo
ghozali@umsida.ac.id*

Abstract. In recent years, academic boredom has been widely studied by various studies, one of which is in the context of education, given the increasing phenomenon of boredom experienced by students and the consequences that accompany it. Not infrequently, these consequences affect academic achievement, even causing maladaptive behaviour from students, such as dropping out and bullying. This study aims to explore the concept of academic boredom, its causes and effects and the instruments used through a literature review. Articles collected to conduct the literature review came from the databased scienScopusd WebenceSciences with the science of 2362 artists. The literature review method used is scoping review, which refers to the JBI study for the Evidence Synthesis stage as well as analysis and from the results based on PRIMSA 2020. From 2362 articles collected, only ten articles were included in the study of the theoretical concept that is widely used by researchers to study value theory achievement emotthe ion (CVTAE) from Pekrun. The results of the scoping review also found it interesting that self-efficacy, apart from being an antecedent variable, is also a mediator variable for the relationship between the independent variables and academic boredom. The consequences, as well as the latest academic bore, and instruments are discussed in more depth in the results and discussion.

Keywords: *Academic Boredom, Emotion achievement, Scoping review, Student*.

1 Introduction

In the last few decades, research on achievement and emotion has increased in the world of education. One of the emotions that is increasingly being researched is boredom; as an example from a database web of science with the keyword "boredom", it was found that since 2012 or the last decade of research on boredom, it has reached 3,627 with citations reaching 34,694 spread across various research scopes. Related to the concept of education, academic boredom is one of the emotions most often experienced in the school environment. Particularly during adolescence, students report increasing levels of academic boredom, and among US youth, the overall experience of academic boredom has continued to increase from 2008-2017 (1).

The results of empirical research show that between 20% and 66% of adolescents often experience academic boredom at school (2). Academic boredom is a negative emotion characterized by feelings of low arousal, discomfort, stupidity, tension, and repetition experienced during tasks (3,4). Therefore, a student who feels bored with learning activities tend to (1) not show a desire to participate in these activities, (2) feel excessively tired when facing these activities, and (3) consider the activity material to be boring or monotonous (4–6). Academic boredom has bigger implications for adolescents than adults, given developmental

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changes during this life stage. Developmentally, adolescents may be less prepared to effectively identify and deal with academic boredom (7).

As the emotion most often experienced in the context of learning, student academic boredom can significantly affect student learning outcomes (8,9). High levels of academic boredom tend to lead to dissatisfaction, lack of attention, and demotivation (10), thus having a negative impact on student learning (11,12). Academic boredom inhibits the ability of learners to effectively channel their cognitive resources to complete tasks that are considered boring (5). In addition, academic boredom can also affect violence and bullying behaviour towards peers (peer violence), Students' health-related quality of life and emotional and behavioural problems (12,13).

In the past decade, research on boredom has been conducted to examine the definition, measurement and overcoming of boredom in educational settings through literature reviews (14). In this study, it was found that the research that was often carried out was about developing a boredom measuring instrument, and the second was research on the concept of boredom. However, along with the development of science, the latest research on boredom has developed and studied more specifically in certain fields, such as boredom in learning foreign languages (15–17), online learning (18) and research that emphasizes the impact of boredom (19,20).

Literature reviews that have been carried out are related to the educational context and the work context. However, these studies focus more on the consequences of boredom, such as research conducted by Sharp et al. (9), which examined academic boredom with student engagement and achievement, research conducted by Tze et al. (21) concerning the link between boredom and academic outcomes, research on the impact of learning technology on students' emotions (22). In addition, research using this literature study also leads to phenomena in the health sector (23) as well as in the social field regarding the relationship between boredom and homelessness (24). A literature review on the theory of boredom and the development of measuring instruments has been carried out in previous years, as well as research specializing in the concept development and measurement of boredom in foreign language learning (25). With regard to the review of special literature regarding the development of measuring instruments for boredom, it was also carried out in 2003 (26). However, after this research, it is rare to find literature review research to see the development of measuring instruments about boredom.

With regard to the concept of boredom, the development of the theory of boredom has developed with various approaches. In 2018, a researcher conducted a literature study on the concept of boredom and found inconsistencies in the concept of boredom in various studies because there were no operational definitions and mutually agreed aspects of boredom in various studies (27). However, recent research on boredom using a literature study approach provides an explanation of the conceptualization model between the antecedents, experiences, and consequences of boredom (28), even though the concept developed is the concept of boredom in a more general sense and does not differentiate in a more specific context.

Research on boredom in a more specific domain has been carried out, especially in the work context regarding the definition, causes and effects of boredom (11), but similar research in the educational context has not been carried out much. So, research on the literature study approach is something that needs to be done in order to get a deeper understanding of boredom in educational settings because, based on previous research, the increase in academic boredom in students is increasing from year to year (2,7). From the description above, the purpose of this

research is first to identify the theoretical concepts used to explain the phenomenon of academic boredom. Furthermore, the study also aims to map the antecedents and consequences of academic boredom in students from various recent studies. Third, this study also aims to identify the instruments used to determine academic boredom that occurs in students. The results of this study will be useful for future researchers and educational practitioners to develop new models to overcome the academic boredom that many students experience.

2 Method

This research method uses a systematic scoping review (ScR) to find out the description of academic boredom from the results of the latest empirical research that has been carried out using various types of research methods. This scoping review method is based on the JBI Manual for Evidence Synthesis, which consists of 8 steps, including: 1) Determine research objectives and questions; 2) Determine inclusion and exclusion criteria; 3) Develop a search strategy; 4) Conduct a search for evidence; 5) select the evidence to be included in the review; 6) Perform data extraction; 7) perform analysis and synthesis; 8) Presenting and interpreting the results (29). The results of the scoping review are adjusted to the 2020 PRISMA guidelines (30).

2.1 Identifying the research question

The purpose of this scoping review is to explore research developments on academic boredom and to explore the factors that influence academic boredom, especially among students. The research questions used include: 1) What theoretical concepts are used in explaining academic boredom to students? 2) How is the development of academic boredom research in 2020-2022 regarding the factors and their consequences in the student context? 3) What research methods are used to find out academic boredom in students? What instruments have been developed and adapted for the latest research in 2020-2022?

2.2 Identifying relevant studies

In order to find relevant studies, it is necessary to determine specific inclusion and exclusion criteria. Inclusion criteria focus on factors and conditions that need to be present, which will be used as the basis for selecting papers to be used as the main study. At the same time, the exclusion criteria will focus on factors and conditions that cause articles to be excluded from the list of main studies. Inclusion criteria are 1) Answer all or part of the research questions, 2) Publication period about 2020-2022, 3) Type of article is Empirical research articles and literature reviews, 4) the Research subject is a student and 5) the Education context.

2.3 Study search strategy

Literature searches were carried out on online databases, including Scopus, Web Of Science and Science Direct, using the keywords "Academic Boredom" Or boredom) AND (student OR pupils), but specifically in the Science Direct database, researchers used keywords ("academic Boredom" OR boredom). In addition, the researchers also filtered each database. The details, queries and search results filters are listed in Table 1.

Table 1. Article search strategy in online databases

Database	Search terms	Filter	Results
Scopus	("academic Boredom" OR boredom) AND (student OR pupil)	Document type: Article, Conference Paper, Review. Years: 2020-2022. Subject area: Social sciences, Psychology, Computer science, Arts and Humanities, Mathematics, Neuroscience	385
WoS	("academic Boredom" OR boredom) AND (student OR pupil)	Document type: Article or Early Access or Proceeding paper or Review Article. Publication years: 2020 – 2022.	432
Science Direct	("academic Boredom" OR boredom) AND (student OR pupil)	Article type: research article, review article, Conference abstracts. Publication years: 2020 – 2022. Subject area: Psychology, social sciences. Subscribed journals.	1545
	Total		2362

2.4 Study selection

The article selection process begins with entering the search results for articles from the online database with a total of 2362 into the rayyan.ai software (https://www.rayyan.ai). After all article data is entered into the rayyan.ai software, the next process is article selection according to the inclusion and exclusion criteria referring to the PRISMA 2020 procedure (Page et al., 2021). An illustration of the article selection process carried out by the researcher is shown in Figure 1. From 2,362 studies, there were 338 duplicate articles and deletions were carried out. Next, the researcher examined the titles and abstracts so that 211 articles were found that met the criteria. However, there were 91 articles that were suitable for checking the full text. In the next stage, the full text was reviewed again to suit the exclusion and inclusion criteria so that ten articles were found to be included in this research review, as described in Figure 1.

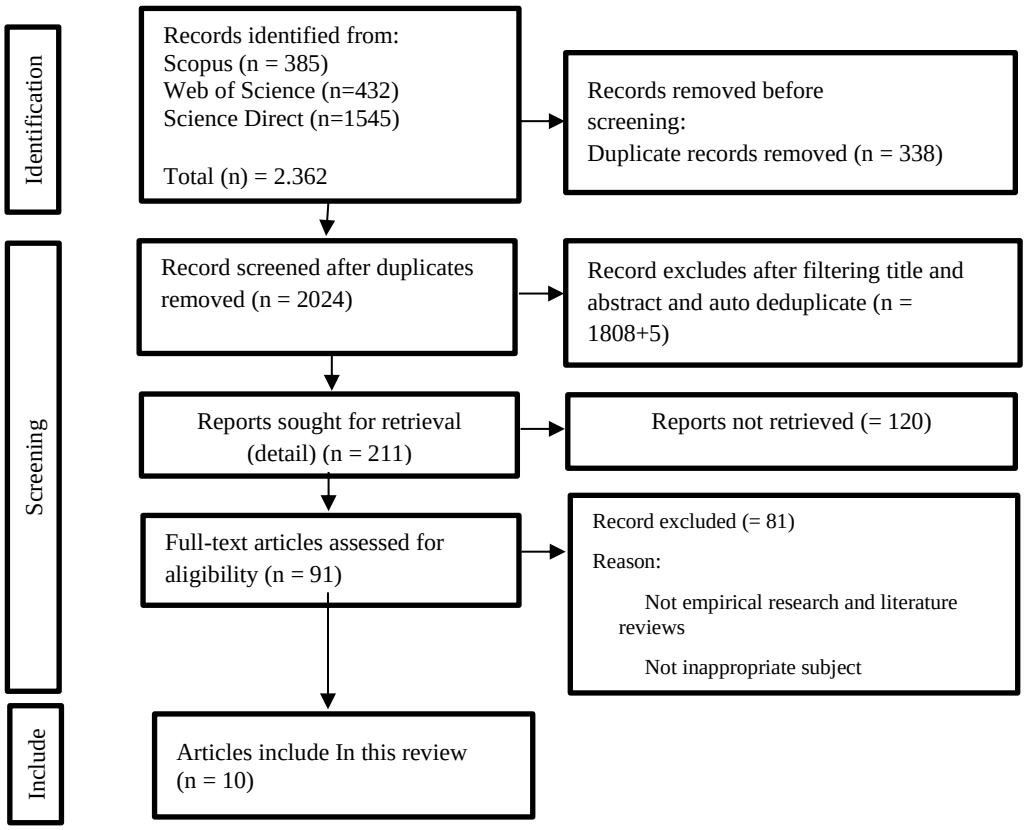

Figure 1. PRISMA 2020 Flow diagram which illustrates the process of selecting articles based on inclusion and exclusion criteria

2.5 Data charting

The process of data extraction or charting data is carried out on ten selected literature. The data extraction process is intended to synthesize and describe research findings in accordance with the objectives and research questions. This process will be presented in Table 2 form using Microsoft Excel 2016 software. The information that will be included in the Table 2 includes year of publication, author, research objectives, variables, research methods, setting/context, findings, research limitations and recommendations.

2.6 Summarizing and reporting results

At this stage, the researcher presents and interprets the results of the extraction thematically with reference to the questions and research objectives using qualitative interpretation (31). This analysis is used to identify and analyze the categorization found so that it develops into a conceptual theme regarding academic boredom.

3 Result

From the search results using three online databases, 2362 articles. After deleting the same article from the three databases, 2024 articles were obtained, which were then identified based on the title and abstract so that 211 articles were found. Of the 211 articles, 91 articles were selected to be seen and checked again for the full paper and adjusted to the criteria, namely empirical research and literature review; the subjects were students in the context of education and not online learning, so ten articles were found included in the study. In Table 2, there are the ten selected articles. Detailed results can be seen in Table 2.

Table 2. Identity of the include article (n 10)

No.	Authors	Years	Title
1	Ekatushabe, M.; Kwarikunda, D.; Muwonge, C.M.; Ssenyonga, J.; Schiefele, U. (5)	2021	Relations between perceived Teacher's autonomy support, cognitive appraisals and boredom in physics learning among lower secondary school students
2	Shen, L.; Wu, X.; Zhen, R.; Zhou, X. (32)	2021	Post-Traumatic Stress Disorder, Mobile Phone Dependence, and Academic Boredom in Adolescents During the COVID-19 Pandemic
3	Radeljić, M.; Selimović, H.; Opić, S.; Mulaosmanović, N.; Selimović, Z. (33)	2020	The Impact of Creative Teaching Approach on Reducing Boredom in the Teaching Process
4	Dragoslavić, M.; Bilić, V. (34)	2021	Adolescents' academic boredom as a predictor of peer violence
5	Schwartze, MM; Frenzel, AC; Goetz, T; Pekrun, R; Reck, C; Marx, AKG; Fiedler, D. (1)	2021	Boredom Makes Me Sick: Adolescents' Boredom Trajectories and Their Health-Related Quality of Life
6	Zhao, Y.; Yang, L. (12)	2022	Examining the relationship between perceived teacher support and students' academic engagement in foreign language learning: Enjoyment and boredom as mediators
7	Schwartze, MM; Frenzel, AC; Goetz, T; Marx, AKG; Reck, C; Pekrun, R; Fiedler, D. (13)	2020	Excessive boredom among adolescents: A comparison between low and high achievers
8	Weybright, EH; Schulenberg, J; Caldwell, LL. (7)	2020	More Bored Today Than Yesterday? National Trends in Adolescent Boredom From 2008 to 2017
9	Spoto, A; Iannattone, S; Valentini, P; Raffagnato, A; Miscioscia, M; Gatta, M. (35)	2020	Boredom in Adolescence: Validation of the Italian Version of the Multidimensional State Boredom Scale (MSBS) in Adolescents
10	Morales-Sanchez, V; Hernandez-Martos, J; Reigal, RE; Morillo-Baro, JP; Caballero-Cerban, M; Hernandez-Mendo, A. (36)	2021	Physical Self-Concept and Motor Self-Efficacy Are Related to Satisfaction/ Enjoyment and Boredom in Physical Education Classes

The articles that have been identified and analyzed in this scoping review amount to 10 articles out of 2,362 articles collected from 3 (three) data-based online. The ten articles were published between 2020-2022, with the majority published in 2021 totalling six articles, those published in 2020 totalling three articles and published in 2022 totalling 1 article. The demographics of the research sample are spread across Asia, namely in China (n = 2) (12,32); Africa in Uganda (n = 1) (5); Europe Namely in Germany (n = 2) (1,13), Italy (n = 1) (35), Republic of Croatia (n = 1) (34), Malaga (n = 1) (36), and Imotski (n = 1) (33); United States (n = 1) (7) (Figure. 2).

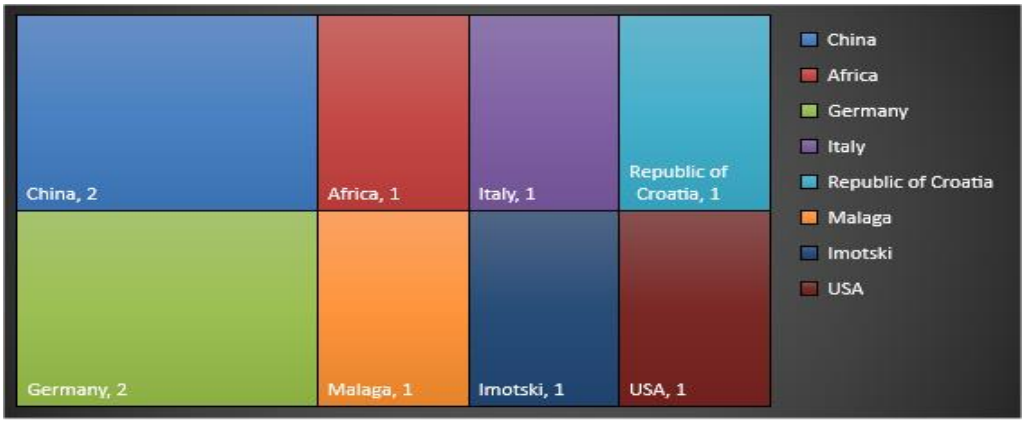

Figure 2. Distribtion of research on academic boredom

4 Discussion

4.1 The theoretical framework used to study academic boredom

From 10 articles selected for this scoping review, it was found that there are at least six theoretical frameworks used to describe academic boredom in students (Table 2). However, of the six theoretical frameworks used to explain academic boredom, the most widely used is the Control Value Theory of Achievement Emotions (CVTAE) (1,5,12,33,34). Apart from CVTAE, the results of the literature review also show that the theoretical framework used to describe boredom in students is job resources and job demands, which focus on discussing that the emergence of boredom in students is caused because students have low physical and psychological resources while high academic demands (32,37), but this theory is rarely used to describe boredom because it is more specific to the industrial realm. Likewise, the regulatory theory of boredom states that boredom appears due to unsatisfactory, uninteresting and meaningless situations and, at the same time, creates motivation to pursue new goals that are more challenging, meaningful and interesting (38). This theory focuses more on explaining the meaning of boredom and aspects of boredom but does not describe the flow of boredom, so this theory is only used to explain the concept of boredom, not to explain the factors that cause boredom as used by Weybright et al. (7) to describe the prevalence of academic boredom in the United States.

The transtheoretical, which collaborates between psychodynamic theory, arousal theory, attention theory, and existential theory, says that academic boredom is caused by an unfulfilled desire to engage in unsatisfactory activities (39). This theory divides boredom into two categories, namely desire and cognitive (39). On the desired aspect, bored individuals experience anxiety, lethargy and low arousal, while on the cognitive aspect, individuals experience the feeling that time is running slowly and the inability to focus. However, transtheoretical only explains the theoretical construct level of boredom and its aspects and does not explain the antecedents of the emergence of academic boredom (35). In Figure 3. the CVTAE theory is widely used by researchers to explain the causes of academic boredom because CVTAE is a comprehensive theory in explaining academic boredom and is able to describe the flow of boredom in students, which is part of the achievement emotion or the emotion that accompanies the learning process (40,41).

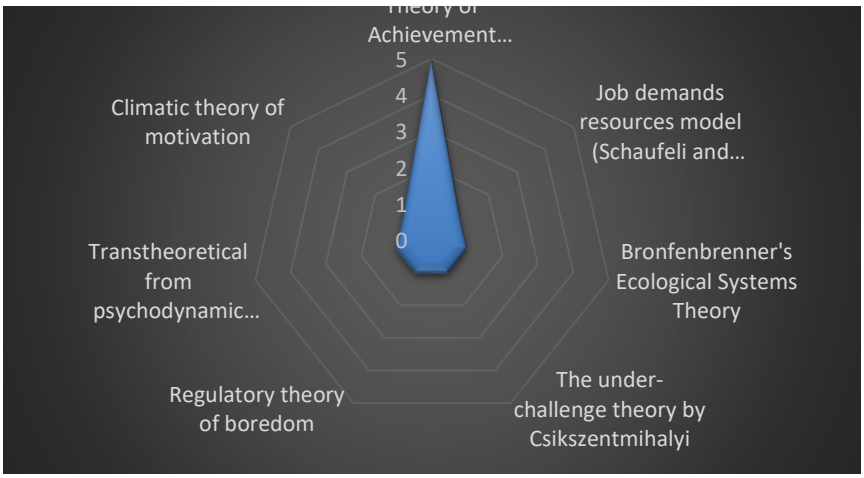

Figure 3. Theoretical framework on academic boredom

4.2 Antecedents and consequences of academic boredom in students

The results of the scoping review of the ten articles show that there are several antecedent factors that influence the emergence of academic boredom and the consequences of experiencing academic boredom. According to the results of a review of the antecedent factors that influence the level of academic boredom, it is divided into several factors, including 1) Demographic factors consisting of gender, age and grade level (7,34). 2) Psychological factors, which consist of cognitive appraisals (self-efficacy and task values) (5), Post Traumatic Stress Disorder (PTSD) due to Covid 19, dependence on mobile phones (32), school satisfaction (34), achievement, personality, emotional regulation (13), motor self-efficacy, physical competence, physical strength and self-confidence (36). 3) External factors from students, consisting of perceived teacher support (13), teacher autonomy support (5), and teacher teaching creativity (33).

However, from these various factors, the research conducted is still sporadic, and there are still few who combine various demographic, psychological and external factors to become part of one integrated study in the form of the academic boredom model. The results of the scoping

review also found it interesting that self-efficacy, apart from being an antecedent variable (36), self-efficacy is also a mediator variable for the relationship between the independent variables and academic boredom (5). So, there is a need for further research to prove whether self-efficacy is a mediator variable strong when associated with other antecedents. The antecedent factors studied among students have not touched on various other variables that might have a major influence on academic boredom as studies on student or worker subjects, such as academic buoyancy (42), coping strategies (43), teachers' immediacy and professional commitments (16), Self-compassion (44), teacher enthusiasm (45), and psychological capital (46).

The results of the analysis also found that academic boredom had a negative impact on students. The results of the analysis show that academic boredom causes victimization and violence against peers, both direct violence and cyberspace (social media) (34), reduces health-related quality of life (HRQoL) (1), reduces academic engagement (12), affect emotional symptoms, conduct problems, hyperactivity, and peer problems (13). However, when examined in other studies with subjects not from students but from students and workers, it turns out that the consequences caused by academic boredom are more numerous, such as learning satisfaction (47), low academic achievement (4,48), experiencing academic burnout (49), even to the point of making students drop out of school or drop out (50).

4.3 Characteristics of the study of academic boredom

The results of the scoping review of the research conducted were mostly articles using the Quantitative cross-sectional survey design method totalling seven articles (1,5,7,12,13,32,36); 1 article used a combination of quantitative cross-sectional and psychometrics (35); 1 article used the randomized experiment method (33) and 1 article used the quasi-experiment method (34). The quantitative cross-sectional research method with a survey approach in data collection is carried out in order to see a general picture and is used to generalize the findings regarding academic boredom (51). However, this method has the disadvantage that the survey method through self-report conducted by research subjects contains bias, which is influenced by individual bias, social desirability and failure to understand questions (35,52).

Quantitative cross-sectional and psychometric methods are used for the development of measurement tools; the method used in this study emphasizes construct validity in the form of exploratory factor analysis and confirmatory factor analysis to prove that the item is in accordance with the theoretical construct built (35,53). For experimental methods, both quasi-experiments and randomized experiments are research approach methods that try to prove the effectiveness of a treatment. What distinguishes it from a quasi-experiment is that a randomized experiment places more emphasis on its goal, namely to establish the existence of a causal relationship between two variables with several requirements that must be met, including 1) Manipulation (the researcher manipulates one variable through a treatment), 2) Measurement (taking measurements in the experimental group and the control group), 3) Comparison (comparing the scores of the experimental group with the comparison group), 4) Control (All other variables are controlled to ensure they do not affect the two variables examined) (51).

4.4 The research instrument used to uncover academic boredom

Based on the scoping review conducted, the instruments used from the ten selected scientific articles varied; some were subject-specific, some used part of the full scale, some only single items and some used the complete scale. All of the instruments used have good reliability based on psychometric concepts (53). With regard to research instruments that are specific because

the research conducted focuses on certain subjects, the instruments used lead to certain objects of study, such as: 1) ISC-S Inventory "Assessment of Boredom In Teaching Process" adapted by Radeljić et al. (33) refers to on the scale developed by Milijević in 1984; 2) the scale adapted by Ekatushabe et al. (5) from the 11-item Learning-Related Boredom Scale (LRBS; $\alpha = .82$) developed by Pekrun; 3) Scale of Boredom in Class developed by Trogrlić & Sorić adapted by Dragoslavić and Bilić (34) which consists of 26 items with experience during class and added four items regarding the use of digital devices so that a total of 30 items with Reliability alpha cronbach 0.945; 4) The Sport Satisfaction Instrument (SSI) is used to see enjoyment/satisfaction and Boredom (36).

The scales that are sub-sections of the full scale include: 1) the scale used by Ekatushabe et al. (5) which refers to the subscale of the Academic Emotions Questionnaire, consisting of 11 items with five answer choices (Cronbach's alpha = 0.94); 2) The scale used by Ekatushabe et al., Schwartze et al. and Zhao et al. (1,5,12,13) by taking the subscale of Achievement Emotions Questionnaire-Mathematics (AEQ-M) (54). There are also researchers who use 1 item or single item (7), and the use of a full-scale adaptation is carried out by Spoto et al. (35) who adapted the Multidimensional State Boredom Scale (MSBS) scale by Fahlman et al. (39) which consists of 29 items divided into five factors: 1. Internalizing aspects (INT): items 8, 13, 15, 24, 29; 2. Time perception (TP): items 1, 6, 11, 18, 26; 3. High arousal (HA): items 5, 12, 14, 21, 28; 4. Intention (INA): items 3, 16, 20; 5. Disengagement (DIS): items 7, 9, 10, 19, 22 and Cronbach's alpha reliability at a total score of 0.94, and the range of each factor is 0.80-0.88. In addition, it also has evidence that MSBS has construct validity, which complements the results of analysis with EFA and CFA in a sample of adolescents (35). Of these various instruments, MSBS is an instrument that can more comprehensively describe academic boredom in adolescents because this scale can identify boredom states and boredom predispositions simultaneously (35,39).

The results of the scoping review found several limitations in the studies that have been conducted, such as the research method, which only uses surveys based on self-reports from research subjects, so there are many biases both originating from individuals and due to social desirability. In addition, the subject of research that has been conducted is limited to a few countries and, even then, uses various measuring instruments, so it cannot be generalized to countries where there may not be much research on academic boredom. The theoretical concepts used in various studies come from various kinds, although the latest studies use more of the CVTEA theoretical framework from Pekrun (40) because they are seen as more able to explain the phenomenon of academic boredom and the antecedent variables used are still limited, especially in junior high school student settings.

5 Conclusion

From the scoping review that has been carried out regarding academic boredom, it can be concluded that research on academic boredom has been carried out on various continents, such as Asia, Africa, Europe and America, although it has not yet covered many countries in the world. This indicates that the phenomenon of academic boredom has become a concern for many researchers. The studies that have been carried out use a lot of quantitative methods, especially cross-sectional with a survey approach; although this research model is widely used because of its effectiveness and generalization, research with this model has weaknesses that need to be overcome. The theoretical concept that is widely used by researchers to study academic boredom is the control-value theory achievement emotion (CVTAE) from Pekrun

because this concept can see the flow of boredom starting from its antecedents, processes and consequences. In the context of education, especially the latest research, it is necessary to build a more comprehensive model involving various variables that can affect academic boredom. The research instruments regarding academic boredom used in previous studies varied widely, but in order to obtain optimal results for examining academic boredom, it is better to consider a comprehensive concept that can measure boredom states and the tendency for students to experience boredom.

The implication for further research is to involve various research approaches in order to reduce the bias of self-reporting. In addition, the use of a theoretical framework in studying academic boredom needs to be a concern, and the use of antecedent variables that have not been widely studied in junior or senior high school settings needs to be involved in order to find an appropriate model to reduce student boredom. Future research also needs to study academic boredom in contexts that benefit countries and educational settings that have not been touched by much previous research.

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